



STATE OF HAWAII
DEPARTMENT OF EDUCATION

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OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

FILE COPY

December 20, 2013

JAN 08 2014

TO: Mr. Herman Tuiolosega, Acting Director
Office of Environmental Quality Control
Department of Health

FROM: *for* Duane Y. Kashiwai, Public Works Administration *DKS*
Facilities Development Branch
Department of Education

SUBJECT: Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) for the Moloka'i High School, Science Facility Upgrades at Ho'olehua *ahupua'a*, Island of Moloka'i, TMK: [2] 5-2-015:001 por.

The State of Hawai'i, Department of Education hereby transmits the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) for the **Moloka'i High School Science Facility Upgrades (DOE Job No. Q57000-13)**, Ho'olehua *ahupua'a*, Island of Moloka'i, TMK: [2] 5-2-015:001 por. for publication in the next available edition of *The Environmental Notice*.

Enclosed is a completed OEQC Publication Form, two copies of the DEA-AFONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word on the same CD.

If there are any questions, please contact William George, Project Coordinator, at (808) 586-0465.

DYK:bl

Enclosure

c. William George, Project Management Section
Leslie Kurisaki, Kimura International

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

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**AGENCY ACTIONS
SECTION 343-5(B), HRS
PUBLICATION FORM (JULY 2012 REVISION)**

Project Name: Moloka'i High School Science Facility Upgrades

Island: Moloka'i

District: Moloka'i District

TMK: 5-2-015:001 (por)

Permits: Land Use Special Permit (SUP2), Conditional Permit (CP)

Proposing/Determination Agency: Department of Education (DOE)

Office of School Facilities and Support Services

Facilities Development Branch

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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

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Status (check one only):

X_DEA-AFONSI

Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqc@doh.hawaii.gov); a 30-day comment period ensues upon publication in the periodic bulletin.

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 oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

FEA-EISPN

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Act 172-12 EISPN

Submit the proposing agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqc@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.

DEIS

The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.

FEIS

The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

___ Section 11-200-23
Determination

The accepting authority simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the proposing agency. No comment period ensues upon publication in the periodic bulletin.

___ Section 11-200-27
Determination

The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.

___ Withdrawal (explain)

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

The State Department of Education (DOE) proposes to construct a building with two science classroom labs at Moloka'i High School. Molokai High School is the island's only high school, with an enrollment of 340 students in grades 9 through 12. The project is needed to provide the school with proper science classroom labs meeting Hawai'i State educational standards. Since the separation of Moloka'i High School and Moloka'i Middle School in 2004, the high school has been without laboratory classrooms and instead uses two general purpose classrooms for all science instruction. These classrooms lack basic equipment such as individual lab tables, sinks, gas and water connections. As a result, many lab procedures cannot be conducted or are done at a single demonstration station. In other instances, students must watch virtual lab experiments on their computers, a passive learning method that is less effective than active, hands-on education.

The project site fronts Farrington Avenue, near the entry to the high school. The rectangular-shaped building will displace an existing movable trailer which houses student support offices. The trailer will be relocated nearby. About half of the new building will extend into an area that is currently overgrown and unused.

Each of the two new classroom labs will be approximately 1,730 square feet (SF) in size, with desk seating and eight lab stations located around the periphery of the room. Between the two classrooms, there will be a shared teacher prep room, restroom, and storage spaces. Total building area is approximately 4,500 SF.

The project may also include a small wind turbine as an educational pilot project. The wind turbine will provide a renewable source of energy for the new classroom building. It will be mounted on a tower between 45 and 65 feet high and be located northwest of (behind) the building. In this area, the project will also provide an 8' x 8' rainwater harvest tank. Both the wind turbine and the rainwater tank will support the school's environmental science education and sustainability improvements. A catchment basin next to the building can be used by students as a dry *lo'i* garden.

Construction of the new science classroom building is scheduled to begin in late 2014 and be completed in about 12 months.

Draft Environmental Assessment

MOLOKAI HIGH SCHOOL SCIENCE FACILITY UPGRADES

DOE Job No. Q57000-13



State of Hawaii
Department of Education

December 2013

Draft Environmental Assessment

MOLOKAI HIGH SCHOOL SCIENCE FACILITY UPGRADES

DOE Job No. Q57000-13



Prepared for:
State of Hawaii
Department of Education



Prepared by:
Kimura International

December 2013

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LIST OF ACRONYMS

ADA	Americans with Disabilities Act
AIS	Archaeological Inventory Survey
ALISH	Agricultural Lands of Importance in the State of Hawai'i
BMP	Best Management Practices

CDP	Census data place
CSH	Cultural Surveys Hawai'i
CZM	Coastal Zone Management
DAGS	Department of Accounting and General Services
dB	decibels
dBA	A-weighted sound level
DHHL	Department of Hawaiian Home Lands
DLNR	Department of Land & Natural Resources
DOE	Department of Education
DOH	Department of Health
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
HAR	Hawai'i Administrative Rules
HRS	Hawai'i Revised Statutes
HWT	horizontal-type wind turbine
IWS	individual wastewater system
MECO	Maui Electric Company
mgd	million gallons per day
MSL	mean sea level
NPDES	National Pollutant Discharge Elimination System
PISA	Program for International Student Assessment
SHPD	State Historic Preservation Division
SMA	Special Management Area
STEM	science, technology, engineering and math
TMK	tax map key

Project Summary

Item	Description
Project Name	Moloka'i High School Science Facility Upgrades DOE Job No. Q57000-13
Proposing Agency	State of Hawai'i, Department of Education (DOE)
Accepting Agency	State of Hawai'i, Department of Education
Determination	Finding of No Significant Impact (FONSI)
Location	2140 Farrington Avenue, Ho'olehua, Moloka'i, Hawai'i
Tax Map Key	5-2-015:001
Existing Uses	Undeveloped grassed area on school campus
Landowner	State of Hawai'i (Department of Education)
Need for Project	The project is needed to provide Moloka'i High School with proper science classroom labs that meet Hawai'i State educational standards. Currently, the high school is using two general purpose classrooms for all science instruction. These classrooms lack the appropriate facilities and equipment such as individual lab tables, sinks, gas and water connections, etc. Because of this, students often cannot perform hands-on activities and must watch video simulations instead.
Project Description	<p>Construct a single structure that contains two science classroom labs, each approximately 1,730 square feet (SF) in size, with a shared teacher prep/storeroom of 300 SF between them. Each classroom lab will have desk seating and includes eight student lab stations located around the periphery of the room. Shared support space includes restroom, janitor's closet, storage and recycling area. Total building area is approximately 4,500 SF.</p> <p>The project may also include a small wind turbine as an educational pilot project. The wind turbine will provide a renewable source of energy for the new classroom building. It will be mounted on a tower between 45 and 65 feet high and be located to the northwest of the new building. In this area, the project will also provide a 8' x 8' rainwater harvest tank. Both the wind turbine and the rainwater tank support the school's environmental science education and sustainability improvements. A catchment basin next to the building can be used by the school as a dry lo'i garden.</p>
Flood Insurance Rate Map	Zone X
State Land Use	Urban and Agriculture
Zoning	Agriculture, Interim District
Special Management Area (SMA)	Project is not within the SMA

1 PROJECT DESCRIPTION

1.1 INTRODUCTION

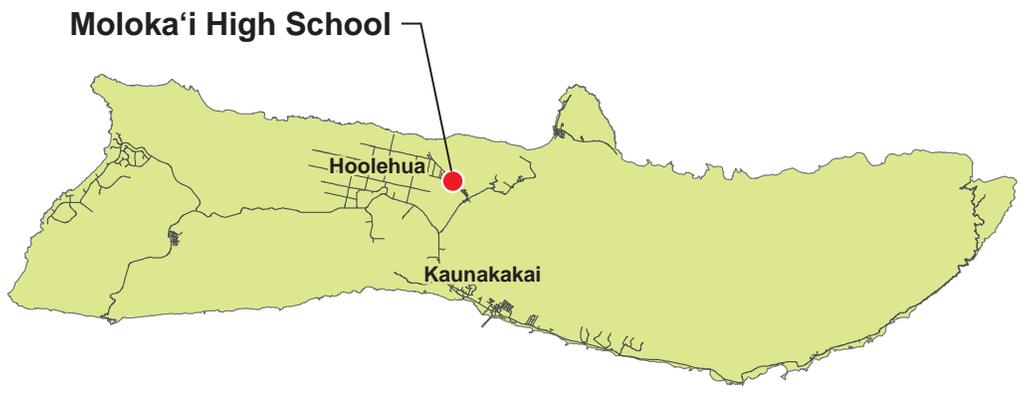
The State of Hawai'i Department of Education (DOE) proposes Moloka'i High School Science Facility Upgrades, DOE Job. No. Q57000-13. This project will construct a new science classroom building at Moloka'i High School on the island of Moloka'i. This Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, Hawai'i Revised Statutes (HRS), Act 241, Session Laws of Hawai'i (SLH) 1992, and Chapter 200 of Title 11, Department of Health (DOH) Administrative rules, "Environmental Impact Statement Rules."

1.2 PROJECT SITE

Moloka'i High School is the only high school on the Island of Moloka'i. The school is located at 2140 Farrington Ave, in the Hawaiian Homestead community of Ho'olehua, approximately seven miles northwest (mauka) of Kaunakakai, the island's main town (Figure 1). Enrollment at the high school is approximately 340 students in grades 9 through 12. Students from four elementary schools and one middle school feed into this one public high school.

Moloka'i High School occupies two State-owned parcels, identified as TMK 5-2-015:001 and 5-2-007:001, which are separated by Farrington Avenue. Both parcels were conveyed to the State Department of Education (DOE) via Executive Order in 2012 as part of a three-way land exchange between the federal government, the Department of Hawaiian Home Lands, and the State. The proposed science classroom building will be constructed on TMK 5-2-015:001, the larger parcel on the north side of Farrington Avenue. This parcel contains all the high school buildings, as well as the Moloka'i Middle School campus. The other parcel to the south of Farrington Avenue contains the high school's athletic fields. The subject project site fronts Farrington Avenue, at the entry to the high school campus. It is located to the west of the main parking lot and administration building.

About half of the rectangular-shaped science building will be sited on a grassy area currently occupied by a movable trailer building. This movable trailer building will be relocated. The other, western half of the new classroom building will extend into an overgrown area that is not currently used, but has been designated for campus expansion.



Island of Moloka'i



Figure 1
LOCATION MAP
Moloka'i High School Science Facility Upgrades

1.3 BACKGROUND AND NEED FOR PROJECT

The project is needed to provide Moloka'i High School with proper science classroom labs meeting Hawai'i State educational standards, and to adequately prepare students for college or post-high school employment. This directly supports a national and statewide emphasis on improving science, technology, engineering and math (STEM) education at the K-12 level.

The Program for International Student Assessment (PISA) is an international assessment that collects test results from 65 countries each year, and measures the reading, mathematics, and science literacy of students around the world. This assessment shows that U.S. students continue to decline in a global ranking in science and math. The most recent PISA assessment, in 2012, showed American 15-year olds ranked below average in math among the world's most-developed countries. In science, 22 education systems scored higher than the U.S. average. This represents a decline since 2009, when 18 which scored higher than the U.S.

At the national level, President Barack Obama has called on schools throughout the U.S. to strengthen their STEM programs to equip students with the skills they need to land jobs in those fields and ultimately bolster the country's economy. At the State level, the Hawai'i Department of Education (DOE) has identified specific STEM goals including revitalizing the teaching and learning of science and math, increasing the number of public school graduates who pursue or enter STEM-related careers or attain college degrees in STEM fields, and increasing STEM learning opportunities for all students. The State's \$75 million Race to the Top grant also requires the Hawaii Department of Education to increase STEM Proficiency statewide (Honolulu Civil Beat, May 8, 2013)

Moloka'i High School currently lacks dedicated science lab classrooms, conducting all science education in two general purpose classrooms. Up until the 2004-2005 school year, students in grades 7 through 12 on Moloka'i were consolidated in a single "Moloka'i High and Intermediate School" occupying a single campus at the current location in Ho'olehua. In 2004, the school was split into two distinct and independent schools--a high school, serving grades 9 through 12, and a middle school with grades 7 and 8. The upper, mauka portion of the campus became the middle school, and the makai portion, closer to Farrington Avenue, became the high school. Separate administrative offices were established and access to the middle school was changed to Lihi Pali Avenue. Both schools continued to share the existing cafeteria, Building F and library Building G.

With the physical, administrative, and operational separation of the two schools, existing science labs became part of the middle school, and were no longer part of the high school campus. Since then, the high school has used two general classrooms located in Building A, adjacent to the administration building. These two classrooms are used for all biology/life science, environmental science, physical science, and chemistry classes.

The classrooms currently used for science instruction were designed as standard classrooms, and therefore do not meet DOE standards for science lab classrooms. In addition to being too small, the classrooms lack the proper layout and equipment meeting basic science instruction standards.

For example, the rooms do not have lab work tables or stations, or enough storage cabinets. The students utilize standard height rectangular tables for their lab work and experiments. The classrooms lack adequate gas, electrical and water outlets for needed equipment, and no built in safety equipment such as fume hoods or eyewash stations. Each classroom room has only one single sink which is shared by the entire class.

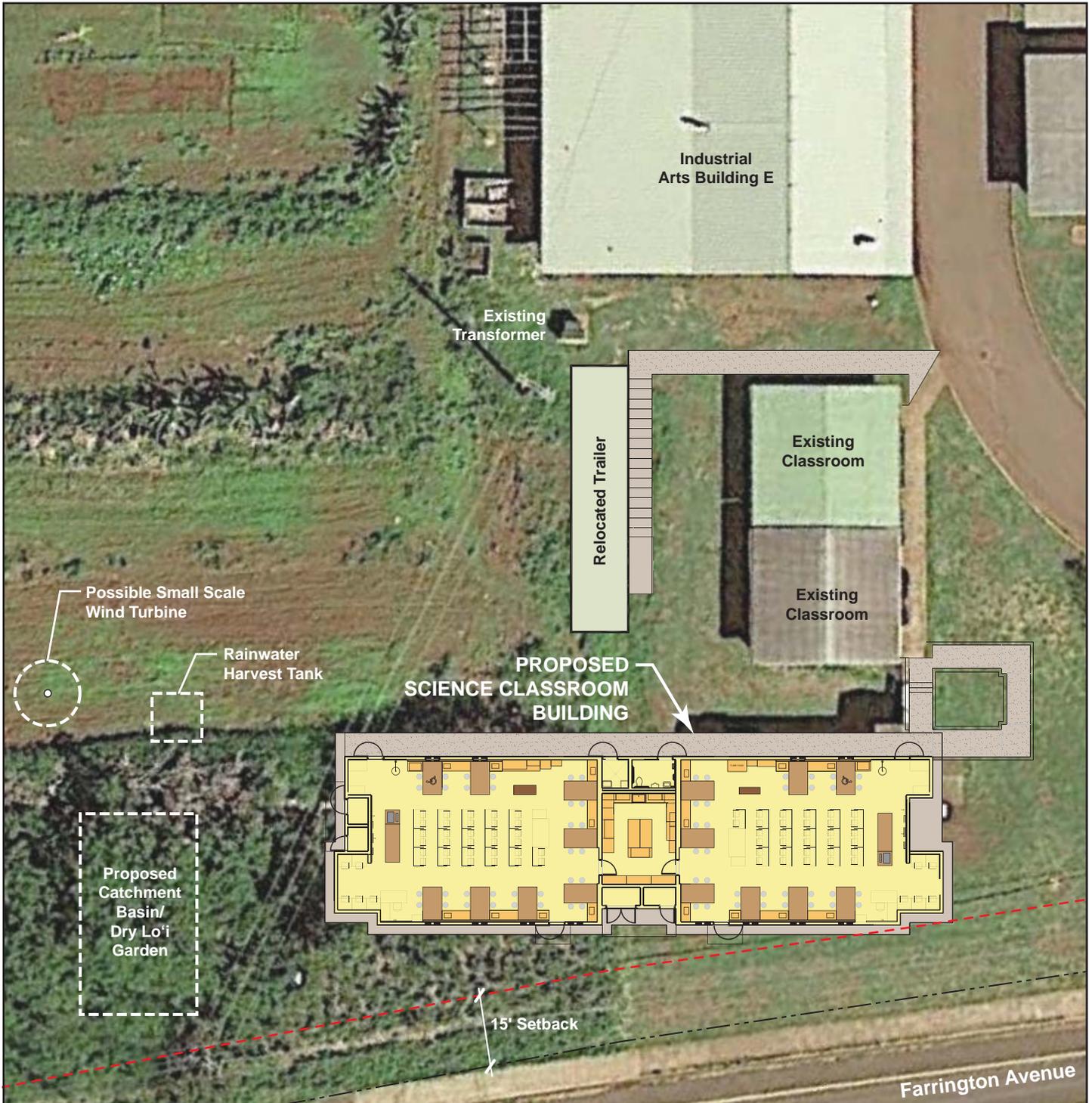
Due to the lack of basic lab furniture and equipment, many lab procedures cannot be conducted, or at best, can only be implemented at a single station. In other instances, students must watch virtual lab procedures or experiments on their computers. Although students are able to observe a third party demonstration, this passive learning method is far less effective than active, hands-on education. The growing movement for enhanced STEM education embraces an educational philosophy involving hands-on, project based learning. Research has shown that with hands-on learning, students are more interested and engaged, better retain what is taught, and are challenged to develop collaborative skills and team work. Through trial and error, they are also able to develop their critical thinking and problem solving skills.

Despite the limitations in the physical facilities, Moloka'i High School retains a strong commitment to science, technology, engineering and math (STEM) education. This was evident in the school's strong showing at the 54th annual Maui Schools' Science and Engineering Fair held in January 2013. Despite the school's small size, three of Maui County's top 10 projects advancing to the state competition came from Moloka'i. Seven out of the 15 honorable mention winners were also from Moloka'i. Moloka'i High School science teachers were also honored at the 2013 Maui Science Fair for their outstanding efforts to support students in science, engineering and technology.

The proposed science classrooms will provide students at Moloka'i's only high school with the basic facilities needed for an adequate science education. The project supports the school's and the State's commitment to STEM education, and will ensure that the young people of Moloka'i are adequately prepared for college or careers after graduation. This investment will provide Moloka'i High School students with greater educational and employment opportunities throughout their lives.

1.4 PROJECT DESCRIPTION

The project involves the construction of two science classroom labs, each approximately 1,730 square feet (SF) in size, with a shared teacher prep/storeroom of 300 SF between them (Figure 2). Each classroom lab will accommodate desk seating and around the perimeter of the room, there will be eight lab stations, each accommodating up to four students. There will be a separate teacher demonstration table. Every lab station will include a sink and have access to water, gas, power and internet. The tables will be movable to provide flexibility in the classroom for various science and physics activities. Both labs will be designed as universal science labs, with one lab including a fume hood and other equipment for chemistry-related activities.



Source: CDS International

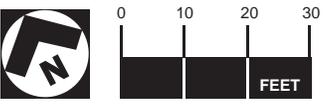


Figure 2
SCIENCE CLASSROOM BUILDING
Moloka'i High School Science Facility Upgrades

Between the two classrooms, there will be a shared teacher prep room and support spaces that include an accessible unisex restroom, janitor's closet, communications closet, PV/Electrical closet and a recycling, storage area. The building will be designed to be energy efficient through the use of natural daylighting, ventilation, and energy efficient lighting fixtures. An additive item is a rooftop photovoltaic system. The total program area is approx 4,500 SF.

The new building will be constructed adjacent to two existing classrooms. The project will construct an accessible sidewalk connecting the new classrooms to the existing classrooms. The eastern half of the project site is currently occupied by a temporary trailer that is used as offices for student support staff. The trailer and these functions will be relocated nearby. The western half of the site will be constructed on a vacant, uncleared area.

The project may also include a small wind turbine located northwest of (behind) the new classroom building. The wind turbine will serve as an educational pilot project for the school and provide a renewable source of energy for the new classroom building. A horizontal-type wind turbine (HWT) will be used, a type designed for residences and small commercial users. In order to limit visual impacts, the height will be limited to between 45 and 65 feet (top of tower). Use of a wind turbine combined with a the proposed roof-top photovoltaic system is expected to result in a "zero-energy" building, i.e., with zero net energy consumption and zero carbon emissions annually.

Another sustainable feature included in the project is an 8' x 8' rainwater harvest tank. Both the wind turbine and the rainwater tank support the school's environmental science education and sustainability improvements. A catchment basin next to the building can be used by students as a dry *lo'i* garden.

Construction of the new Moloka'i High School Science Classroom building is scheduled to begin in late 2014, and completed in about 12 months.

1.5 POSSIBLE ENVIRONMENTAL PERMITS AND APPROVALS

The following is a summary of environmental approvals and consultations that may be required for the proposed action. Chapter 4 includes a more detailed discussion of the project's consistency with federal, State and local land use plans, policies and controls.

Table 1-1: Possible Environmental Permits and Approvals

Approval/Consultation	Agency
State of Hawai'i	
Chapter 343 Hawai'i Revised Statutes <i>(Environmental Assessment)</i>	Department of Education (<i>accepting agency</i>)
HRS Chapter 6E review (<i>Historic</i>)	Department of Land and Natural Resources, State Historic Preservation Division
Construction plans approval	Disability Communication Access Board
Maui County	
State Land Use Special Use Permit (SUP2) <i>(for area within State Agricultural District)</i>	Department of Planning (approved by Moloka'i Planning Commission and Maui County Council)
Conditional Permit (CP) <i>(for area zoned Interim District-agriculture)</i>	Department of Planning (approved by Moloka'i Planning Commission and Maui County Council)
Construction, grading, and trenching permits	Department of Public Works, Development Services Administration
Construction plan approval	Development Services Administration

2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter discusses the alternatives that were considered throughout the development of the project. They include 1) no action, 2) alternative actions to constructing new science classrooms; 3) alternative sites for a science classroom building; and 4) alternative designs.

2.1 NO ACTION ALTERNATIVE

The No-Action alternative would continue the status quo, and not provide any upgrades to the science facilities at Moloka'i High School. The school would continue to utilize the two general purpose classrooms in Building A for science education. Molokai High School students would continue to use substandard facilities that fail to meet minimum standards for science education. This alternative is unacceptable.

2.2 SHARED USE OF MIDDLE SCHOOL'S SCIENCE CLASSROOMS

Shared use of science classrooms with the middle school was originally considered as an option when the two schools separated in 2004 and the existing science labs became part of middle school campus. This alternative was not pursued because it would be extremely inconvenient to both students and teachers. Science teachers from each school would need to coordinate schedules and share classroom space. High school students would have to walk through and enter the middle school campus. This arrangement is at odds with the original intent of separating the middle and high school students, which was to create two schools, each with a unique identity and an appropriate learning environment for its target age group. Shared use of the existing science classrooms is not a viable alternative.

2.3 RENOVATE THE GENERAL PURPOSE CLASSROOMS

Rather than constructing two new science classrooms, this alternative would seek to renovate the existing science classrooms in Building A to meet the requirements of modern science labs. In order to meet minimum science classroom standards, the renovation would need to add built in lab tables, sinks, cabinets and equipment, including utility connections for laboratory equipment. Because this is an existing older classroom building, it would be extremely costly to retrofit the gas, water, electrical and ventilation systems for two individual classrooms. Moreover, during the renovation, ongoing science classes would need to be temporarily relocated elsewhere. There is little available swing space within the existing campus. During construction, the close proximity of the rooms to other classrooms and the administrative offices would also cause great disruption due to noise, dust, and foot traffic. After considering the extent and cost of the improvements that would be required, the renovation option was discarded.

2.4 ALTERNATIVE SITES ON CAMPUS

Several alternative sites within the high school campus were considered for the new science classrooms. The alternative sites are shown in Figure 3. Given that the existing high school campus is fully developed, there is little room between buildings for “infill” development. As such, most of the alternatives involve displacing existing temporary structures or uses.

2.4.1 Site 1: Portables P-7 and P-8

As shown in Figure 3, this option would construct the science classroom on the current site of portable buildings P-7 and P-8. These structures located behind the Physical Education building, are used for the school’s Hawaiian integrative education classes. The surrounding area also includes a native Hawaiian plant garden that is used as the backdrop for the school’s graduation ceremonies.

This site was dismissed for several reasons. In addition to the classrooms, the immediate area contains well-established gardens and grounds, a source of great pride within the school community. These uses would be displaced, and a suitable relocation site would need to be found for the portable buildings and activities. Another disadvantage is that construction in this area, which is close to other classrooms, would be very disruptive.

2.4.2 Site 2: Portables P-1 and P-2

This alternative would construct the building on the site currently occupied by portables P-1 and P-2, between Classroom buildings B and C. After further examination, this area was determined to be too tight for a new classroom building. Buildings would be very close together, resulting in



Portables P1 and P2

a loss of natural ventilation and air circulation, and diminishing the open ambiance of the campus. Moreover, the close proximity to other classrooms would cause severe disruption, noise and dust impacts during construction. Movement of construction vehicles and staging of materials, and maintaining the safety of students during construction would be challenging.

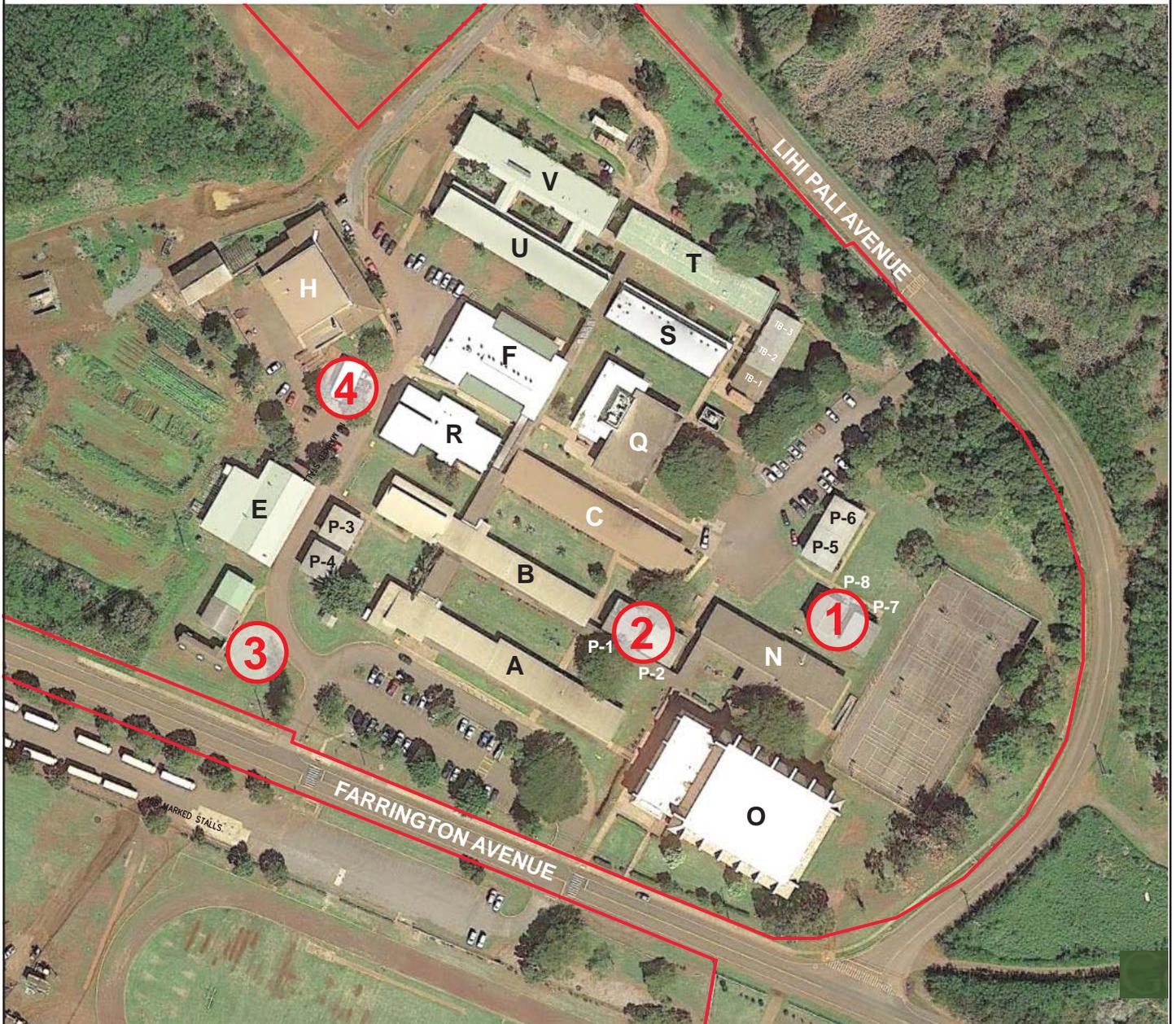


Figure 3
ALTERNATIVE SITES
Moloka'i High School Science Facility Upgrades

2.4.3 Site 3: Fronting Farrington Avenue Near P-9, P1-3 and P-14 (Preferred Site)

Site 3, the preferred site, is a grassy area at the front of the school facing Farrington Avenue. It is next to two small buildings which house classrooms and several administrative offices. A portion of the site is occupied by a moveable trailer building, which is occupied by student support offices. The trailer building will be relocated to a site nearby.



Preferred site, located on Farrington Avenue at the front of the school.

At this location, the new classroom building needs to be set back at least 15 feet from Farrington Avenue in accordance with Maui County zoning requirements. Although it is near Farrington Avenue and away from other classrooms, the project will include an accessible walkway connection to Building A. This location will make construction vehicle access easier. There will be less disruption to students during construction, and there is ample staging area for materials and equipment. The site also has the advantage of high public visibility, enabling the school to showcase the new facility and highlight its commitment to science, technology, engineering and math (STEM) education.



The movable trailer building which houses administrative offices will be relocated nearby.

2.4.4 Site 4: Parking Lot

Site 4 was a portion of an existing parking lot, located behind the Industrial Arts Building E and near Building H, Vocational Shop. The advantage of this location is that no existing buildings would be displaced, although storage containers would need to be relocated and the lost parking



Site 4 is on an existing parking lot behind the Industrial Arts building.

spaces replaced. The primary disadvantage is that this site is somewhat outside the campus core. Its location away from Farrington Avenue, toward the back of the school, lacks public visibility. This location does not give the new science facility the importance and prominence it should have.

Site 4 is on an existing parking lot

2.4.5 Evaluation of Alternative Sites on Campus

After evaluating the four alternative sites, Site 3 was selected for the new science building. This site is mostly vacant, and does not displace any existing classrooms. The trailer can be easily relocated nearby. No demolition is required. Because it is not in the middle of the school campus, construction will be far less disruptive than other locations. There is vacant land nearby where construction equipment and materials can be staged without endangering students or disrupting classes. Moreover, the site occupies a prominent place at the front of the school, allowing Molokai High School to showcase its new science classroom, demonstrate the school's commitment to STEM education, and foster student and community pride.

2.4.6 Alternative Site for the Possible Wind Turbine

The project also considered an alternative site for the possible wind turbine. Initially, the wind turbine was proposed on a site to the east of the classroom building, fronting Farrington Avenue. After consultation with the Maui County Planning Department, this site was dropped in favor of the proposed site northwest of (behind) the building. The original site was in the State Urban District and zoned "Interim District" by the County. As such, height of the structure would be limited to 50 feet, which could provide less design flexibility. The proposed site, by contrast, is within the State Agricultural District and zoned Agriculture, which does not have this same height limitation. The new site is also set back further from Farrington Avenue, which could minimize concerns about the visual impact.

2.5 ALTERNATIVE DESIGNS FOR SCIENCE CLASSROOM BUILDING

Project designers considered various alternatives in designing the proposed science classroom building at the subject site. Several early schemes explored ways to fit the classroom building in the space vacated by the trailer. Options that did not require demolition of the existing portables were preferred to save costs. Maintaining the required 15-foot setback from Farrington Avenue also posed a challenge.

Designers also evaluated a number of configurations of the two classrooms and support spaces, and these alternatives were presented to the school for feedback and selection. The basic programming criteria provided by the school included two classrooms, each with a maximum student capacity of 32 students, and accompanying storage and support space.

At a basic level, the two commonly used models for science rooms are 1) separate laboratory and classroom space and 2) combination laboratory/classrooms. The designers decided on the latter, in order to provide greater flexibility in use as needs change over time. The designers also chose to include eight fixed workstations, each capable of accommodating four students, around the perimeter of the room, with separate desk seating in the center of the room. This arrangement is consistent with the DOE standard for science classrooms across the State. It provides the best use of space for the type of activities and provides the teacher with good visibility, improving classroom safety. Placing work stations around the perimeter also provides maximum efficiency

in utility connections, allowing adequate circulation space during lab activities and clear paths for egress. A single shared support space between the two classrooms provides an efficient support space that also encourages communication and collaboration among science faculty.

At the beginning of the design process, project architects held workshops with school staff to develop project design goals. These goals included development of a signature building that supports 21st century science education, is cost sensible, is low maintenance, provides visual security, and has a connection to the existing campus. Alternative design features were explored to meet these design goals. Because of the school's rural location, the designers sought to minimize operational and maintenance requirements through the use of natural ventilation, skylights, and other design features. Accessible walkways connecting the science building with adjacent classrooms were included to ensure that the building is integrated with the existing barrier-free pathway network for the whole campus. Sustainable features such as the wind turbine, water catchment system, and drainage basin that can be used by students as a dry *lo'i* reduce operating costs and support educational objectives.

3 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION

3.1 INTRODUCTION

This chapter describes the existing environment, potential project impacts and proposed mitigation. This chapter is organized by resource area, and is generally divided into 1) physical environment, 2) biological environment, 3) socio-economic environment, 4) utilities and infrastructure, 5) traffic, and 6) public services and facilities.

The discussion of environmental impacts includes both direct and indirect impacts. Direct impacts are those caused by the action and occur at the same place and time. Indirect effects may occur later in time or farther in distance, but are still reasonably foreseeable. The analysis in this chapter also identifies possible cumulative environmental impacts. Cumulative impacts are defined as the results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

3.2 PHYSICAL ENVIRONMENT

3.2.1 Location and Adjacent Land Uses

Moloka'i High School is located on State-owned land in Ho'olehua, in the central portion of the island. The school is approximately four miles east of the Moloka'i Airport and approximately seven miles northwest (mauka) of Kaunakakai. Immediately surrounding lands are owned by the Department of Hawaiian Homelands (DHHL), and are part of the Ho'olehua Homesteads. These lands include low-density residential homesteads and farm lots.

Adjacent land uses to the east are primarily ranch and pasture lands owned by Moloka'i Ranch and Kualapu'u Ranch. Figure 4 shows major landowners in the vicinity. Less than a mile east of the school on Farrington Avenue, Kualapu'u Town includes a small commercial strip with post office, market, restaurant and shops. The area in town is owned by smaller landowners. Crops grown in the general vicinity include watermelon, papaya, vegetables, and a coffee plantation owned by Coffees of Hawai'i. The Kualapu'u Elementary School is also located near the town center. The surrounding lands are generally level, but gradually rise in the mauka (north) direction.

3.2.2 Topography and Soils

Existing Conditions

Geology

The Island of Moloka'i is 38 miles long and 10 miles wide, and was built from two distinct shield volcanoes: the East Moloka'i volcano, also known as Wailau, and the much smaller West Moloka'i volcano, also known as Mauna Loa. Over time, lavas of the younger East Moloka'i

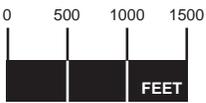
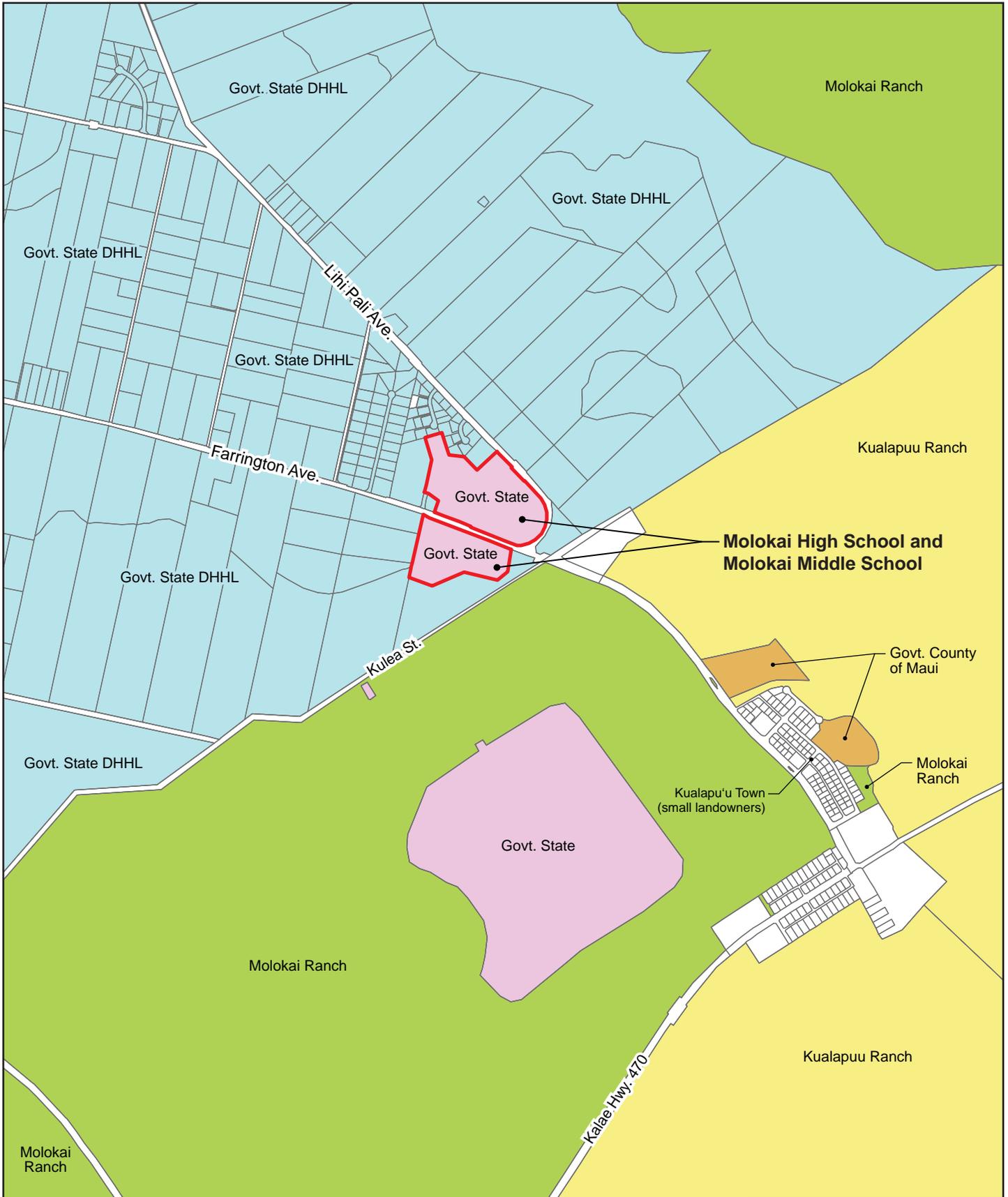


Figure 4
MAJOR LANDOWNERS
Molokai High School Science Facility Upgrades

volcano flowed into the eastern flanks of West Moloka'i, creating a wide isthmus and producing the elongated island. Flows from the much larger East Moloka'i shield volcano today comprise about two-thirds of Moloka'i.

Maunaloa (1,381 feet), the West Moloka'i volcano, is a dry flat-topped shield partly protected from east and northeast trade winds by East Moloka'i (5,000 feet). Without the orographic ability to catch clouds, West Moloka'i experiences little rainfall. By contrast, the island's rain falls primarily on East Moloka'i, up to 157 inches annually at the summit of Mt. Kamakou, Moloka'i's highest point (4,970 feet). The eastern side of the island is characterized by deep and lush valleys and high steep ridges.

Most of the north coast of East Moloka'i, from Halawa to Kalaupapa, has been sculpted in to sea cliffs. The sea cliffs of the North Shore Pali are the tallest in the world (3,600 to 3,900 feet).

Topography and Soils

The topography of the project site is fairly level, with elevation approximately 800 feet above mean sea level (MSL).

The soils underlying the high school site are in the Ho'olehua and Lahaina Soil Series. Soils under most of the high school and middle school campuses are characterized as Lahaina silty clay (LaB), 3 to 7 percent slopes (Figure 5).

The soils under the project site, the makai half of the high school and the athletic fields are Ho'olehua silty clay (HzA), 0 to 3 percent slopes. The Ho'olehua soil series consist of well drained soils in depressions and drainageways on the island of Moloka'i. The slopes are generally 15 percent or less. Permeability is moderate and runoff is slow. Erosion hazard is slight to moderate. This soil is used for pineapple and small areas are used for truck crops and pasture.

The University of Hawai'i's Land Study Bureau's (LSB) Detailed Land Classification evaluates the quality or productive capacity of certain lands for selected crops and overall agricultural suitability. Lands are given an overall agricultural productivity rating from A (very good) to E (not suitable). The majority of the Moloka'i High School and Middle School campus which is within the State's Urban land use district, has not been given a productivity rating. The western half of the project site, i.e., the area that is in the State Agricultural District, is classified by the LSB as Type D, of low productivity.

The Agricultural Lands of Importance in the State of Hawai'i (ALISH) map, prepared by the State Department of Agriculture in 1977, classifies agriculturally important lands in Hawai'i into three categories: 1) prime agricultural land, 2) unique agricultural land, and 3) other important agricultural land. The Moloka'i High School and Middle School main campus, including the entire project area, is not classified by the ALISH system as agriculturally important land. The land across Farrington Avenue that comprise the athletic complex, as well as lands to the west, are classified as "Other" important agricultural land. This land has state or local importance for production but is neither prime nor unique.

Legend

- HzA Hoolehua silty clay, 0 to 3 percent slopes
- HzC Hoolehua silty clay, 7 to 15 percent slopes
- KcB Kalae silty clay, 2 to 7 percent slopes
- KcC Kalae silty clay, 7 to 15 percent slopes
- KlcB Kawaihapai silty clay loam, 2 to 7 percent slopes
- LaD3 Lahaina silty clay, 15 to 25 percent slopes, severely eroded
- LaB Lahaina silty clay, 3 to 7 percent slopes

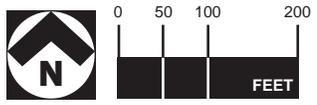
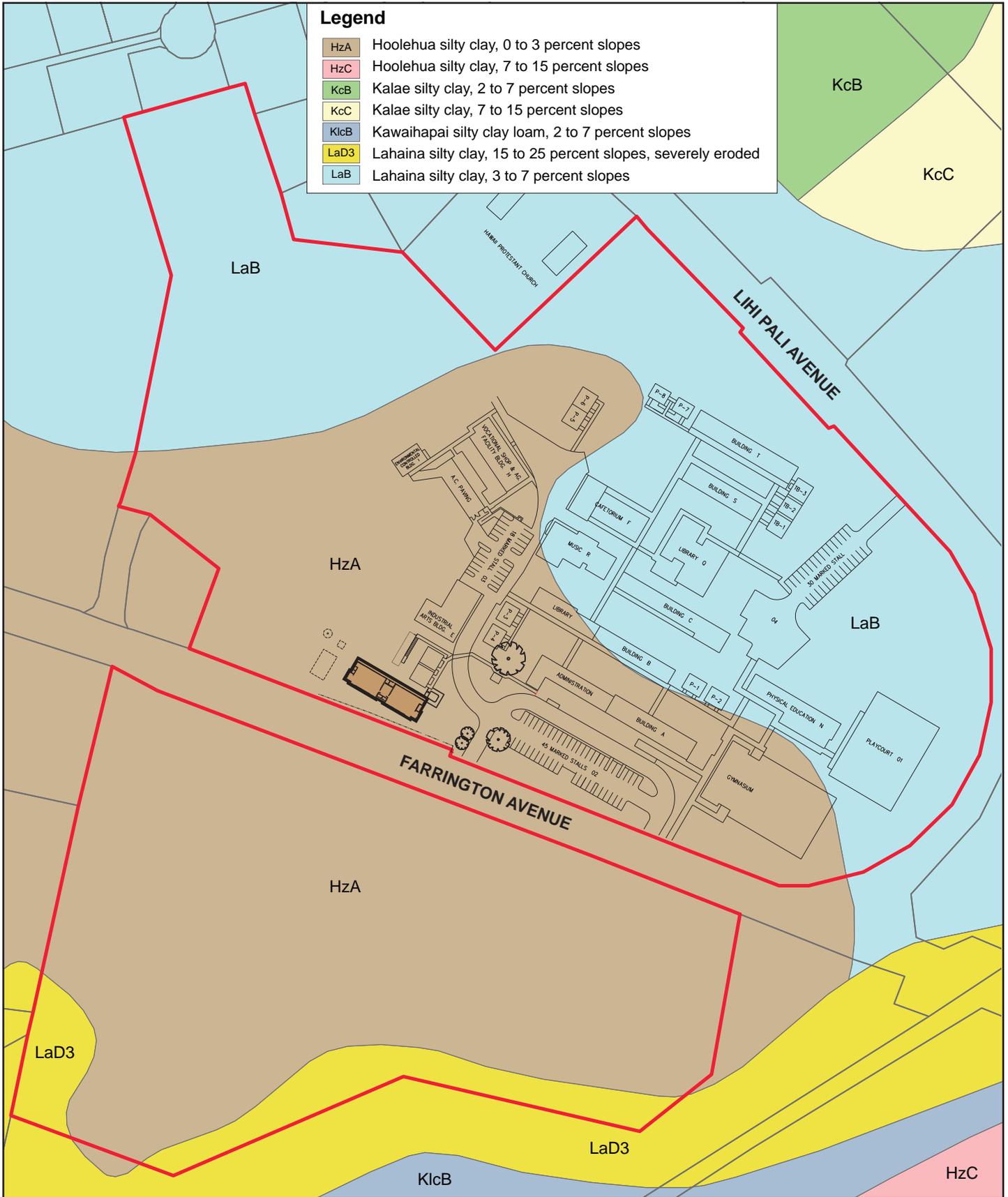


Figure 5
SOILS
Molokai High School Facility Upgrades

Impacts and Mitigation

Site improvements and construction of the science classroom building will not have a significant impact on overall geology or topography of the site. The site is level and site work will include limited grading and excavation for building foundations, utilities and sidewalks. Grading activity will be required to provide proper drainage and will slightly alter the existing topography. Grading activity will not be extensive.

Temporary erosion control during construction will be designed in accordance with State and County standards. Construction activities will employ best management practices to prevent soil loss and erosion.

A National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water associated with construction will not be required for the project, as it will be less than one-acre in size.

The construction contractor will be required to monitor during construction to ensure that the minimum standards are employed at all times and that the erosion, sediment, pollutants and runoff are controlled and not impact adjacent properties, streets and waterways.

Permanent erosion controls which will be utilized within the classroom building site will include impervious surfaces, landscaping ground cover and drainage facilities. The construction BMPs and permanent improvements will ensure that the potential for erosion is minimized to the maximum extent practical.

3.2.3 Climate and Air Quality

Existing Conditions

The climate of Moloka'i is moderate with consistent year round temperatures, moderate humidity, and steady northeasterly tradewinds. Variations in Moloka'i's weather are attributable to regional topographic and climatic conditions. At the Moloka'i Airport, average daily temperatures range from a high of 81.4 degrees Fahrenheit to a low of 67.6 degrees Fahrenheit. The hottest month is August, with a high of 85.2 degrees Fahrenheit and the coolest month is February, with a low of 63.1 degrees Fahrenheit.

The project site is located toward the drier west side of the island. The Rainfall Atlas of Hawai'i shows mean annual rainfall at two gage stations near Moloka'i High School at 33 and 35 inches per year (Giambelluca, et al.).

Air quality on Moloka'i is clear and low in pollution. This is due in part to the prevailing trade winds, the lack of industrial uses and low level of residential and commercial development. The primary source of emissions are motor vehicles on Farrington Avenue.

Impacts and Mitigation

Construction Period

During construction, site clearing, grubbing and grading will generate dust in the immediate area. This has the potential to impact the adjacent portable building classrooms and offices.

The construction contractor will employ fugitive dust emission control measures in compliance with provisions of the State DOH Rules and Regulations (Chapter 43, Section 10) and Hawai'i Administrative Rules (HAR) Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33 on Fugitive Dust.

During excavation, the contractor will sprinkle water, as necessary to control dust. In addition, the following measures will be implemented to minimize dust and air quality impacts:

- Use of dust screens around the construction site;
- Provide an adequate water source at the site prior to start-up of construction activities;
- Pave or revegetate work areas cleared of vegetation as soon as possible to reduce dust;
- Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities;
- Control dust from debris being hauled away from the project site;
- Move construction equipment to and from the work sites during non-peak traffic periods, to the extent possible, in order to minimize disruption to area traffic.

Emissions from construction equipment, trucks and commuting construction workers will not significantly impact ambient air quality due to the relatively low level of vehicular activity in comparison to existing traffic conditions. Slow-moving construction vehicles, however, can disrupt peak traffic hour traffic, increasing congestion and increased vehicular emissions. This will be mitigated by transporting large construction equipment during off-peak traffic hours. Overall, air quality impacts during construction will be temporary in duration.

Long-Term Impacts

Once the new science classroom is completed, the project will not have a long-term adverse affect on air quality. There will be no increase in student enrollment or traffic associated with the project.

3.2.4 Natural Hazards

Existing Conditions

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), all of Moloka'i High School and the immediately surrounding areas are located in Zone

X, an area determined to be outside the 0.2% annual chance floodplain. No base flood elevations or depths are shown within this zone. The property is not vulnerable to flooding or subject to any flood regulations.

The high school is not within a tsunami evacuation area. The evacuation areas are located along the south shore and low lying coastal of the island, and do not extend as far mauka as the project vicinity. Moloka'i High School is designated as one of the island's four hurricane evacuation shelters by Hawai'i State Civil Defense.

Impacts and Mitigation

The project will not increase the risk of human health or property damage due to natural hazards. All proposed improvements will conform to applicable seismic standards for construction.

3.2.5 Noise

Existing Conditions

Noise levels in the general vicinity of the school is low, and typical of an area with low density farmlots and residences. Noise at the project site is primarily due to traffic on Farrington Avenue, vehicles entering and exiting the school parking lot, and by human activity on campus.

Hawai'i Administrative Rules Title 11 Chapter 46, Community Noise Control defines maximum permissible sound levels and provide for the prevention, control and abatement of noise pollution in the State. These regulations also establish noise quality standards to protect public health and welfare and to prevent the significant degradation of the environment and quality of life.

Allowable noise levels are based on the classification of the zoning district in question. Because the zoning of the project site is Interim agriculture, the project site is considered to be in a "Class C" zoning district, which includes "all areas equivalent to lands zoned agriculture, country, industrial, or similar type." Maximum permissible sound levels for Class C zoning districts are 70 dBA for both daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.).

Zoning District		Daytime 7:00 AM to 10:00 PM	Nighttime 10:00 PM to 7:00 AM
Class A	Lands zoned residential, conservation, preservation, public space, open space, or similar	55 dBA	45 dBA
Class B	Lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort or similar	60 dBA	50 dBA
Class C	Lands zoned agriculture, country, industrial or similar	70 dBA	70 dBA

Impacts and Mitigation

Short-Term Construction Impacts

Construction activities will generate noise that may have short-term impacts on the high school particularly on the adjacent portable classrooms and administrative offices.

Noise levels will be a function of the methods employed during each stage of construction. The noisiest period is expected to be during site preparation, where earth moving equipment will operate on-site. Construction noise will be associated with grading and compaction equipment, trucks, saws, and other carpentry equipment. These noise impacts are unavoidable but will be temporary.

The construction contractor should work closely with the school administration to coordinate noisy construction activities. To the extent possible, noisy construction should be scheduled during the summer months, before or after school hours, and non-testing periods to minimize impact on the school.

All construction activities will comply with the State of Hawai'i Department of Health (DOH) Administrative Rules Chapter 11-46 on Community Noise Control, as discussed above. Construction noise is not expected to exceed 70 dBA, the maximum permissible noise level, at the property line. If noise levels were to exceed the maximum permissible level, a permit must be obtained from the DOH to operate vehicles, construction equipment, power tools, etc. that will exceed the permissible level.

The DOH currently regulates construction noise under a permit system. Under current procedures, noisy construction activities are restricted to hours between 7:00 AM and 6:00 PM, Monday through Friday, excluding certain holidays, and 9:00 AM and 6:00 PM on Saturdays. Construction is not permitted on Sundays. Construction will be performed during the day to ensure minimal nighttime noise impacts on surrounding land uses.

Operational Noise

There will not be any additional noise following the completion of the new science classroom building. There will not be any increase in student enrollment or traffic.

3.2.6 Visual

Existing Conditions

The visual environment of the project area is rural, with low density agricultural lots and unobstructed views in all directions. The campus is comprised of single story buildings.

Impacts and Mitigation

The proposed classroom building will be within an existing high school and consistent with the surrounding buildings and land uses. The one-story building will be visually compatible and will not impact or obstruct any views.

The project will utilize natural building materials and earth tones, as well as landscaping fronting the highway and main campus entry. Structures will have integrated colors or be painted to be similar to the existing campus. The building will also use accent siding material and colors that elude to a Ho'olehua plantation-style architecture.

A horizontal-type wind turbine (HWT) may be located to the northwest of (behind) the new classroom building, near the *lo'i* garden. The purpose of the HWT is to provide an alternative source of energy for the building, reduce fossil fuel consumption, and provide an educational component to the school's science, technology, engineering and math (STEM) curriculum. The HWT is appropriate for residences and small commercial uses, and is mounted on a tower. The tower will be higher than surrounding structures and will impact the visual environment. Since the visual impact of the tower could be a concern, the project design team has been tasked to limit the HWT to a functional height that will range between 45-65 ft (Top of Tower). The proposed location, set back from Farrington Avenue, should minimize its visual impact.



Photographs of the *Skystream 3.7*, a brand of wind turbine similar to what is being proposed for the science building.

Photo: <http://www.windturbinepicker.com>



Skystream wind turbine at a school in Forsyth, Montana, which is similar to the HWT proposed at Moloka'i High School.

Photo: Montana State University College of Engineering

3.3 BIOLOGICAL ENVIRONMENT

3.3.1 Botanical Resources

Although at one time West Moloka'i was lowland dry forest and shrub, over time, native ecosystems were permanently altered by cattle grazing, followed by cultivation of sugarcane and pineapple. Areas that are not landscaped or in cultivation are dominated by non-native and invasive plant species such as kiawe. The entire Moloka'i High School campus is a modified, landscaped environment. Within the campus, landscaping includes grasses, monkeypod and shower trees, and landscape plants such as hibiscus, bird of paradise, crotons, ti, and small palms. There is also a native Hawaiian plant garden cultivated by students and teachers.

The project site is presently a grassy lawn area fronting Farrington Avenue at the school entry. Nearby, three large Cook pine trees stand at the main entry driveway into the parking lot. Behind the project site, there is a large cleared area used as a garden by the school's agricultural classes. Crops grown in this area include banana, mango, taro, and other leafy vegetables.

The western half of the new building will extend outside the manicured front lawn into an area that is currently in a natural, overgrown state. This overgrown area includes guinea grass and feather finger grasses, koa haole, kiawe, and small ironwood and Formosan koa trees.

3.3.2 Terrestrial Fauna and Avifauna

Avifauna found on the project site would include introduced species common to Moloka'i and throughout the Hawaiian Islands, including Common Mynah (*Acridotheres tristis*), Red crested Cardinal (*Paroaria coronata*), Northern Cardinal (*Cardinalis cardinalis*), House Finch (*Carpodacus mexicanus*), House Sparrow (*Passer domesticus*), Rock Pigeon (*Columba livia*), Spotted Dove (*Streptopelia chinensis*), Zebra Dove (*Geopelia striata*), Red-vented Bulbuls (*Pycnonotus cafer*), and Japanese White-eye (*Zosterops japonicus*). The project site does not include habitat for threatened or endangered species.

Mammals expected to be found in and around the project site and surrounding areas include mice and rats, feral cats and dogs, mongoose, and in the surrounding ranch lands, ungulates such as feral cattle, goats and deer.

Impacts and Mitigation

The project site has already been largely disturbed, and does not provide unique habitat in the area. No candidate, proposed, or listed threatened or endangered species will be disturbed. The vegetation affected is landscaped grass, and in the undeveloped portion, alien species which are ubiquitous and with little biological value. No great harm will result from clearing of this site.

3.4 SOCIO-ECONOMIC ENVIRONMENT

3.4.1 Demographic Characteristics

Existing Conditions

The table below presents demographic information from the 2010 U.S. Census for the Kualapu'u Census Designated Place (CDP), the Island of Moloka'i, and Maui County. Moloka'i High School is located within the Kualapu'u CDP, but draws its students from the entire island. Compared to Maui County as a whole, the Island of Moloka'i has a greater percentage of Native Hawaiians, those of two or more races, and has a lower median household income. The profile of the Kualapu'u CDP, which includes the Ho'olehua Homesteads, indicates that 33% of the population is Native Hawaiian, even higher than Moloka'i as a whole (26.2%). More than 44 percent of Kualapu'u CDP residents identify as being of two or more races. Average household size in this CDP was 3.44 persons, larger than both the island-wide and the Maui County average household size. There were also a much higher percentage of household members under 18 years of age; almost 44 percent in the Kualapu'u CDP compared to about 35 percent in Maui County. Median income in the Kualapu'u CDP is lower than both the Moloka'i median (\$44,442) and the Maui County median (\$64,583).

Table 3-1: Demographic Information for Kualapu'u Census Data Place (CDP) and Moloka'i Island, 2010

	Kualapu'u CDP		Moloka'i Island		Maui County	
	Number	Percent	Number	Percent	Number	Percent
Population	2,027		7,345		154,834	
Race						
White	171	8.4	1,192	16.2	53,336	34.4
Black/African American	6	0.3	28	0.4	870	0.6
Amer Indian/Alaskan Native	1	0.0	20	0.3	603	0.4
Asian	280	13.8	1,138	15.5	44,595	28.8
Nat Hawn/Other Pac Islander	669	33.0	1,923	26.2	16,051	10.4
Other race	7	0.3	17	0.2	3,051	2.0
Two or more Races	893	44.1	3,020	41.1	36,328	23.5
Total Households						
Avg household size	3.44		2.71		2.82	
Median household income	\$37,083		\$44,442		\$64,583	
Households with One or more People Under 18 Years of Age	255	43.7%	879	30.9%	18,585	34.5%

Source: U.S. Census Bureau, American Fact Finder

Impacts and Mitigation

The census data presents a general demographic profile of the Kualapu'u CDP and the island compared to the rest of the County. The proposed project will not directly or indirectly cause changes to the population or demographics of the island or surrounding community. The new classroom building will serve the existing high school, and there will be no change to school enrollment.

3.4.2 Archaeological, Historic, and Cultural Resources

An archaeological inventory survey (AIS) for the proposed project was completed by Cultural Surveys Hawai'i (CSH) in December 2013 (see Appendix A). The AIS scope of work included historic and archaeological background research, a complete (100%) pedestrian survey, and a sub surface testing program, consisting of mechanical excavation of three backhoe trenches.

During the AIS, one historic property was identified within the northeastern portion of the project area. SIHP # 50-60-01-2527 is a subsurface trash deposit likely associated with the development of the Moloka'i High School campus. This site was documented and recorded. No other cultural material remains or historic properties were encountered during the current investigation. CSH recommends a project specific effect recommendation of "no historic properties affected." No further historic preservation work is recommended.

Existing Conditions

Historic Background

The island of Moloka'i was traditionally divided into two *moku*, or districts: The Kona Moku contained the lands of the southern and western sections of the island, and the Ko'olau Moku contained the lands of the northeastern portion of the island, from Hālawa Valley to the Kalaupapa Peninsula. The current project area is located in West Moloka'i, towards the central portion of the island, within Kona Moku and in the *ahupua'a* of Ho'olehua.

The CSH review of the historic documentation indicates that the Ho'olehua Plain was once traditionally used for dryland agriculture. The area was known particularly for the cultivation of 'uala, a type of sweet potato, and *olo* or *hokeo*, the long gourd used for holding fishing tackle and to make the *hula* drum. This agricultural use continued into the early 20th century. Traditional use of lands within the plain region may have been represented in the archaeological record by surface structures and cultural material deposits consistent with permanent and recurring habitation, as well as features associated with dryland agriculture. Physical remnants of this type of settlement were identified during a 1971 island-wide archaeological survey, where fertility sites, petroglyphs, hula platforms, spiritually significant stone uprights, and *heiau* were recorded within the region. More recent archaeological studies have also recorded physical remnants consistent with this settlement pattern.

During the mid-to late-1800s, ranching became the dominant land use within the central plains of Moloka'i, including the project area. In 1898, American Sugar Company, Limited (ASCO) unsuccessfully attempted to develop the arid lands of the Ho'olehua plain. However, in 1926 Pālā'au-Ho'olehua was successfully planted by Libby, McNeill and Libby for commercial pineapple cultivation, which continued as late as the 1980s. Additionally, due to the homestead program set up by Libby, the Pālā'au-Ho'olehua region had the largest population of Native Hawaiians in 1930.

The AIS notes that in the current project area, evidence of pre-contact habitation and agricultural use were absent. The paucity of pre-contact historic properties can likely be attributed to the fact that the lands in and surrounding the current project area have undergone heavy modifications by the development of the Moloka'i High School, which has been at this location since the 1930s, as well as pineapple cultivation within the area. This type of landscape alteration over time would have effectively eliminated surface archaeological structures and cultural materials and significantly altered subsurface indications of pre-contact historic properties.

Fieldwork Results

The subsurface testing conducted as part of the AIS identified one historic site, SIHP#50-60-01-2527, a trash pit, discovered along the northeast boundary of the proposed project area. The location of this site is shown in the AIS (see Appendix A, Figure 13). Artifacts observed appeared to be of institutional or industrial origin which were in use circa early 1900's. For example, what appears to be a historic computing cheese cutter (circa 1910) and other

deteriorating pieces of flat tin/galvanized metal were found. The AIS notes that these discarded and buried items likely originated from the school campus or nearby pineapple plantation. The trash pit was evaluated as significant under Significance Criteria D, “*sites which have yielded, or may be likely to yield, information important in prehistory or history.*”

Impacts and Mitigation

The construction of the new classroom building will involve ground disturbance on a site currently occupied by a temporary trailer building. The new building will also extend into an adjacent overgrown area. Construction of the building will impact the historic trash pit (SIHP#50-60-01-2527). This impact cannot be avoided. The wind turbine will be constructed on a vacant site behind the classroom, and will involve excavation for the tower foundation to a depth of four feet.

Under Hawai'i state historic preservation legislation, the only two possible effect determinations for a given project under historic preservation review are “no historic properties affected” and “effect, with proposed mitigation commitments” (HAR Chapter 13-284-7). Cultural Surveys Hawai'i recommends an effect determination of “no historic properties affected.” Information about the historic trash pit has been recorded, including documentation of its location, a written description, and photographs. Additional historic preservation mitigation would not add to the body of information concerning this historic property. Although this site is likely to be impacted by building construction, all information that makes this historic property significant has already been adequately recorded.

Based on the evaluation of effect, CSH recommends no further historic preservation work for SIHP 50-60-01-2527. It has been established by the AIS that ground disturbing activities related to the Moloka'i High School Science Facilities Upgrade project will likely have no effect on historic properties. However, should pre-historic or historic cultural or human remains be encountered during construction, SHPD must be notified immediately and all work must cease. No screening of back dirt, cleaning and/or excavation of the site, or exploratory work of any kind shall be allowed unless specifically requested by SHPD. All human skeletal remains must be handled in accordance with HRS Chapter 6E-7 and 6E-8 and HAR Chapter 13-300 and in consultation with SHPD/DLNR. In addition, all documentation of all inadvertent burial historic properties must be conducted in accordance with HRS Chapter 6E-43 and Chapter 13-300.

Cultural Impact

The Archaeological Inventory Survey in Appendix A provides a pre-contact and post-contact history and chronology of the region and describes traditional and non-traditional activities that have occurred within the *ahupua'a*. In the pre-contact period, these activities included permanent and temporary habitation, dry land agriculture, animal husbandry, and ceremonial activities. These are represented in the archaeological record as remnant of stacked rocks and cultural material remains, such as fire pits, traditional Hawaiian artifacts, food remains, etc.

Historic-era activities have included cattle ranching, attempts at sugar cane cultivation, and pineapple cultivation. Since the 1930's the immediate project vicinity has been used

continuously as a school. The area has been extensively modified to construct buildings and recreation fields. The site is not currently, and has not been used for traditional cultural practices since prior to the beginning of the 20th century. The proposed project will continue the current use as a school. The project will not have an impact on cultural practices or beliefs of native Hawaiian or any other racial or ethnic groups.

HRS Chapter 6E Consultation

The SHPD will be reviewing the AIS in accordance with HRS Chapter 6E as part of the environmental assessment process. The SHPD has been informed of the project, and was sent a pre-assessment consultation letter notifying them that the current EA was being prepared. No comments have been received to date.

3.5 UTILITIES AND INFRASTRUCTURE

3.5.1 Potable Water

Existing Conditions

Moloka'i High School is served by the Department of Hawaiian Home Lands (DHHL) water system. The existing distribution system consists of an 8-inch water line in Farrington Avenue, a 12-inch water line in Lihi Pali Avenue, fire hydrants along both streets, and metered domestic water service. Water line extensions with fire hydrants into the campus provide additional fire protection coverage for buildings on the campus.

The school has three water meters: a 4-inch meter and a 1½-inch meter on the main campus (bounded by Farrington Avenue and Lihi Pali Avenue), and a 1½-inch meter on the lower campus (on the southwesterly side of Farrington Avenue).

Impacts and Mitigation

Average daily water use for a school is determined by the acreage of the school (1,700 gallons per acre per day) or by student population (60 gallons per student per day)¹. Although the total school acreage will not change due to the project, an additional area of about 0.4 acre will be developed. Water use based on the increase in developed area is 680 gallons per day. Student population will not change; therefore, water use due to students is not expected to change.

For preliminary design purposes, the average daily water use noted above, 680 gallons per day, will be adopted. It is anticipated that this amount will be split equally between interior (laboratory sinks, emergency showers and eyewashes, toilets, lavatories) and exterior (landscape irrigation, hose bibs) uses. Preliminary calculations based on number of plumbing fixtures indicate that peak water demand is about 50 gallons per minute.

¹ From Table 100-18, Domestic Consumption Guidelines, on page 111-3 of Water System Standards adopted by County of Maui Department of Water Supply

3.5.2 Sanitary Sewer

Existing Conditions

Moloka'i High School is served by individual wastewater systems (IWS) consisting of septic tanks and absorption fields located on the lower campus. Sewer lines on the main campus collect wastewater and direct it to the IWSs.

Impacts and Mitigation

The new science classroom building will connect to an existing sewer line on the main campus that directs wastewater to an IWS on the lower campus. As noted above, interior average daily water use will be about 340 gallons per day. This amount will be discharged into the sewer system. This amount, however, will be offset by less wastewater produced in other buildings as more people will tend to use the new building and fewer people will use the other buildings. That is, there will not be a net increase in school population, and thus no increase in wastewater generated and no impact on the existing IWS.

3.5.3 Electrical, Telephone, Cable

Existing Conditions

A 50A/2-phase, 208/120V electrical service to the existing portables is provided from the 400A Distribution Panel located in the Industrial Arts building, located nearby. Service to the Industrial Arts building is provided via pad-mounted Maui Electric Company (MECO) transformer on the exterior of the Industrial Arts building. The MECO primary line to the pad mounted transformer is from an overhead service from Farrington Avenue.

Telephone and CATV service to the existing portable buildings and trailer are routed underground from the Library Main Distribution Frame (MDF), which is the telephone/data hub with servers and patchpanels.

Impacts and Mitigation

Preliminary electrical load calculations for the new science building are 240 Amps at 208V/3-phase. New service will be routed underground to the science building from the MECO transformer by the Industrial Arts building. The existing overhead MECO primary line is located above the new building location. The overhead primary line will be relocated around the new building.

The project may include a small wind turbine which would provide a renewable source of energy for the new classroom building. The location of the wind turbine is shown in Figure 2. The project design calls for a horizontal-type wind turbine which is designed for residential and small commercial use (see photos in Section 3.2.2). A 2.4kW system could supply approximately 16% of the building's total power consumption per year.

A photovoltaic system will be installed on various areas of the roof to supplement electrical power use. A 13kw system is planned and will cover the remaining energy used by the new classroom building throughout the year. The classroom building design will utilize natural daylighting strategies to minimize energy consumption. This may result in an energy neutral designed building.

The wind turbine, which is an additive alternative, may be funded as an educational pilot project by the Hawai'i Department of Education (DOE), as well as supplementing energy use using on-site renewable energy. The wind turbine and photovoltaic panels add an educational component for Molokai High School to fulfill STEM learning objectives. For example, students can monitor the renewable energy generated, calculate fuel and cost savings, and compare alternative technologies available. The wind turbine also provides an opportunity to introduce students to the wind energy field, the fastest growing renewable energy sector in the United States.

An early consultation letter from Hawaiian Telcom dated July 2, 2009 (see Chapter 7) indicates that Hawaiian Telcom has underground facilities in the vicinity of the project site. Coordination with Hawaiian Telcom will continue throughout the design stages of the project to ensure that there are no adverse impacts to these facilities.

During project design, project plans will be submitted to MECO, Hawaiian Telcom and Oceanic Time Warner for review and comment and to insure adequate service to mitigate any impacts to utility facilities or service.

3.5.4 Drainage

Existing Conditions

The southeastern portion of the main campus has a drainage system that collects on-site runoff at various grated drain inlets and conveys it to a drain line through the campus. This drain line begins on the northeastern side of Lihi Pali Avenue, runs through the main campus, crosses Farrington Avenue, continues through the lower campus, and discharges runoff into the adjoining downstream parcel.

The northwestern portion of the main campus, where the proposed science classroom will be constructed, does not have a drainage system. Under existing conditions, storm runoff from the building site flows to the southwest and to the west, and eventually enters Farrington Avenue.

Impacts and Mitigation

The construction of the new classroom building and walkways will increase the impervious surface area of the site. Drainage improvements for the project consist of grated drain inlets, drain pipe, manholes, and a drainage basin. The inlets will collect runoff. The drain pipes will convey the runoff to the drainage basin to mitigate increases in runoff rates and runoff volumes due to the project. A portion of the runoff will be "detained" or held and released at a controlled rate, and a portion of the runoff will be "retained" or held and allowed to percolate into the ground. There will be no net increase in runoff from the school property.

During construction, appropriate measures will be implemented to prevent pollutants from entering the storm drain system. These measures include installing sediment barriers and filters at storm drain inlets, and repaving and revegetating areas as soon as practicable.

3.5.5 Solid and Hazardous Wastes

Existing Conditions

Solid waste from Moloka'i High School is collected by Island Refuse, a private contractor, and disposed at the islands Naiwa landfill north of Kaunakakai.

Impacts and Mitigation

The new classroom building will not impact ongoing solid waste disposal services at the school, or increase waste generated. Construction debris will be disposed at the Naiwa landfill. Construction activity is not expected to generate any hazardous material, as the existing structure at the project site will be relocated, not demolished.

3.6 TRAFFIC

3.6.1 Existing Conditions

State of Hawai'i Route 480, also known as Farrington Avenue, runs from the central north coast of Moloka'i, through Ho'olehua and Kualapu'u, terminating at its intersection of Kalae Highway. Moloka'i High School is located on Farrington Avenue. Traffic volumes in the project vicinity are low throughout the day, with peak traffic periods corresponding to the start and end of school.

3.6.2 Impacts and Mitigation

The new science classroom building will not impact traffic. There will be no increase in students at Moloka'i High School. Circulation patterns at the school will be unchanged.

During construction, there may be temporary road disruption in the project area due to the movement and presence of construction vehicles, equipment, and materials. Construction equipment and materials will be transported to the site via Farrington Avenue and the school access road. No vehicles or equipment will be permanently staged on the entry road. No lane closures are planned for Farrington Avenue. Construction vehicles will not park on Farrington Avenue or block the school entry road.

The construction contractor should work closely with school administrators to ensure that transport, movement and storage of equipment and materials do not inconvenience or endanger students. For example, movement of large construction equipment and materials should be avoided around the start of school (i.e., from 7:15 to 8:15 AM) and end of the school day (i.e., 2:00 to 2:45 PM).

3.7 PUBLIC SERVICES AND FACILITIES

3.7.1 Police, Fire and Emergency Services

Existing Conditions

Police services on Moloka'i are provided by the Maui County Police Department. The Moloka'i Police Station is located in Kaunakakai, at the Mitchell Pauole Center. Fire protection services are provided by the Maui County Department of Fire and Public Safety. The Fire Department has stations in Kaunakakai and Ho'olehua. There is one Emergency Medical Services (EMS) Unit on the island.

Impacts and Mitigation

The proposed project will not impact police, fire, or emergency services or demand for these services.

3.8 CUMULATIVE IMPACTS

The project will add a new building to the existing high school campus in a highly visible location on Farrington Avenue, near the entry to the school. The physical presence of the school will expand. A portion of the project site is within the developed part of the campus, and a portion is in an undeveloped, natural state. However, the entire site is within the campus boundary, already designed for use by the high school. It is possible that in the future, more of the school property to the west of the proposed building will be cleared and used. This would occur independently of this project.

The natural environment of the project site will be modified. The building will require clearing of the overgrown portion of the site to the west. This area does not contain any biological resources of concern. There will be no cumulative impacts on the natural environment.

The new classrooms are intended to support existing science education at Moloka'i High School, and the school's emphasis on science, technology, engineering and math (STEM). The project will not result in an increase in student enrollment. The new facilities have the potential to help increase student interest in and enthusiasm for these subjects, though many other factors would also be involved. Over time, it is expected that science and technology will become an increasingly important component of the high school curriculum. Contributing to this trend are initiatives by the school's faculty and administration, and the growing emphasis on STEM education at the State and national levels. This trend toward enhanced STEM education at the K-12 level is being seen throughout Hawai'i and the rest of the U.S. The project will help Moloka'i students keep up with this trend. Cumulatively, this will contribute to improved higher education and career opportunities, improved social conditions, and a stronger local economy.

4 CONSISTENCY WITH EXISTING PLANS, POLICIES AND CONTROLS

4.1 STATE OF HAWAII

4.1.1 Hawaii State Plan

The 1996 Hawai'i State Plan (Chapter 226, HRS) is the umbrella document in the statewide planning system. It serves as a written guide for the future long-range development of the state by describing a desired future for the residents of Hawai'i and providing a set of goals, objectives, and policies that are intended to shape the general direction of public and private development.

The project, to construct a new science classroom building at Moloka'i High School, is consistent with the following State plan objectives and policies:

Facility systems-in general

(b)(1) Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

(b)(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.

Socio-cultural advancement-education

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

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

(b)(4) Promote educational programs which enhance understanding of Hawai'i's cultural heritage.

(b)(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.

(b)(8) Emphasize quality educational programs in Hawai'i's institutions to promote academic excellence.

4.1.2 State Land Use Classification

The State Land Use Commission, pursuant to Chapter 205 and 205A, HRS and Chapter 15-15, Hawai'i Administrative rules, is empowered to classify all lands in the State into one of four land use districts: urban, rural, agricultural and conservation. Although the majority of Moloka'i High School is located within the Urban district, the western portion of TMK 5-2-015:001 is in the State Agricultural District (Figure 6). As shown in the figure, a portion of the proposed science classroom building will extend into the Agricultural District. The wind turbine would also be

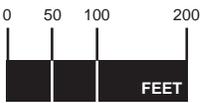
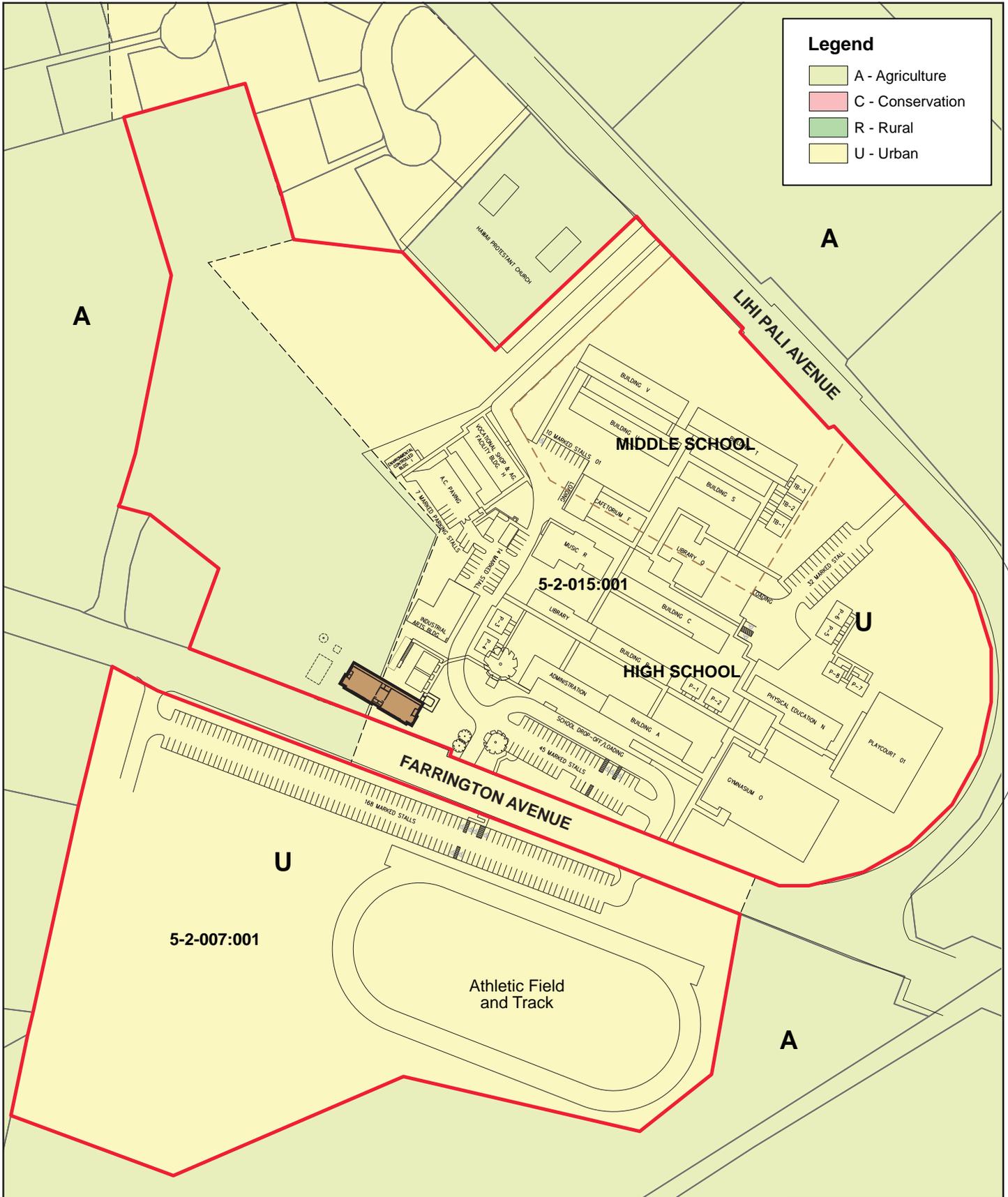


Figure 6
STATE LAND USE DISTRICTS
Molokai High School Science Facility Upgrades

located within the State Agricultural District.

A State Land Use Special Use Permit (SUP2) from the County of Maui “*may be obtained when certain ‘unusual and reasonable’ uses within the Agricultural and Rural Districts other than for which the district is classified may be permitted provided certain criteria are met.*” The permit will be obtained to allow the portion of the proposed classroom building that is in the State Agricultural district. Because the project is less than 15 acres in size, the SUP2 can be granted by the Moloka'i Planning Commission, and the project does not need to go before the State Land Use Commission.

Criteria used by the Moloka'i Planning Commission to evaluate special uses within the State Agricultural District are outlined in *Chapter 3 Rules Relating to Special Uses in State Agricultural and Rural Districts*, September 25, 1989. Evaluation guidelines include that the proposed use not be contrary to the objectives Chapter 205 and 205A, HRS; that the desired use not adversely affect surrounding property; not unreasonably burden public agencies; and other factors such as proximity to other properties zoned to allow the use, the suitability of the site for the intended use, and economic and/or social benefits. The proposed use of the Agricultural District land for a classroom building fully meets these evaluation criteria. This will be discussed in detail in the forthcoming SUP2 application to the County.

The possible wind turbine will also be sited within the State Agricultural District, and is a permitted use. According to HRS §205-4.5(14), a permissible use within the Agricultural District includes “*wind energy facilities, including the appurtenances associated with the production and transmission of wind generated energy; provided that the wind energy facilities and appurtenances are compatible with agriculture uses and cause minimal adverse impact on agricultural land.*”

4.1.3 Coastal Zone Management

Coastal Zone Management (“CZM”) objectives and policies (Section 205A-2, HRS) and the Special Management Area (“SMA”) guidelines (Section 25-3.2 ROH) have been developed to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai'i. All lands in the State of Hawai'i and the area extending seaward from the shoreline are classified as valuable coastal resources within the State's CZM area.

The project site is outside the County of Maui's designated SMA, and a SMA use permit is not required. The project is consistent with the CZM and SMA objectives and policies.

Part II of Chapter 205A, HRS contains the general objectives and policies upon which all counties have established Special Management Areas (SMA). The following discusses the project's conformance with the objectives of the State's CZM program:

Recreational Resources

CZM Objective: *Provide coastal recreational opportunities accessible to the public.*

Discussion: The proposed improvements are limited to an upland area on the island, and will not affect existing fishing, surfing or other coastal recreational opportunities accessible to the public.

Historic Resources

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

Discussion: The construction of the new classroom building will have no adverse effect on natural or manmade historic or prehistoric resources.

Scenic and Open Space Resources

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

Discussion: The one-story building will not adversely impact scenic or open space resources. The building is within an established school campus, and is at a scale that is consistent with the remainder of the campus. The wind turbine would be mounted on a pole that could extend from 45 to 65 feet (top of tower). This would be higher than the surrounding structures and visible from a distance, but will not diminish scenic or open space resources.

Coastal Ecosystems

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

Discussion: The Project will not adversely impact coastal ecosystems or water quality. The project is seven miles from the nearest coastal waters in Kaunakakai, and is not near any streams. Best management practices and erosion control measures will be employed during construction of the structures to minimize soil loss and control erosion and discharge from the site. There will be a slight increase in impermeable surfaces which will increase runoff, but this will be absorbed by drainage structures and landscaped areas on site. There will not be a net increase in runoff from the site.

Economic Uses

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

Discussion: The project will provide long-needed science classrooms to support STEM education on the island of Moloka'i. An investment in educational resources for Moloka'i's youth demonstrates an investment in the overall economic future of the island and the State.

Coastal Hazards

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

Discussion: The project site is not within an area vulnerable to tsunami, storm waves, stream flooding, erosion, subsidence or pollution.

Managing Development

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

Discussion: The Project has no impact on this CZM objective.

Public Participation

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

Discussion: The Project has no impact on this specific CZM objective. An early consultation notice was sent to a number of federal, State and City and County agencies and community organizations. The Draft EA will be distributed to these same agencies and groups, and the 30-day public review period allows for public participation and input regarding the proposed school improvement project.

Beach Protection

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

Discussion: The Project will not impact public beaches on Moloka'i.

Marine Resources

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

Discussion: The Project will not impact the protection or use of marine and coastal resources. During construction, best management practices will mitigate erosion and runoff from the site.

4.2 COUNTY OF MAUI

4.2.1 County General Plan 2030

The Maui County General Plan is a long-term, comprehensive blueprint for the physical, economic, environmental development and cultural identity of the county. It consists of a Countywide Policy Plan, adopted on March 24, 2010, which provides broad goals, objectives, policies, and implementing actions that portray the desired direction of the County's future. The Countywide Policy Plan acts as an over-arching values statement and provides a policy framework for the more specific Maui Island Plan and Community Plans.

Countywide Policy Plan

The Countywide Policy Plan is the first component of the decennial General Plan update. The following objectives and polices applicable to the project is from the Maui County General Plan 2030, Countywide Policy Plan, p. 52:

Core Theme: Improve Education

Objective 2: Provide nurturing learning environments that build skills for the 21st century

Policies:

- a. Expand professional-development opportunities in disciplines that support the economic-development goals of Maui County.
- b. Plan for demographic, social, and technological changes in a timely manner.
- c. Encourage collaborative partnerships to improve conditions of learning environments.
- d. Promote development of neighborhood schools and educational centers.
- g. Encourage the upgrade and ongoing maintenance of public-school facilities.
- i. Encourage the State to promote healthier, more productive learning environments, including by providing healthy meals, more physical activity, natural lighting, and passive cooling.
- k. Design school and park facilities in proximity to residential areas.
- l. Support technology-and natural-environment based learning.
- n. Encourage alternative learning and educational opportunities.

4.2.2 Moloka'i Community Plan

As one of the nine Maui County community plans, the Moloka'i community plan provides recommendations concerning land use, density and design, transportation, community facilities, infrastructure, visitor accommodations, commercial and residential areas and other matters related to development that are specific to the region.

Moloka'i Community Plan Update 2012

The Moloka'i Community Plan Update 2012 is currently ongoing. The plan will update the existing 2001 Moloka'i Community Plan, adding new elements and taking direction from the Countywide Policy Plan. The updated Moloka'i Community Plan will consist of a vision statement, goals, objectives, policies and implementing actions that portray the desired direction of the island's future, as well as an action plan for implementation.

2001 Moloka'i Community Plan

Until the completion and adoption of the 2012 update, the existing 2001 Moloka'i Community Plan remains the guiding document. The 2001 Moloka'i Community Plan Part II, includes Policy Recommendations, Implementing Actions, and Standards for the island. The proposed project improvements are consistent with the following recommendations:

Education

Develop and maintain an educational system and facilities which will offer the youth and adults of the region opportunities and choices for self- and community-improvement.

Energy and Public Utilities

Require the use of alternative energy, environmental design and energy saving devices in the development of new buildings, especially State and County buildings.

Design

Encourage the siting of buildings so that the roofline is in context with surrounding terrain.

Choose materials and colors which blend with the landscape avoiding highly reflective materials.

4.2.3 County Zoning

Maui County Code Title 19 is the "Interim Zoning Ordinance" for the various districts of Maui, including Moloka'i, and provides interim regulations pending the formal adoption of a comprehensive zoning ordinance and map.

As discussed in Section 4.1.2 and shown in Figure 5, a portion of TMK 5-2-015:001 is in the State Urban District and a portion is in the State Agricultural District. The proposed science classroom building straddles these two State Land Use Districts, which are also subject to different County zoning standards.

The eastern portion of the site, in the State Urban District, is zoned "Interim District" by Maui County. Development standards that apply to public facilities, including high schools, and tower structures in support of a utility are summarized below:

Interim District DEVELOPMENT STANDARDS		
Minimum lot area	20,000 square feet	
Minimum lot width	100 feet	
Maximum building height	30 feet	
Maximum tower height	50 feet	
Minimum yard setback	Front 20 feet Side 20 feet Rear 20 feet	Tower structures in support of a utility shall be set back from the property line at a distance at least equal to the overall height of the tower

Source: Maui County Code, Title 19

The western portion of the site in the State Agricultural District is zoned “Agriculture” by the County, and is not subject to the development standards above. The wind turbine will be sited in this area, and would not be subject to the maximum 50-foot tower height. The tip of blade height on a 45-foot tower would be 54 feet. However, a Conditional Permit (CP) from the County is required to allow the proposed uses in the Agriculture zone.

4.2.4 Special Management Area

Hawai'i Revised Statutes (HRS) Chapter 205A, the Coastal Zone Management (CZM) law, provides for the “...effective management, beneficial use, protection, and development of the Coastal Zone.” Special Management Area (SMA) permitting is part of the CZM Program, and each county is responsible for this regulatory function. As noted above, Moloka'i High School is outside the County's Special Management Area, and no SMA permit is required. The project is consistent with CZM and SMA objectives and policies.

4.3 OTHER CONSIDERATIONS

4.3.1 Unavoidable Adverse Effects

All potential environmental impacts discussed in Chapter 3 can either be avoided or mitigated to an extent that they would not be significant.

4.3.2 Energy Requirements and Conservation Potential of Various Alternatives and Mitigation Measures

The proposed science classroom building incorporates energy efficient and energy saving design including the use of natural daylighting and ventilation where possible, and the inclusion of photovoltaic panels. Landscaping around the new building will utilize drought tolerant native species.

A small wind turbine may be included behind the classroom building, to provide a source of clean energy for the classrooms. The wind turbine could supply approximately 16% of the building's total power consumption per year. Combined with photovoltaic panels on the roof, the classroom building could be net-zero, that is, having zero net energy consumption.

4.3.3 Relationship of Short-Term Uses and Long-Term Productivity

In the short-term, the project will have temporary construction-related impacts such as noise, dust, and traffic congestion on the surrounding areas. The improvements will require a commitment of public construction funds. However, the short-term effects are minor when compared to the long-term benefit of the new science classroom building. The project will provide a basic educational facility to support science education at Moloka'i High School. Its long-term productivity far outweighs the short-term tradeoffs.

4.3.4 Irretrievable and Irreversible Resource Commitments

Resources that are committed irreversibly or irretrievably are those that cannot be recovered if the project is implemented. The proposed project will involve the commitment of capital, labor, fuels and equipment. General industrial resources will be spent during project construction. The design goal is to make the building energy neutral, and therefore net energy consumption for operation of the building is expected to be minimal or zero. The building will be within an existing school campus, and land needed for the new facility is already designated for school use.

5 ANTICIPATED DETERMINATION, FINDINGS AND REASONS SUPPORTING THE CHAPTER 343 HRS DETERMINATION

5.1 ANTICIPATED CHAPTER 343 HRS DETERMINATION

Based on the information and analysis in this Environmental Assessment, the State of Hawai'i Department of Education has determined that the project will not result in a significant impact on the environment. As such, it anticipates issuing a Finding of No Significant Impact (FONSI), pursuant to the State of Hawai'i HRS Chapter 343. An Environmental Impact Statement (EIS) is not required.

5.2 CHAPTER 343 HAWAI'I REVISED STATUTES (HRS) SIGNIFICANCE CRITERIA

In determining whether an action may have significant impact on the environment, the applicant or agency must consider all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. The State of Hawai'i Department of Health Rules Section 11-200-12 (Hawai'i Administrative Rules, revised 1996) establish 13 "Significance Criteria" to be used as a basis for identifying whether significant environmental impact will occur.

An agency will determine an action may have a significant impact on the environment if it meets any of the following criteria:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The project will not result in an irrevocable commitment to loss or destruction of any natural or cultural resources. The project site is dominated by introduced plant and animal species. The site does not provide unique habitat and no candidate, proposed, or listed threatened or endangered species will be disturbed. The one historic trash pit identified on the site during the archaeological inventory survey has been documented and adequately recorded, and no further mitigation is recommended.

2. Curtails the range of beneficial uses of the environment;

The proposed project does not curtail the range of beneficial uses of the environment. The new classroom building will be constructed on a State-owned site that is designated for use by the high school.

3. Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project is consistent with the environmental policies in Chapter 344, HRS, which establishes a state policy to "Conserve the natural resources...safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general

welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic and other requirement of the people of Hawai'i" [§344-3(1)].

The project does not conflict with any of the environmental policies, goals or guidelines in Chapter 344. It directly supports the stated guidelines for land, water, mineral visual, air and other natural resources; economic development; energy; and education and culture [§344-4 (2), (5), (7) and (9)].

4. Substantially affects the economic or social welfare of the community or state;

The construction of a new science classroom building for Moloka'i High School will provide a basic educational facility that has been lacking since the high school and middle school separated nearly ten years ago. Supporting adequate science education for Molokai'i's youth will prepare them for post-high school education and careers, and in the long term will have a positive impact on the economic and social welfare of the community. Construction will have minor, short-term air, noise and traffic impacts. However, these are far outweighed by the project's overall and long-term benefits.

5. Substantially affects public health;

The temporary construction-period noise and dust impacts will be minor and short-term, and are insignificant when weighed against the project's overall, long-term positive impacts. The operation of the building will not adversely impact public health. The operation of the wind turbine will not adversely affect public health.

6. Involves secondary impacts such as population changes or effects on public facilities;

The new science classroom building will not induce secondary impacts such as changes in student enrollment, population changes or effects on other public facilities. The new building will serve the current and future students at Moloka'i's only high school.

7. Involves a substantial degradation of environmental quality;

Construction period impacts related to noise and air quality will be temporary and short-term. Mitigation measures will include dust barriers around the construction area, equipment noise attenuation, and use of best management practices to control erosion and runoff. There will not be any long-term degradation of environmental quality associated with operation of the new science classroom building or wind turbine.

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

The proposed project is limited to construction of new science classrooms to serve the existing high school, and does not have a cumulative effect or commitment for larger action.

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

No rare, threatened or endangered species or its habitat will be impacted by the project. Plant and animals found at the site are introduced species, and there are no significant biological resources.

10. Detrimentially affects air or water quality or ambient noise levels;

The project will result in short-term construction period increases in fugitive dust and noise and traffic that may inconvenience students and faculty. These impacts will be mitigated to the extent possible by scheduling noisy construction during non-school hours. There will be no long term impacts to air or water quality or noise.

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

The project site is not within an environmentally sensitive area, flood plain, or near coastal waters. Best management practices will be used during construction to prevent adverse impacts to coastal water quality.

12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or

The new classroom building and wind turbine will be located on the mauka side of Farrington Avenue and will not affect scenic vistas or view planes.

13. Requires substantial energy consumption.

The new building will not require substantial energy consumption. Energy resources will be consumed during project construction. The building has been designed to be energy efficient and includes the use of photovoltaic panels to generate solar energy and a possible wind turbine that could provide 16% of total energy used by the building. The intent is to design an energy neutral building. Landscaping around the building will include drought tolerant native plants.

6 REFERENCES

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<http://avibase.bsc-eoc.org/checklist.jsp?region=UShimo>

County of Maui. Maui Office of Economic Development, Maui County Data Book 2012.

http://www.hisbdc.org/Portals/0/MCDB/2012/2012_WholeBook_v2.pdf

County of Maui. Title MC-12, Department of Planning, Subtitle 02, Maui Planning Commission, Chapter 202, Special Management Area Rules

County of Maui. The General Plan Update of the County of Maui, 1990 Update.

County of Maui. 2030 General Plan, Countywide Policy Plan. Adopted by Maui County Council 3/24/2010. <http://www.co.maui.hi.us/index.aspx?NID=420>

Cultural Surveys Hawai'i. *An Archaeological Inventory Survey for the Moloka'i High School Science Facilities Upgrade Project, Ho'olehua Ahupua'a, Moloka'i District, Moloka'i Island. TMK: [2] 5-2-015:001 por.* December 2013

Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.-L. Chen, P.-S. Chu, J.K. Eischeid, and D.M. Delaparte, 2013: Online Rainfall Atlas of Hawai'i. *Bull. Amer. Meteor. Soc.* 94, 313-316, doi: 10.1175/BAMS-D-11-00228.1.

Kamehameha Schools. *Molokai: Future of a Hawaiian Island*, Hūlili: Multidisciplinary Research on Hawaiian Well-Being Vol.5, 2008

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State of Hawai'i, Department of Education. Proposed Kualap'uu School Waterline Improvements, Draft Environmental Assessment, March 2010

State of Hawai'i, Office of the Governor, Office of State Planning. *The Hawai'i State Plan*, Chapter 226, Hawai'i Revised Statutes, 1991.

State of Hawai'i, The Hawai'i State Plan, *Education Functional Plan*, 1989.

U.S. Department of Agriculture, Soil Conservation Service, In Cooperation with the University of Hawai'i Agriculture Experiment Station. August 1972. *Soil Survey of Kaua'i, O'ahu, Maui, Moloka'i and Lana'i, State of Hawai'i*.

U.S. Census Bureau, 2000 Census Data. <http://factfinder.census.gov>. Census 2000 Summary File 1 (SF1) 100 Percent Data, and Summary File 3 (SF)-Sample Data.

Wong, Alia. "*Is Hawaii Doing Enough to Engage Kids in Science, Tech and Math?*", Honolulu Civil Beat, May 8, 2013

7 PERSONS AND AGENCIES INVOLVED IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

7.1 AGENCIES AND ORGANIZATIONS CONSULTED

The following agencies and organizations were contacted during the early consultation for the Draft EA. The comments received during the early consultation are summarized in Section 7.2 and copies of the letters are included at the end of this chapter.

Federal

U.S. Army Engineer Division

- Civil Works Technical Branch
- Regulatory Branch

State

Department of Agriculture

Department of Business, Economic Development & Tourism, Office of Planning

Department of Hawaiian Home Lands

Department of Land and Natural Resources

- Land Division
- State Historic Preservation Division

Department of Education

- Moloka'i High School
- Moloka'i Middle School

Department of Health

- Environmental Planning Office
- Office of Environmental Quality Control

Office of Hawaiian Affairs

University of Hawaii

- Environmental Center

County of Maui

Department of Environmental Management

Department of Fire and Public Safety

Department of Housing and Human Concerns

Department of Parks and Recreation

Department of Planning

Police Department

Department of Public Works

Department of Transportation

Department of Water Supply

Other Organizations

Maui Electric Company
 Hawaiian Telcom
 Moloka'i Ranch
 Ahupua'a o Moloka'i Homestead Association

Elected Officials

Representative Mele Carroll, Representative District 13
 Senator Kalani English, Senatorial District 7
 Maui County Councilmember Stacy Crivello

7.2 COMMENTS RECEIVED DURING PRE-ASSESSMENT CONSULTATION

Letters soliciting comments were sent to the agencies and organizations listed above in November 2013, and a total of eleven written responses were received. A summary of the comments is included in the table below, and copies of the letters are included at the end of this chapter.

Table 7-1: Summary of Comments Received During Pre-Assessment Consultation

Agency or Individual	Format/Date/Reference	Comments	Action/Response
State of Hawaii			
Department of Hawaiian Home Lands	Letter dated November 21, 2013	DHHL has no comments to offer at this time.	No action required.
Department of Health, Environmental Planning Office	Letter dated November 22, 2013	Review standard DOH comments, you are required to adhere to all applicable comments. Review referenced sources on sustainable design. DOH encourages everyone to apply these sustainability strategies and principles early in planning and review. Require written response confirming receipt of letter.	Will comply.
Department of Health, Maui District Health Office	Letter dated December 3, 2013	Provide information on the proposed wastewater disposal method for this project Noise created during	Will comply, discussed in EA.

Agency or Individual	Format/Date/Reference	Comments	Action/Response
		construction phase may exceed maximum allowable levels in HAR Chapter 11-46, Community Noise Control Noise permit may be required and should be obtained before commencement of work. Review Standard Comments on DOH website.	
Department of Land and Natural Resources	Letter dated December 10, 2013	Land Division—confirming location in Flood Zone X. Applicant should provide water demands and calculations to Engineering Division for inclusion in State Water Projects Plan update.	Will comply.
DLNR State Historic Preservation Division	Letter dated December 10, 2013, LOG NO: 2013.6518, DOC NO: 1312MD05	Moloka'i High School was built in 1939; therefore it qualifies as a historic property. We recommend an archaeological inventory survey. Recommend SHPD architecture branch be consulted regarding design considerations that might affect the campus.	Will comply. Archaeological Inventory Survey has been completed.
Office of Planning	Letter dated December 11, 2013	Entire state is within CZM, include discussion of CZM objectives and policies. See referenced guidance on nonpoint pollution and stormwater impacts. Discuss State land use law and CZMA. School located within State Agricultural District; discuss criteria for permissible uses and intent to file Special Use permit. Discuss LSB soil rating. Discuss impacts generated by wind turbine.	Will be addressed in EA.
County of Maui			
Department of Fire and Public Safety	Letter dated December 10, 2013	No specific comments in regards to EA. May comment during building permit review process.	No action required.

<u>Agency or Individual</u>	<u>Format/Date/Reference</u>	<u>Comments</u>	<u>Action/Response</u>
Department of Housing and Human Concerns	Letter dated November 26, 2013	Project is not subject to Chapter 2.96, Maui County Code. Department has no additional comments to offer.	No action required.
Department of Parks and Recreation	Letter dated December 10, 2013	The Department of Parks and Recreation supports the improvements to Moloka'i High School and renewable energy goals.	No action required.
Department of Planning	Letter dated December 17, 2013	Proposed improvements will require both a State Land Use Special Use Permit and Conditional Permit approvals from the County.	Permits will be obtained.
Department of Water Supply	Letter dated November 22, 2013	Water system serving Moloka'i High School is owned and operated by the Department of Hawaiian Home Lands. Project will not impact the Department of Water Supply's water system on Moloka'i.	No action required. Information added to EA.

NEIL ABERCROMBIE
GOVERNOR
STATE OF HAWAII



JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

DARRELL T. YOUNG
DEPUTY TO THE CHAIRMAN

**STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS**

P. O. BOX 1879
HONOLULU, HAWAII 96805

RECEIVED NOV 29 2013

November 21, 2013

Kimura International
Attn: Mr. Glenn T. Kimura
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawai'i 96814

Dear Mr. Kimura:

Subject: Moloka'i High School Science Facility Upgrades
DOE Project Number Q57000-13
Environmental Assessment-Pre Assessment Consultation

Thank you for the opportunity to review the Environmental Assessment-Pre Assessment Consultation. The Department of Hawaiian Home Lands has no comment to offer at this time.

If you have any questions, please contact our Planning Office at 620-9480

Aloha,

Darrell C. Yagodich,
Planning Program Manager



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

In reply, please refer to:
File:
[13-218
Molokai HS Science

November 22, 2013

Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

RECEIVED NOV 26 2013

Dear Mr. Kimura:

**SUBJECT: Molokai High School Science Facility Upgrades, DOE Project Number Q57000-13
Environmental Assessment – Pre-Assessment Consultation**

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your letter dated November 18, 2013. Thank you for allowing us to review and comment on the subject document. The document was routed to the Indoor & Radiological Health Branch and the Hazard Evaluation & Emergency Response Office. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments at:

<http://health.hawaii.gov/epo/home/landuse-planning-review-program/>.

You are required to adhere to all standard comments specifically applicable to this application.

EPO suggests the applicant examine the many sources available on strategies to support the sustainable design of communities, including the:

State of Hawaii, Office of Planning: www.planning.hawaii.gov and the new 2013 ORMP;

U.H., School of Ocean and Earth Science and Technology: www.soest.hawaii.edu;

U.S. Environmental Protection Agency's sustainability programs: www.epa.gov/sustainability; and

U.S. Green Building Council's LEED program: www.usgbc.org/leed.

DOH encourages everyone to apply these sustainability strategies and principles early in the planning and review of projects. We also request that for future projects you consider conducting a Health Impact Assessment (HIA). More information is available at: www.cdc.gov/healthyplaces/hia.htm. We request you share all of this information with others to increase community awareness on sustainable, innovative, inspirational, and healthy community design.

We require a written response confirming receipt of this letter and any other letters you receive from DOH in regards to this submission. You may mail your response to 919 Ala Moana Blvd., Ste. 312, Honolulu, Hawaii 96814. However, we would prefer an email submission to: epo@doh.hawaii.gov. We anticipate that our letter(s) and your response(s) will be included in the final document. If you have any questions, please contact me at (808) 586-4337.

Mahalo,

A handwritten signature in black ink, appearing to read "Laura Leialoha Phillips McIntyre".

Laura Leialoha Phillips McIntyre, AICP
Manager, Environmental Planning Office



**STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE**

54 HIGH STREET
WAILUKU, HAWAII 96793

December 3, 2013

RECEIVED DEC 05 2013

Mr. Glenn T. Kimura
President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

**Subject: Molokai High School Science Facility Upgrades
DOE Project Number Q57000-13
Environmental Assessment –Pre-Assessment Consultation**

Thank you for the opportunity to review this project. We have the following comments to offer:

1. Please provide information on the proposed wastewater disposal method for this project. If you have any questions, please call Roland Tejano, Environmental Engineer, at 808 984-8232.
2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control." A noise permit may be required and should be obtained before the commencement of work. The Indoor & Radiological Health Branch should be contacted at 808 586-4700.

It is strongly recommended that the Standard Comments found at the Department's website: <http://health.hawaii.gov/epo/home/landuse-planning-review-program/> be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230 or E-mail me at patricia.kitkowski@doh.hawaii.gov.

Sincerely,

A handwritten signature in cursive script that reads "Patti Kitkowski".

Patti Kitkowski
District Environmental Health Program Chief

c EPO

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED DEC 12 2013

December 10, 2013

Kimura International Inc.
Attention: Mr. Glenn T. Kimura, President
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: Molokai High School Science Facility Upgrades – DOE Proj. No. Q57000-13; Environmental Assessment – Pre-Assessment Consultation

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 27, 2013

MEMORANDUM

TO: FR:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Maui District
- Historic Preservation

TO:

FROM:

SUBJECT:

Russell Y. Tsuji, Land Administrator
Molokai High School Science Facility Upgrades – DOE Proj. No. Q57000-13;
Environmental Assessment – Pre-Assessment Consultation

LOCATION:

Hoolehua, Island of Molokai; TMK: (2) 5-2-007:001 & 5-2-015:001

APPLICANT:

State of Hawaii, Department of Education

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
2013 DEC -6 PM 2:17
RECEIVED
LAND DIVISION

13 DEC 03 AM 10:27 ENGINEERING

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 9, 2013.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed:

Print Name:

Date:

[Signature]
Cathy S. Chang, Chief Engineer
12/5/13

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji

Ref.: Pre-Assessment Consultation for Molokai HS Science Facility Upgrades, DOE Proj.No.

Q57000-13

Maui.009

COMMENTS

- (X) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.
- () Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is also located in Zone ____.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the project site must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- () Mr. Mario Siu Li at (808) 768-8098 or Ms. Ardis Shaw-Kim at (808) 768-8296 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
- () Mr. Carolyn Cortez at (808) 270-7813 of the County of Maui, Department of Planning.
- () Mr. Stanford Iwamoto at (808) 241-4884 of the County of Kauai, Department of Public Works.
- () The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
- (X) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.
- () Additional Comments: _____
- () Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

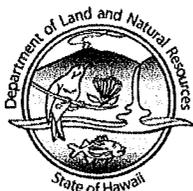
Signed: _____

CARTY S. CHANG, CHIEF ENGINEER

Date: _____

12/5/13

RECEIVED DEC 18 2013



**HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES**

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

December 10, 2013

Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd.
Honolulu, Hawaii 96814

LOG NO: 2013.6518
DOC NO: 1312MD05
Archaeology
Architecture

Dear Mr. Kimura,

**SUBJECT: Chapter 6E-8 Historic Preservation Review – Maui County
Early Consultation for an Environmental Assessment for Moloka'i High School
Ho'olehua Ahupua'a, Moloka'i District, Island of Mōloka'i
TMK (2) 5-2-015:001 (por.)**

Thank you for the application submittal, which was received by our Maui staff on November 19, 2013. An Environmental Assessment (EA) is being developed for the Moloka'i High School Science Facility Upgrades, DOE Project Number Q57000-13. The project will entail plans for the proposed two new classrooms, including a shared staff space and unisex bathroom, to be used as science labs. The project may also include a small wind turbine located near the classrooms. The project area is proposed for the grassy site at the front of the school facing Farrington Avenue, adjacent to two existing classrooms.

Two land use permits will be required from the Maui County Planning Department. The western half of the classroom building will extend into a vegetated area that is owned by the State and has been designated for school expansion. Because this portion of the site is within the State's Agricultural District, a Land Use Special Permit will be obtained from the County. A Conditional Permit will also be needed because the entire Moloka'i High School site is zoned Interim Agriculture.

A search of our records indicates that an archaeological inventory survey has not been conducted on this parcel. Molokai High School was built in 1939; therefore it qualifies as an historic property. We recommend an archaeological inventory survey be conducted by a qualified archaeological firm. We additionally recommend that our Architecture Branch, located in our Kapolei, Oahu office, be consulted regarding design considerations that might affect the campus.

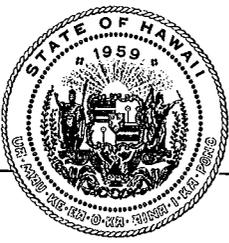
Please contact Morgan Davis at (808) 243-4641 or Morgan.E.Davis@hawaii.gov for any questions or concerns regarding this letter.

Mahalo,

A handwritten signature in black ink, appearing to read "Theresa K. Donham".

Theresa K. Donham
Archaeology Branch Chief

cc: Russell Y. Tsuji, Land Administrator
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809



OFFICE OF PLANNING STATE OF HAWAII

NEIL ABERCROMBIE
GOVERNOR

JESSE K. SOUKI
DIRECTOR
OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: <http://planning.hawaii.gov/>

Ref. No. P-14202

December 11, 2013

RECEIVED DEC 16 2013

Ms. Leslie Kurisaki
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Ms. Kurisaki:

Subject: Environmental Assessment – Pre-Assessment Consultation for Molokai High School Science Facility Upgrades, DOE Project Number Q57000-13

Thank you for the opportunity to provide pre-assessment consultation comments on the Molokai High School Science Facility Upgrades proposed by the Department of Education. We have reviewed the documents submitted to our office by letter dated November 18, 2013, and have the following comments to offer:

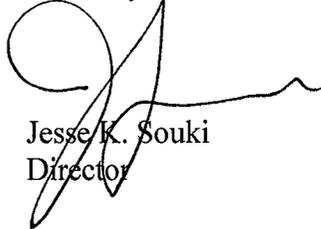
1. The entire state is defined to be within the Coastal Zone Management Area, see Hawaii Revised Statutes (HRS) §205A-1 (definition of "coastal zone management area"). The Draft Environmental Assessment (Draft EA) should include a discussion of the proposed project's ability to meet the objectives and policies set forth in HRS §205A-2.
2. The construction project may have nonpoint pollution impacts on coastal waters. Please review the Hawaii Watershed Guidance, which provides a summary and links to management measures that may be implemented to minimize coastal nonpoint pollution impact. Specifically, please examine the section on Site Development Management Measure and Existing Development Management Measure (page 122) and Pollution Prevention Management Measure (page 127). The Hawaii Watershed Guidance can be viewed or downloaded from the Office of Planning website at <http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HIWatershedGuidanceFinal.pdf>.
3. For potential impacts to water resources from Stormwater and inundation concerns, please consider utilizing the Office of Planning's Stormwater Impact Assessment to incorporate into the environmental review process. Specifically examine Stormwater Design & Mitigation (page 11) and Low-Impact Development Concerns (page 14) of the Stormwater Impact Assessment. The Appendices include a list of Data

Resources, Best Management Practice Techniques and a Reviewers Checklist. The Stormwater Impact Assessment guidance document can be found at: http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf.

4. The Draft EA should include the Hawaii state land use law, HRS Chapter 205 and the Coastal Zone Management Act, HRS Chapter 205A, in a list of "Relationship to Land Use Plans, Policies, and Controls."
5. The proposed school structure to be located within the State Agricultural District (a portion of the site) is not an allowed use under the Hawaii Revised Statutes (HRS) Chapter 205. The Draft EA should provide an explanation on the proposed use as it relates to the criteria for permissible uses in the Agricultural District. It should also include a discussion of the Applicant's intent to file a Special Use Permit or petition for Land Use District Boundary Amendment, or other relevant land use permits with the appropriate agencies.
6. The Draft EA should discuss the soil rating of the proposed site based on the Land Study Bureau rating system.
7. If the proposed location of the wind turbine is also within the State Agricultural District, the Draft EA should make reference to one of the allowed uses in the Agricultural District pursuant to HRS §205-4.5(15). The Draft EA should identify and discuss any impacts to the surrounding areas that may be generated by the wind turbine.

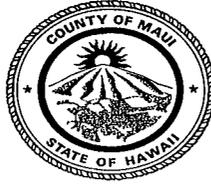
If you have any questions regarding this comment letter, please contact Josh Hekekoa of our Hawaii CZM Program at 587-2845.

Sincerely,



Jesse K. Souki
Director

ALAN M. ARAKAWA
MAYOR



JEFFREY A. MURRAY
CHIEF

ROBERT M. SHIMADA
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

313 MANEA PLACE . WAILUKU, HAWAII 96793
(808) 244-9161 . FAX (808) 244-1363

December 10, 2013

RECEIVED DEC 12 2013

Kimura International
C/O Glenn T. Kimura, President
1600 Kapiolani Blvd. Suite 1610
Honolulu, HI 96814

Re: Molokai High School Science Facility Upgrades
DOE Project # Q57000-13
Kaunakakai, Molokai
Environmental Assessment – Pre Assessment Consultation

Dear Glenn:

Thank you for the opportunity to comment on this subject. At this time, our office provides the following comments:

- Our office has no specific comments in regards to the environmental assessment.
- Our office reserves the right to comment on the proposed project during the building permit review process when fire department access, water supply for fire protection, and fire and life safety requirements will be addressed.

If there are any questions or comments, please feel free to contact me at 244-9161 ext. 23.

Sincerely,

A handwritten signature in cursive script, appearing to read "Paul Haake".

Paul Haake
Captain, Fire Prevention Bureau



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
HOUSING DIVISION
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor

JO-ANN T. RIDAO
Director

JAN SHISHIDO
Deputy Director

35 LUNALILO STREET, SUITE 102 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7351 • FAX (808) 270-6284

November 26, 2013

RECEIVED DEC 02 2013

Mr. Glenn T. Kimura
President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, HI 96814

Dear Mr. Glenn T. Kimura:

**Subject: Molokai High School Science Facility Upgrades
DOE Project Number Q57000-13
Environmental Assessment – Pre-Assessment
Consultation**

The Department has reviewed the request for Environmental Assessment – Pre-Assessment Consultation for the above subject project. Based on our review, we have determined that the subject project is not subject to Chapter 2.96, Maui County Code. At the present time, the Department has no additional comments to offer.

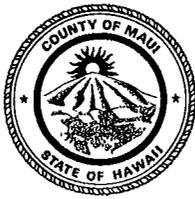
Please call Mr. Veranio Tongson Jr. of our Housing Division at (808) 270-1741 if you have any questions.

Sincerely,

WAYDE T. OSHIRO
Housing Administrator

cc: Director of Housing and Human Concerns

ALAN M. ARAKAWA
Mayor



GLENN T. CORREA
Director

BRIANNE SAVAGE
Deputy Director

(808) 270-7230
FAX (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nako'a Street, Unit 2, Wailuku, Hawaii 96793

RECEIVED DEC 13 2013

December 10, 2013

Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

**SUBJECT: Moloka'i High School Science Facility Upgrades
DOE Project Number Q57000-13
Environmental Assessment — Pre-Assessment Consultation**

Thank you for the opportunity for early consultation on the subject project. The Department of Parks & Recreation supports the improvements to Moloka'i High School and the Science Program, as well as the renewable energy goals. The Department has no comments at this time and looks forward to reviewing the Environmental Assessment when it is available.

Please feel free to contact me or Robert Halvorson, Chief of Planning and Development, at 270-7931, should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "G. Correa", is written above the printed name.

GLENN T. CORREA
Director of Parks & Recreation

c: Robert Halvorson, Chief of Planning and Development

GTC:RH:as

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

December 17, 2013

RECEIVED DEC 19 2013

Mr. Glen T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 160
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT PRE-APPLICATION CONSULTATION FOR THE PROPOSED IMPROVEMENTS TO MOLOKAI HIGH SCHOOL IN BOTH AGRICULTURE AND INTERIM ZONING, LOCATED AT 2140 FARRINGTON AVENUE, HOOLEHUA, MOLOKAI, MAUI, HAWAII; TMK: (2) 5-2-015:012 (RFC 2013/0163)

Thank you for the opportunity to comment on the Draft Environmental Assessment – Pre-Application Consultation. The proposed improvements to Molokai High School will require both a State Land Use Special Use Permit and Conditional Permit approvals from the County of Maui. Please be advised that additional applications may be required after the required applications have been submitted and reviewed.

Should you have any questions, please contact Molokai Planner Benjamin Sticka at benjamin.sticka@mauicounty.gov or at (808) 270-7520.

Sincerely,

A handwritten signature in black ink, appearing to read "Benjamin T. Sticka".

BENJAMIN T. STICKA, Molokai Planner

xc: Clayton I. Yoshida, AICP, Planning Program Administrator (PDF)
Jeffrey P. Dack, AICP, Current Planning Supervisor (PDF)
Benjamin T. Sticka, Molokai Planner (PDF)
General File

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ALAN M. ARAKAWA
Mayor



DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY

COUNTY OF MAUI

200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

November 22, 2013

RECEIVED DEC 02 2013

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd., Ste. 1610
Honolulu, HI 96814

Dear Mr. Kimura:

RE: Proposed Moloka'i High School Science Facility Upgrades
DOE Project Number Q57000-13
Environmental Assessment – Pre-Assessment Consultation

Thank you for the opportunity to provide the following comments for the referenced project.

The water system serving Moloka'i High School is owned and operated by the Department of Hawaiian Home Lands. The project will not impact the Department of Water Supply's water systems on Molokai.

Should you have any questions, please contact Arnold Y. Imae, Staff Planner, at Arnold.Imae@co.maui.hi.us or (808) 463-3110.

Sincerely,

A handwritten signature in black ink, appearing to read "Dave Taylor".

Dave Taylor, P.E., Director

ayi

c: DWS Engineering Division
DWS Water Resources & Planning Division files

"By Water All Things Find Life"

Appendix A

An Archaeological Inventory Survey
For the Moloka'i High School Science
Facilities Upgrade project
DRAFT

Cultural Surveys Hawai'i

December 2013

**An Archaeological Inventory Survey for the
Moloka‘i High School Science Facilities Upgrade Project, Ho‘olehua
Ahupua‘a, Moloka‘i District, Moloka‘i Island.
TMK: [2] 5-2-015:001 por.**

**Prepared for
Kimura International, Inc.**

DRAFT

**Prepared by
Katie M. Folio, B.A.
and
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.
Wailuku, Hawai‘i
(Job Code: HOOLEHUA 2)**

December 2013

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Ph.: (808) 262-9972
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1860 Main Street
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Fax: (808) 244-1994

Management Summary

Reference	Archaeological Inventory Survey for the Moloka'i High School Science Facilities Upgrade Project, Ho'olehua Ahupua'a, Moloka'i District, Moloka'i Island. TMK: [2] 5-2-015:001 por.
Date	December 2013 (DRAFT)
Project Number (s)	CSH Job Code: HOOLEHUA 2
Investigation Permit Number	Cultural Surveys Hawai'i Inc. completed the fieldwork under state archaeological permit No. 13-06 (2013) issued by SHPD, per Hawai'i Administrative Rules (HAR) Chapter 13-13-282.
Project Location	The project area is located within the Moloka'i High School campus, bound by Lihi Pali Avenue (Route 482) to the north and east, with Farrington Avenue (Route 480) to the south.
Land Jurisdiction	Hawai'i State Department of Education (DOE)
Agencies	Department of Land and Natural Resources/State Historic Preservation Division (DLNR/SHPD)
Project Description	The DOE is proposing construction of a new science facility at the Moloka'i High School. This building will include two science classrooms, itinerant services, two restrooms, and a conference room.
Project Acreage	Approximately 707 square meters (7,610 square feet)
Area of Potential Effect (APE) and Survey Acreage	The APE for this project is limited to areas of anticipated ground disturbing activities, which include the footprints of the proposed science facility building as well as associated accessory space and utilities, for a total area of approximately 707 square meters (7,610 square feet).
Historic Preservation Regulatory Context	The proposed project is subject to State of Hawai'i historic preservation review legislation (Hawai'i Revised Statutes [HRS] 6E-8/Hawai'i Administrative Rules [HAR] Chapter 13-13-276, respectively). This report was written to fulfill the requirements of Hawai'i Administrative Rules (HAR) Chapter 13-276 and Chapter 13-275/284 and is intended for review and approval by the DLNR/SHPD.
Fieldwork Effort	The fieldwork effort for this project took 16 person hours to complete and was accomplished on December 2 nd , 2013 by Todd D. McCurdy, M.A., and Jonas Madeus, B.A. under the general supervision of Hallett H. Hammatt Ph.D.
Number of Historic Properties Identified	One historic property, SIHP # 50-60-01-2527, was identified within the project APE.

<p>Historic Properties Recommended Eligible to the Hawai'i Register of Historic Places (Hawai'i Register)</p>	<table border="1"> <thead> <tr> <th data-bbox="514 239 750 327">SIHP #</th> <th data-bbox="750 239 915 327">Site Type</th> <th data-bbox="915 239 1073 327">Function</th> <th data-bbox="1073 239 1219 327">Age</th> <th data-bbox="1219 239 1419 327">Significance Criteria</th> </tr> </thead> <tbody> <tr> <td data-bbox="514 327 750 380">50-60-01-2527</td> <td data-bbox="750 327 915 380">Deposit</td> <td data-bbox="915 327 1073 380">Trash Pit</td> <td data-bbox="1073 327 1219 380">Historic</td> <td data-bbox="1219 327 1419 380">D</td> </tr> </tbody> </table>	SIHP #	Site Type	Function	Age	Significance Criteria	50-60-01-2527	Deposit	Trash Pit	Historic	D
SIHP #	Site Type	Function	Age	Significance Criteria							
50-60-01-2527	Deposit	Trash Pit	Historic	D							
<p>Historic Properties Recommended Ineligible to the Hawai'i Register</p>	<p>None</p>										
<p>Effect Recommendation</p>	<p>Under Hawai'i state historic preservation legislation, the only two possible effect determinations for a given project under historic preservation review are “no historic properties affected” and “effect, with proposed mitigation commitments” (HAR Chapter 13-284-7). In the circumstance of the current project area, one historic property was documented within the current project area that cannot be avoided by the proposed science facilities upgrade. This historic property is considered significant for informational content.</p> <p>The current inventory survey investigation has adequately recorded the information available from this property, through location documentation, written descriptions, and photographs. Because the information that gives this historic property significance has already been recorded and additional historic preservation mitigation would not add to the body of information concerning this historic property, CSH recommends a project specific effect determination of “no historic properties affected.” This is believed to be appropriate, despite the potential removal of this feature by the proposed project as the information that makes this historic property significant has been adequately recorded.</p>										
<p>Mitigation Recommendation</p>	<p>Based on the evaluation of effect, CSH recommends no further historic preservation work for SIHP 50-50-01-2527. While it has been established by this archaeological inventory survey that ground disturbing activities related to the Moloka'i High School Science Facilities Upgrade project will likely have no effect on historic properties, should pre-historic or historic cultural or human remains be encountered during construction of this project, SHPD must be notified immediately and all work must cease. This includes no screening of back dirt, no cleaning and/or excavation of the site, and no exploratory work of any kind unless specifically requested by SHPD.</p>										

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Section 1 Introduction

1.1 Project Background

At the request of Kimura International, Inc., Cultural Surveys Hawai'i, Inc. (CSH) conducted an archaeological inventory survey (AIS) for the proposed construction of a new science facility at the Moloka'i High School. The building will include two science lab classrooms and a common area with two restrooms and a teacher prep or store room. Moloka'i High School is currently the only public high school on the island, with 340 students enrolled, and currently does not have classrooms with the appropriate layout and equipment for science labs. The only dedicated science labs on the campus belong to the attached middle school, which was separated from the high school in 2004. The proposed project may include a small wind turbine located near the new science facility, which would provide a renewable source of energy for the classrooms (Kimura 2013).

The project area is located in Ho'olehua Ahupua'a, Moloka'i District, Moloka'i Island, TMK: (2) 5-2-015:001 por. (Figure 1 and Figure 2). The specific location of the proposed science facilities covers approximately 707 square meters (7,610 square feet) and is situated south of the Industrial Arts Building E and existing classroom P-9, and adjacent to the north side of Farrington Avenue (Route 480) (Figure 3 and Figure 4).

The proposed project is subject to State of Hawai'i historic preservation review legislation (Hawai'i Revised Statutes [HRS] 6E-8/Hawai'i Administrative Rules [HAR] Chapter 13-13-276, respectively). This report was written to fulfill the requirements of Hawai'i Administrative Rules (HAR) Chapter 13-276 and Chapter 13-275/284 and is intended for review and approval by the DLNR/SHPD.

1.2 Scope of Work

The following archaeological inventory survey scope of work is designed to satisfy the Hawai'i state requirements for archaeological inventory surveys (Hawai'i Administrative Rules [HAR] Chapter 13-276 and Chapter 13-284):

- 1) Historic and archaeological background research, including a search of historic maps, written records, Land Commission Award documents, and the reports from prior archaeological investigations. This research will focus on the specific project area's past land use, with general background on the pre-contact and historic settlement patterns of the *ahupua'a* and district. This background information will be used to compile a predictive model for the types and locations of historic properties that could be expected within the project area.
- 2) A complete (100 %) systematic pedestrian inspection of the project area to identify any potential surface historic properties. Surface historic properties will be recorded with an evaluation of age, function, interrelationships, and significance. Documentation will include photographs, scale drawings, and, if warranted, limited controlled excavation of select sites and/or features, in addition to sub-surface testing and core sampling to retrieve paleoenvironmental data.

- 3) As appropriate, consultation with knowledgeable individuals regarding the project area's history, past land use, and the function and age of the historic properties documented within the project area.
- 4) As appropriate, laboratory work to process and gather relevant environmental and/or archaeological information from collected samples.
- 5) Preparation of an inventory survey report, which will include the following:
 - a) A project description;
 - b) A section of a USGS topographic map showing the project area boundaries and the location of all recorded historic properties;
 - c) Historical and archaeological background sections summarizing prehistoric and historic land use of the project area and its vicinity;
 - d) Descriptions of all historic properties, including selected photographs, scale drawings, and discussions of age, function, laboratory results, and significance, per the requirements of HAR 13-276. Each historic property will be assigned a Hawai'i State Inventory of Historic Properties number;
 - e) If appropriate, a section concerning cultural consultations [per the requirements of HAR 13-276-5(g) and HAR 13-275/284-8(a)(2)];
 - f) A summary of historic property categories, integrity, and significance based upon the Hawai'i Register of Historic Places criteria;
 - g) A project effect recommendation;
 - h) Treatment recommendations to mitigate the project's adverse effect on any historic properties identified in the project area that are recommended eligible to the Hawai'i Register of Historic Places.

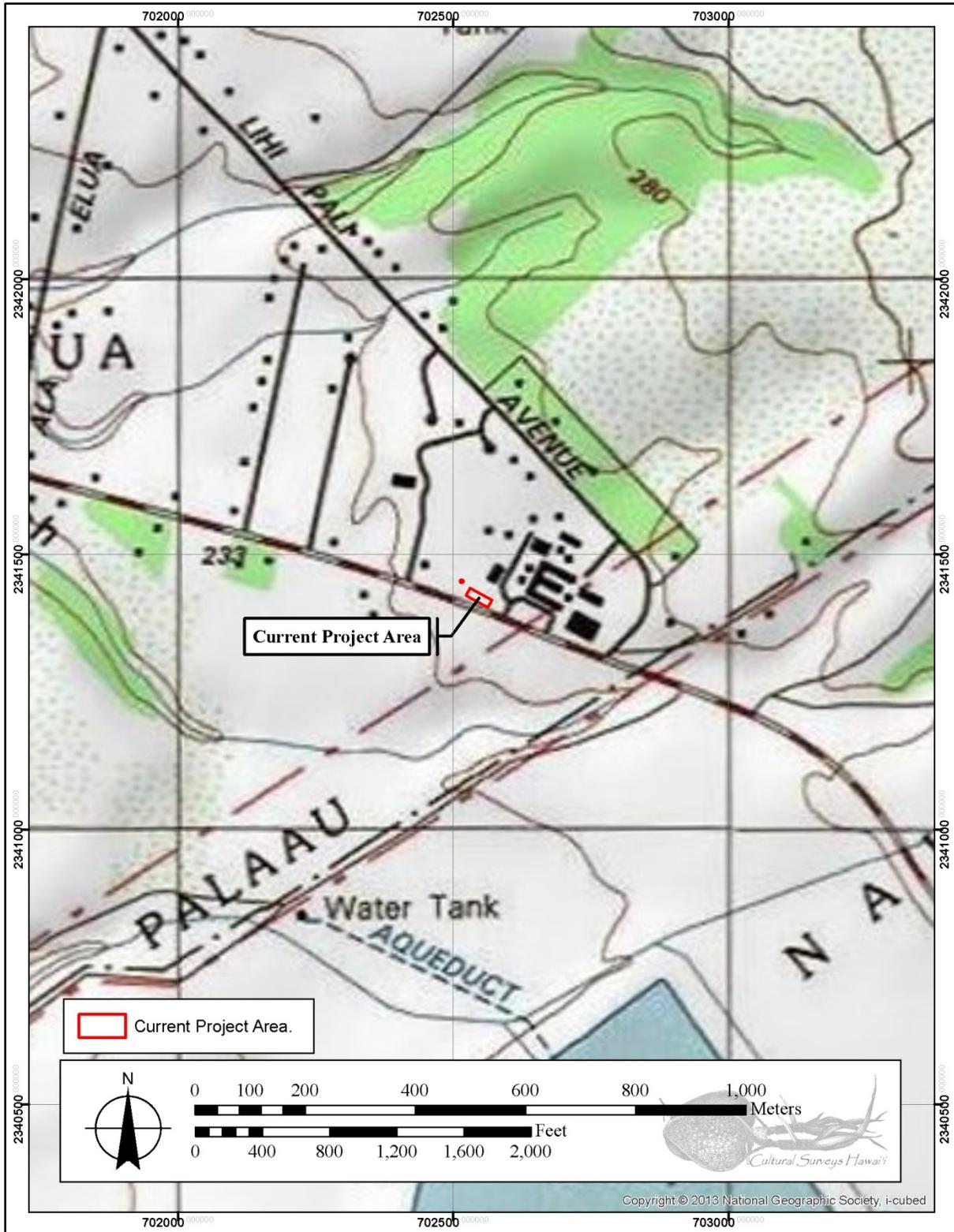


Figure 1. Portion of the USGS 7.5 minute series topographic map, Kaunakakai Quadrangle (1997), showing the location of the current project area.

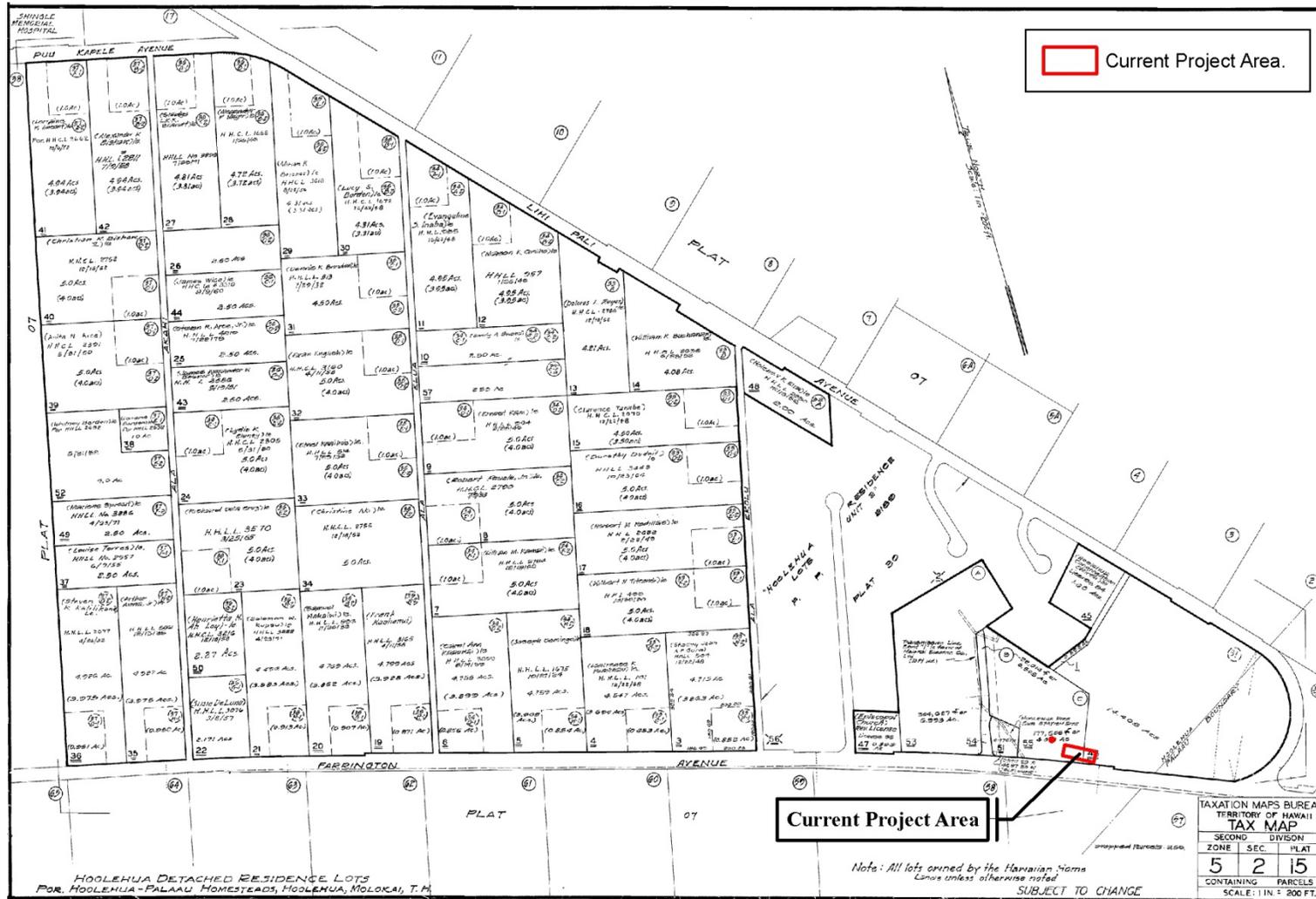


Figure 2. TMK Map (2) 5-2-015 showing location of current project area.



Figure 3. Site plan showing Moloka'i High School's proposed science facilities upgrades (image courtesy of CDS International and Kimura International).

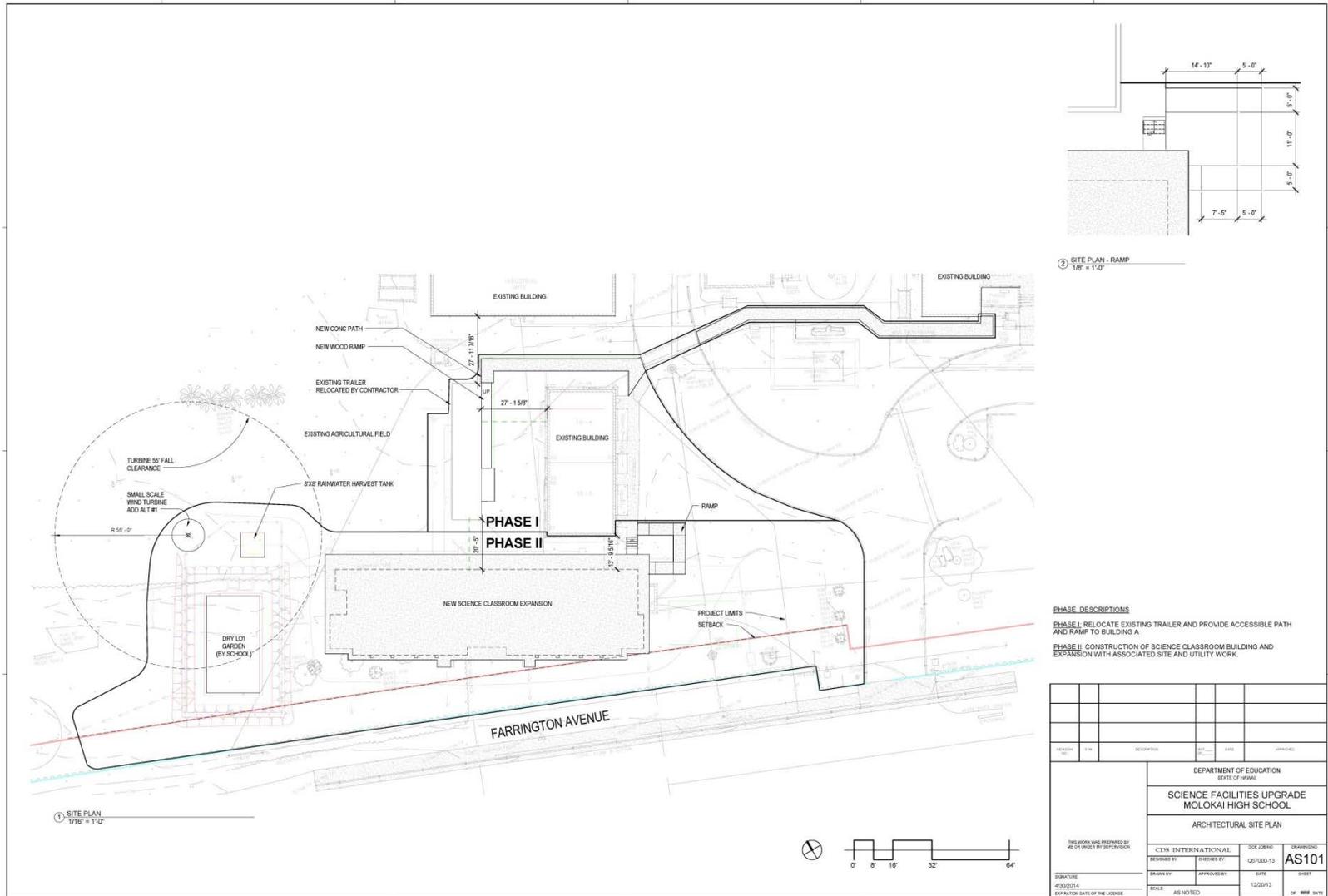


Figure 4. Construction plan showing Moloka'i High School's proposed science facilities upgrades (image courtesy of CDS International and Kimura International).

1.2.1 Natural Environment

The island of Moloka'i is the fifth largest of the Hawaiian Islands, with an area of 673 square kilometers (260 square miles). It lies 40 kilometers (25 miles) southeast of O'ahu and 13.7 kilometers (8.5 miles) northwest of Maui. It consists of two principal parts, each a major volcanic mountain, which overlap in the central saddle region known as the Ho'olehua Plain. East Moloka'i rises to 1,515 meters (4,970 feet) in altitude.

The project area is located in the dry region of West Moloka'i, approximately 1.0 kilometer (0.6 miles) northwest of the town of Kualapu'u. The project area is located approximately 260 meters (853 feet) above mean sea level (amsl), and receives an average 1.0 meter (3.3 feet) of annual rainfall (Giambelluca et al. 1986:125). The region was built by basaltic lavas erupted along rift zones trending southwestward and northwestward. Many of the flows were unusually fluid. The volcanic activity at West Moloka'i went extinct earlier than East Moloka'i (Stearns and MacDonald 1947:1). Following the close of volcanic activity, stream erosion cut large canyons on East Moloka'i, but accomplished much less on drier West Moloka'i.

Ho'olehua Ahupua'a, in which the project area is located, was known as a famous sweet potato growing region (E. S. C. Handy et al. 1991:146). While the project area is technically located in West Moloka'i, the Ho'olehua Plain region is geologically a part of the East Moloka'i mountain, which has been truncated along its northern slope by marine erosion; producing the extraordinarily high sea-cliffs along the windward coast (Stearns and MacDonald 1942:11). Ho'olehua is one of the largest *ahupua'a* on the island, running from the northern cliffs toward the southern coast. In addition to Moloka'i High School, Moloka'i Airport is also located in Ho'olehua Ahupua'a.

The lava flows from the East Molokai volcano have weathered to lateritic soils 3-9 meters (10-30 feet) thick within the Ho'olehua Plain (Stearns and MacDonald 1942:13). The soil-sediments within the project area consist entirely of Hoolehua silty clay (HzA), 0-3 percent silt (Figure 5). This sediment generally occurs in topographic depressions, and consists of dark reddish-brown silty clay approximately 1.65 meters (5.4 feet) thick. This soil is generally associated with pineapple agriculture, with some use for truck crops and pasture lands (Foote et al. 1972:44).

The current project area is located on a level landscaped grassy site at the front of the high school, extending into a densely vegetated area at the west end (Figure 6 and Figure 7). Surrounding vegetation includes *koa haole* (*Leucaena leucocephala*), Java plum (*Syzgium cumini*), and cane grass (*Saccharum officinarum*).

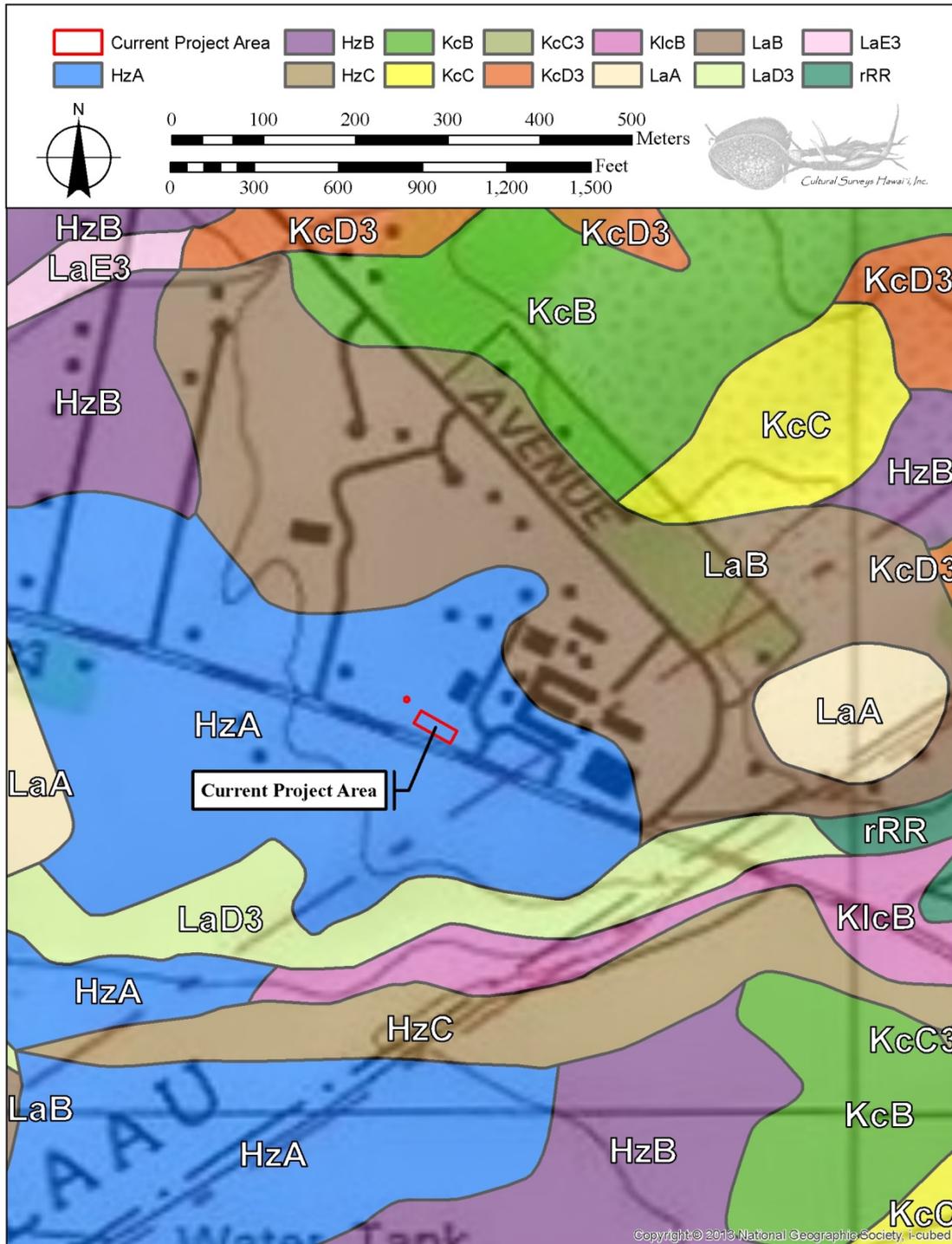


Figure 5. A portion of the 1997 Kaunakakai USGS topographic Quadrangle showing the overall project area relative to the local soil series (U.S. Department of Agriculture 2001).



Figure 6. General view of the current project area proposed for construction of the new science facilities at Moloka'i High School. Relocated trailer visible along the northeastern perimeter.



Figure 7. Vegetation at the west end of the current project area.

1.2.2 Built Environment

The built environment surrounding the location of the new science facility at the Moloka'i High School consists of standing architecture and hardscape features (concrete sidewalks, asphalt parking areas, and roadways) commonly associated with the facilities of a high school campus. The general area surrounding the campus consists of paved roads and utilities associated with the school and with the surrounding residential and commercial neighborhood. Lihi Pali Avenue (Route 482) wraps around the north and west sides of the school property, while Farrington Avenue (Route 480) bounds the south side of the main campus, with parking and athletic fields on the opposite side of the road. Grace Episcopal Church and Habitat for Humanity are located west of the project area (Figure 8).

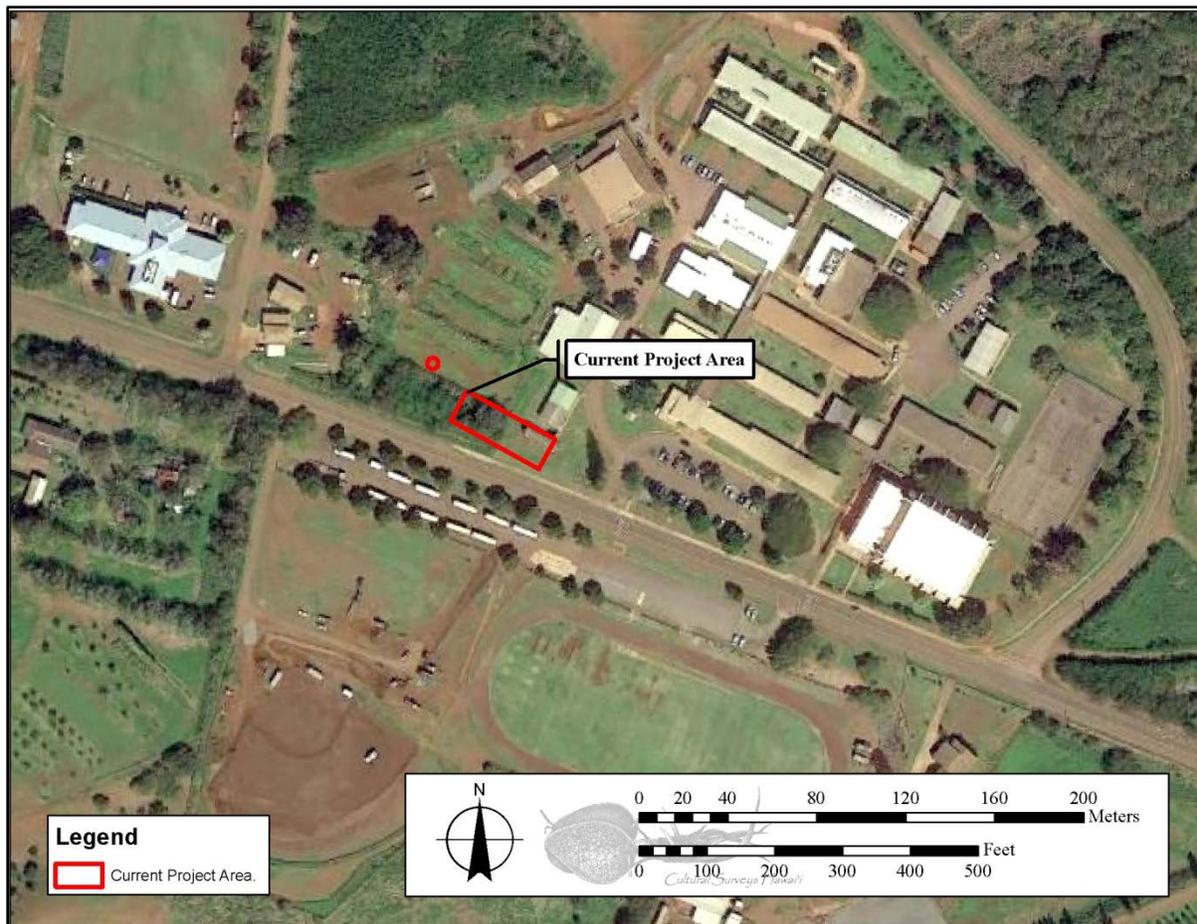


Figure 8. Current aerial image of the Moloka'i High School campus and surrounding neighborhood, showing the project area location in red (Google Earth 2013).

Section 2 Methods

This section details the methods used by CSH personnel during fieldwork and the preparation of this document. CSH completed the AIS under state archaeological permit No. 13-06 issued by the SHPD, per Hawai'i Administrative Rules (HAR) Chapter 13-13-282 and the AIS was conducted in compliance with HAR Chapter 13-276.

2.1 Field Methods

2.1.1 Pedestrian Survey

A pedestrian survey of the entire project area was undertaken for the purpose of historic property identification and documentation. The following methods were used to complete the pedestrian inspection of the current project area:

1. The boundary of the project area was identified and maintained during the course of the pedestrian survey using two Garmin GPSMap 60CSx handheld GPS units, one on either side of the survey line, with the project area data uploaded and visible on the map screen;
2. The pedestrian inspection of the study area was accomplished through systematic transects at 3 meter (10 ft) intervals oriented southeast to northwest (120° - 300°), parallel to the long axis of the study area. This narrow interval was employed due to the poor visibility within the dense vegetation in northwest portion of the project area.

2.1.2 Subsurface Testing

The subsurface testing program consisted of the mechanical excavation of three trenches within the project area. Each trenches measured 7-8 meters long (23-26 feet) by one meter wide (3.3 feet), and was excavated with a Caterpillar Backhoe using a 24 inch (61 cm) bucket. The following methods were used to document each backhoe trench:

1. The soil stratigraphy of each trench was drawn to scale and photographed;
2. The exposed sediment layers were described using standard USDA soil description terminology, which included Munsell color, texture, consistency, structure, plasticity, cementation, origin of sediments, descriptions of any inclusions such as cultural material and/or roots and rootlets, lower boundary distinctiveness and topography, and other general observations;
3. The location and orientation of each backhoe trench was recorded using a Trimble ProXH GPS unit with sub-meter accuracy.

2.2 Document Review and GIS Methods

As part of this monitoring report, CSH Maui staff archaeologists performed a detailed review of all previous archaeological work conducted in the general project areas. In addition, a variety of resources devoted to historical perspectives of the region and traditional stories and accounts were reviewed. Research venues included the CSH Maui office archives, the State Historic Preservation Division of the Department of Land and Natural Resources (Maui Office), and

private collections. All relevant Land Commission Awards (LCAs) were inspected using resources of Waihona 'Aina, Corp. (Waihona 'Aina 2002).

Historic maps were geo-referenced in relation to Moloka'i Island TMK shapefile (County of Maui 2009) and the 1997 Kaunakakai United States Geological Survey (U.S.G.S.) 7.5 minute topographic quadrangle using known points and ArcMap 10.1. The project area boundary depicted on historic maps included as a part of this report should be considered approximate and used for reference information only.

Coordinate data collected with the Trimble ProXH GPS unit was downloaded using GPS Pathfinder Office (Version 3.10, Trimble Navigation Limited ©1995-2005) and exported to the ESRI Shapefile format UTM Coordinate System, Zone 4 North, NAD 1983 (Hawaii) Datum. All topographic maps presented herein were created using ArcMap 10.1, Bing Maps (Earthstar Geographics SIO ©2013 Microsoft Corporation, All Rights Reserved), and Google Maps (Imagery©2013 TerraMetrics, Map data ©2013 Google, All Rights Reserved).

Section 3 Background Research

3.1 Traditional and Historical Background

The island of Moloka'i was traditionally divided into two *moku*, or districts: The Kona Moku contained the lands of the southern and western sections of the island, and the Ko'olau Moku contained the lands of the northeastern portion of the island, from Hālawā Valley to the Kalaupapa Peninsula (Summers 1971:iii). The western portion of the island, however, was sometimes described as being in a separate land division or *kālana*, Kaluako'i (Moffat and Fitzpatrick 1995). In 1859, the traditional *moku* of Kona and Ko'olau were dropped and the island as a whole was referred to as the Moloka'i district. In 1909 the island was again divided into two districts: the Kalawao district, which contained the lands of Kalaupapa, Kalawao, and Waikolu, and the Moloka'i district, which contained the remainder of the island including Ho'olehua (Coulter in Summers 1971).

The current project area is located in West Moloka'i, towards the central portion of the island, within Kona Moku and in the *ahupua'a* of Ho'olehua (Figure 9). As is common on the island of Moloka'i, Ho'olehua Ahupua'a consists of two different sections, or *apana*. Ho'olehua 1 is centrally located on the southern coast of the island. Ho'olehua 2, the section in which the project area is located and the larger of the two Ho'olehua Ahupua'a, is situated on the Ho'olehua plains of central Moloka'i, extending north towards the coast. Ho'olehua 2 has no coastal access.

3.1.1 Mythological and Traditional Accounts

3.1.1.1 The Origin of Moloka'i

There are several legends concerning the origin of Moloka'i. Paku'i, a historian in the time of Kamehameha I, wrote of the Hawaiian Islands having been born of Wakea and his wives. According to this version, Wakea's first wife, Papa, gave birth to Hawai'i, Maui, and Kaho'olawe before returning to Tahiti. Wakea took Kaulawahine as his second wife, and she gave birth to Lāna'i. He then took a third wife:

Then Wakea turned around and found Hina,
Hina was found as a wife for Wakea,
Hina conceived Moloka'i, an island;
Hina's Moloka'i is an island child.

*Hoi ae O Wakea loa Hina,
Loa Hina he wahine moe na Wakea,
Hapai Hina ia Molokai, he moku,
O Molokai a Hina he keiki moku.*
(Fornander 1916-1917 in Summers 1971:1)

The historian Kahako'ikamoana, however, records a different lineage for Moloka'i:

Kuluwaiea of Haumea as the husband,
Of Hinanuiakalana as the wife
Was born Moloka'i, a god, a priest,
The first morning light from Nuumea

*Na Kuluwaiea o Haumea he kane,
Na Hinanuiakalana he wahine
Loa Molokai, ke akua, he kahuna,
He pualena no Nuumea*
(Fornander 1916-1917 in Summers 1971:2)

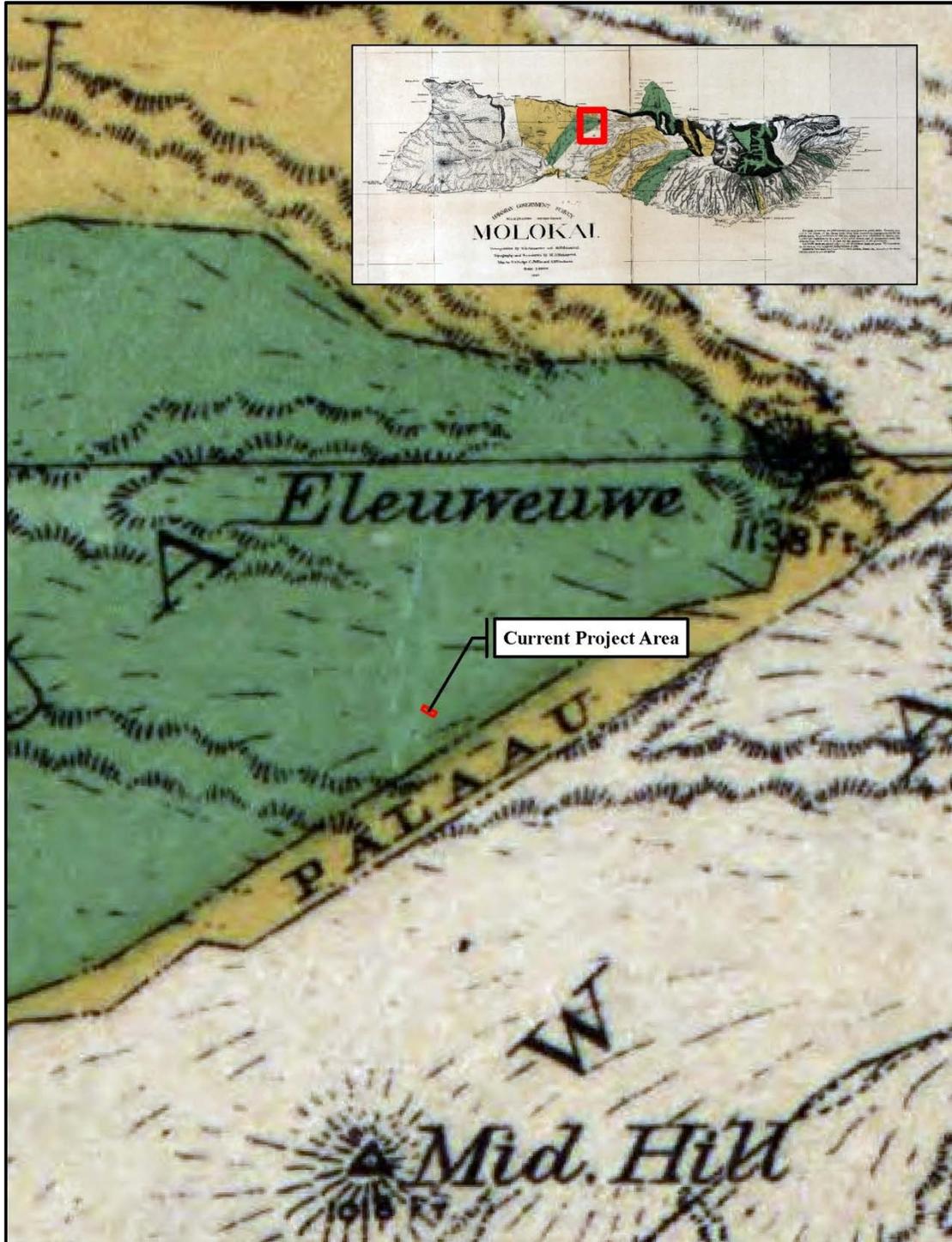


Figure 9. A portion of the Hawaiian Government Survey map of Moloka'i showing the approximate location of the current project area in relation to the *ahupua'a* of Ho'olehua, along with other surrounding *ahupua'a* (Dodge 1897); crown lands indicated in yellow and government lands in green.

3.1.1.2 Place Names

While the mythological and traditional accounts of the Ho‘olehua area are relatively scarce, an analysis of the place name meanings for the region surrounding the project area may yield some insight into the patterns of life in an area. Literal translations of several of the place names for land areas and divisions near to the project area are listed below. Unless otherwise noted, the translations are taken from Pukui et al. (1974):

Table 1. Place names in the vicinity of Ho‘olehua.

Ho‘olehua	Literally translates as “acting the expert,” but has also been translated as “resembling Lehua” (Pukui et al. 1974:134), and “swift, expert, strong” (Clark 2002:114). Kalaupapa Peninsula also has a beach named Ho‘olehua that was known for traditional salt-gathering (Clark 2002:114).
‘Eleuweuwe	A cinder cone associated with the East Molokai Volcanic Series, located at the corner of Ho‘olehua 2 and Pālā‘au 2. Literally translates as “swaying blackness” (Soehren 2003:5).
Ho‘olehua-Pālā‘au Homesteads	Homesteads that occupy most of Ho‘olehua 2 and Pālā‘au 2. The Moloka‘i Airport lays within the Ho‘olehua-Pālā‘au Homesteads (Soehren 2003:169).
Kāluape‘elua Gulch	Flows south to Pohoele Pond and literally translates as, “baked caterpillar” – see Section 3.1.1.3 for the associated <i>mo‘olelo</i> (Soehren 2003:112).
Kualapu‘u	The name of closest town to the current project area, located approximately 1.0 kilometer (0.6 miles) to the southeast, and the name of the cinder cone hill south of the project area within the <i>ahupua‘a</i> of Nā‘iwa. Literally translates as “hill overturned.” Summers Site 107 was documented as a <i>holua</i> slide located on the south-southwest side of Kualapu‘u Hill. The area also contained “many sweet potato patches defined by rows of stones... The former name was Ka ‘uala pu‘u” (Soehren 2003:49).
Lepekaheo	The name of an old <i>heiau</i> near Mane‘opapa Gulch and Pālā‘au Ahupua‘a (Soehren 2003:112).
Mane‘opapa Gulch	Runs west of the project area and extends westward through Ho‘olehua Ahupua‘a.
Na‘aukāhihi	Land section located along the northern coast and translates literally as, “entangled intestine.” A <i>ko‘a</i> exists on the northern part at Na‘aukāhihi point.
Nā‘iwa	A nearby <i>ahupua‘a</i> adjacent to the southeast side of Pālā‘au. It translates literally as, “the frigate birds” (perhaps named for the beauty of the birds).

Pālā'au	Literally translates as, "wooden fence or enclosure." Pālā'au comprises three land sections in north, central, and southwest Moloka'i. It is also the name of the state park overlooking Ka-laupapa peninsula and containing the phallic stone, Ka-ule-o-Nānāhoa. Pālā'au also translates as, "to heal, as with herbs."
Pu'u ka Pe'elua	A hill in Ho'olehua. Translates literally as "hill [of] the caterpillar. Refer to Section 3.1.1.3 for the <i>mo'olelo</i> associated with this name. Handy and Handy (1991:146) relate that Mary Kawena Pukui recalled the same name in her native district of Kā'u on the island of Hawai'i and described a similar legend.

3.1.1.3 *Mo'olelo Associated with Specific Place Names*

The following section includes several *mo'olelo* associated with place names within or near Ho'olehua, also the name of a chief.

Pāka'a and His Son Kū-a-Pāka'a

One story tells of two chiefs, Pālā'au and Ho'olehua, the names of the *ahupua'a* in which the project area is located, and that of the *ahupua'a* adjacent to the immediate southeast. Chief Ho'olehua was married to 'Īloli, the name of the *ahupua'a* on the southern coast of Moloka'i, west of Pālā'au 1. They had a daughter named Hikauhi who became the wife of Pāka'a and mother of the famous Kū-a-Pāka'a.

On Molokai lived a very beautiful woman, Hikauhi, the daughter of Hoolehua and Ilali. Now it happened that the girl's father had promised her hand to Palaau, the chief of that part of the island. But as soon as she had seen Paakaa, she forgot all about her former lover and demanded that the stranger be given to her. Palaau very generously consented, and so they all lived in peace. Paakaa cultivated the lands well, fished skillfully, and brought great prosperity to his wife and her family. (W. C. Handy 1922:76)

Pu'u Pe'elua, Caterpillar Hill

Pu'u Pe'elua, also known as Pu'u Kape'elua or Caterpillar Hill, is located above Ho'olehua. According to Harriet Ne (1992), the story of Pu'u Pe'elua involves Pele, the daughter of a chief of Pālā'au, who fell in-love with the *pe'elua* (caterpillar) of Ho'olehua, the *'aumakua* (family or personal gods, deified ancestors) of that district. Ne recounts:

A beautiful young girl named Pele, the daughter of a chief in the Pālā'au area, encountered in the early twilight a handsome young man. They fell in love, and he courted her for almost a year. She concealed her love from her parents and lived only for the hours she spent with him.

She did not know that he was the *pe'elua* of the district, revered and loved by the people of Ho'olehua-even worshipped. Nor did she know that he had the form of a young man only at night but that in the day he returned to the form of a caterpillar.

As the days passed, Pele grew pale and listless.... The *kahuna* perceived the problem at once. "She is in love with the supreme manifestation of the caterpillar-Pe'elua," he told [her parents]. "When he comes to her at night, it is in the form of a handsome young man; but his power is draining her strength. She is human. She cannot live with a magical being. To save her, you must kill him. You must destroy him completely." (Ne et al. 1992:49-50)

Handy and Handy (1991:146) relate that Mary Kawena Pukui recalled the same name in her native district of Ka'u and a similar legend. The same story is also told by Cooke:

.....this beautiful girl was visited each night by a lover who left before daylight. She was unable to discover who he was, this suspense told on her, and she began to waste away. A priest, consulted by her parents, advised the girl to attach a piece of white tapa to a wart on her lover's back. In the morning, shreds of tapa helped to trace the demi-god lover to the hill Puu Peelua, in the middle of Hoolehua. The kahuna (priest) and friends of the family found a large peelua (caterpillar) asleep on the hill. The kahuna ordered the people to collect wood which was placed around the sleeping peelua, and a fire was lit. As the heat of the fire increased, the caterpillar burst into myriads of small caterpillars which were scattered over the plain. That accounts for the army-worm pest, called peelua. (Cooke 1949:102)

3.1.1.4 Ōlelo No'eau

Table 2. 'Ōlelo No'eau are associated with Ho'olehua and aspects of its lifeways, from Pukui (1983).

<i>Ku'u manu lawelawe o Ho'olehua</i>	My bird of Ho'olehua that cries out about food. Pukui (1983:207) tells us that the <i>kioea</i> bird cries out <i>Lawelawe keō! Lawelawe keō!</i> , Take the food! Take the food! to the fishermen as they head out to sea.
<i>Mo'a nopu ka lā I ke kula o Ho'olehua.</i>	The sun scorches the plain of Ho'olehua.

3.1.1.5 Subsistence and Settlement

The region including Ho'olehua was a fertile plain known particularly for the cultivation of *'uala*. Handy (1940:157) notes that, "In 1931 there were many flourishing patches on the Hawaiian homesteads at Hoolehua. It is said that Hoolehua and Palaau were noted for sweet potatoes in olden days." The following excerpt was also cited by Handy and Handy:

For Pala'au (Apana 2), Kaluakio, and Punakou, Ho'olehua, and Naiwa, planting areas for yams and sweet potatoes cannot be delimited but it is known that these were grown in that general area and were, with fish, the staples of the inhabitants. (Phelps in E. S. C. Handy et al. 1991:518)

The importance of *'uala* to the area is also suggested by place names such as Pu'u Pe'elua, which illustrates the connection to the environment of the area. As described in Section 3.1.1.3, *pe'elua*, or the caterpillar, feeds on the sweet potato and is considered a pest by *'uala* farmers of the region.

In addition to sweet potato, *'olo* or *hokeo*, the long gourd used for holding fishing tackle and to make the *hula* drum, also grew in Ho'olehua (E. S. C. Handy et al. 1991:213).

3.2 Historical Background

3.2.1 Early Historic Period

Moloka'i is briefly mentioned in several early historic accounts. Summers (1971:18) relates that in 1779 when Captain Cook visited Hawai'i, the status of Moloka'i was uncertain. However, Kamakau (1992) cites several reasons why Moloka'i was as important as O'ahu in the late 1700s, since both of the islands contained "rich lands, many walled fish-ponds, springs, and water taro patches. The island of Oahu was very fertile and Molokai scarcely less so" (Kamakau 1992:132-133).

After conquering the island of Maui in 1790, Kamehameha advanced on to Moloka'i where he secured the allegiance of the chiefs. Archibald Menzies (1920), the naturalist who accompanied Captain George Vancouver to the Hawaiian Islands in the 1790s, relates that Kamehameha "destroy[ed] the fields and plantations of the inhabitants" (Menzies 1920:115). He and his warriors remained on Moloka'i for a year to prepare the attack on O'ahu. It is said that he grew taro and "had all his canoes put in order. He drilled his warriors on the Hoolehua plain near where the airport is now" (Cooke 1949:112).

The United States Navy Exploring Expedition under the command of Captain Charles Wilkes visited the island of Moloka'i in 1840, and described the island as, "forty miles long, from east to west, and nine miles wide: the western portion, embracing about one third of the whole extent, is a barren waste; and the remaining two thirds is mountainous, in some places rising to the height of twenty-eight hundred feet, with the exception of a narrow strip of land on the south side, which has a most favorable exposure, and is highly productive (Jenkins 1850:258).

3.2.2 Cattle Ranching

Cattle were introduced to Moloka'i in the 1840s. De Loach (1975) summarizes this first effort at commercial ranching:

Rudolph W. Meyer, who wasresponsible, along with [Reverend] Hitchcock, for the introduction of cattle on the island, had come to Moloka'i in the 1840s. He established a ranch stocked with longhorns in the Kalae area. A lucrative trade in cattle and hides was begun between Moloka'i and Honolulu. The cattle were exported from the village of Palaau on the southwestern shore, over the reef, and onto a waiting ship. Palaau grew wealthy on cattle and dry land taro. All this came to an end, however, in the 1850s, when Meyer discovered that the number of cattle in the herd had diminished considerably. He found that almost every male in the village was guilty of rustling, and so all the men were shipped off to

jail in Honolulu. The men's families followed and the village was deserted. Today Palaa sits abandoned in a kiawe forest, as no one ever returned to live there. (de Loach 1975:68)

Despite these early setbacks, cattle ranching expanded greatly in the second half of the 19th century:

During this period, cattle, sheep and goats were imported to the island in ever-increasing numbers. According to Judd, there were no cattle on the island in 1832 and by 1853 there were only 200 head, The 1866 census, however, revealed 2,586 head of cattle, 13,332 sheep and 196 goats on the island....In 1868, Kamehameha V released axis deer on the island. (de Loach 1975:86)

The Organic Acts of 1845 and 1846 initiated the process of the Māhele—the division of Hawaiian lands—that introduced private property into Hawaiian society. In 1848, the crown and the *ali'i* (royalty) received their land titles. The neighboring *ahupua'a* of Pālā'au was retained by the Crown, while Ho'olehua became government land (see Figure 9).

At the time of the Great Māhele in 1848, the daughter of Abner Pahi and Laura Konia, and also the last descendant of the Kamehameha dynasty, inherited much of the lands which are now Moloka'i Ranch lands. Her name was Bernice Pauahi Bishop. Mr. Charles R. Bishop, her husband, inherited the lands of Kaluako'i in 1875. The Molokai Ranch was formed in 1897 when a *hui* or group of investors purchased approximately 70,000 acres of fee simple lands plus approximately 30,000 acres of leased government lands for \$150,000. The lands were purchased from Bishop interests (Cooke 1949:1-5).

3.2.3 Early History of Agriculture on Moloka'i

Mr. and Mrs. Hitchcock became the first permanent missionaries on Moloka'i in 1832, at which point the only agricultural crops they noted were bananas and taro grown in the valleys where water was most readily available. There were no “regular schools, churches, houses of permanent nature, no garments, no cattle, only one horse, and home articles of the most primitive nature” (Wiebke 1940). Twenty years later the island had a number of churches, 1000 enrolled students in 21 schools across the island, and livestock including goats, hogs, 400 horses and cattle. Taro, potatoes, and grapes were “cultivated quite extensively” (Wiebke 1940).

In the early 1840s, the Meyer family colony in Kalae was growing and exporting coffee, corn, wheat, and potatoes to the mainland. They also produced 50 tons of sugar annually (Wiebke 1940).

Two larger sugar plantations were constructed on Moloka'i circa 1870, one at Moanui in East Molokai and one at Kamalo, but both of them quickly failed and were abandoned (Wiebke 1940). In 1898, American Sugar Company, Limited (ASCO), was incorporated with the Molokai Ranch Hui of investors (Cooke 1949:1-5). Following the incorporation, full-scale cane operation in central and western Moloka'i began, including an attempt to develop the arid lands of the Ho'olehua plain. Railroad tracks were constructed from Kaunakakai harbor “up through Palaa and Ioli to the middle of the Hoolehua plateau....On the Hoolehua plain 750 acres were prepared in parallel trenches following the contours. 500 acres were actually planted in young

cane shoots” (Judd 1936:11-12). “Wells were dug in the lowlands and water pumped into a system of irrigation ditches above. As the pumping increased, the salt content of the water gradually increased until it became detrimental to the cane. This plantation like the others was quickly abandoned” (Wiebke 1940). After this attempt at sugar cultivation had also failed, “graded railroad bed cutting through the gulches of Palaaau” and “irrigation ditches ...on the Hoolehua plain” were all that remained (Judd 1936:11-12).

3.2.3.1 Hawaiian Homes Commission Act

In 1920, the U.S. Congress passed the Hawaiian Homes Commission Act to administer and manage some 200,000 acres of land that were Kingdom of Hawai'i government and Crown lands. Agricultural homesteads were to be leased to Native Hawaiians; with leasehold terms generally lasting 99 years at one dollar a year. The following year the program began attracting people to Moloka'i.

Initially the program was impacted by a number of problems, including drought and high winds (McGregor 1990:37-38). Insect pests, were also a discouraging impediment, at one point accounting for the destruction of over 50 percent of many of the most desirable crops on the island (Wiebke 1940). A Maui News article from 1940 recounts, “With the birth of the Hawaiian Homes commission, Hawaiian homesteaders began pouring into the Kalamaula and Hoolehua sections. For a number of years extensive truck crops of every kind were raised successfully, but today this project has become a sorrowful enigma” (Wiebke 1940). Despite such difficulties, people managed to cultivate their plots (McGregor 1990:37-38), consisting mainly of eggplant, papaya, and some cucumbers and poor grade tomatoes (Wiebke 1940). The program succeeded and was expanded to include 11,400 acres of Pālā'au-Ho'olehua beginning in 1924.

3.2.4 Pineapple agriculture in the 1900s

Starting in 1918, independent pineapple growers had begun to “till the hillsides from Ualapua to Halawa, but due to high cost of operations these small plantations were short lived” (Wiebke 1940). Pineapple cultivation really began in Pālā'au-Ho'olehua in 1926, when Libby, McNeill and Libby signed up some homesteaders to grow pineapple on homestead land operated in leased blocks of several 35-acre homesteads, to make up fields that were cultivated by Libby. By 1929, the California Packing Corporation (Calpac) had begun to enlist Native Hawaiian homesteaders in the Kualapu'u region, including the area surrounding the project area, to grow pineapple. The system adopted by both Libby McNeill & Libby and Calpac involved homesteaders growing pineapple in blocks of land leased by the plantation. Between twelve to fifteen abutting homesteads were assembled by the pineapple plantation to form a contiguous area that was assigned a block number (Figure 10 and Figure 11). Homesteaders under this block system planted, tended and harvested to receive a proportionate share of the sale of fruit from each block. The harvested fruit was trucked by Calpac to a pier constructed at Kaunakakai, where it was crane-loaded onto barges and shipped to the Calpac cannery at Kahului, Maui (Larsen and Marks 2010:371-372). Homestead residents received almost two million dollars in cash payments for their efforts between 1929 and 1935. Additionally, due to the homestead program,

the Pālā'au-Ho'olehua region had the largest population of Native Hawaiians in 1930. Of the 1,031 residents, 826 were Hawaiian (McGregor 1990:10).

Despite droughts, including one between 1944 and 1945 that caused the loss of the entire crop, pineapple production in the vicinity of the project area continued until the 1970s (Larsen and Marks 2010:379). Dole Pineapple, which had taken over Libby, McNeill and Libby's operations, ceased pineapple cultivation in 1975. The California Packing Corporation had planned on closing the same year but continued cultivation until 1983 when a majority of its production ceased business on Moloka'i (Larsen and Marks 2010:382).

3.2.5 Aviation History at Ho'olehua

Following the development of aerial combat in the First World War, the availability of war-surplus aircraft for civilian aviation in the Hawaiian Islands led to the establishment of a civilian airfield at Ho'olehua in 1919 named Moloka'i Field. In 1920, an ex-military pilot, Charles Fern, flew an airplane from Kapiolani Park to Makawao, Maui, after landing at a field next to the Cooke Ranch on Moloka'i for fuel. However, it appears the first successful commercial inter-island aircraft passenger service occurred offshore of Moloka'i Island in 1921, when Charles Stoffer flew his seaplane from Hilo Bay to an ocean landing off of Lahaina, and continued on to the island of Moloka'i, where an overnight stay was made [at the seaplane anchorage of Kaunakakai Harbor] before continuing to Honolulu. In the 1930s, improvements were made at Moloka'i Field including the construction of a terminal building for the use of Inter-Island Airways, the first commercial inter-island carrier. The segregation of part of the civilian airfield at Ho'olehua for military use occurred when the U.S. Army Air Corps established a portion of the field as "Homestead Field," beginning in September, 1931 (Horvat 1966:38,40-47).

3.2.6 Moloka'i High School

3.2.6.1 Establishment of Moloka'i High School

The following history of the establishment of Moloka'i High School is a summary of an article written in 1939 for the Maui News (Maui News 1939). The article relates the history of the school prior to the construction of the first senior high school building on the campus in 1938, as well as a synopsis of its first year of programs and student activities.

Moloka'i High School became the first and only high school on the island when it expanded from an intermediate school to a high school in 1939. Situated at Ho'olehua on Hawaiian Homes Commission land, it was opened to all students on the island, with an enrollment of over 400.

In the early 1920s Ho'olehua consisted of an undeveloped wide grassy plain used for pasture with little development and no public school (Figure 10). Several families moved into the area when the land opened to Hawaiian homesteading and California Packing Corporation started their pineapple plantation at Kualapu'u (formerly a Molokai ranch camp).

A one-room schoolhouse at Kalae, called Kalae School, eventually moved to the old recreation hall at Kualapu'u to better accommodate the students coming from the ranch camp in Kualapu'u. As homesteads and pineapple cultivation expanded in the area, a new school was constructed at Ho'olehua to meet the growing numbers of student enrollment, and in 1926 the students at Kalae School moved to the new school. The staff originally consisted of 3 teachers, including an instructor of agriculture, but within three years the faculty grew to a total of 15. In

1929 Ho'olehua School received a principle, Erling C. Benson, from Kauai, and changed its name to Moloka'i Junior High and Elementary School.

During Mr. Benson's term of office the original school building was moved to its present [1939] site and enlarged. An agricultural building was constructed by the homes commission. The commission also built a cottage for the instructor of agriculture. The present economics building was also built about this time and a little later the cafeteria building and the intermediate building were put up (Maui News 1939).

The school developed a progressive agricultural department starting in 1930, where modern methods of farming and animal husbandry were taught to the male vocational students (numbering 70 in 1939). About half of the vocational boys came from homesteads and the other half from Calpac employed families. A 26-acre farm was provided to the department for educational purposes by the homes commission (Figure 11). The farm contained chicken houses and pigpens built by the vocational students in the farm shop. "The instructor of agriculture and three classes of boys spent weeks with tractors and ropes clearing lantana from the now cultivated area"(Maui News 1939).

The farm is up to date and well equipped. It serves the community as a practice ground for students; a source of improved livestock, poultry and plans; an example to the community of good landscaping and agricultural methods and is an experimental ground for new crops. Here the boys are receiving thorough instruction in the fundamentals of good scientific farming coupled with training to farm management – increasingly important because of the vital necessity that the modern tiller of the soil have a good working knowledge of farm economics in Hawaii if local small scale agrarian enterprises are to be operated at a profit (Maui News 1939).

The home economics department had an enrollment of 87 girls in 1939. The girls were involved in projects such as the "making of preserves, jams, jellies and the cooking of a complete breakfast, lunch and dinner. These meals will be served to invited guests in order that the girls may practice table service, manners and etiquette "(Maui News 1939). The department also taught sewing and home management, including budgeting, laundering, and housekeeping.

The school gym was constructed between 1931 and 1932 by the Hawaiian Homes Commission and the county, and the first senior high school building was constructed in 1938. The male students constructed their own football field, volleyball courts, basketball courts, and a baseball diamond prior to 1939.

3.2.6.2 History of Moloka'i High School

Moloka'i High School quickly became a highly regarded academic institution. The first official graduating class of 1940 consisted of seven girls who received their diplomas at an elaborate formal graduation ceremony (Maui News 1940b). By the following year twice as many students, a mixed class of 14, shared the honor (Maui News 1941). The senior high school

quickly established its own school newspaper (Maui News 1938a) and student body (Maui News 1938b).

The agricultural department rapidly developed into a highly reputable agricultural training center. Students cultivated crops designed to give them needed experience and experimented with plantings to test for possible improved crops or strains for use on the island. Though not expansive or overly developed, the farm was tastefully landscaped and very organized. The poultry were of best strains for foundation stock, and the poultry chicks were full pedigree. The school farm was located on “well selected land, which comprises the school farm makai of the Hawaiian Homes Commission office in Ho'olehua, only one-half mile from the school”(Maui News 1940a). In addition, a cooperative program between Moloka'i High School and Calpac was initiated in 1948, where boys from the vocational program worked at the plantation in the mornings before school for seniority consideration for employment post-graduation (Maui News 1948).

In 1950 the board of supervisors approved negotiation of the purchase of 40-acres of Hawaiian Homes Commission lands adjacent to the extant campus for construction of a new high school site (Maui News 1950).

3.2.6.3 Historic Maps Depicting Campus Development in Relation to the Current Project Area

Based on a 1929 Ho'olehua and Pālā'au government survey map for the Hawaiian Homes Commission (Reid 1929), structures apparently associated with the school campus at that time were concentrated in the northern portion of the property (the school is, however, not labeled as such), with only one building which may or may not have been associated with the school located just west of the current project area (Figure 10). It can be seen in the map that the school was already surrounded by homesteaders growing pineapple in the block system. By 1936, as can be seen in a Figure 11, a ball field appears to have been constructed on the west side of the campus, as well as currently non-existent roads cutting through the campus on the north side of the project area, providing access to presumably newly constructed school buildings.

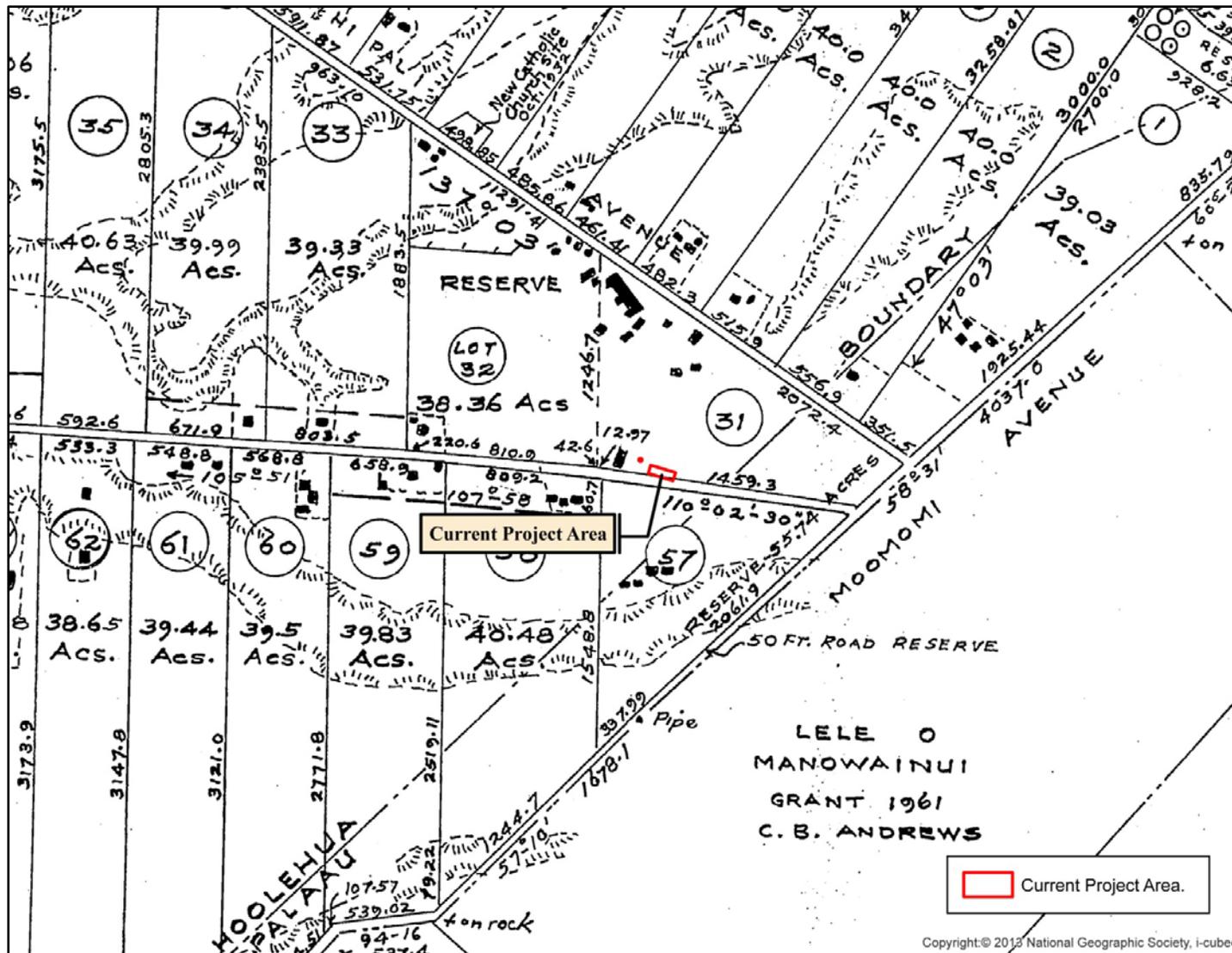


Figure 10. Close-up of a 1929 Hoolehua & Palaa government survey map for the Hawaiian Homes Commission (Reid 1929) showing the project area approximate location in relation to structures and homesteads present at that time.

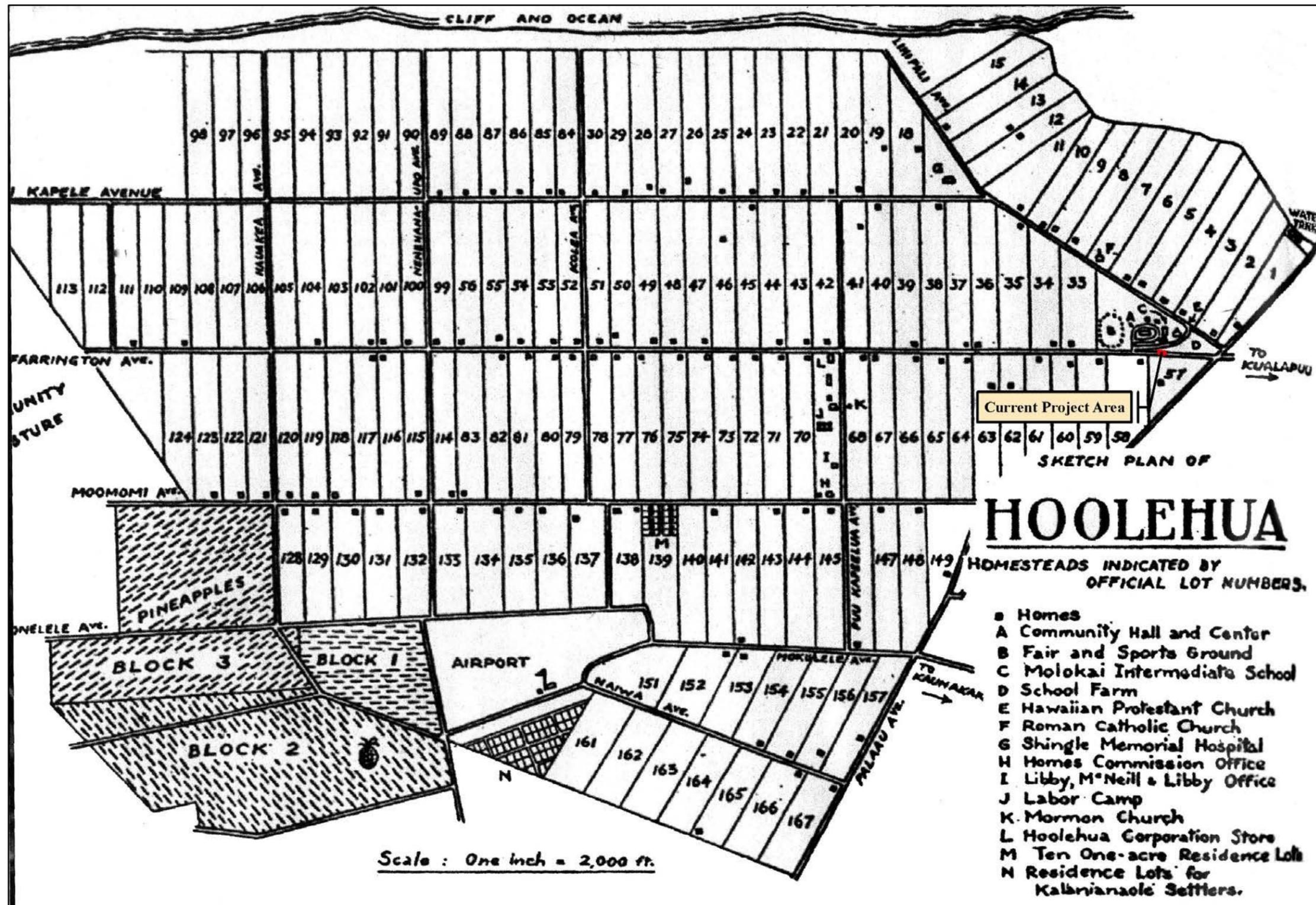


Figure 11. 1936 Hoolehua Homesteads map (University of Hawai'i Publications #12, Vol. 1, #3, Jan. 1936 in Larsen and Marks 2010:374), showing the high school surrounded by homestead lots.

3.3 Previous Archaeological Research

With the exception of a large-scale regional overview of Moloka'i Island (Summers 1971), very few formal archaeological studies have been conducted in the Ho'olehua area. Archaeological studies in the vicinity of the Moloka'i High School are listed in Table 3 and are shown in Figure 12.

Table 3. Previous archaeological studies near Moloka'i High School.

Reference	Year	Location	Description
Summers	1971	Island Wide	Archaeological Survey: Identified historic properties include fertility sites, petroglyphs, hula platforms, spiritually significant stone uprights, and <i>heiau</i> .
Weisler	1989	Kipū	Archaeological Study: Re-identified Summers' Site -111, remnants of -109 A and B, and one new subsurface cultural deposit (SIHP -885).
Negahara and Kolb	1994	Kape'elua complex, Ho'olehua-Pālā'au Homesteads	Field Inspection of Summers' Site 11 (SIHP -11), also known as the Kape'elua complex.
Borthwick et al.	1996	Kahanui 2	Archaeological Inventory Survey: An irregular-shaped platform (SIHP -1633); a remnant ranch wall (SIHP -1634); terrace (SIHP -1635).

In 1951, the Bishop Museum conducted a site survey of historic properties throughout Moloka'i that had been identified in the late nineteenth and early twentieth century, which are summarized in Catherine C. Summers' *Molokai: A Site Survey* (1971). Summers' work describes sites on Moloka'i by individual *ahupua'a* based on previous research, specifically Stokes' 1909 ten-week survey of *heiau* and other major sites on Moloka'i, as well as "revisiting" some 100 sites (Summers 1971:iii). Additionally, Summers describes legendary, traditional, and historical information related to Moloka'i in general, and the reader is referred to her document as the most comprehensive island-wide study to date.

Regarding the current project, Summers described three historic properties identified as Sites 11-13, which were located in the vicinity of the project area within Ho'olehua Ahupua'a. Of these, only Site 11 lies within close proximity at approximately 2.3 kilometers (1.4 miles) southwest of the project area. Summers also reported five historic properties located within the nearby *ahupua'a* of Pālā'au, identified as Sites 14-18, as well as four historic properties within Nā'iwa Ahupua'a nearest to Kualapu'u Town, recorded as Sites 107, 109, and 112-112. The following table provides a summary of these archaeological sites:

Table 4. Sites of cultural significance in the vicinity of the project area. Compiled by Catherine Summers (1971).

Site #	Site Type	Site Location	Site Name	Comment
11	Not Indicated	Ho'olehua	Kape'elua Complex	The Kape'elua complex (SIHP No. 50-60-03-11), or the Caterpillar Stones, consists of stones identified on Pu'u Kape'elua, located approximately 2.3 kilometers west of the current project area (Figure 12). The legend associated with the site is in Section 3.1.1 above. A flat boulder with a "hollowed-out basin" was identified just south of the Caterpillar Stones, and marine shell was found scattered around the vicinity. Summers noted that an informant claims the stone was used to sharpen knives, while Emory believed the basin was for water collection (37).
12	Heiau	On the boundary of Ho'olehua 2 and Pala'u 2	Lepekahe o Heiau	This site is located on the boundary of Ho'olehua 2 and Pālā'au 2, west of Kāluape'elua Gulch. Monsarrat referred to Lepekaheo as an "old heiau" (n.d f:41 Summers:37).
14	Heiau	East of the Ho'olehua Cemetery	Unknown	The structure was in ruins in 1957. Traces of paving could still be found, and the remains of a wall 35 ft. long, northeast to southeast; 13 ft. from the northeast side was an upright stone 2 ft. high, 2 ft. wide, and 1 ft. thick.
15	Ko'a	On top of Pu'u ka Pele	Unknown	Summers reports of a small <i>ko'a</i> located on the top of the hill known as Pu'u ka Pele.
16	Heiau	W side of the mouth of Anahaki Gulch	Unknown	Originally, the structure was an enclosure. The exterior measurements in 1964 were 43 ft north to south and 36 ft east to west; the maximum height of the eastern wall was 5 ft. The northern wall was probably this same height originally, but the southern wall was lower. Both the south and west walls were badly damaged. An inner division on the north side of the enclosure measured 17 ft east to west and extended the entire width of the structure. The southern portion of the enclosure was paved. On the crest of the hill to the south of the [<i>heiau</i>] was a house site or shelter, which had a 5 ft. high wall running north to south; the rest of the site was open. Adjoining the northern portion of the wall on the east side was a small paved terrace (38).

Site #	Site Type	Site Location	Site Name	Comment
17	Ko'a and 2 parallel walls	Kahinaakalani	Canoe <i>halau</i>	...the parallel walls [of the <i>halau</i>] are 20 feet long and 3 1/2 feet apart. They are [now] so broken down that no estimate can be made of their height or width. Apparently, the structure was open at both ends. The longitudinal axis of the shelter is at a slight angle to the line of the water's edge (Phelps, cited in Summers:38-39).
18	Ko'a	northern part of Na'aūkāhihi point	Unknown	This [the <i>ko'a</i>] is a very small oval enclosure on a headland about 50 feet above sea-level. It is 19 feet wide from west to east and 26 feet long from south to north. The walls are very irregular, both in height and width. The height varied from 1 to 3 feet, and the width from 2 feet on the north to 14 feet on the south. The thickness of the wall on the south suggests that there may have been a platform there originally, but if so, the pavement had disappeared before I saw the place. The floor of the enclosure had originally been covered with small stones on scanty soil, but at the time of my visit the covering consisted of weathered fragments of bones of <i>ulua</i> , <i>uhu</i> [parrot fishes, family Scaridae], <i>aholehole</i> and other fish, turtle and dog, in addition to sea shells, pieces of coral and driftwood. These were remains, apparently, of offerings which had been swept off or fallen from the alter which was a flat stone built into the western wall and resting on the floor. The portion projecting from the line off the wall was two feet long, 1.3 feet wide and 4 inches thick (Stokes, cited in Summers:39).
107	Holua Slide	Kualapu'u	Nameless	A holua slide on the hill of Kualapu'u, located approximately 1.5 km from Kualapu'u Town.
109 a and b	Heiau	Nā'iwa	Nameless	Two <i>heiau</i> that were reported by Bruce Cartwright and believed to be destroyed by the time of Summers' compilation.
111	Heiau	Nā'iwa	Na Imu Kalua Ua Heiau	Measures 31.5 ft (9.6 m) by 22.5 ft (6.85 m) and consists of a series of open compartments that are formed by flat stones placed on edge perpendicular to each other.
112	Holua Slide	Pu'u Anoano	Nameless	A <i>holua</i> slide on the hill of Pu'u Anoano.

In 1989, an intensive archaeological survey was conducted by Marshall Weisler at Kipū (Figure 12) for a proposed golf course (Weisler 1989). According to Weisler's research, the area may have been the location of the annual Makahiki festivities. Although pineapple cultivation had destroyed several historic properties, two previously recorded historic properties were

identified within the project area: SIHPs -111 and -109A (corresponding with Summers 1971 site numbers). In addition to the re-identification of the previously recorded sites, a newly discovered cultural deposit (SIHP -885) was also identified, documented, and surface artifacts were collected.

SHPD/DLNR conducted a 1994 field inspection and identification of Summers' (1971) Site 11 (SIHP -11, described above); the historic property also known as the Kape'elua Complex (Nagahara and Kolb 1994). In addition to Summers' findings, SHPD/DLNR identified a new rectangular pecked basin on one of the Caterpillar Stones, as well as other areas of pecking, marine shell midden, and historic glass bottle fragments (Figure 12). The function of SIHP -11, and its specific the rectangular pecked basins, were not determined. Additional subsurface test excavations were tentatively recommended for the area. SIHP -11 was recommended for preservation, including community consultation efforts, due to associations with legendary accounts.

In a 1996 CSH inventory survey of the Pu'u Kolea subdivision in Kahanui 2 (Figure 12), three new historic properties were identified: SIHP -1633, -1634 and -1635 (Borthwick et al. 1996). SIHP -1633 consists of a remnant historic property and an irregular-shaped platform, SIHP -1634 is a segment of a cattle wall, and SIHP -1635 is a terrace. The survey area had been heavily disturbed as a result of pineapple cultivation. All three historic properties were recommended for data recovery if the land owner chose not to preserve them (Borthwick et al. 1996:26).

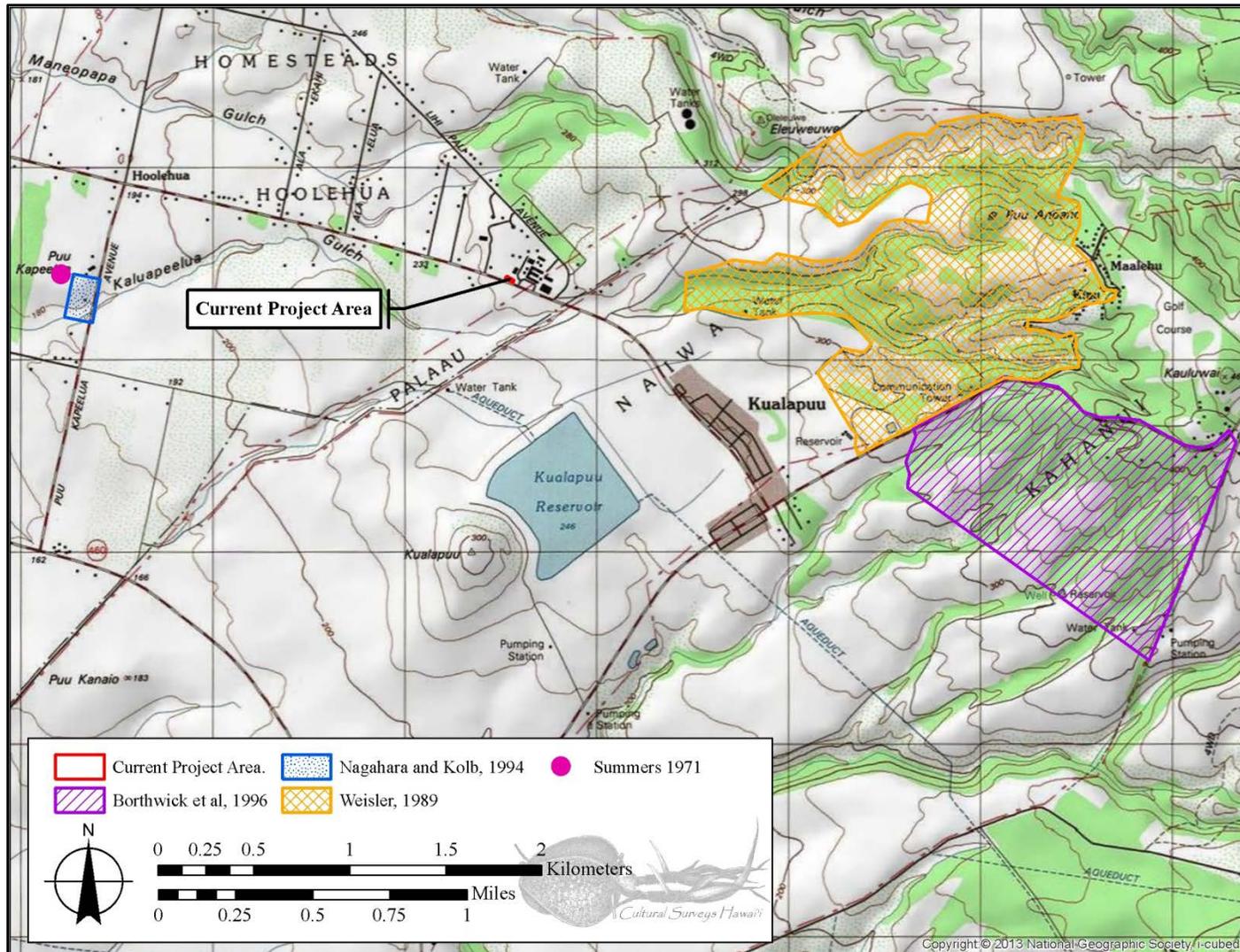


Figure 12. Portion of the USGS 7.5 minute series topographic map, Kaunakakai Quadrangle, showing the current project area relative to areas of previous archaeological study.

3.4 Background Summary and Predictive Model

Given what is known regarding the pre-contact and post-contact history and chronology of the region and the findings of nearby inventory survey studies (Weisler 1989) and (Borthwick et al. 1996), evidence for a variety of traditional and non-traditional activities may be found buried within the project area. These activities include permanent and temporary habitation, dry land agriculture, animal husbandry, and ceremonial activities that may be represented in the archaeological record as remnant of stacked rocks and cultural material remains, such as fire pits, traditional Hawaiian artifacts, food remains, etc.

Historic-era activities would include agricultural and transportation features associated with pineapple cultivation and ranching activities. As outlined in Section 3.2.1 above, cattle ranching was introduced to the region in the 1830s and had expanded greatly by the turn of that century. Around that time, an attempt to develop the arid lands of the Ho'olehua Plain for sugar cane failed, followed by the successful cultivation of pineapple in Pālā'au-Ho'olehua beginning in 1926 (see Section 3.2.4). These historic-era events may have left behind historic cultural material remains and features, such as dirt roads, irrigation system remnants, and deposits comprised of historic-era cultural material remains.

In addition, the Moloka'i High School campus was constructed in the 1930s, and the school has been in use as an educational facility continuously from that time (see Section 3.2.6 Moloka'i High School). The original campus has been modified extensively by the construction of modern school facilities and general landscaping activities, but it is possible that subsurface cultural material remains or deposits associated with the historic campus are present within the project area.

Section 4 Results of Fieldwork

The fieldwork effort for this project took 16 person hours to complete and was accomplished on December 2nd, 2013 by Todd D. McCurdy, M.A., and Jonas Madeus, B.A. under the general supervision of Hallett H. Hammatt Ph.D. The subsurface testing program consisted of the mechanical excavation of three backhoe trenches (BT-1, BT-2, and BT-3) within the overall APE (Figure 13). Each trenches measured 7-8 meters long (23-26 feet) by one meter wide (3.3 feet). A total of 21 square meters (226 square feet) was excavated (approx 3 percent of the overall APE).

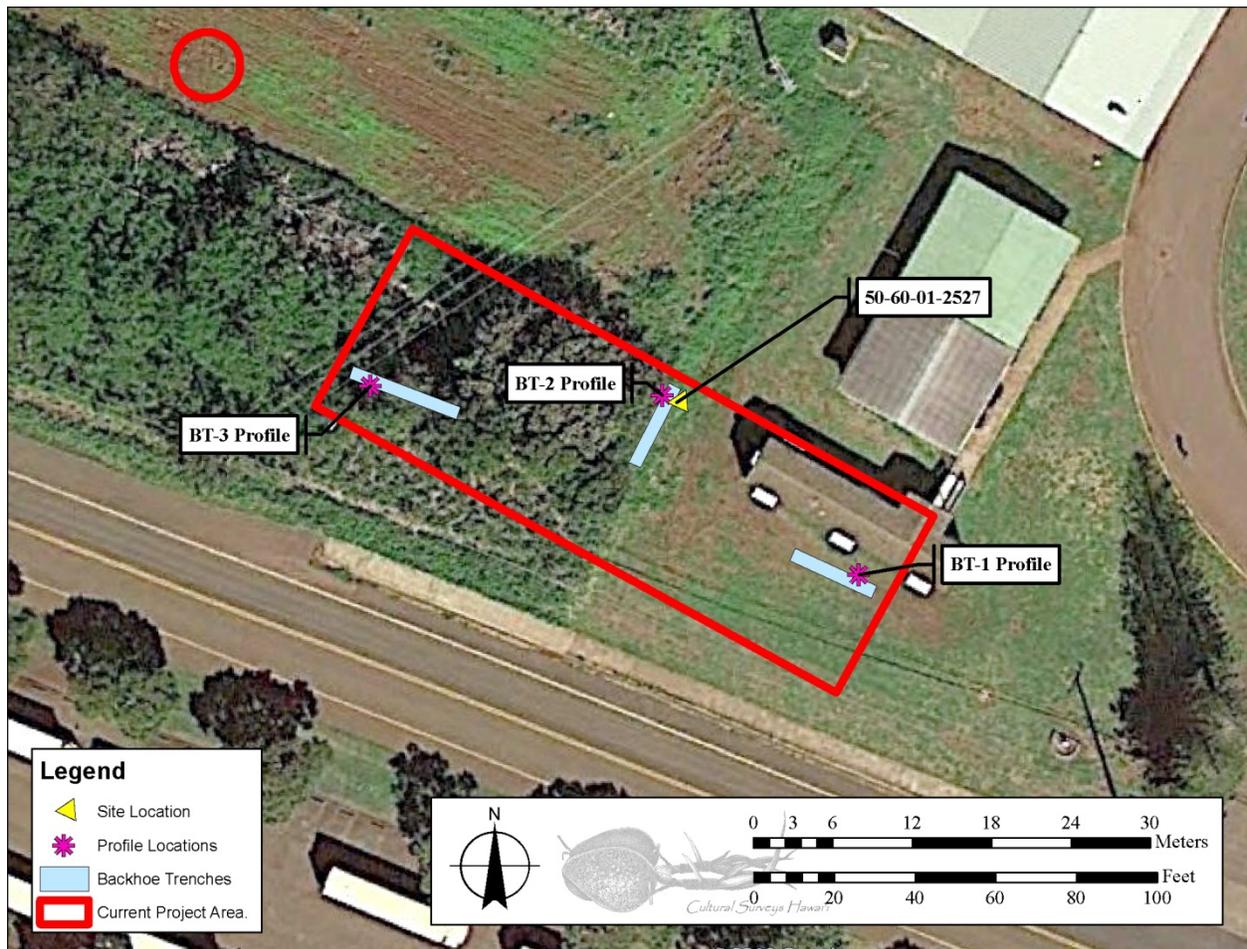


Figure 13. Aerial view with overlay of construction plans showing Backhoe Trench locations (Google Earth 2013).

4.1 Subsurface Testing Results

Through backhoe trench excavation we were able to construct a general stratigraphy of the project area to a depth of approximately 1.0 meter (3.2 feet) below ground surface (bgs), described in Table 5 and shown in Figure 15 through Figure 18.

4.1.1 Backhoe Trench 1

Subsurface testing began in the eastern portion of the project area (see Figure 13) with BT-1. BT-1 measured approximately 7.0 meters long by 1.0 meter wide (23 feet by 3.3 feet) and was terminated at approximately 1.0 meter (3.2 feet) bgs. The stratigraphy consisted of approximately 35 centimeters (14 inches) of a modern A-horizon (Stratum I) above a 50 centimeters (20 inches) Ap Horizon of silty clay (Stratum II). Stratum III was compact silty clay C-horizon with evidence of root disturbance visible in the exposed profile (Figure 15 and Figure 14).

4.1.2 Backhoe Trench 2

Backhoe Trench 2 was located along the northeast boundary of the project area, extending toward the center of the APE (see Figure 13). BT-2 measured approximately 7.0 meters long by 1.0 meter wide (23 feet by 3.3 feet), and was excavated to a depth of 1.10 meters (3.6 feet) bgs. The stratigraphy was similar to the BT-1 (Figure 17 and Figure 16). Stratum I measured an average of 10-20 centimeters (3.9-7.9 inches) thick, and Stratum II averaged 40-75 centimeters (15.7-30.0 inches). A large tree root penetrated through Stratum I into Stratum II to a depth of 40 centimeters (15.7 inches) bgs. SIHP # 50-60-01-2527 (described in Section 4.1.5), was encountered in the northeast sidewall of BT-2 at a depth of 75-95 centimeters (30-37 inches) bgs, between Stratum II and III. The deposit fill consists of a 5YR 4/1 dark gray silt containing pieces of rusted metal.

4.1.3 Backhoe Trench 3

Backhoe Trench 3 was located in the far west corner of the project area (see Figure 13). BT-3 measured approximately 8.0 meters long by 1.0 meter wide (26 feet by 3.3 feet), and was terminated at approximately 1.0 meter (3.2 feet) bgs. Below the modern A-horizon (Stratum I: 0-33 centimeters bgs), the natural sediment (Stratum III) was exposed. The stratigraphy was consistent with BT-1 and 2 except Stratum II was not present (Figure 19 and Figure 18). Small amounts of saprolite were observed at the base of the Stratum III, approximately 85-100 centimeters (33-40 inches) bgs.

Table 5. Stratigraphic summary of the sub-surface investigations.

Stratum I	Modern A horizon; 5YR 3/2, dark reddish brown clay loam; blocky strong structure; fine size; friable moist consistency; slightly plastic; weak cementation; terrigenous origin; clear lower boundary; smooth topography; many fine roots. No cultural material or features were observed. Semi-compacted to compacted sediment and no inclusions observed.
Stratum II	Ap Horizon;; 5YR 3/3, dark reddish brown silty clay; blocky moderate structure; hard to very hard dry consistency; non-plastic; weak cementation; terrigenous origin; abrupt lower boundary; irregular topography; fine roots common. Compacted sediment with no inclusions.
Stratum III	C-horizon; 5YR 3/4, dark reddish brown silty clay; blocky weak to moderate structure; very hard to extra hard dry consistency; non-plastic; weak cementation; terrigenous origin; lower boundary not visible; few fine roots. Very compacted soil with minimal decomposing bedrock inclusions.



Figure 14. BT-1 north wall profile.

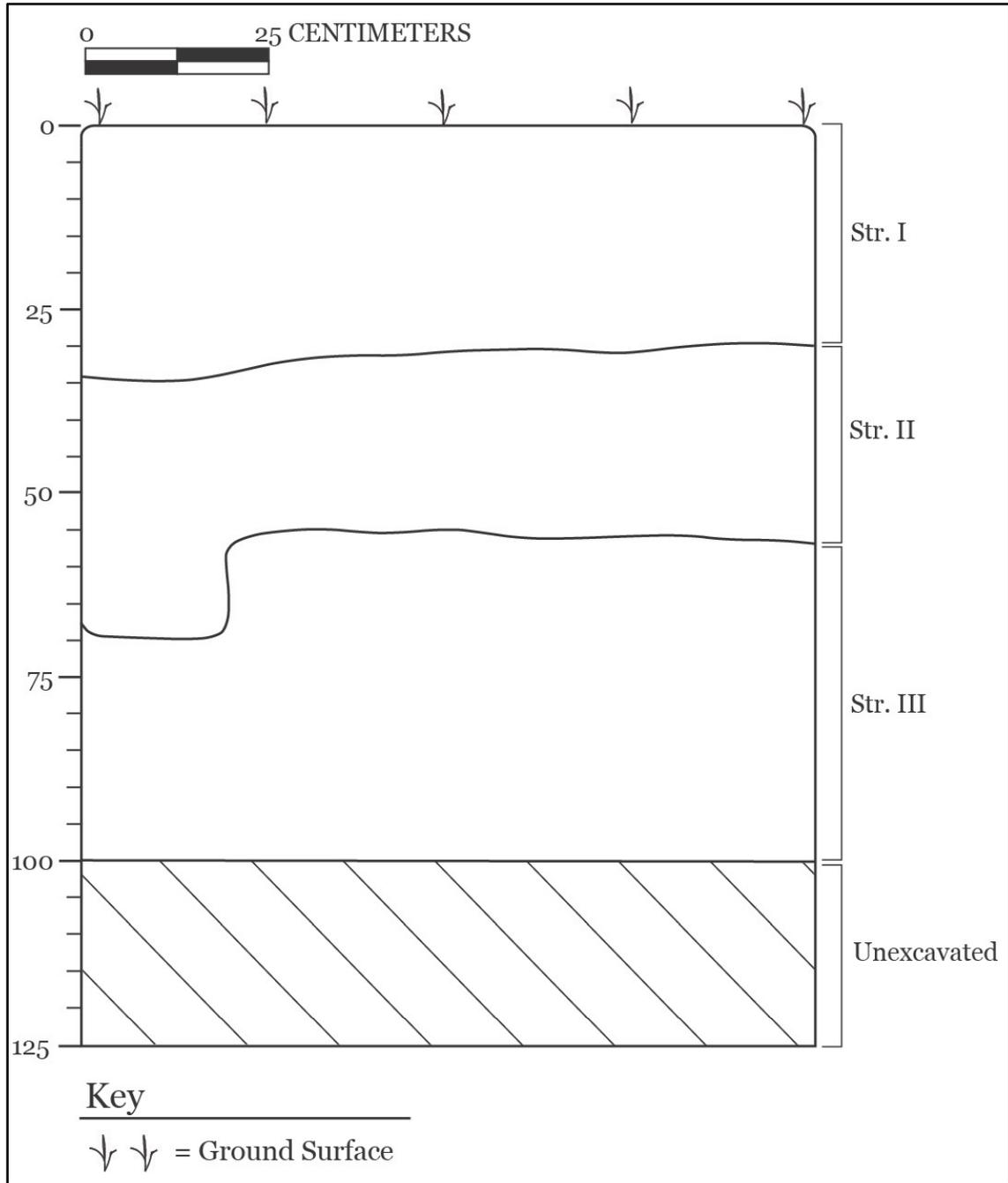


Figure 15. Representative profile of subsurface excavation of BT-1, north wall.



Figure 16. BT-2 northwest wall profile.

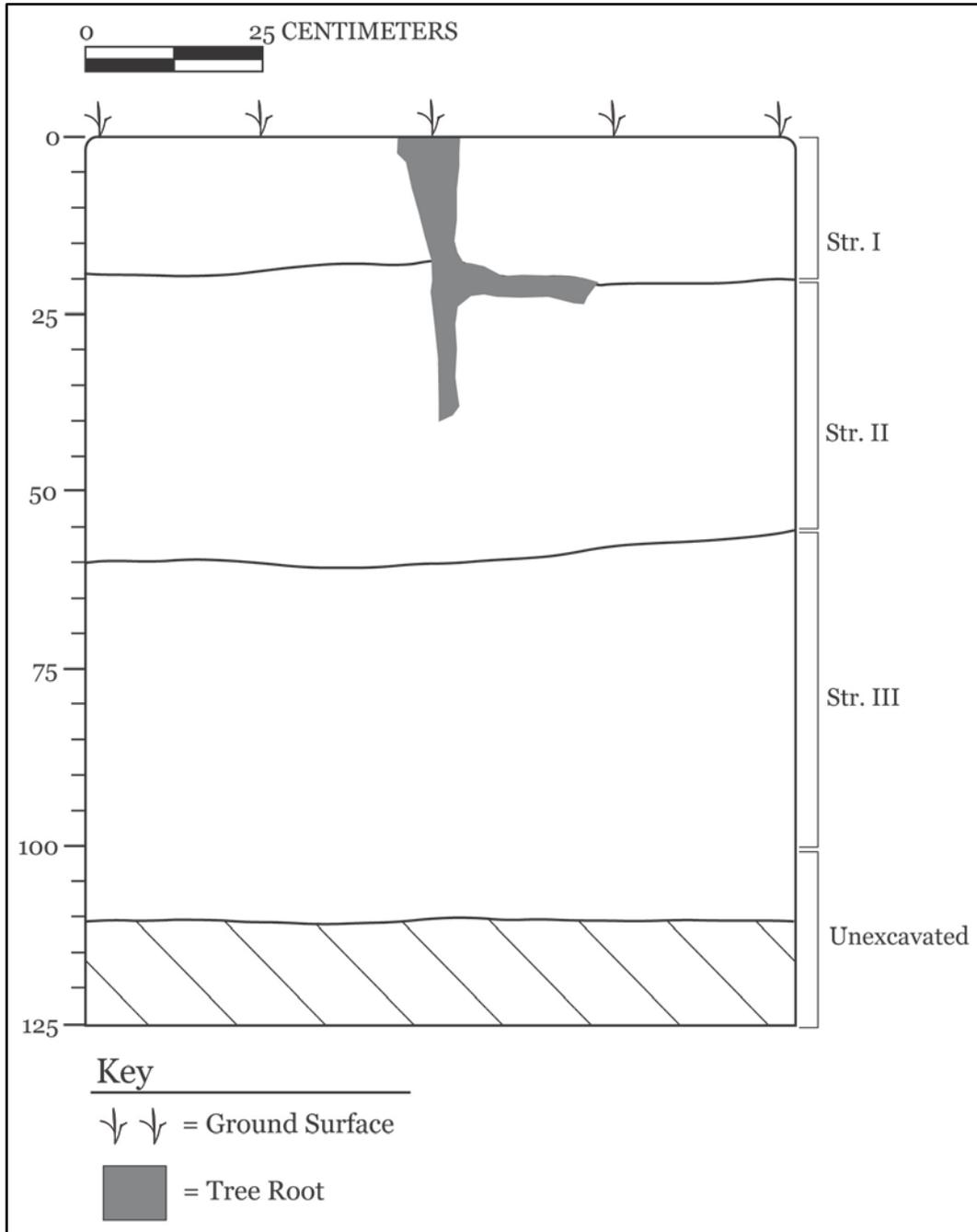


Figure 17. Representative profile of subsurface excavation of BT-2, northwest wall



Figure 18. BT-3 south wall profile.

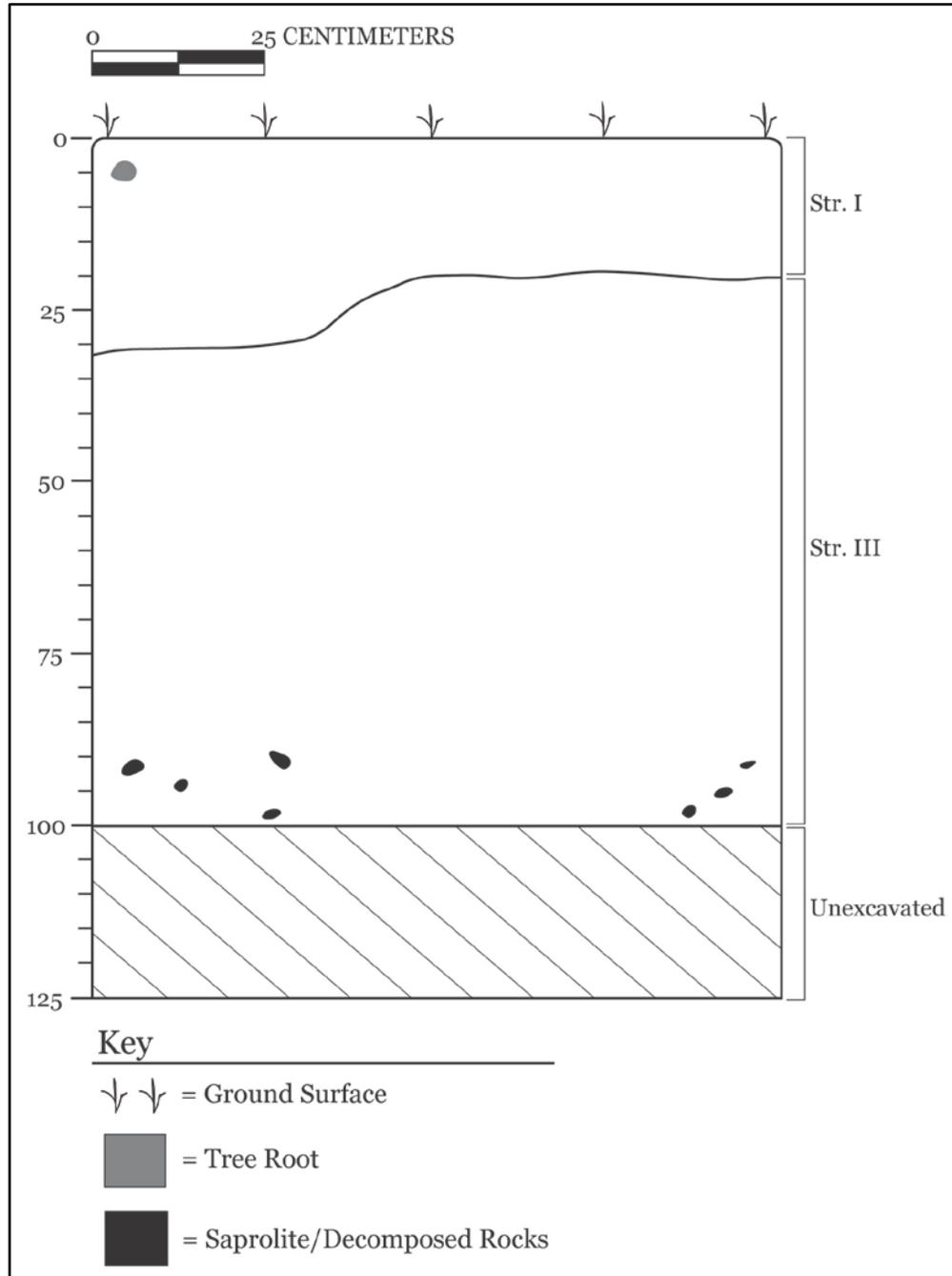


Figure 19. Representative profile of subsurface excavation of BT-3, south wall.

4.1.4 Summary of Sub-Surface Testing Results

In general the stratigraphy was consistent across the project area with the exception of Stratum II. The absence of Stratum II in BT-3 suggests this Ap Horizon (Stratum II) was fill likely associated with the development of the Moloka'i High School campus. Stratum III is a natural, sterile subsoil.

4.1.5 SIHP # 50-60-01-2527

Function:	Trash Pit
Type:	Deposit
Total Features:	1
Dimension:	0.85 (l) x 0.15 (w) x 0.25 (h) meters (33.5 x 6 x 9.8 inches)
Condition:	Poor to remnant
Age:	Historic
Significance Criteria:	D

Description: SIHP # 50-60-01-2527 (SIHP -2527) is a trash pit discovered along the northeast boundary of proposed Moloka'i High School science facilities project area (Figure 13). Based on the vertical walls and flat bottom the trash pit is the cross-section of a mechanically excavated trench/hole that was filled soon after excavation (Figure 20 and Figure 21). It likely continues to the east. Artifacts observed (documented but not collected) consisted of portions of a what is probably a historic computing cheese cutter (circa 1910) (Figure 22 to Figure 24) and deteriorating pieces of flat tin/galvanized metal. The assemblage suggests more of an institutional or industrial origin because of the lack of domestic artifact types.

The antique cheese cutter is depicted in a 1906 patent diagram. These discarded and buried items likely originate from the school campus or nearby pineapple plantation. Less likely but also possible they may be from any number of homesteads that surrounded the high school campus as early as the late 1920s and early 1930s (see Figure 10 Figure 11).

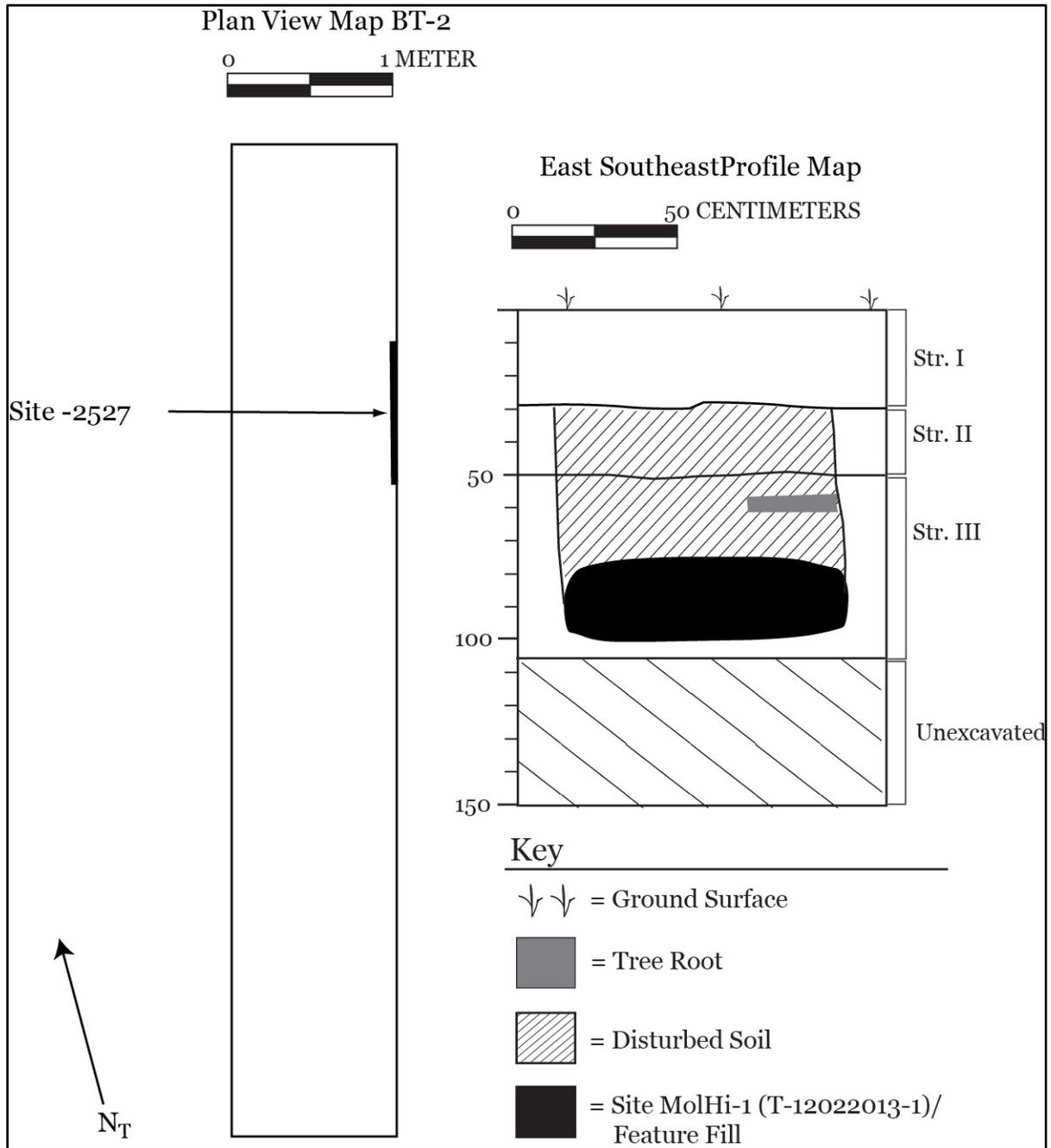


Figure 20. Plan view map, showing profile and location of SIHP -2527 in trench B-2.



Figure 21. SIHP -2527 visible in east sidewall of BT-2.



Figure 22. Probable remains of a historic computing cheese cutter found in SIHP -2527.

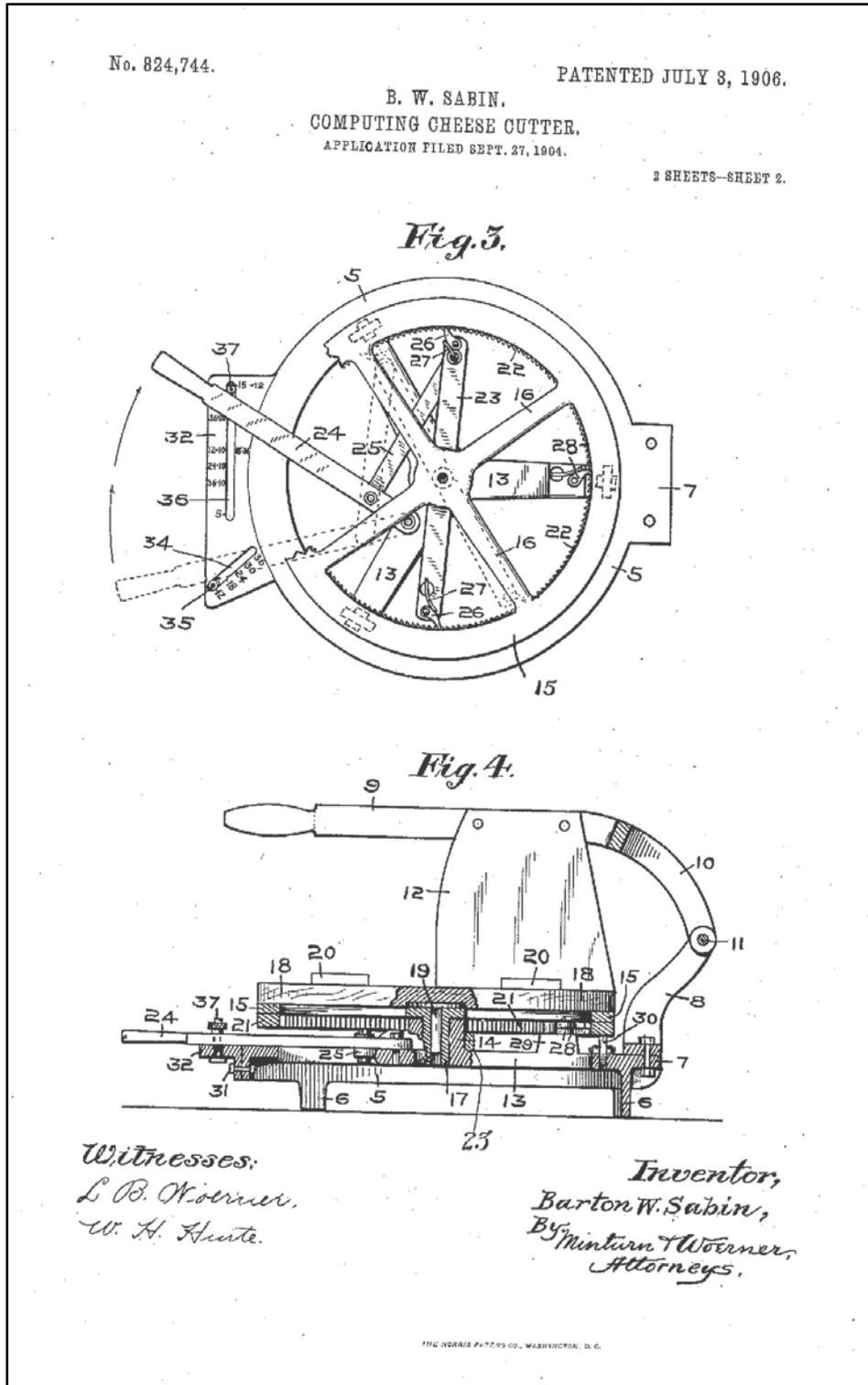


Figure 23. Patent for computing cheese-cutter issued in 1906 (Sabin 1906).



Figure 24. Image of an antique computing cheese cutter (Olde Good Things 2013).

Section 5 Summary and Interpretation

Cultural Surveys Hawai'i, Inc. (CSH) completed the Archaeological Inventory Survey for the proposed Moloka'i High School Science Facilities Upgrade on December 2nd, 2013. The fieldwork consisted of mechanical excavation of three backhoe trenches (BT-1 to BT-3). A total of 21 square meters (226 square feet) was excavated (approx 3 percent of the overall APE).

One historic property was identified within the northeastern portion of the project area (see Figure 13). SIHP # 50-60-01-2527 is a subsurface trash deposit likely associated with the development of the Moloka'i High School campus. No other cultural material remains or historic properties were encountered during the current investigation.

A review of the historic documentation indicates that the soils of the Ho'olehua Plain in central Moloka'i was once traditionally used for dryland agriculture (see also Section 3.1.1.5). This use continued into the early 20th century and is reflected in the *mo'olelo* associated with place names within or near Ho'olehua and adjacent *ahupua'a* that mention cultivation of sweet potatoes and gourds. Traditional use of lands within the plain region may have been represented in the archaeological record by surface structures and cultural material deposits consistent with permanent and recurring habitation, as well as features associated with dryland agriculture. Physical remnants of this type of settlement were identified during Summers's island-wide survey (1971), in which fertility sites, petroglyphs, hula platforms, spiritually significant stone uprights, and *heiau* were recorded within the region. More recent archaeological studies have also recorded physical remnants consistent with this settlement pattern. Weisler's 1989 study identified a new cultural deposit (SIHP -885) at Kipū (Weisler 1989), and a 1996 CSH inventory survey of the Pu'u Kolea subdivision in Kahanui 2 (Borthwick et al. 1996) recorded an irregular-shaped platform and a terrace in the vicinity of the current project area (see Section 3.3 Previous Archaeological Research).

During the mid-to late-1800s, ranching became the dominant land use within the central plains of Moloka'i (see Section 3.2.1). In 1898, American Sugar Company, Limited (ASCO) was incorporated and unsuccessfully attempted to develop the arid lands of the Ho'olehua plain. However, in 1926 Pālā'au-Ho'olehua was successfully planted by Libby, McNeill and Libby for commercial pineapple cultivation, which continued as late as the 1980s. Additionally, due to the homestead program set up by Libby, the Pālā'au-Ho'olehua region had the largest population of Native Hawaiians in 1930 (see Section 3.2.4).

With respect to the current project area, evidence of pre-contact habitation and agricultural use were absent. For the proposed science facilities upgrade, the paucity of pre-contact historic properties can likely be attributed to the fact that the lands in and surrounding the current project area have undergone heavy modifications by the development of the Moloka'i High School, which has stood in this location since the 1930s, as well as pineapple cultivation within the area. For example, Figure 25 and Figure 26 show the dramatic changes in the landscape between 1929 and 1936. Such landscape alteration would have effectively eliminated surface archaeological structures and cultural materials and significantly altered subsurface indications of pre-contact historic properties.

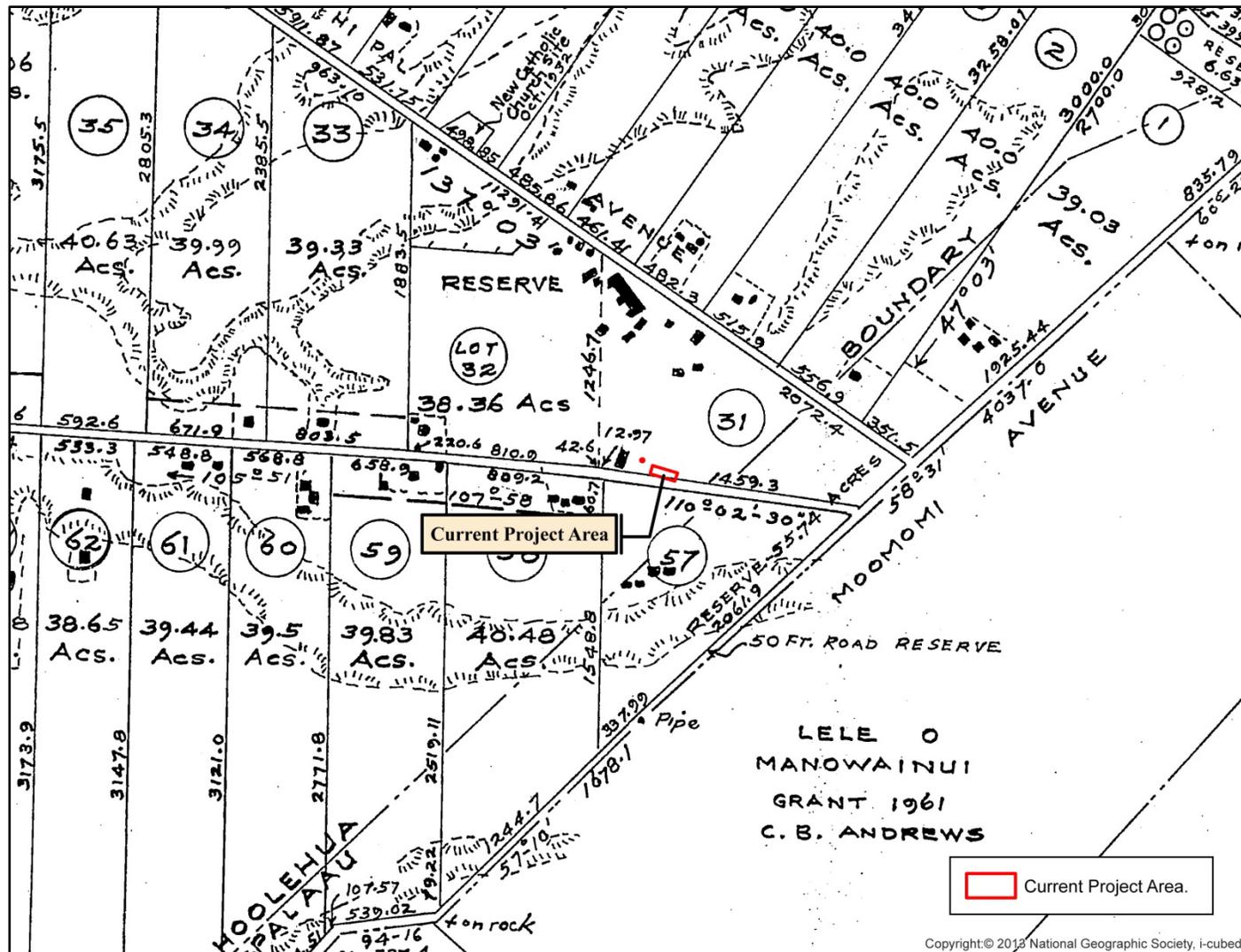


Figure 25. . Close-up of a 1929 Hoolehua & Palaa government survey map for the Hawaiian Homes Commission (Reid 1929) showing the project area approximate location in relation to structures and homesteads present at that time.

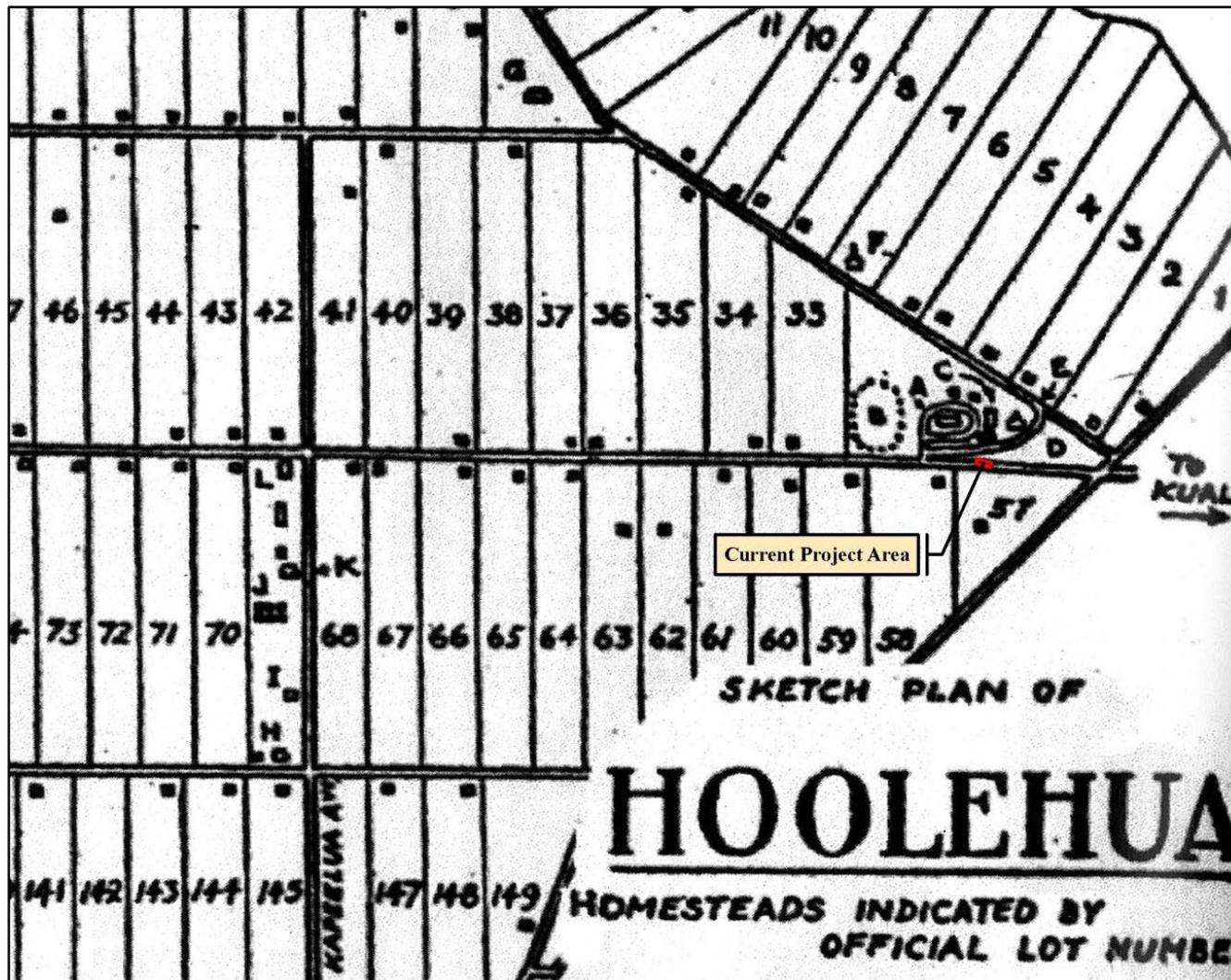


Figure 26. 1936 Hoolehua Homesteads map showing the project area approximate location in relation to structures and homesteads present at that time (University of Hawai'i Publications #12, Vol. 1, #3, Jan. 1936 in Larsen and Marks 2010:374).

Section 6 Significance Assessments

Significance assessments have been made in accordance with the State Department of Land and Natural Resources (DLNR) Chapter 13-284, Hawai'i Administrative Rules (HAR), entitled "Rules Governing Procedures for Historic Preservation Review to Comment on Section 6E-42, Hawai'i Revised Statutes (HRS), Projects"; Chapter 13-284-6 entitled "Evaluation of Significance", states:

- a. Once a historic property is identified, then an assessment of significance shall occur. The agency shall make this initial assessment, or delegate this assessment, in writing, to the SHPD. This information shall be submitted concurrently with the survey report, if historic properties are found in the survey.
- b. To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:
 - A. *Sites that are associated with events that have made a significant contribution to broad patterns of our history; or*
 - B. *Sites that are associated with the lives of persons significant in our past; or*
 - C. *Sites that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant or distinguishable entity, whose components may lack individual distinction; or*
 - D. *Sites which have yielded, or may be likely to yield, information important in prehistory or history; or*
 - E. *Sites which have an important value to the native Hawaiian people or to another ethnic group of the State due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events, or oral accounts- these associations being important to the groups' history and cultural identity.*

Table 6. Significance assessment for Historic Properties identified during the inventory survey.

SIHP #	Site Type	Function	Age	Significance Criteria
50-60-01-2527	Deposit	Trash Pit	Historic	D

Section 7 Project Effect and Mitigation Recommendations

7.1 Project Effect

Under Hawai'i state historic preservation legislation, the only two possible effect determinations for a given project under historic preservation review are “no historic properties affected” and “effect, with proposed mitigation commitments” (HAR Chapter 13-284-7). In the circumstance of the current project area, one historic property was documented within the current project area and cannot be avoided by the proposed science facilities upgrade.

The current inventory survey investigation has adequately recorded the information available from this property, through location documentation, written descriptions, and photographs. Because the information that gives this historic property significance has already been recorded and additional historic preservation mitigation would not add to the body of information concerning this historic property, CSH recommends a project specific effect determination of “no historic properties affected.” This is believed to be appropriate, despite the potential removal of this feature by the proposed project as the information that makes this historic property significant has been adequately recorded.

7.2 Mitigation Recommendations

Based on the above evaluation of effect, CSH recommends no further historic preservation work for SIHP # 50-60-01-2527. While it has been established by this archaeological inventory survey that ground disturbing activities related to the Moloka'i High School Science Facilities Upgrade project will likely have no effect on historic properties, should pre-historic or historic cultural material or human remains be encountered during construction of this project, SHPD must be notified immediately and all work must cease. This includes no screening of back dirt, no cleaning and/or excavation of the site, and no exploratory work of any kind unless specifically requested by SHPD. All human skeletal remains must be handled in accordance with HRS Chapter 6E-7 and 6E-8 and HAR Chapter 13-300 and in consultation with SHPD/DLNR. In addition, all documentation of all inadvertent burial historic properties must be conducted in accordance with HRS Chapter 6E-43 and Chapter 13-300.

7.3 Disposition of Materials

All original paperwork, electronic media, and data gathered during this project are on file at the Maui Office of Cultural Surveys Hawai'i, Inc. 1993 Main Street, Wailuku, HI 96793 under CSH Job Code Hoolehua 2. Electronic copies are also on file at the O'ahu Office of Cultural Surveys Hawai'i, Inc., 41-1537 Kalaniana'ole Hwy. Suite 200, Waimanalo, HI 96795.

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