NEIL ABERCROMBIE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

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March 15, 2012

Mr. Gary Hooser, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

Dear Mr. Hooser:

The State of Hawaii, Department of Education, hereby transmits the final environmental assessment and finding of no significant impact (FEA-FONSI) for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii, for publication in the next available edition of the Environmental Notice.

Copies of public comments on the draft environmental assessment and anticipated finding of no significant impact (DEA-AFONSI) received during the 30-day public comment period and the corresponding responses from the applicant have been included in the final environmental assessment.

Enclosed is a completed OEQC Publication Form, two (2) hard copies of the FEA-FONSI and one (1) CD containing a pdf of the same and a Word copy of the publication form. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If you have any questions, please contact Gaylyn Nakatsuka at 377-8315.

Sincerely,

Duane Y. Kashiwai
Public Works Administrator
Facilities Development Branch

DYK:jl

Enclosures: OEQC Publication Form
FEA-FONSI (2 hard copies)
1 CD with FEA-FONSI (pdf) and OEQC Publication Form (Word)

Publication Form
The Environmental Notice
Office of Environmental Quality Control

Instructions: Please submit one hardcopy of the document along with a determination letter from the agency. On a compact disk, put an electronic copy of this publication form and a PDF of the EA or EIS. Mahalo.

Name of Project:	Kahuku Storm Damage Reduction Project
Applicable Law:	Consolidated Appropriations Act, 2008 (Public Law 110-161), Division C, Section 112
Type of Document:	Final Environmental Assessment
Island:	O`ahu
District:	Kahuku
TMK:	1-5-6-006:003, 009, 010, 011 (por), 015, and 025
Permits Required:	National Pollutant Discharge Elimination System (NPDES) Permit, Coastal Zone Management Act Determination, Special Management Area Permit, City and County of Honolulu Department of Planning and Permitting Building Permit.
Name of Applicant or Proposing Agency:	Hawaii State Department of Education Facilities Development Branch Kalanimoku Bldg, Room 501 1151Punchbowl Street Honolulu, HI 96813 Attn: Duane Kashiwai (808) 586-0430
Co-Proponent	US Army Corps of Engineers Civil and Public Works Branch (CEPOH-PP-C), Building 230, Fort Shafter, HI 96858-5440 Mr. Milton Yoshimoto, Project Manager (808) 438-2250
Contact:	US Army Corps of Engineers Civil and Public Works Branch (CEPOH-PP-C), Building 230, Fort Shafter, HI 96858-5440 Mr. Milton Yoshimoto, Project Manager (808) 438-2250
Approving Agency or Accepting Authority:	Hawaii State Department of Education Facilities Development Branch Kalanimoku Bldg, Room 501 1151Punchbowl Street Honolulu, HI 96813 Attn: Duane Kashiwai (808) 586-0430
Consultant:	Environet, Inc. 650 Iwilei Road, Suite 204 Honolulu, HI 96817 Ms. Colette Sakoda 808-833-2225, Ext. 1004

Project Summary: Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, and Chapter 343, Hawaii Revised Statutes, as amended, the U.S. Army Corps of Engineers (USACE) on

behalf of the Hawaii State Department of Education (DOE), Facilities Development Branch and as co-proponent gives notice that a FONSI has been determined for the proposed action to implement stormwater mitigation measures at Kahuku High School, O`ahu, Hawai`i. A Final Environmental Assessment is being issued following the public review of the Draft EA. The project is being proposed under the legislative authority of the Consolidated Appropriations Act, 2008 (Public Law 110-161), Division C, Section 112. The USACE was authorized to design an environmentally sound and feasible stormwater collection and drainage system for Kahuku High School at the request of the State of Hawai`i Department of Education. The proposed action would route on-campus stormwater runoff to underground storage units that would be placed under the athletic field. The proposed action would meet the purpose and need under the legislative authority and mitigate potential flood damage to facilities on campus.

Final Environmental Assessment

Kahuku Storm Damage Reduction Project

Kahuku, O‘ahu, Hawai‘i

U.S. Army Corps of Engineers, Honolulu Engineering District

Prepared By:
Environet, Inc.

April 2012

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ACRONYMS AND ABBREVIATIONS

%	percent
°F	degrees Fahrenheit
BFE	Base Flood Elevation
bgs	below ground surface
BMPs	best management practices
CDP	Census Designated Place
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIA	Cultural Impact Assessment
cy	cubic yards
CWA	Clean Water Act
DBEDT	State of Hawai‘i Department of Business, Economic Development and Tourism
DFIRMS	Digital Flood Insurance Rate Maps
DOE	State of Hawai‘i Department of Education
DOH	State of Hawai‘i Department of Health
DOT	State of Hawai‘i Department of Transportation
DLNR	State of Hawai‘i Department of Land and Natural Resources
DPP	City and County of Honolulu Department of Planning and Permitting
EA	Environmental Assessment
EDR	Engineering Design Report
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ER	Engineer Regulation
FEMA	Federal Emergency Management Agency
ft	feet
HAR	Hawai‘i Administrative Rules
HECO	Hawaiian Electric Company
HoLIS	Honolulu Land Information System
HRS	Hawai‘i Revised Statutes
HTRW	Hazardous, Toxic, and Radioactive Waste
JaC	Jaucus sand
LCAs	Land Commission Awards
LUC	State of Hawai‘i Land Use Commission
LUST	Leaking Underground Storage Tank
msl	mean sea level
Mt	Mokuleia clay loam
mg/L Cl^-	milligrams per liter of chloride
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
OEQC	Hawai‘i State Office of Environmental Quality Control
OHA	Office of Hawaiian Affairs
OIA	O‘ahu Interscholastic Association
RCRA	Resource Conservation and Recovery Act
RMTC	R.M. Towill Corporation
SCS	Scientific Consultant Services, Inc.
SHPD	State Historic Preservation Division
TMK	tax map key

UH	University of Hawai‘i
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
UST	Underground Storage Tank
WWII	World War II

1.0 INTRODUCTION

The United States Army Corps of Engineers (USACE) is conducting an Environmental Assessment (EA) for the implementation of stormwater mitigation measures at Kahuku High School, O‘ahu, Hawai‘i. Alternative measures to reduce the impact of storm flooding on the high school campus were studied and one alternative was selected as the most appropriate mitigation measure (USACE, 2009). Environet has been retained under Contract No. W9128A-09-P-0025 to prepare an EA in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) 1500-1508); Engineer Regulation (ER) 200-2-2, Environmental Quality Procedures for Implementing NEPA; and Chapter 343, Hawai‘i Revised Statutes (HRS) and Act 50, as amended.

1.1 PROJECT LOCATION AND SETTING

Kahuku High School is located on the northeast coast of the Island of O‘ahu, approximately 26 road miles from downtown Honolulu (Figure 1-1). The high school is situated within the community of Kahuku which is under the jurisdiction of the City and County of Honolulu. The campus is bordered by Kamehameha Highway to the north, Kahuku Park to the west, a cliff to the south, and Kahuku Fire and Police Station to the east. The area of interest includes the 26-acre sub-drainage area of the high school (split into Kahuku High 1 and 2) as well as Kahuku Park 1 and 2, and the Puuluana Road area across Kamehameha Highway, about 6.7, 12 and 0.6 acres, respectively (Figure 1-2). The highest elevation of the sub-drainage area is approximately 25 feet (ft) above mean sea level (msl) with the lowest elevation area at approximately 5 ft above msl. Kahuku Park 1 and 2, and Kahuku High 2 are areas with higher elevations sloping down towards the Kahuku High 1 area and Kamehameha Highway. A small wooded area covers the southern (higher elevation) end of the high school property while buildings and roads with less vegetation are located in areas of lower elevation. The lowest areas on campus occur around the gym, the school entrance located on the Kamehameha Highway side of the campus, and the football field. The park consists of an open area covered with landscaped grass.

1.2 PURPOSE AND NEED FOR ACTION

1.2.1 Existing Conditions

During high rainfall events the Kahuku High School watershed experiences flooding in the low lying areas. The flooding occurs mainly in and around the front entrance, gym, and football field, and in areas adjacent to Kamehameha Highway. The water collects in these areas for extended periods of time due to

lack of either adequate drainage infrastructure or ponds. The runoff from the park also collects in the areas adjacent to the highway adding to the overall flooding of the area. Park waters do not directly enter the football field due to a drainage berm that directs the water towards the highway. This berm disappears near the park/school boundary by the tennis courts and Building J. Runoff from the Puuluana Road area across Kamehameha Highway contributes to the flooding at the front entrance of the school. School staff report that it can take hours after the end of a rainfall event for the ponded runoff to drain or seep underground.

1.2.2 Past Flood Abatement Efforts

There are no stream channels within the area therefore most of the water accumulates through overland flow. The stormwater drainage systems at Kahuku High School consist mainly of a series of dry wells constructed in 1970, 1974, and 1994, and an 18-inch diameter perforated drain pipe stormwater system that drains the front entrance and gym area. The drain pipes were constructed in 1976 when a new (current) gymnasium was built (Figure 1-3). This system takes the runoff to a dry well located near the boundary of the school and the park. The park area relies on small drainage swales and berms along the park/school boundary to transport the runoff to the low-lying area of the park near Kamehameha Highway. An existing 24-inch culvert is located in a low point within a residence lot adjacent to the school and park fronting Kamehameha Highway. The culvert drains to a small detention basin within the grounds of the Kahuku Sugar Mill on the opposite side of the highway. This culvert is the only existing outlet for the stormwater that accumulates in the high school and park watersheds.

1.2.3 Purpose and Need

Under the legislative authority of the Consolidated Appropriations Act, 2008 (Public Law 110-161), Division C, Section 112, the USACE was authorized to design an environmentally sound and feasible stormwater collection and drainage system for Kahuku High School at the request of the State of Hawai‘i Department of Education (DOE). As the local sponsor of the project, DOE would be responsible for the Operation and Maintenance (O&M) of the drainage system so that it remains capable of providing the maximum protection for which it was designed.

Improvement to the existing drainage at Kahuku High School is needed to provide a solution to the recurring flooding problem that has caused inconvenience to countless students as well as community members for decades. School closure or class cancellation as a result of campus flooding interrupts the curriculum as well as interferes with outdoor activities that occur on the football field. The runoff that accumulates at the front entrance of the high school not only hinders the use of the two parking lots by

faculty and campus visitors, but also slows down the traffic that passes by the high school entrance on Kamehameha Highway. Standing water on campus could pose health hazards after extended periods of time and should not be neglected. Flooding problems at Kahuku High School recur every year and need to be addressed in a timely manner in order to provide a better learning environment for the students as well as to better protect the health and well-being of the Kahuku community.

A total of four alternatives to reduce the impact of storm flooding on campus are discussed in this EA. One alternative was selected for further analysis including a more detailed design and in-depth planning.

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Environet, Inc.	PROJECT NO.: 109-005	LOCATION MAP	FIGURE 1-1
	DATE: FEBRUARY 6, 2012		
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	REVIEWED BY: CS		

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Environet, Inc.	PROJECT NO.: 109-005	KAHUKU HIGH SCHOOL DRAINAGE AREAS	FIGURE 1-2
	DATE: FEBRUARY 6, 2012		
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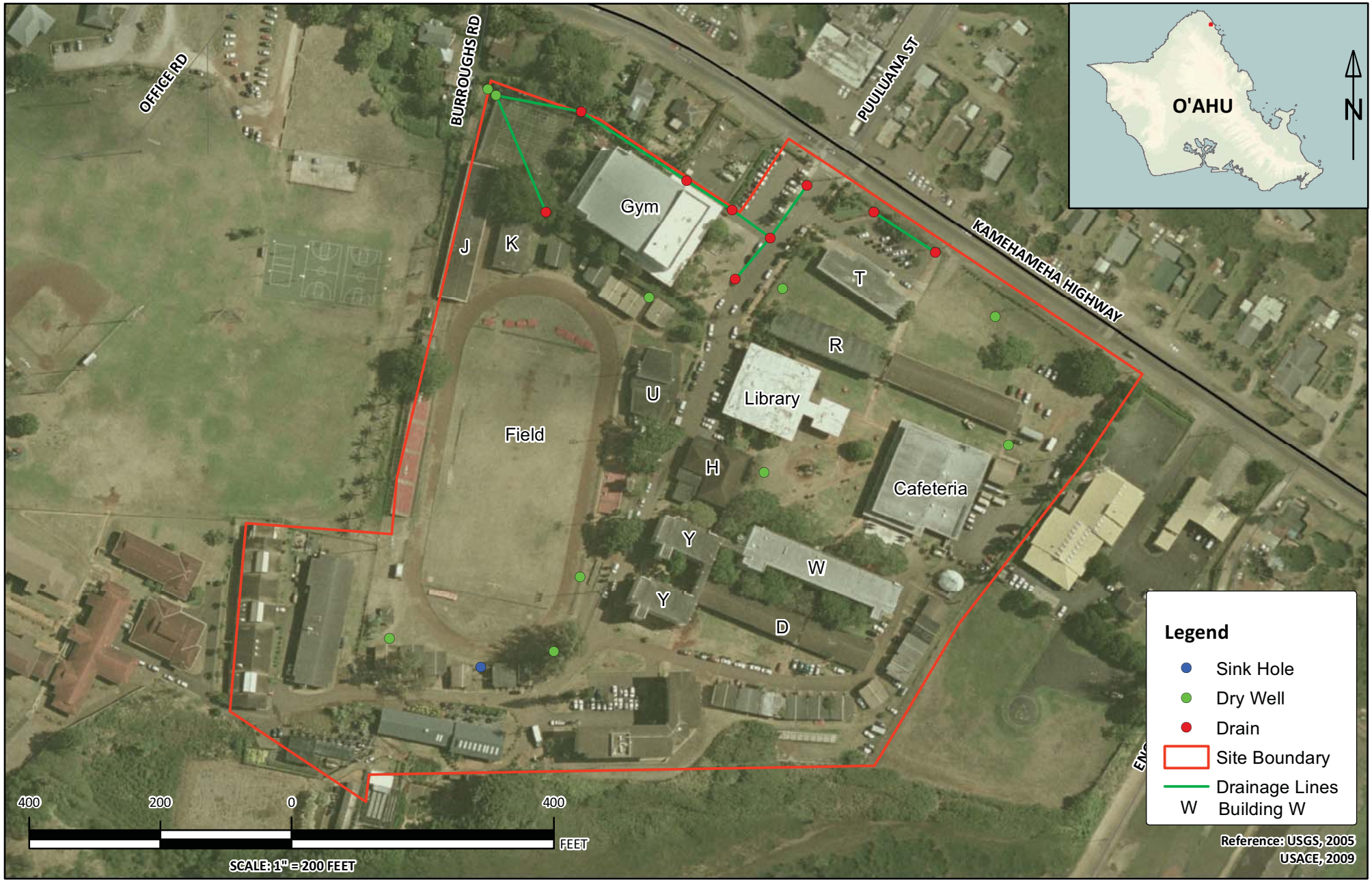

Environet, Inc.	PROJECT NO.: 109-005 DATE: FEBRUARY 6, 2012 DRAWN BY: CB REVIEWED BY: CS	EXISTING DRAINAGE SYSTEM AT KAHUKU HIGH SCHOOL KAHUKU HIGH SCHOOL KAMEHAMEHA HIGHWAY, KAHUKU, O'AHU, HAWAI'I	FIGURE 1-3

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2.0 ALTERNATIVES

2.1 ALTERNATIVE 1: Divert Water to Helipad Basin and Park Areas

Alternative 1 focuses on diverting the stormwater away from the low areas that lack adequate drainage outlets to areas that can drain the water more efficiently. This alternative includes installation of a drainage system that would collect stormwater and divert it to ponding areas with better drainage, such as the fire and police station helipad area and the low-lying areas of Kahuku Park. The alternative includes the construction of two separate berms and two separate stormwater drains with associated piping. The first drainage system consists of a berm and stormwater drain located south of the football field that are designed to divert water from the upper watershed away from the football field and into the fire and police station helipad drainage basin. The fire and police station drainage basin has ample storage and outlet capacity to handle the water from this area. The second drainage system is a berm and stormwater drain that prevents the park stormwater from inundating the adjoining school lands. Figure 2-1 shows the estimated design requirements for this alternative. The preliminary cost estimate for this alternative is $977,000.

Alternative 1 would alleviate some of the flooding currently experienced at the football field by diverting the water to the fire and police station helipad area. It is the most cost-effective alternative and would also prevent stormwater and any associated pollutants dissolved within or transported by the stormwater from flowing directly to the ocean. However, during storm events greater than 10 percent (%) (10-year) events, the flash-flood nature of Hawaiian storms would likely overwhelm any stormwater drainage system leading to marginally less flooding rather than a full solution to the problem. Alternative 1 also does nothing to address the problem of the undersized drainage outlets in the low-lying areas of the park. As a result, any water that does pond would create a safety issue if the low-lying area cannot be separated from the rest of the park by a security barrier such as a fence. Stagnant water can also present health concerns. Alternative 1 also impacts neighboring properties owned by the City and County of Honolulu by creating maintenance and liability issues. Alternative 1 would not meet the project objective since it is not a comprehensive solution to the flooding problem on campus and may potentially have negative impacts to adjacent areas.

2.2 ALTERNATIVE 2: Underground Storage

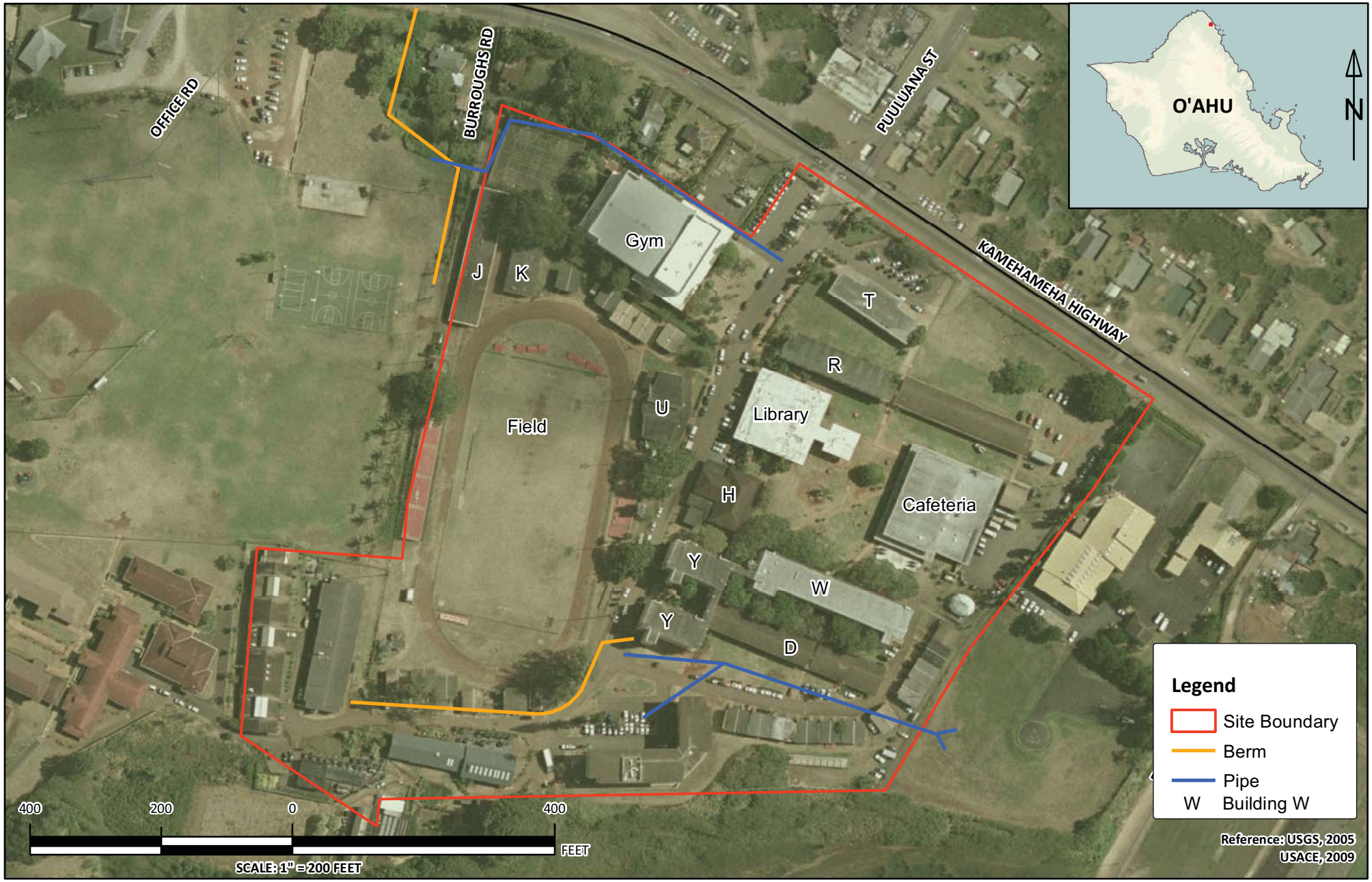
Alternative 2 involves storing stormwater runoff in a system of underground storage units built under the existing football field. The football field would be rebuilt on top of the storage units. The existing drainage and dry well system would be attached to the storage units and new inlets would be installed to collect the surface water that naturally ponds on the football field into the units. The water would be held within the underground storage units until it naturally infiltrates into the groundwater table. Figure 2-2 shows the features of Alternative 2. Preliminary cost estimate for this alternative is $3,965,000.

Alternative 2 would alleviate most of the flooding currently experienced at the football field by storing the water under the field itself. Some localized flooding in the low areas near the highway is likely to remain, however the majority of the flood waters would be stored within the storage units. Alternative 2 has added benefits of protecting the football field itself from flooding. It would also handle larger frequency floods than the other alternatives and does not require the use of any land outside the boundary of the Kahuku High School campus. Stormwater and the pollutants it may contain would be prevented from flowing directly to the ocean and stored in a way that minimizes safety or health concerns. The disadvantages of Alternative 2 include its high cost and lengthy duration of construction. Construction would take several months and involve the demolition of the football field and surrounding track, which would be reconstructed once stormwater collection unit construction is completed. Depending on the use of the field and track areas at that time, construction would have a short-term large impact on campus activities. Maintenance by flushing and/or pumping the underground storage units would be necessary depending on the natural drainage characteristics of the grounds under the football field and the amount of trash or sediment that may enter the storm drain system.

Alternative 2 is preferred as it would best reduce the flooding problems on campus by utilizing existing drainage systems on campus and would not require construction nor create impacts outside the high school boundary. A more detailed description and analysis of Alternative 2 is included in Section 3.

2.3 ALTERNATIVE 3: Culvert Diversion to Hospital Ditch

Alternative 3 involves draining the stormwater runoff away from the Kahuku High School campus by creating a large culvert underneath and adjacent to Kamehameha Highway that eventually flows into the Hospital Ditch and out to the ocean. Figure 2-3 illustrates the features of Alternative 3. This alternative follows what was proposed by Hida, Okamoto & Associates (1992) and USACE (2006). The preliminary cost estimate for this alternative is $4,666,000.



Environet, Inc.	PROJECT NO.: 109-005	KAHUKU HIGH SCHOOL - ALTERNATIVE #1	FIGURE 2-1
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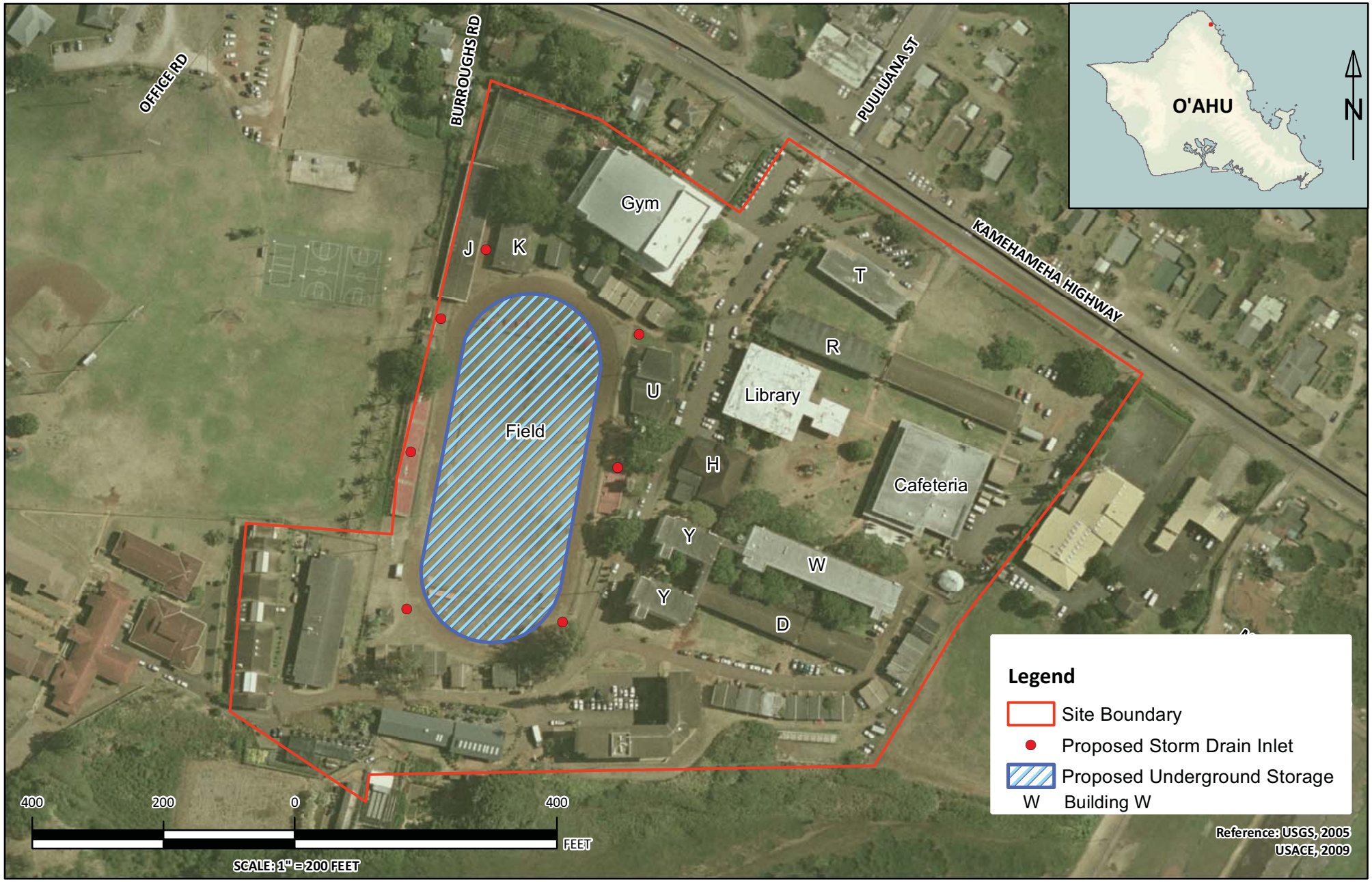

Environet, Inc.	PROJECT NO.: 109-005	KAHUKU HIGH SCHOOL - ALTERNATIVE #2	FIGURE 2-2
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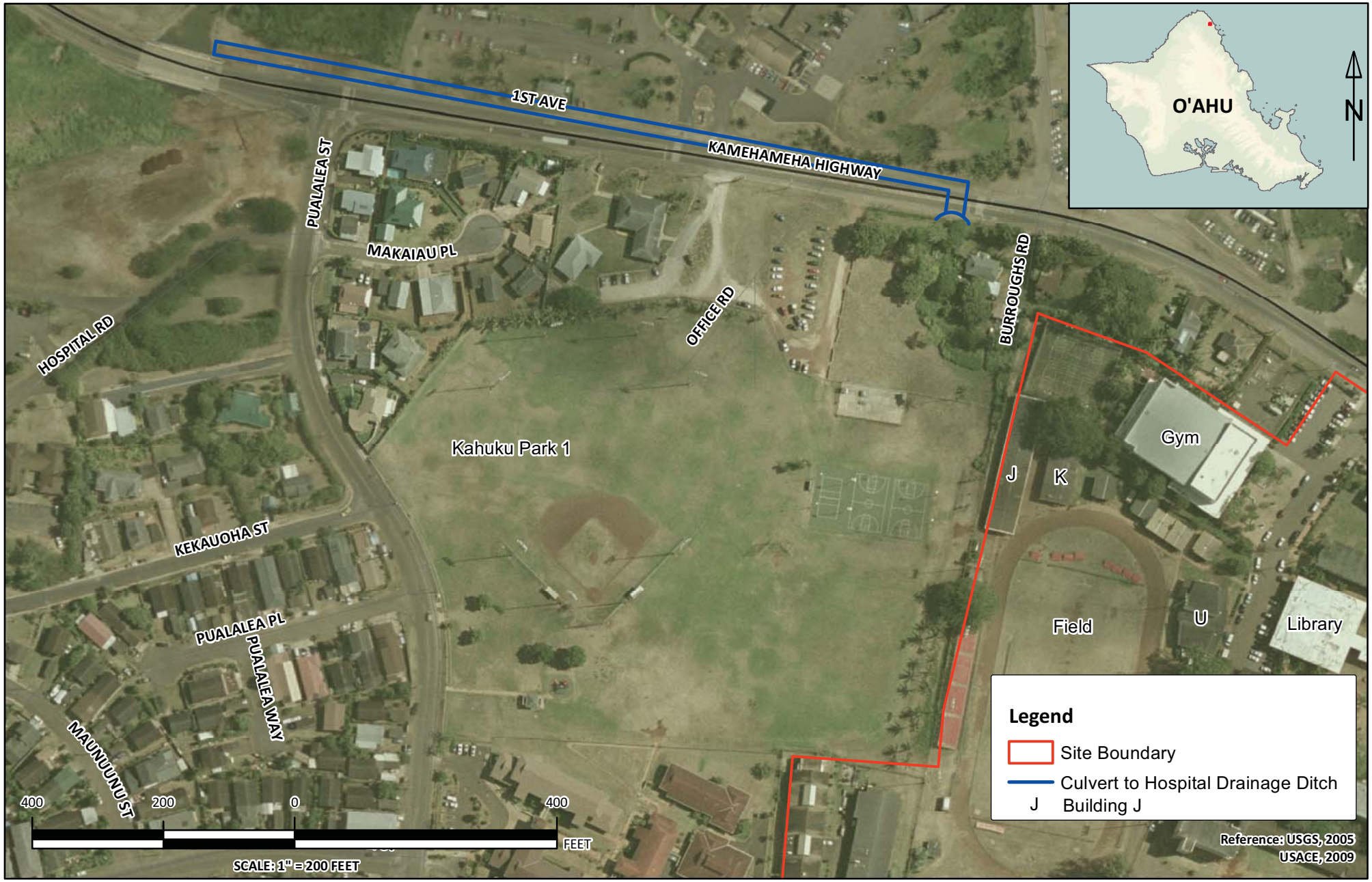

Environet, Inc.	PROJECT NO.: 109-005	KAHUKU HIGH SCHOOL - ALTERNATIVE #3	FIGURE 2-3
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Alternative 3 would alleviate most of the flooding currently experienced at the lower campus and football field and would also benefit the surrounding areas by providing an adequate drainage outlet for Kahuku High School and the adjacent park areas. The large culvert would allow stormwater to flow away from the campus quickly, thus preventing flood damage to the high school. However, runoff would still pond on park land where the drainage culvert begins, presenting a safety hazard. In addition, a substantial amount of park land and private property would be required in order to build the drainage structure, and traffic on Kamehameha Highway would have to be diverted during construction. Alternative 3 is also the most expensive alternative of the three studied. Environmentally, Alternative 3 includes drawbacks because it would pass the stormwater runoff, including any pollutants, to the ocean via Hospital Ditch. This alternative would require coordination with a few private landowners, City and County of Honolulu, State of Hawai‘i Department of Transportation (DOT), and the United States Fish and Wildlife Service (USFWS) which owns parts of Hospital Ditch. Questions about maintenance and liability may occur amongst these parties.

This alternative would achieve project objectives, despite the ponding that may occur where the drainage culverts begin. However, considering the high cost and potential negative impacts to the surrounding areas and the ocean, this alternative may not be feasible.

2.4 ALTERNATIVE 4: No Action

Alternative 4 is to leave the existing conditions unchanged. While this is not a mitigation alternative to the flooding problem at Kahuku High School, it provides a reference point for comparison and evaluation of the three previously discussed alternatives. Having no construction costs, this alternative would be the least costly. Furthermore, school functions would not be affected by construction activities. However, the flooding problem would remain, with future costs expected for repairing flood damages and for maintenance. Stagnant water also presents a health concern as well as rendering the football field unusable for an extended period of time after storm events.

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3.0 ADDITIONAL DESIGN FOR PROPOSED ACTION

3.1 UNDERGROUND STORAGE UNIT DESIGN AND CAPACITY

The proposed underground storage unit capacity has been designed based upon a 2% (50-year) storm volume of about 120,000 cubic ft. It has been designed to reduce residual flooding at low ground elevations on campus from storms larger than 10% (10-year) events. Flood extents from 10% and 2% storms are shown in Figures 3-1 and 3-2, respectively. Figure 3-3 shows the residual flood extent from storms greater than 10% events up to 2% events. As mentioned earlier, some localized flooding is expected to remain in the low-lying areas near Kamehameha Highway. However, most of the flooding experienced at the football field would be alleviated by having the stormwater stored underground within the storage units. The underground storage unit capacity would be exceeded during storms events that are 2% or greater. In such cases, it is expected that pumping excess stormwater from the storage units would be necessary to prevent backup of water through the system. The storage unit has been designed to have a low point with manhole access and a concrete sump floor for pumping access, which would also allow cleaning of the storage unit when needed. Disposal of the excess stormwater and removed silt, sediment, trash, and debris is to be done in accordance with applicable laws. The manhole access would be located near Intake 5 by Building U (Figure 3-4).

Approximately 5,900 three-foot and 4,800 two-foot high Brentwood Storm Tank storage units (Figure 3-5) would be used with an invert elevation of 5 ft for the pipes entering the units. Figure 3-6 shows a cross section of the storage unit design. Based on the depth of the groundwater table, which is 3.5 to 4 ft below ground surface (bgs), it was determined that the lowest elevation of excavation for the storage units would be limited to about 4 ft bgs. Depending on further geotechnical investigations preceding construction, the invert elevation may need to be adjusted. The field level would be raised 1 to 3 ft above the current level, depending on the allowable excavation depth.

3.2 DISPOSAL OF EXCAVATED SOIL

Approximately 9,600 cubic yards (cy) of excavated soil is expected to be generated during the installation of the underground storage units. Assuming a height of 3 ft, approximately 1.98 acres of land would be needed to stockpile the soil. Alternatives that are currently considered for the disposal of the excavated soil include trucking the soil off campus to another DOE project construction site for reuse or allowing the project construction contractor to make a decision as to where to relocate the soil.

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PROJECT NO.: 109-005	KAHUKU HIGH SCHOOL - 10% (10-YEAR) FLOOD EXTENT
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REVIEWED BY: CS	

FIGURE 3-1

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PROJECT NO.: 109-005	KAHUKU HIGH SCHOOL - 2% (50-YEAR) FLOOD EXTENT
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FIGURE 3-2

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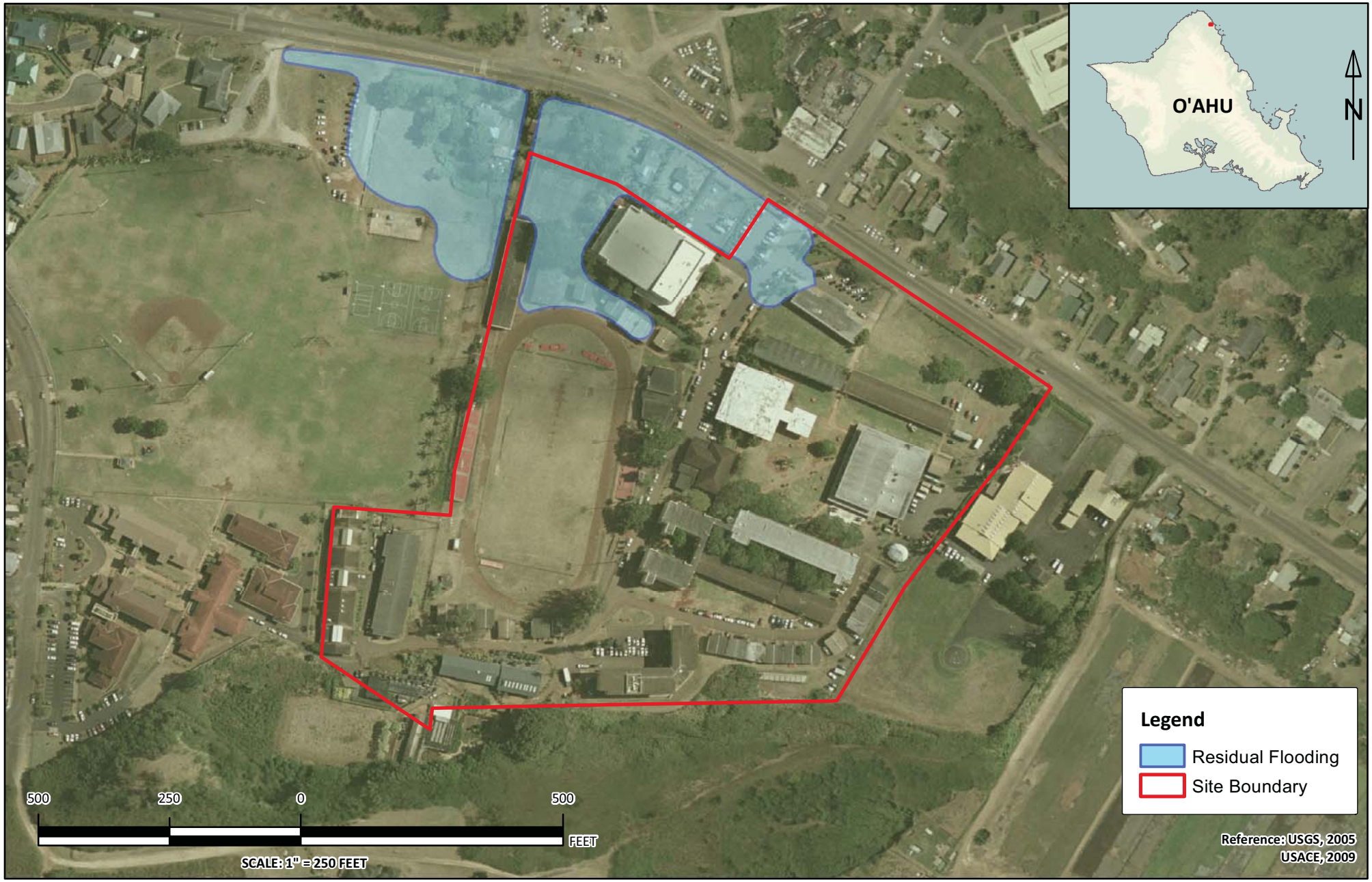

Environet, Inc.	PROJECT NO.: 109-005	ALTERNATIVE 2 RESIDUAL FLOODING FOR STORMS GREATER THAN 10% UP TO 2% CHANCE EVENT	FIGURE 3-3
	DATE: FEBRUARY 6, 2012		
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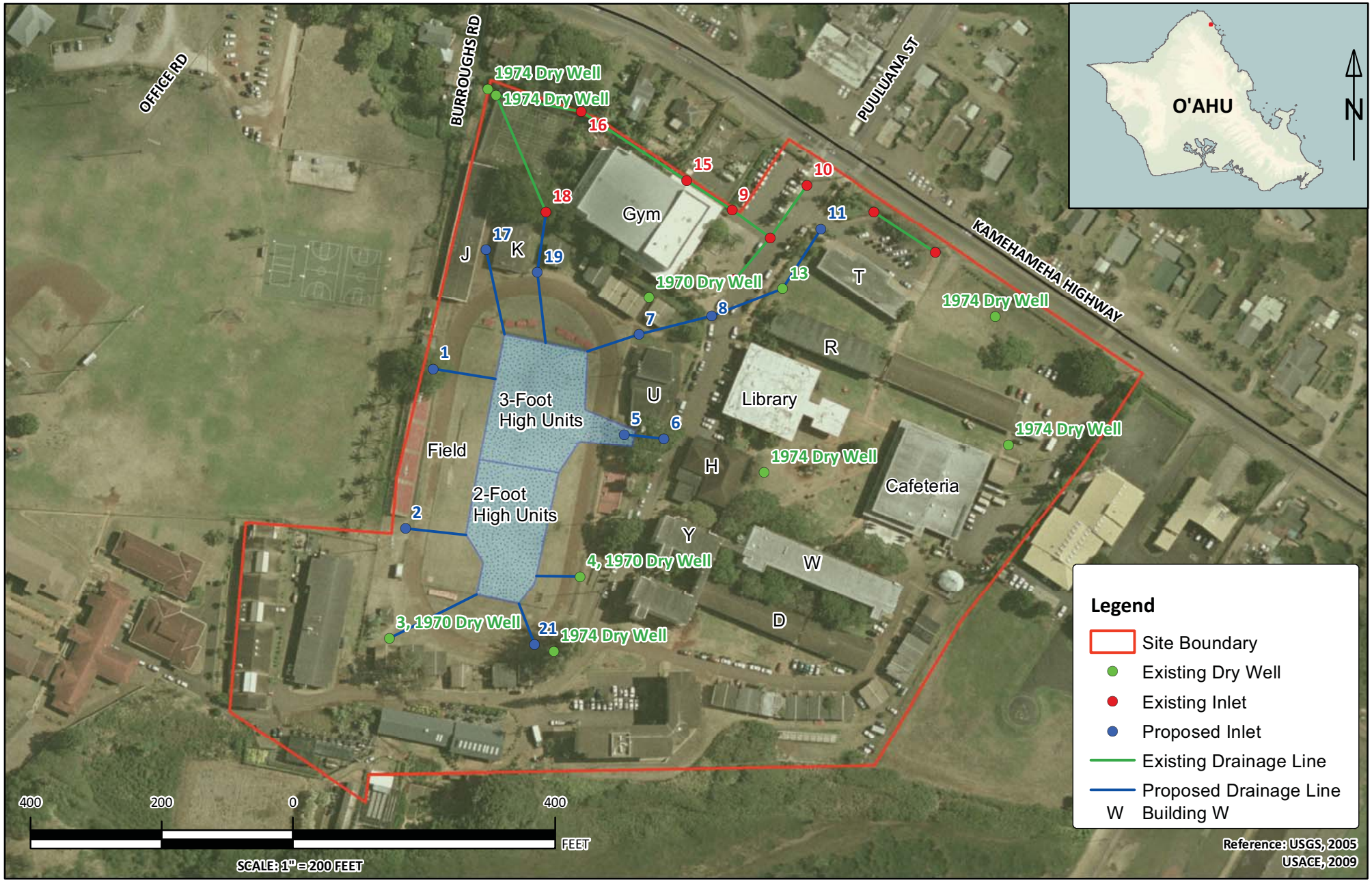

Environet, Inc.	PROJECT NO.: 109-005	ALTERNATIVE 2 INLET AND PIPE LINE LAYOUT	FIGURE 3-4
	DATE: FEBRUARY 6, 2012		
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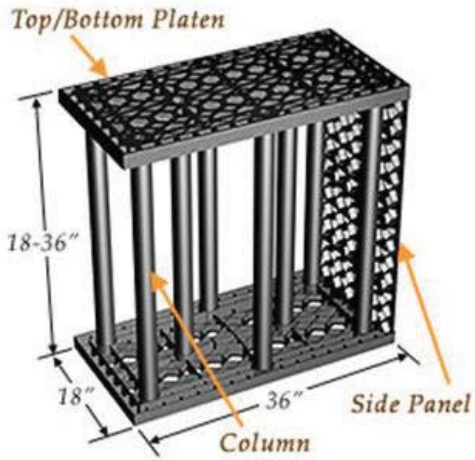

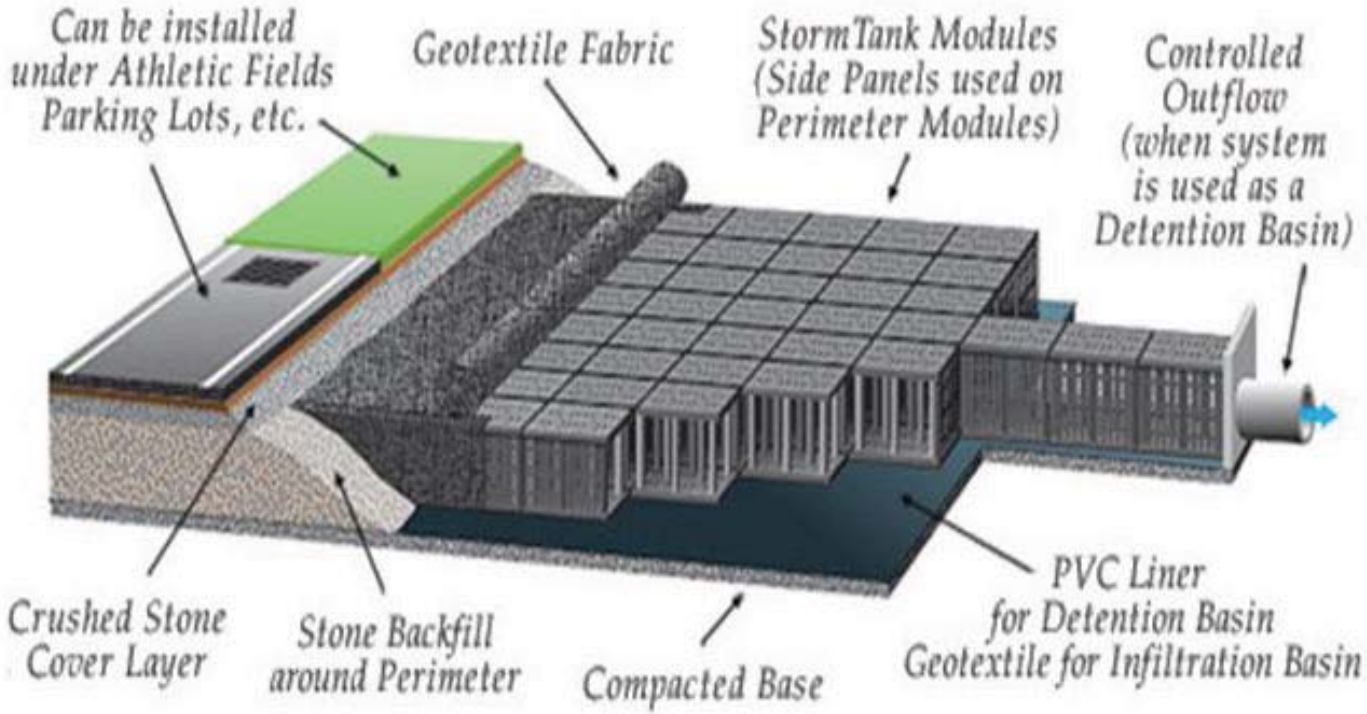

Use of brand names is for identification purposes only and does not constitute endorsement by the US Army Corps of Engineers

Reference: USACE, 2009

Environet, Inc.	PROJECT NO.: 109-005	BRENTWOOD STORM TANK STORAGE UNITS	FIGURE 3-5
	DATE: FEBRUARY 6, 2012	DIMENSIONS AND EXAMPLE INSTALLATION	
	DRAWN BY: CB	KAHUKU HIGH SCHOOL	
	REVIEWED BY: CS	KAMEHAMEHA HIGHWAY, KAHUKU, O'AHU, HAWAI'I	

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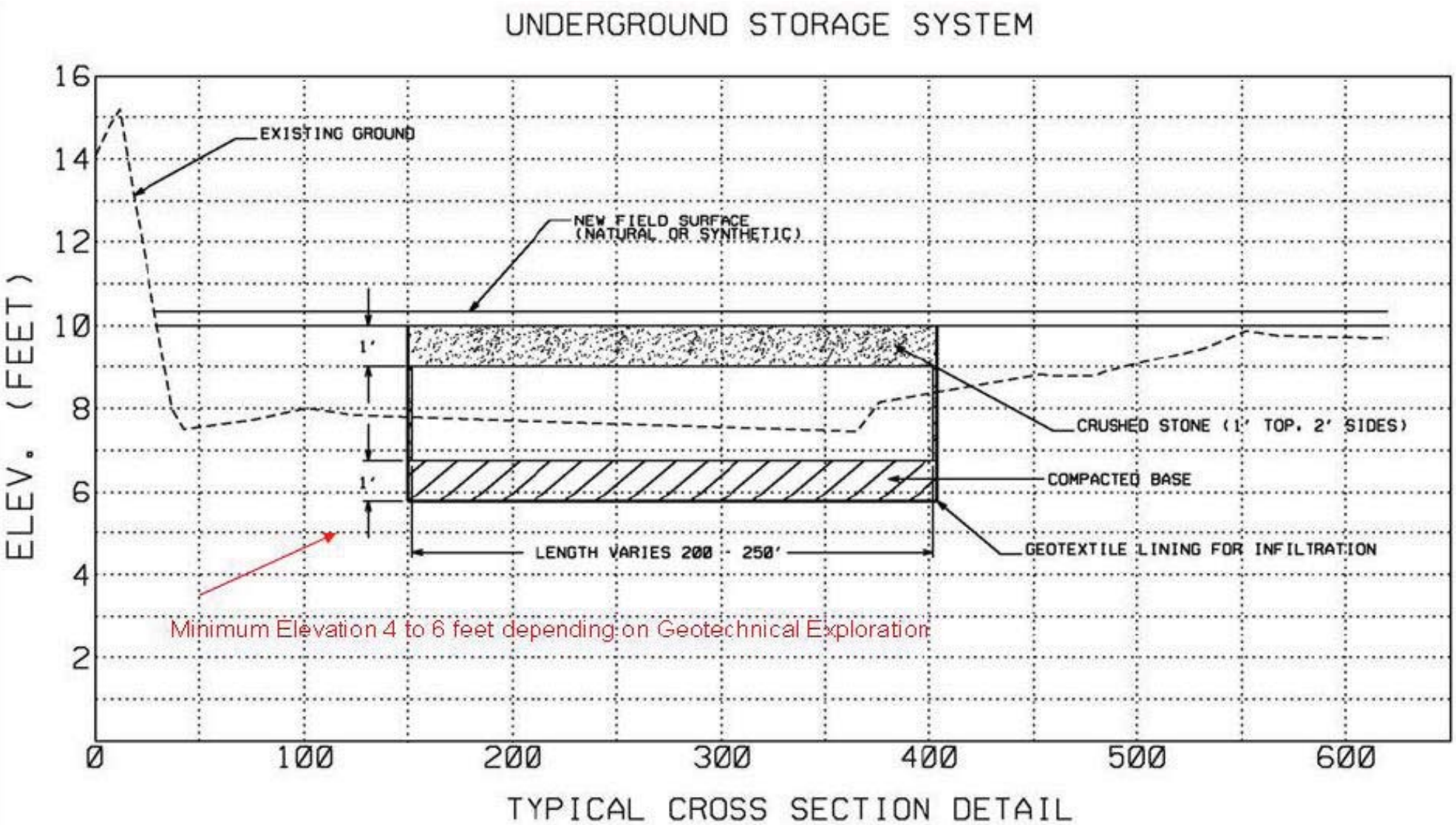

Reference: USACE, 2009

Environet, Inc.	PROJECT NO.: 109-005	STORAGE UNIT DESIGN CROSS-SECTION	FIGURE 3-6
	DATE: FEBRUARY 6, 2012		
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3.3 INLET AND PIPE DESIGN

The proposed inlet and pipe line layout is shown in Figure 3-4. Inlet locations and their corresponding drainage areas (Figure 3-7) were determined from 2-foot contour topographic data (1991 aerial photogrammetric map by R.M. Towill Corporation (RMTC)), a site visit by the USACE, and aerial images. The layout aimed to capture as much stormwater runoff as possible in the lower campus that is not captured by the already existing drainage system near the gymnasium. Detailed descriptions of calculations used to determine the inlet size and pipe capacities as well as minimum invert elevations required to maintain sufficient pipe velocity are included in the Engineering Design Report (EDR) prepared by the USACE (USACE, 2009).

3.4 OPERATION AND MAINTENANCE

No major components of the proposed underground storage system would require replacement over the economic life of the project (50 years). However, regular maintenance would be required to ensure the proper functioning of the system so that maximum storm damage protection is provided. An O&M Manual would be prepared during the plans and specifications phase of the proposed project. The items to be included are the following:

- Minimizing or eliminating the introduction of silt, sediment, trash, and debris into the storage units, catch basins, and pipe lines.
- Minimizing the introduction of silt, sediment, trash, and debris at all inlets during operation through best management practices (BMPs).
- Conduct semi-annual visual inspections of the manhole and inlets to check for sedimentation and debris.
- Evacuate debris and sediment from the manhole and inlets depending on findings from the inspection.

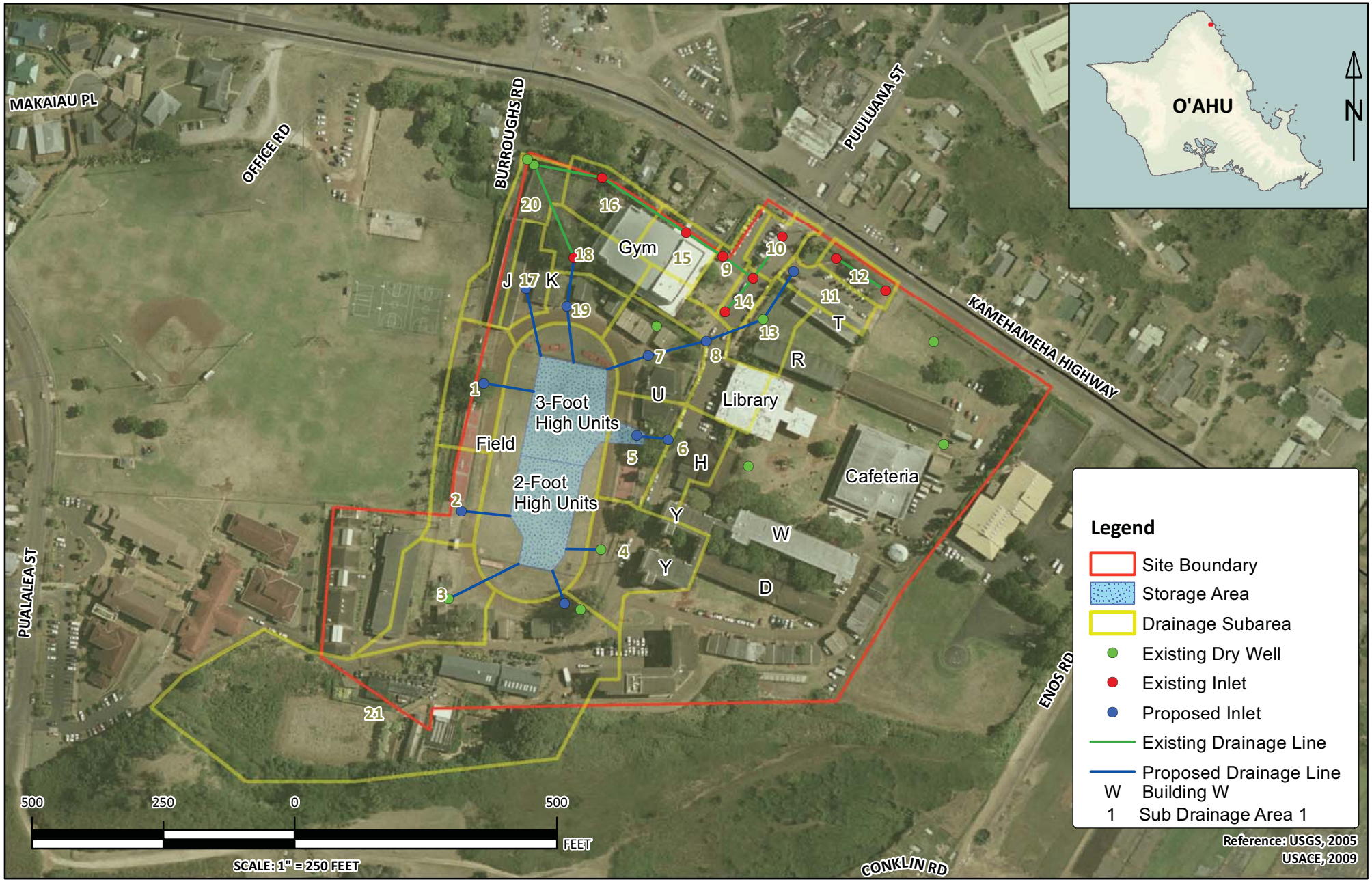
3.4.1 Infiltration Capability

Depending on the actual silt, sediment, trash, and debris load into the system, the infiltration performance of the geofabric and gravel underlayer would eventually be degraded. With degraded infiltration capability, the storage units may need to be pumped out after large storm events or on a periodic basis. Due to the design of the underground storage unit as an infiltration basin, flushing of the entire system may not be a practical approach in maintaining its infiltration performance. Rather, it would be more practical and effective to minimize materials that enter the system. Once the infiltration performance of

the storage units are degraded to the point where periodic pumping and flushing is necessary, it may become more feasible to replace the storage units.

3.4.2 Pumping of Excess Stormwater During Large Storm Events

As stated earlier, the capacity of the proposed underground storage unit has been designed based upon a 2% (50-year) storm event. Consequently, in case of a large storm event that is 2% or greater, pumping of excess stormwater may be necessary in order to prevent back up of water through the system and to prevent flooding on campus. Even during storm events that are less than 2% storms, pumping of excess stormwater may eventually become necessary as the system loses its initial infiltration performance. A pumping truck may be used to pump excess stormwater off campus. This solution may be of limited use at the site, considering a 2% storm is likely to inundate not just the campus but also the surrounding areas. Pumping excess water from the campus may not be successful at eliminating ponding if water from surrounding areas immediately flows onto the campus as a result of pumping activities. It remains an option that can be explored if the need exists, however. The Honolulu Fire Department has assisted Kahuku High School with such cases in the past. A request for information regarding the frequency of such events and procedures they have followed to dispose of the pumped stormwater was sent; however, no responses were received. In order to ensure health and safety to students and faculty, cancellation of school or evacuation may be a preferred course of action during a large storm event.



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PROJECT NO.: 109-005	ALTERNATIVE 2 INLET SUB-DRAINAGE AREAS
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FIGURE 3-7

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4.0 AFFECTED NATURAL ENVIRONMENT

4.1 GEOLOGY AND SOILS

The Island of O‘ahu consists of the Waianae and Ko‘olau Mountain Ranges, both of which are eroded remnants of great shield volcanoes. Lava flows from the Ko‘olau Volcano banked against the slope of Waianae Volcano to form the Schofield Plateau which is located in between the two ridges. After the two ranges were sculptured into their present form by fluvial and marine erosion, the island went through a complicated series of emergences and submergences. The project site is located on a coastal plain northeast of the Ko‘olau Mountain Range which was formed during the changing sea levels. The relatively flat coastal plain extends up to approximately one mile inland and is composed of sediments from the land and coral reef, and other marine sediments deposited on basaltic lavas. The surface soil within the project site primarily consists of Jaucus sand (JaC) deposits along Kamehameha Highway and Mokuleia clay loam (Mt) further inland (Figure 4-1). Mt deposits occur along relatively level coastal areas and are often found in association with JaC deposits. Mt exhibits moderate permeability, slow runoff, and a very slight erosion hazard. These soils are often used as ranchland as well as for the commercial production of sugarcane and truck crops. JaC exhibits rapid permeability, slow to very slow runoff, and a slight erosion hazard; however is vulnerable to severe wind erosion in areas with no vegetation (Foote et al., 1972).

4.2 CLIMATE

The Kahuku area has a subtropical climate characterized by relatively mild and constant temperatures, moderate humidity, prevailing northeasterly trade winds, and extreme variation in rainfall over short distances. Climate may vary spatially with altitude and in relation to prevailing local winds. Mean monthly temperatures vary from the high-80 degrees Fahrenheit (°F) during the summer months (May through September) to the high-70 °F during the winter months (October through April). Temperatures near Kahuku have ranged from a maximum of 93 °F to a minimum of 56 °F with a mean annual temperature of 76 °F.

4.3 PRECIPITATION

The uplands of O‘ahu receive a steady amount of rainfall as moist oceanic air is forced up and over the Ko‘olau Range by persistent northeasterly trade winds. During the winter months, sporadic southwesterly winds that accompany low-pressure systems bring intense and episodic rains to the Hawaiian Islands. The coastal plain receives a lesser proportion of total rainfall as trade wind precipitation and much greater

proportion from winter storms. Following an orographic pattern, as rainfall and cloud cover increase with altitude and distance inland, median annual rainfall ranges from about 39 inches at the town of Kahuku and about 150 inches a the Ohia Ai Gulch, to over 300 inches near the crest of the Ko‘olau Range further south. The mean annual rainfall at the study area is about 50 inches a year (DLNR, 1982 and Giambelluca et al., 1986).

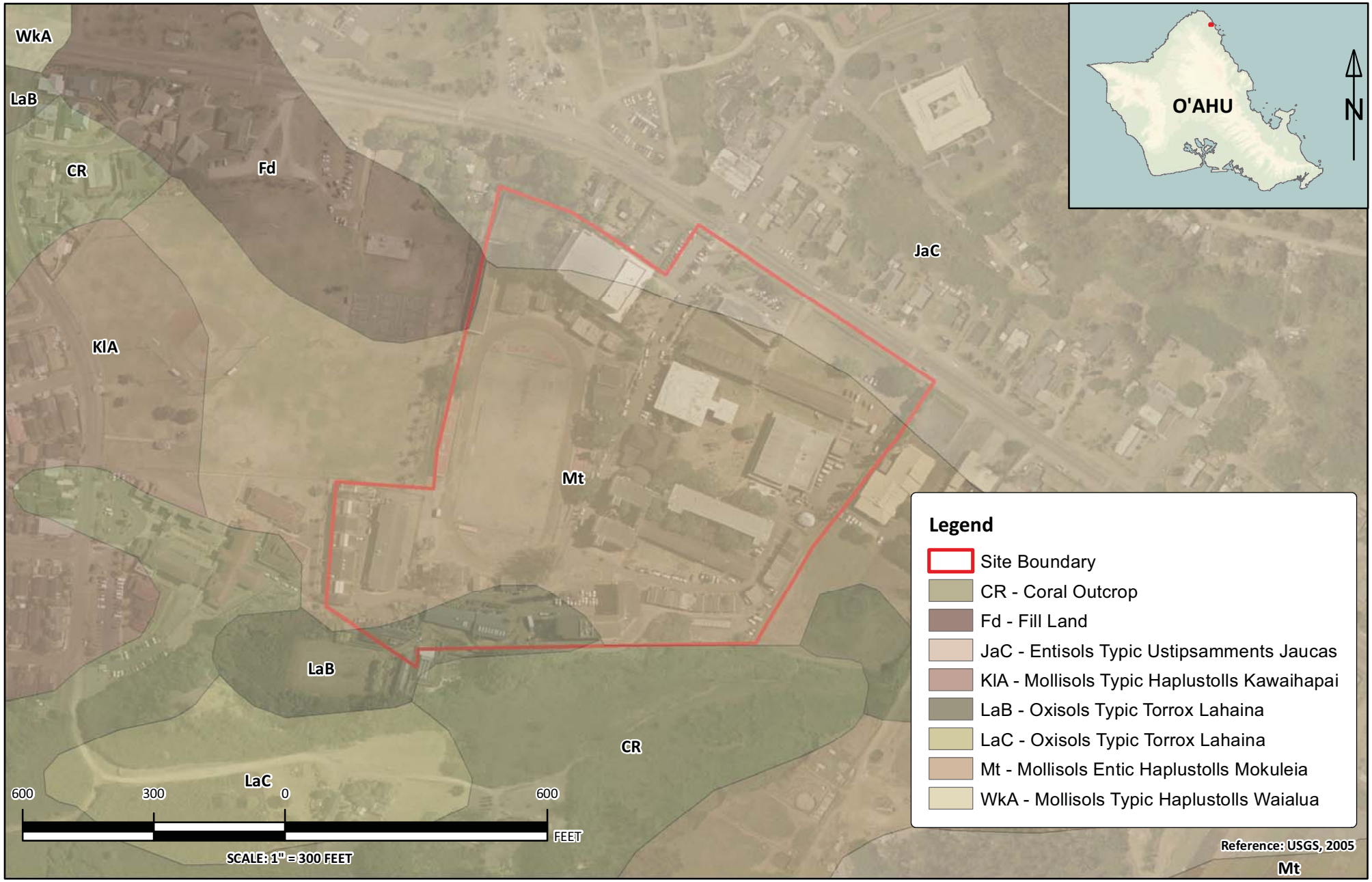
4.4 HYDROLOGY AND FLOODING

4.4.1 Surface Water

Since there are no surface stream channels within or surrounding the project area, surface water generally flows overland accumulating at lower portions of the area. As shown in the topographic map, the high school campus lies on a relatively flat area with higher lands to the southwest and northeast (Figure 4-2). The highest elevation on campus occurs at the upper campus at approximately 25 ft above msl and the lowest at the lower campus at approximately 5 ft above msl. The existence of very fine grain soils (silt and clay) or impermeable cap rock, as indicated by soil test borings from previous geotechnical investigations (Ernest K. Hirata & Associates, Inc., 1989; Maurseth, Howe, Lockwood & Associates, 1970; Soils International, 1983; Walter Lum and Associates, Inc., 1969), explains the poor subsurface drainage at the lower campus.

4.4.2 Groundwater

The project site overlies the Ko‘olauloa aquifer system defined by the State of Hawai‘i Department of Health (DOH). The upper aquifer, code 30601116 (22221), is listed as an unconfined (the aquifer is not confined under pressure beneath relatively impermeable rocks or soil), basal (fresh water in contact with seawater), sedimentary (non-volcanic lithology) aquifer (Figure 4-3). This aquifer has potential use as a drinking water source and is listed as ecologically important. The irreplaceable aquifer has a low salinity (250-1,000 milligrams per liter of chloride (mg/L Cl^-)) and a high vulnerability to contamination. The lower aquifer, code 30601112 (21122), is listed as an unconfined, basal, dike (aquifers contained in dike compartments) aquifer, and has potential use as a drinking water source. The irreplaceable aquifer contains fresh water (less than 250 mg/L Cl^-) and has a moderate vulnerability to contamination. The proposed action is not expected to have any impacts to the aquifers underlying the project site since excavation for the installation of the underground storage unit would be limited to depths above the groundwater table.



Environet, Inc.	PROJECT NO.: 109-005	SOILS MAP	FIGURE 4-1
	DATE: FEBRUARY 6, 2012		
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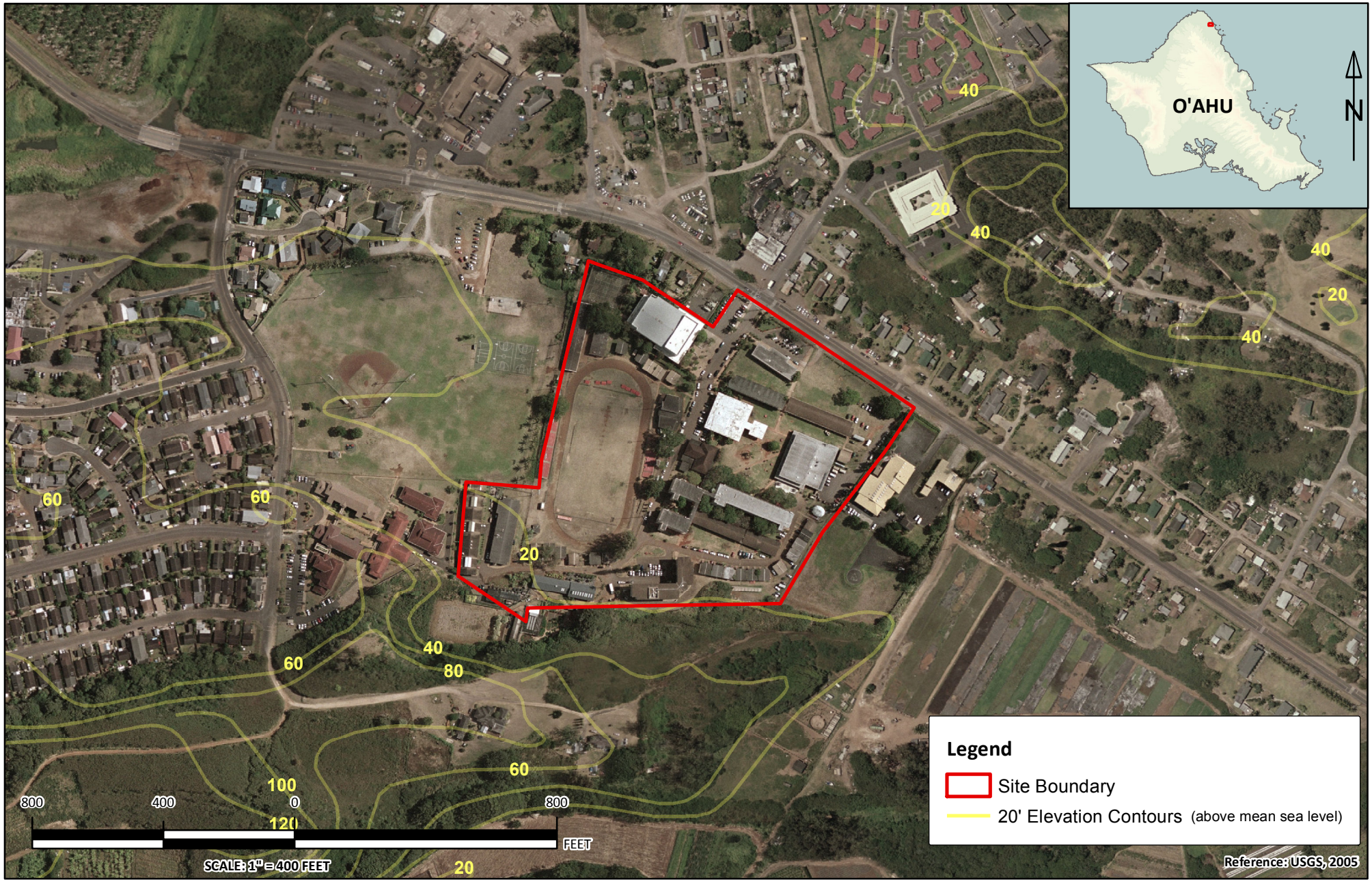

Environet, Inc.	PROJECT NO.: 109-005	TOPOGRAPHIC MAP	FIGURE 4-2
	DATE: FEBRUARY 6, 2012		
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Environet, Inc.	PROJECT NO.: 109-005	AQUIFER MAP	FIGURE 4-3
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4.4.3 Flooding

The majority of the project area falls within Flood Zone AE as defined by the Federal Emergency Management Agency (FEMA), indicating that the site lies within the 100-year flood zone where Base Flood Elevations (BFEs) are determined (Figure 4-4). A small portion of the southwestern boundary of the project area falls within Flood Zone X. This designation indicates areas outside the 0.2% annual chance floodplain.

4.5 BIOLOGICAL RESOURCES

Existing Conditions

A biological survey of the portion of Kahuku High School that could potentially be impacted by the proposed action was conducted on July 23, 2009. The survey area included the football field and surrounding parts of the campus that are potentially subject to construction activities. The full report by AECOS, Inc. is presented in Appendix A.

Flora

The majority of the plants encountered during the field survey were ornamentals, grasses in maintained lawns, or ruderal weeds in disturbed areas where maintenance is infrequent; typical of what would be found on a school campus or a managed/maintained area. A total of 86 species of flowering plants and one fern were identified during the field survey. Of these species, three (3.4%) are native species, with another three (3.4%) considered to be early Polynesian introductions to the Hawaiian Islands. The three native species; *‘ohai, pōhinahina,* and *koki‘o ke‘oke‘o* are all found in the planting bed near the library. *‘Ohai* is an endangered plant species which was likely purchased with an Endangered Species Act (ESA) tag. Besides the plants that are weeds and ruderal species outside the regularly maintained areas, essentially all of the plant species within the survey area are planted for landscaping purposes. Although planted for ornamental purposes, the endangered plant species *‘ohai* in the planting bed near the library must still be protected. A full inventory of all the plants observed within the survey area is presented in Appendix A.

Fauna

Other than those supporting common lowland birds and introduced wild or feral mammals, no habitats are present within the project area and no animals of special concern were observed during the field survey. The large grassed football field likely provides a winter feeding/resting habitat for one or more Pacific Golden-Plover (*Pluvialis fulva*), known as *kolea* in Hawai‘i. However, none were observed during the

survey since these birds migrate away from Hawai‘i to northern latitudes (Alaska) during the summer months. *Kolea* are known to depart Hawai‘i in late April to early May with adults returning in August and juveniles in October (DLNR, 2005). No federally endangered or threatened species, streams, relatively permanent or non-relatively permanent waterways, or wetlands occur in the project area. The closest wetland occurs approximately 1,200 ft northwest of the campus (Figure 4-5). The only critical habitat that occurs in the surrounding area is Mokuauia Island, commonly known as Goat Island, located approximately 720 ft offshore from Malaekahana Bay which is approximately 0.75 miles southeast of the project site (Figure 4-6).

Potential Impacts and Mitigation

With the exception of Alternative 4, all alternatives share the potential for temporary construction-related impacts. Any vegetation clearing activities create a risk for the entry of terrigenous sediments into the adjacent near shore marine waters via runoff during earthmoving and related activities.

During torrential rains, which occur regularly in Hawai‘i, runoff is inevitable. Alternative 3 would pass the stormwater runoff, including any pollutants, to the ocean via Hospital Ditch. In contrast, the impacts from the preferred alternative would be temporary and sedimentation and runoff may be reduced by implementation of BMPs during construction and possibly by avoiding construction during the wet season. The potential to introduce invasive plant species may be increased during construction activities especially within the grassed football field area. The proposed action would involve stripping of the grass on the football field. However, this is also anticipated to be temporary with restoration activities following the completion of the proposed action.

Since the project area does not contain any habitats for federally endangered or threatened or any other species of concern, no adverse impacts are anticipated. The proposed action is not anticipated to have impacts to the endangered plant species *‘ohai* in the planting bed near the library because construction activities will be limited to the football field area. As a precautionary measure, all onsite workers will be notified of the presence of the endangered plant species, and the planting bed near the library will be marked during the construction phase to avoid potential impacts to the plant. Impacts to the *kolea* that use the football field as a winter feeding/resting ground would be temporary as the species is expected to return to the area after project completion. Moreover, there is a possibility that the *kolea* might continue to utilize the football field as a resting ground during construction since activities are not anticipated to be large in scale. Impacts may be minimized by avoiding construction during the times that *kolea* are known to occur in Hawai‘i.

Environet, Inc.	PROJECT NO.: 109-005	FLOOD INSURANCE RATE MAP	FIGURE 4-4
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Environet, Inc.	PROJECT NO.: 109-005	WETLANDS MAP	FIGURE 4-5
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PROJECT NO.: 109-005	CRITICAL HABITAT MAP	FIGURE 4-6
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5.0 AFFECTED HUMAN ENVIRONMENT

5.1 HISTORIC AND CULTURAL RESOURCES

5.1.1 Archaeological Resources

An archaeological literature search and field inspection was conducted in July 2009 by Scientific Consultant Services, Inc. (SCS). The literature search focused on identifying known Land Commission Awards (LCAs) and land grants pertaining to the project area in order to assess past uses of the property. Additional research included a review of previous archaeological investigations conducted in or near the project area. The purpose of the field inspection was to identify any archaeological sites or features occurring within the project boundary. The literature search and field inspection report prepared by SCS is included in Appendix B.

The project area falls within the Kahuku (or formally Ke‘ana) Ahupua‘a which is an area known for its historical and cultural significance to the Island of O‘ahu. Although population declined rapidly with increased European contact as well as higher demand from chiefs to commoners, observations by Captain James Cook and Lieutenant James King during a visit in 1779 indicated that the region had a high population and was amply cultivated. Later in the 19th century, the majority of Kahuku Ahupua‘a was utilized as ranchland as well as for sugarcane plantation purposes. A total of 83 LCAs were awarded in the Ahupua‘a. However, none involved the lands of the project area.

Numerous archaeological sites have been identified previously in the Kahuku area including Puuala Heiau (State Site No. 260), Keana Cave, a burial grave (State Site No. 50-80-02-270), and natural features associated with legends. In addition, the State of Hawai‘i Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD) has documented numerous inadvertent discoveries of traditional style burials along the coastal region of Kahuku.

The archaeological field inspection conducted on July 24, 2009 by SCS identified one previously unidentified surface feature. The feature, designated as State Site 50-80-02-7134 (SCS Site T-1), consisted of two parallel concrete retaining walls containing stairs located on the east side of the football field adjacent to the southern portion of Building Y just outside of the eastern fenceline. According to the Kahuku High School custodian, the stairs were constructed during the 1940s or 1950s and were associated with an outdoor stage, which no longer exists.

Potential Impacts and Mitigation Measures

Although State Site 50-80-02-7134 (SCS Site T-1) is considered to be a Historic Property since it is believed to be over 50 years old, it is not considered to have cultural or historical significance because the associated stage no longer exists. Construction activities during the proposed action will not have any impacts to State Site 50-80-02-7134 (SCS Site T-1) because the feature is located outside the football field area. Mitigation measures to avoid potential impacts to State Site 50-80-02-7134 (SCS Site T-1) during construction activities will be limited to marking the feature with marking tape and notifying all onsite workers of the presence of the archaeological feature. It is unlikely that additional surface archaeological features would be present given the extensive ground alterations associated with the construction of Kahuku High School. Based on the archival research and previous archaeology conducted in the coastal reaches of Kahuku Ahupua‘a and similar geographic setting, there is a relatively high probability of finding pre-Contact (and possibly early Historic Period) Native Hawaiian habitation sites and burials in subsurface deposits closer to the coastal areas outside of the project area. The soils within the project area include JaC deposits, which are known to be traditional interment sites for Native Hawaiian burials. The presence of JaC deposits is mitigated by the more inland location of the project area, indicating a relatively low probability of finding subsurface evidence of Traditional Native Hawaiian and/or early historic activities including hearths, midden deposits, and other occupation debris (e.g., stone tool waste, discarded artifacts related to habitation and fishing) during construction activities. Although the probability is low, the probability still exists; therefore, SCS has recommended on-site archaeological monitoring during all ground disturbing activities associated with the proposed action.

5.1.2 Cultural Resources

A Cultural Impact Assessment (CIA) was conducted in August and September 2009 by SCS pursuant to Act 50, enacted by the Legislature of the State of Hawai‘i in 2000, and in accordance with the Hawai‘i State Office of Environmental Quality Control (OEQC) *Guidelines for Assessing Cultural Impacts*, adopted by the Environmental Council in November 1997. The assessment involved identification of the possibility of cultural activities and resources occurring within the project area and its vicinity, and assessing the potential impacts on such resources. The assessment included archival and documentary research as well as communication with organizations with knowledge of the project area and its cultural resources, practices, and beliefs. The full report is included in Appendix C.

Historical and cultural source materials pertaining to the project area and archaeological reports specific to the project vicinity were extensively used to analyze “the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their

setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place" (SCS, 2009). The CIA describes the Ahupuaʻa of Keʻana where the project area is located as once a populous area "exceeding fine and fertile" during pre-Contact times. However, changes in land ownership after the Great Māhele, ranching, sugar and pineapple cultivation, military occupation, and general urbanization have greatly altered the land uses in Kahuku. The CIA identifies several myths and archaeological sites pertaining to the general Kahuku area. However, none were found to indicate use of the project area for traditional cultural purposes within recent times.

CIA inquiry letters were sent to the History and Culture Branch Chief with SHPD, Koʻolau Hawaiian Civic Club, and the Oʻahu Island Burial Committee. Additionally, CIA Notices requesting information on any cultural resources or activities at the proposed project area were published on August 30, and September 2 and 3, 2009 in *The Honolulu Advertiser* and in the August and September 2009 issue of the Office of Hawaiian Affairs (OHA) newspaper, *Na Wai Ola.* No responses were received from any of the organizations contacted or news periodical announcements.

Potential Impacts and Mitigation Measures

Since there were no cultural activities identified at the project area, no adverse impacts are anticipated, thus, no mitigation measures are required.

5.2 LAND USE AND VISUAL RESOURCES

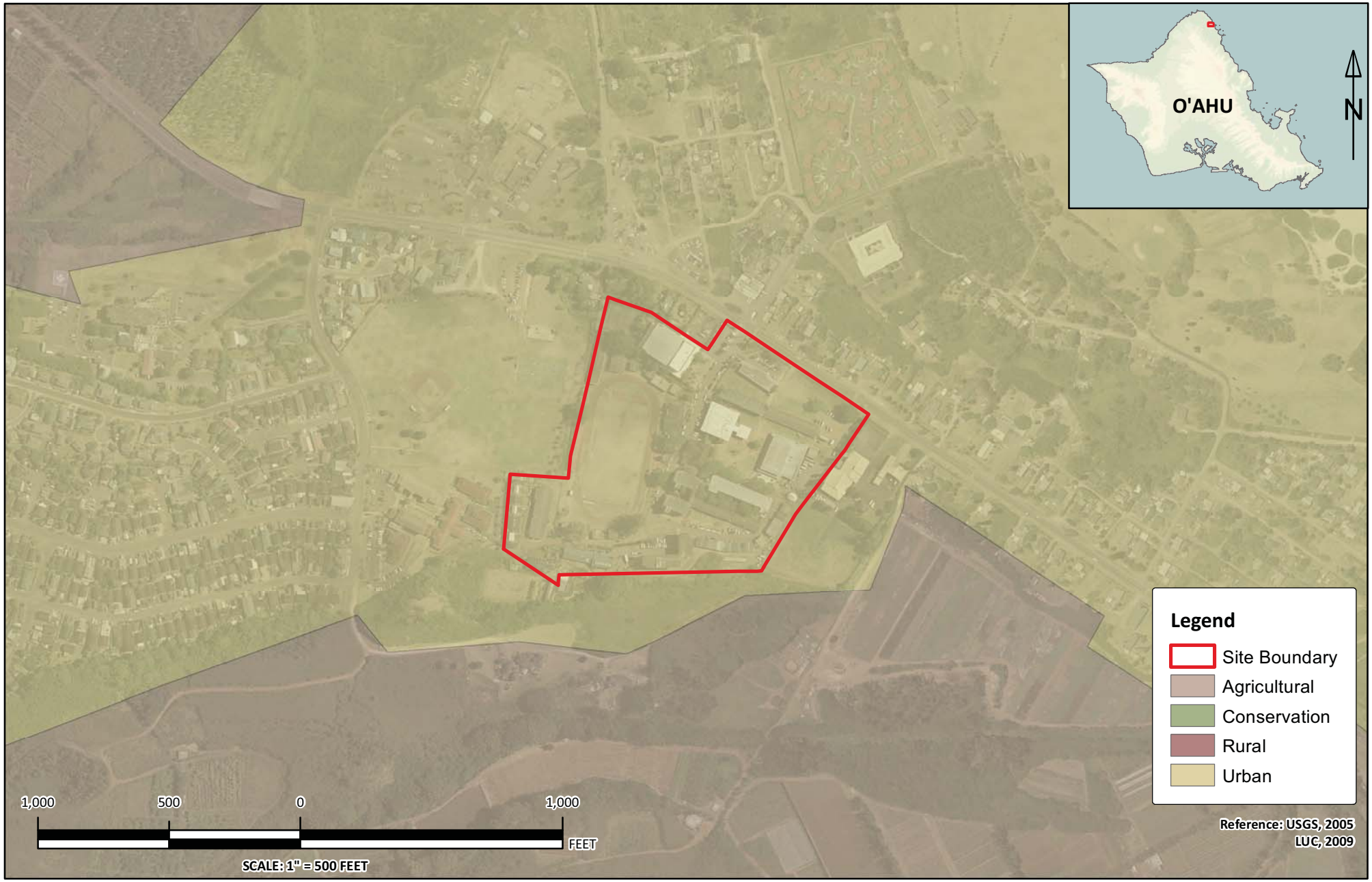
Kahuku High School is situated in the core of Kahuku Village, a traditionally rural area. The coastal lowlands and uplands to about 200 ft altitude in the Kahuku area were cultivated for sugarcane by Kahuku Plantation Co. from 1890 to 1971. After the end of sugar cultivation, these lands were replaced by ranches, crop farms, and aquaculture fields (USGS, 2000). The Village historically developed around the Kahuku Sugar Mill, and although the mill is closed, settlement patterns remain with development limited to areas along Kamehameha Highway near the mill (RMTC, 2008).

The entire project area falls within the State of Hawai'i Land Use Commission (LUC) designation of Urban. The LUC designation for the surrounding areas, mainly to the south, is Agricultural (Figure 5-1). The City and County zoning designation of the project area is residential, surrounded by restricted agricultural land to the south and neighborhood business land to the north across Kamehameha Highway (Figure 5-2). In addition to residential housing, a district park, hospital, and fire and police station are located adjacent to the highway (Figure 5-3). The visual setting of vegetation, agricultural lands, sparse buildings, and minimal road improvements is an important aspect of the Kahuku area in maintaining its rural characteristic.

Potential Impacts and Mitigation

Short-term land use impacts may be generated during the construction phase of the proposed action including limited access to the football field and other areas that may become blocked by construction activities or vehicles on campus. Of all the alternatives, with the exception of Alternative 4, the proposed action would have the least amount of land use disturbance off campus and is expected to provide an overall long-term benefit to land uses in the area by improving its drainage system.

Disturbed ground, stockpiles, heavy equipment operations, and construction worker activities would be apparent from areas adjacent to work areas during the construction phase of the proposed action. However, impacts are expected to be temporary, as these visual impacts are construction-related and the stripped grounds that contribute much to the visual disturbance would be restored to pre-construction condition at the end of the construction phase.



Environet, Inc.	PROJECT NO.: 109-005	STATE LAND USE MAP	FIGURE 5-1
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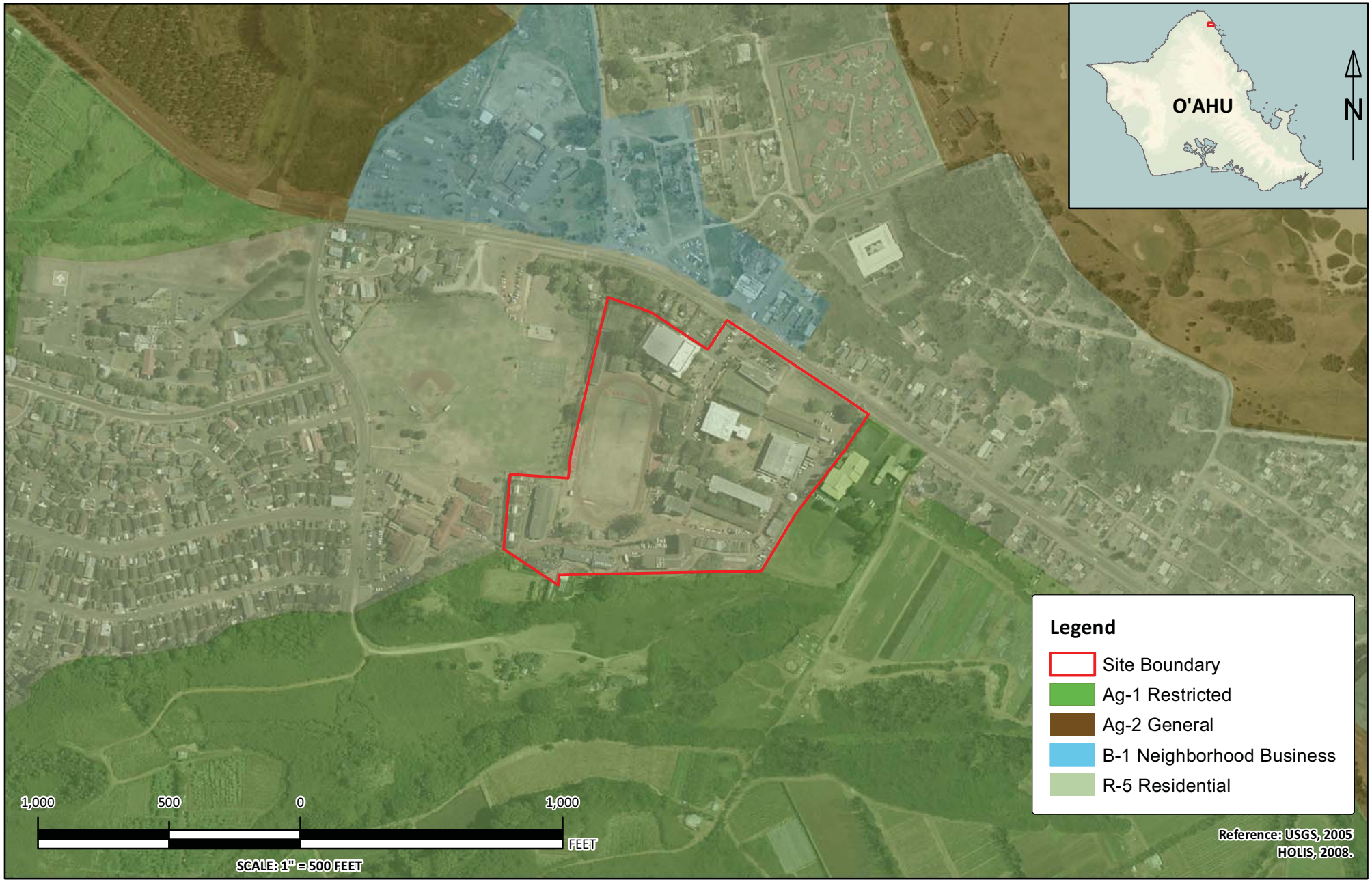

Environet, Inc.	PROJECT NO.: 109-005	CITY AND COUNTY ZONING MAP	FIGURE 5-2
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Environet, Inc.	PROJECT NO.: 109-005	TMK AND SURROUNDING PROPERTY USE MAP	FIGURE 5-3
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5.3 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

One Leaking Underground Storage Tank (LUST) site, two Resource Conservation and Recovery Act (RCRA) generators, and four Underground Storage Tank (UST) sites are present within a quarter-mile radius from the project site (Figure 5-4). Table 5-1 through 5-3 summarizes the locations and status of these sites. There are no known Hazardous, Toxic, and Radioactive Waste (HTRW) occurrences within the project area.

Table 5-1: LUST Sites within a Quarter-Mile of Kahuku High School

Facility	LUST ID	Address	Status
LUST-1 Kahuku Police Station	9-200123	56-470 Kamehameha Highway	Cleanup completed 12/12/2001

Table 5-2: RCRA Generators within a Quarter-Mile of Kahuku High School

Facility	Owner	Address	Classification
RCRA-1 Texaco Station	Kahuku Mill Corporation	56-565 Kamehameha Highway	Small quantity generator
RCRA-2 Kahuku Village	The Estate of James Campbell	56-485 Kamehameha Highway	Small quantity generator

Table 5-3: UST Sites within a Quarter-Mile of Kahuku High School

Facility	Facility ID	Address	Note
UST-3 Kahuku Gas Station	9-201721	56-565 Kamehameha Highway	3-gasoline tanks currently in use
UST-4 Kahuku Gas Station	9-203289	56-460 Kamehameha Highway	1-diesel tank currently in use
UST-5 Kahuku Gas Station	9-200123	56-470 Kamehameha Highway	1-gasoline tank currently in use, 2-gasoline tanks permanently out of use
UST-6 Kahuku Gas Station	9-201870	56-485 Kamehameha Highway	2-gasoline tanks permanently out of use, 1-used oil tank permanently out of use

The LUST site is listed as having been cleaned up in 2001, and thus it is unlikely that this site would be contributing HTRW to the site. The RCRA generators and UST sites are regulated by state and federal laws and regulations, and are presumed to be in compliance with all applicable environmental restrictions and requirements.

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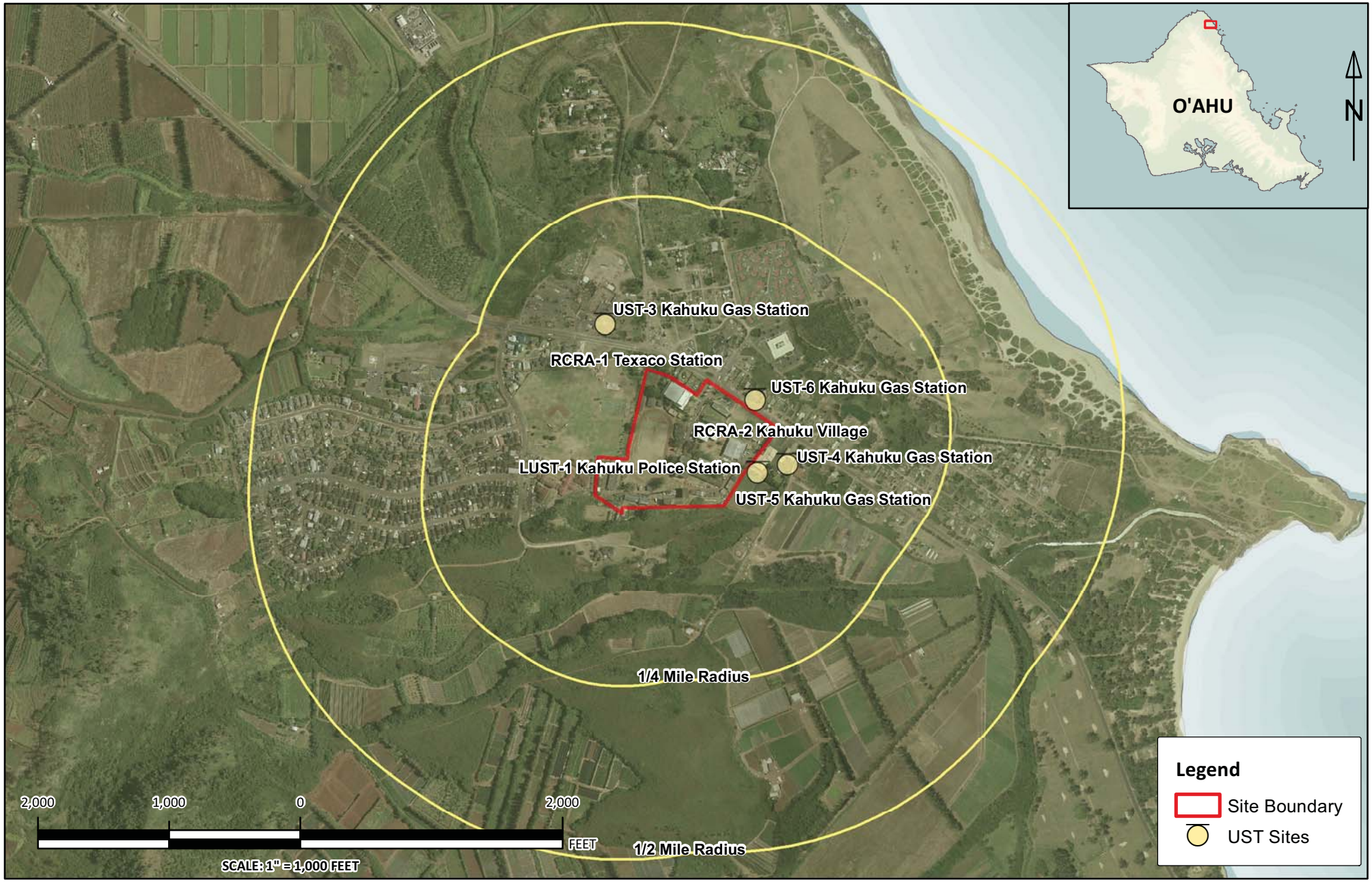

Environet, Inc.	PROJECT NO.: 109-005	HTRW SITES WITHIN THE VICINITY OF KAHUKU HIGH SCHOOL	FIGURE 5-4
	DATE: FEBRUARY 6, 2012		
	DRAWN BY: CB	KAHUKU HIGH SCHOOL KAMEHAMEHA HIGHWAY, KAHUKU, O'AHU, HAWAI'I	
	REVIEWED BY: CS		

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Potential Impacts and Mitigation

As the project area is not known to contain any HTRW materials, excavated soil that would be generated from the project site is not anticipated to be hazardous. Lands inland of Kamehameha Highway in Kahuku Village, however, were historically used for sugar cane cultivation (RMTC, 2008); therefore it is possible that pesticide and herbicide residuals remain in the soils at Kahuku High School. As a conservative measure, any soil excavated from the site and allocated to be disposed of at a landfill or to be reused would be subject to proper testing and evaluation for suitability for the chosen use.

5.4 NOISE

Ambient noise in the project area is relatively low due to its rural location. Noise-generating activities are currently dominated by wind and vehicular traffic along Kamehameha Highway and other local roadways. Normal daytime noise sources also include student activities on campus, lawn mowers, bird calls, and occasional aircraft overflight. Since the proposed action is not expected to generate a significant increase in noise levels, no noise study was conducted for this project.

Potential Impacts and Mitigation

Noise impacts from all available alternatives would be limited to typical construction noise audible in the area in the immediate vicinity of the construction work sites. Impacts would be short-term and limited to daytime hours during weekdays. According to DOH noise regulations as specified for construction related activities, noise-generating construction activities are not allowed during nighttime hours or on Sundays and holidays. Other DOH regulations include the use of properly muffled construction equipment and ensuring that noise levels fall within the permitted levels during the use of heavy equipment such as backhoes, excavators, and bulldozers. Compliance with such regulations would minimize noise impacts on campus and other areas during the construction phase. In addition to compliance with DOH regulations, consultation with the high school may be necessary to ensure that elevated noise levels during construction do not interfere with classes, as classrooms adjacent to the football field are not air conditioned and windows are usually kept open during classes. Scheduling construction activities during summer recess may be necessary as a mitigation measure to avoid conflict with classroom activities. No long-term noise impacts are expected for any of the alternatives.

5.5 AIR QUALITY

The ambient air quality in the project area is considered to be relatively good due to prevailing northeasterly trade winds, its rural location, and absence of industries in the area. Natural air pollutants in the area include ocean spray, wind-blown dust, brush fires, and occasional volcanic emissions from the

Island of Hawaiʻi. Anthropogenic sources include vehicle exhaust, refuse burning, barbecues, and other minor sources such as paint, varnish, and aerosol sprays.

Potential Impacts and Mitigation

Air quality impacts from the available alternatives are not expected to be significant. Short-term air quality impacts are expected from fugitive dust and vehicular emissions generated during construction activities. Dust control measures such as watering of the unpaved work areas, use of wind screens, and keeping paved roads used for project area access clean would be implemented in order to minimize fugitive dust emissions. Increased vehicular emissions during the construction phase is expected both from on-site construction equipment and vehicles, and from vehicles traveling to and from the project site including those used by commuting construction workers. Fugitive dust and vehicular emissions may reach areas outside the boundary of the project area. However, impacts are not expected to be significant and should be temporary. Once the construction is completed, air quality in the project area is expected to return to its ambient condition.

5.6 RECREATION AND RESOURCE USE

Several beach parks, state parks, and golf courses exist in the vicinity of the project area. These recreational facilities are used extensively by the local community and people who travel from outside the area. Recreational use of the project area is limited to events and activities on campus that involve the students, their families, and others.

Potential Impacts and Mitigation

Since the proposed action would not affect areas outside the boundary of the high school, there would be no adverse impacts to recreational users outside the campus. There would be limited temporary impacts during construction to those who attend the high school, teachers, and possibly others during events on campus. Impacts to football field users may be large depending on the duration of construction activities. However, given the extent of problem that would be solved by the proposed action, these impacts may be considered relatively small in the long-term. Additionally, the proposed action would possibly benefit public park users and those who use the beach by reducing the amount of storm runoff that flows outside the campus boundary.

5.7 ECONOMIC AND SOCIAL RESOURCES

Kahuku is a Census Designated Place (CDP) in the District of Koʻolauloa on the Island of Oʻahu. From the 1900s until World War II (WWII), Kahuku's economy was based primarily on sugar plantations and

refineries. After WWII, sugar production slowly declined as tourism and construction became the major economic drivers in the community with agriculture and retail also playing a smaller role. Turtle Bay Resort as well as the scenic natural landscape of Kahuku are the major tourist attractions in the area (Hawai‘i State Info, 2006).

The Kahuku CDP had a total population of 2,097 as of the 2000 census. The unemployment rate in Kahuku was 9%, which was slightly higher than the unemployment rate of 6.3% for the State of Hawai‘i. The per capita income for Kahuku in 2000 was $12,340 compared to $21,525 for the State of Hawai‘i. The mean household income was $39,135 falling well below the State mean income of $49,820; 14.6% of individuals in Kahuku fall below the poverty line (U.S. Census Bureau, 2000).

The majority of the children of high school age in the community attend public schools. Only 2.4% attend private schools and 3.6% of children in the age range of 16-19 years are not enrolled in school (U.S. Census Bureau, 2000), leaving 94% attending public schools such as Kahuku High School.

Potential Impacts and Mitigation Measures

All available alternatives, with the exception of Alternative 4, would generate short-term economic vitality for the community by providing temporary construction opportunities for the duration of the project. Alternative 2 would generate a small amount of extended economic vitality because of the maintenance necessary to flush out the underground storage tanks and disposal of the blockage items.

The varsity football team at Kahuku High School, known as the Kahuku Red Raiders, has been known for its success as it is currently ranked second in the O‘ahu Interscholastic Association (OIA) East Division. There is a community pride associated with the Kahuku Red Raiders. The implementation of the proposed action would drastically improve the condition of the football field during wet weather and would positively impact not only the Kahuku High School students and sports teams, but also the community.

Executive Order 12898 which addresses environmental justice in minority populations and low-income populations states that “…each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and…”. While Kahuku’s community income profile is defined as falling below poverty line, the population is not subject to environmental justice issues since the proposed action is to provide an engineering solution to a recurring flooding problem and the long-term impact is a direct benefit to the community.

5.8 CUMULATIVE IMPACTS

Cumulative impacts are two or more individual effects which, when considered together, compound or increase the overall impact. Cumulative impacts can arise from the individual effects of a single action or from the combined effects of past, present, or future actions. Thus, cumulative impacts can result from individually minor but collectively significant actions taken over a period of time. The cumulative impacts of the proposed action along with past and reasonably foreseeable future projects proposed were assessed based upon available information.

Continental Pacific, LLC plans to develop the Kahuku Village Subdivision on 172.7 acres of land separated from Kahuku High School by Kamehameha Highway (RMTC, 2008). Drainage improvements and flood mitigation are proposed for the development and are not expected to create any adverse cumulative impacts for the proposed alternatives for Kahuku High School. No other projects are planned on campus or in the surrounding properties that would compound or increase the impact of the proposed alternatives.

5.9 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

A better drainage system is needed for Kahuku High School. No long-term negative impacts are anticipated from any of the alternatives available, with the exception of the discharge of stormwater runoff directly to the ocean via Hospital Ditch that would occur under Alternative 3. The preferred alternative would provide a reduction in the frequency and magnitude of flooding events at the high school with minimal impacts to the environment, most of which could be avoided or mitigated through the use of BMPs and proper O&M.

5.10 PROBABLE ADVERSE ENVIRONMENTAL IMPACTS WHICH CANNOT BE AVOIDED

As stated in previous sections, temporary noise, air, and visual impacts are unavoidable during construction. Stripping of the existing lawn on the football field especially would inevitably increase runoff during construction and may affect the Golden-Plovers, *kolea*, that utilize the field as a winter feeding/resting habitat. These temporary negative impacts would be mitigated to the extent possible by implementing BMPs as well as by possibly avoiding construction during the wet winter season.

Above all, the proposed action would have the largest adverse impact upon the students who utilize the football field for regular practice. However, the benefits of implementing an improved drainage system for Kahuku High School outweigh the drawbacks of temporary disturbance during construction. The proposed underground storage system is expected to drastically improve drainage at the football field.

6.0 COMMENTS AND COORDINATION

6.1 COMMUNITY MEETINGS

A community meeting was held at Kahuku High School on April 22, 2008. The following community members were in attendance at the meeting:

- Kahuku High and Intermediate Schools Administration
- Kahuku High and Intermediate Schools Athletic Department
- Kahuku Community Library Administration
- Kahuku Community Association Directorship
- Ko‘olau Loa Neighborhood Board #28 Kahuku Community Representative
- Ko‘olau Loa Lions Club Administration
- Kahuku Family Medical Center Administration
- Kahuku Sugar Mill Management
- Kahuku 2000 (501(c)(3) Non-profit) Flooding Community Champion Organization
- Kahuku Catholic Church Ministry
- Kahuku Village Association Management
- Kahuku Farmers Association Representative
- Kahuku Phase IV residents

Attendees also included representatives from USACE, DOE, USFWS, and United States (U.S.) Senator Daniel K. Inouye’s office. The main topics that were discussed during the meeting included causes of flooding on campus, ways to improve drainage on campus, and drainage system maintenance issues. The community meeting memorandum prepared by USACE is included in Appendix D.

The main locations where stormwater flows over land and enters the campus were discussed. These locations included the east side of the campus and areas facing Kamehameha Highway. Community members commented that the dry wells installed in the 1970s do not work and agreed that installation of new drains that would drain the stormwater that currently ponds on campus would alleviate flooding problems on campus. It was also agreed that the low spot of the campus is the football field and diverting excess stormwater towards this area would be a good option. Issues on poor maintenance of the existing drainage systems outside the campus which aggravates flooding problems on campus were also brought up. The importance of maintenance was stressed during the meeting.

6.2 AGENCY COORDINATION

Public notices of the availability of the draft EA for review were posted as well as individual notices were mailed to various organizations, and federal, state, and county agencies. Table 7-1 lists the agencies and organizations consulted during the review period. A summary of comments and feedbacks received as well as the individual comment and response letters are included in Appendix E.

Table 6-1: Agencies and Organizations Consulted

	Consulted Agency or Organization	Response Received	Date
State Agencies	Department of Accounting and General Services	Written Response	12/8/2011
	Department of Business, Economic Development and Tourism (DBEDT)	—	—
	DBEDT - Energy Division	—	—
	DBEDT - Office of Planning	—	—
	Department of Defense	—	—
	DOH	Written Response	12/23/2011
	Department of Human Services	—	—
	Department of Labor and Industrial Relations	Written Response	12/12/2011
	DLNR	—	—
	DLNR - Engineering Division	Written Response	6.2.1 12/23/2011
	DLNR - Historic Preservation Division	—	—
	DLNR - Land Division	Written Response	12/21/2011
	DOT	Written Response	12/21/2011
	Office of Hawaiian Affairs	Written Response	12/12/2011
	University of Hawai‘i (UH) Environmental Center	—	—
Federal Agencies	U.S. Army Engineer Division - Regulatory Branch	—	—
	United States Geologic Survey (USGS)	Written Response	11/23/2011
	USFWS	—	—
	United States Department of Agriculture (USDA) Natural Resources Conservation Service	—	—
	United States Environmental Protection Agency (EPA) - Pacific Islands Contact Office	—	—
City and County of Honolulu	Board of Water Supply	Written Response	11/30/2011
	Department of Community Services	—	—
	Department of Design and Construction	Written Response	12/19/2011
	Department of Emergency Management	Written Response	12/29/2011
	Department of Environmental Services	—	—
	Department of Facility Maintenance	Written Response	12/21/2011
	6.2.2 Department of Planning and Permitting	Written Response	6.2.3 12/19/2011

Table 6-1: Agencies and Organizations Consulted (Continued)

	Consulted Agency or Organization	Response Received	Date
City and County of Honolulu	Department of Parks and Recreation	Written Response	12/2/2011
	Department of Transportation Services	Written Response	12/13/2011
	Honolulu Fire Department	Written Response	12/7/2011
	Honolulu Police Department	Written Response	11/30/2011
Libraries	Nearest State Library (Kahuku State Library)	—	—
	Municipal Library, Honolulu (Municipal Reference Center)	—	—
	Legislative Reference Bureau	—	—
	State Main Library (Hawaii State Library)	—	—
	UH Hamilton (University of Hawaii at Manoa Library)	—	—
News Media	Honolulu Star Advertiser	—	—
Elected Officials	U.S. Senator (Daniel K. Akaka)	—	—
	U.S. Senator (Daniel K. Inouye)	—	—
	U.S. Representative (Colleen Hanabusa)	—	—
	U.S. Representative (Mazie K. Hirono)	—	—
	State Senator (District 23)	—	—
	State Representative	—	—
	County Council Member	—	—
	Neighborhood Commission Office, Chair, Koolauloa Neighborhood Board No. 28	—	—
Utility Companies	Hawaiian Electric Company (HECO)	—	—
	Hawaiian Telecom	Written Response	11/25/2011
	The Gas Company	Written Response	1/10/2012
	Oceanic Time Warner	Written Response	11/23/2011
Citizen Groups and Individuals	Koolauloa Hawaiian Civic Club	—	—
	Kahuku resident	Written Response	12/2/2011

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7.0 PERMITS AND APPROVALS

Several permits and approvals may be required prior to construction of the project. Application for most of these permits would be made after the environmental review process (40 CFR 1500-1508 and Chapter 343 HRS) is completed. State and Local regulations pertaining to the proposed action are as follows:

National Pollutant Discharge Elimination System (NPDES) Permit

Under the Clean Water Act (CWA) Section 402, a NPDES permit is required for point source discharges of pollutants into surface waters of the United States. The NPDES permit program is administered by the DOH Clean Water Branch under Hawai'i Administrative Rules (HAR) Chapter 11-55.

DOT Highways Right-of-Entry

If the proposed action is to involve work in the State highway right-of-way for any of the drainage features, a right-of-entry permission would be required from the DOT.

City and County of Honolulu Department of Planning and Permitting (DPP) Building Permit

Building Permits would be required for all proposed construction work related to the proposed action.

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8.0 REFERENCES

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Appendix A*:*

Biological Survey

Biological survey for the Kahuku Storm Drainage Reduction Project at Kahuku High School on Oʻahu.

February 16, 2012 *AECOS* No. 1208

Eric B. Guinther
AECOS Inc.
45-939 Kamehameha Highway, Suite 104
Kāneʻohe, Hawaiʻi 96744
Phone: (808) 234-7770 Email: guinther@aecos.com

Introduction

This report presents results of a biological survey—essentially a botanical survey—of that portion of the Kahuku High School campus in Kahuku that could potentially be disturbed by a proposed storm drainage reduction project. The survey area encompassed the athletic field and surrounding parts of campus where existing drains would likely be connected to a detention structure under a portion of the athletic field. The effort is part of environmental due diligence under the direction of Environet, Inc.[1] The project is described in detail in a report by the U.S. Army Corps of Engineers (USACE, 2009).

Methods

An initial visit to the project area was made on July 1, 2009 to establish the area for the survey based upon the selected project alternative. It was related that no part of the project would be located off of the campus.

A return visit was made on July 23 and a botanical survey of the project area made by traversing a wandering transect that covered all areas of the campus potentially subject to construction related impacts (see Fig. 1).

Results

The results of the field survey are summarized in Table 1, a listing of the flora identified from the project area. A total of 86 species of flowering plants and one fern were identified. The plants were roughly quantified using an abundance scale as explained in the key to Table 1.

[1] This report will become part of the public record for the project environmental assessment.

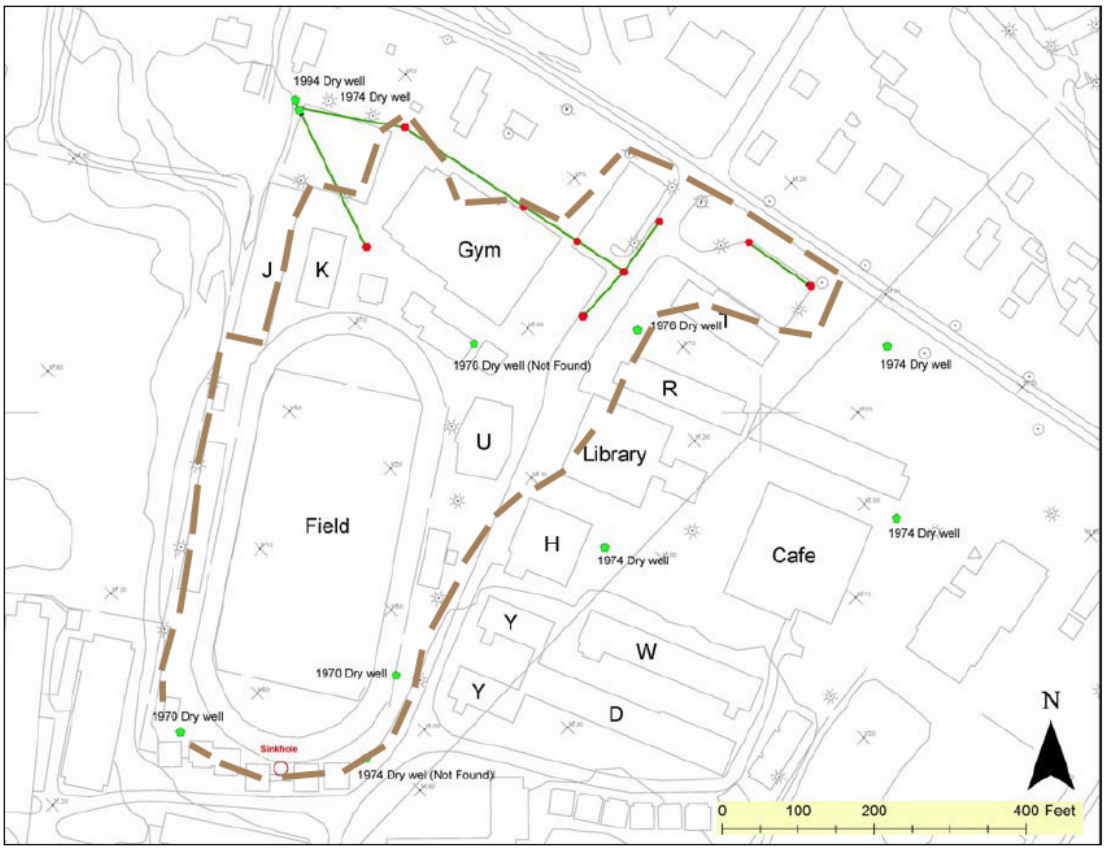

Figure 1. Kahuku High School campus, with biological survey area indicated as outlined by brown dashed line. Green and red dots and lines show existing drains and drywells. Main project area is "Field."

Discussion

Because the project area is a school campus and a managed/maintained area, the majority of plants encountered are ornamentals, grasses in maintained lawns, or ruderal weeds typical of disturbed areas where plant maintenance is infrequent. In terms of native plants versus non-native, only 3 species (3.4%) are native, with another 3 (3.4%) considered to be early Polynesian introductions to the Hawaiian Islands. An example of the latter is *niu* or coconut

Table 1. Flora listing for the Kahuku High School Flood Abatement Project, O'ahu, Hawai'i

Species listed by family	Common name	Status	Abundance	Notes
FERNS				
POLYPODIACEAE				
Phymatosorus grossus (Langsd. & Fisch.) Brownlie.	*laua'e*	Nat	R1	
FLOWERING PLANTS				
DICOTYLEDONES				
ACANTHACEAE				
Asystasia gangetica (L.) T. Anderson	Chinese violet	Nat	R1	<1>
AMARANTHACEAE				
Alternanthera pungens Kunth	khaki weed	Nat	U	<1>
Amaranthus sp.	---	Nat	R	<1, 3>
APOCYNACEAE				
Nerium oleander L.	oleander	Orn	U	
Plumeria rubra L.	plumeria	Orn	O	
ARALIACEAE				
Polyscias guilfoylei (W. Bull) L.H. Bailey	panax	Orn	U	
Schefflera actinophylla (Endl.) Harms	octopus tree	Nat	R	
ASCLEPIADACEAE				
Marsdenia floribunda (Brongniart) Schlechter	stephanotus	Orn	O	
ASTERACEAE (COMPOSITAE)				
Bidens alba (L.) DC	beggar's tick	Nat	U	<1>
Calyptocarpus vialis Less.	---	Nat.	O2	<1>
Conyza sp.	horseweed	Nat	U	<1>
Sonchus oleraceus L.	sow thistle	Nat	R	<1>
Sphagneticola trilobata (L.) Pruski	wedelia	Nat	U2	
BIGNONIACEAE				
Tabebuia heterophylla (A. P. de Candolle) Britt.	pink tecoma	Orn	C	
BORAGINACEAE				
Heliotropum procumbans Mill.	---	Nat	R	<1>
BRASSICACEAE				
Lepidium virginicum L.	---	Nat	R	<1>
CARACACEAE				
Carica papaya L.	papaya	Nat	R	
CASUARINACEAE				
Casuarina equisetifolia L	common ironwood	Nat	R1	

Table 1 (continued).

Species listed by family	Common name	Status	Abundance	Notes
CLUSIACEAE				
Clusis rosea Jacq.	autograph tree	Nat	U2	
CONVOLVULACEAE				
Ipomoea obscura (L.) Ker-Gawl.	field bindweed	Nat	R	<1>
CUCURBITACEAE				
Coccinia grandis (L.) Voigt	scarlet-fruited gourd	Nat	R	<1>
EUPHORBIACEAE				
Acalypha godseffiana M. T. Masters	acalypha	Orn	R1	
Codiaeum variegatum (L.) Blume	croton	Orn	U1	
Euphorbia prostrata Aiton	prostrate spurge	Nat	R	<1>
Euphorbia hirta L..	garden spurge	Nat	O	<1>
Euphorbia hypericifolia L.	graceful spurge	Nat	U	<1>
Macaranga tanarius (L.) Müll. Arg.	---	Nat	R	
FABACEAE				
Cassia fistula L.	golden shower	Orn	R	
Cassia x nealiae H.S. Irwin & Barneby	rainbow shower	Orn	O	
Delonix regia (W.J. Hook.) Rafinesque	royal poinciana	Orn	R	<3>
Indigofera hendecaphyla Jacq.	prostrate indigo	Nat	O	<1>
Leucaena leucocephala (Lam.) deWit	*koa haole*	Nat	U1	<1>
Sesbania tomentosa W.J. Hook. & Arnott	*'ohai*	**End**	* R	<2>
LYTHRACEAE				
Lagerstoemia speciosa (L.) Pers.	giant crepe-myrtle	Orn	R1	
MALVACEAE				
Hibiscus arnottianus A. Gray	*koki'o ke'oke'o*	**End**	R	<2>
Hibiscus rosa-sinensis L.	Chinese hibiscus cv.	Orn	C	
Malvastrum coromandelianum (L.) Garck	false mallow	Nat	U	<1>
Sida ciliaris L.	---	Nat	R	<1>
MORACEAE				
Ficus macrophylla Persoon	Moreton Bay fig	Orn	U	
Ficus microcarpa L.	Chinese banyan	Nat	U	
MYRTACEAE				
Callistemon sp.	bottlebrush	Orn	R	<3>
Psidium guajava L.	common guava	Nat	R	<1>
NYCTAGINACEAE				
Boerhavia coccinea Mill.	false *alena*	Nat	R	<1>
Bougainvillea spectabilis Wilden.	Bougainvillea	Orn	C	
PASSIFLORACEAE				
Passiflora cf. *edulis* Sims	passion fruit	Nat	R	<3>

Table 1 (continued).

Species listed by family	Common name	Status	Abundance	Notes
PHYTOLACCACEAE				
Rivina humilis L.	coral berry	Nat.	R	<1>
PLANTAGINACEAE				
Plantago lanceolata L.	nrw-lvd. plantain	Nat	O3	<1>
Plantago major L	common plantain	Nat	R	<1>
PORTULACACEAE				
Portulaca oleracea L.	pigweed	Nat	R	<1>
RUBIACEAE				
Hedyotis corymbosa (L.) Lam.	---	Nat	U	<1>
Morinda citrifolia L.	*noni*, Indian mulberry	**Pol**	R	
Spermacoce assurgens Ruiz & Pav.	buttonweed	**Nat**	U	<1>
SAPOTACEAE				
Chrysophyllum oliviforme L.	satinleaf	Nat	R	<3>
VERBENACEAE				
Vitex rotundifolia L. fil.	*pōhinahina*	**Ind**	R2	<2>
MONOCOTYLEDONES				
AGAVACEAE				
Cordyline fruticosa (L.) A. Chev.	*ki*, ti	**Pol**	U2	<2>
Dracaena marginata Lam.	money tree	Orn	U	
Sanseviera trifasciata Prain	bowstring-hemp	Orn	R2	
ARACEAE				
Syngonium podophyllum Schott	nephthytis	Orn	R	
ARECACEAE				
Cocos nucifera L.	coconut, *niu*	**Pol**	U	
Dypsis lutescens (H. Wendl.) Beentji & Dransfield	golden-fruited palm	Orn	R	
Pritchardia cf. *pacifica* Seem. & H. Wndl.	Fiji fan palm	Orn	O	<3>
Veitchia merrillii (Beccari) H.E. Moore	Manila palm	Orn	C	
CANNACEAE				
Canna sp.	garden canna	Orn	R	<3>
COMMELINACEAE				
Tradescantia spathacea Swartz	Moses-in-the cradle	Orn	R	
CYPERACEAE				
Cyperus gracilis R. Br.	McCoy grass	Nat	R2	
LILIACEAE				
Crinum asiaticum L.	giant spider lily	Nat	R1	
Hippeastrum sp.	amaryllis	Orn	R	<3>

Table 1 (continued).

Species listed by family	Common name	Status	Abundance	Notes
POACEAE				
Axonopus compressus (Swartz) P. Beauv.	broad-lvd. carpetgrass	Nat	R	
Axonopus fissifolius (Raddi) Kuhl.	nrw-lvd. carpetgrass	Nat	O	
Bothriochloa pertusa (L.) A. Camus	pitted beardgrass	Nat	A	
Chloris barbata (L.) Sw.	swollen fingergrass	Nat	U	<1>
Cynodon dactylon (L.) Pers.	Bermuda grass	Nat	A	
Digitaria insularis (L.) Mez. ex Ekman	sourgrass	Nat.	R1	<1>
Echinochloa colona (L.) Link	jungle-rice	Nat	R	<1>
Eleusine indica (L.) Gaertn.	wiregrass	Nat	U	<1>
Eragrostis amabilis (L.) Wight & Arnott	lovegrass	Nat	R	<1>
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	Nat	A	
Panicum maximum Jacq.	Guinea grass	Nat	U2	<1>
Paspalum conjugatum Bergius	Hilo grass	Nat	R	
Paspalum dilatatum Poir.	Dallis grass	Nat	O	<1>
Sporobolis africanus (Poir.) Robyns & Tourmay	African dropseed	Nat	R	<1>
Sporobolus sp.	dropseed	Nat.	U2	
Urochloa subquadripara (Trin.) Webster	---	Nat	O	
indet. grass	new playing field turf	Orn	R3	
STRELITZIACEAE				
Strelitzia reginae Dryander	bird-of-paradise	Orn	R	
ZINGERBACEAE				
Alpinia purpurata (Viel.) K. Schum.	red ginger cv.	Orn	U	

Legend to Table 1

STATUS = distributional status for the Haaiian Islands:

End = Endemic; native only to the Hawaiian Islands.

Ind = Indigenous; native to Hawai'i, but not uniquely native to the Hawaiian Islands.

Nat = Naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.

Orn = Ornamentals; plants that are maintained as part of the landscaping.

Pol = Aboriginal (Polynesian) introduction; "canoe plants."

***** = Following status, denotes a species listed as threatened or endangered.

ABUNDANCE = occurrence ratings for plants by area:

R – Rare	seen in only one or perhaps two locations.
U - Uncommon-	seen at most in several locations.
O - Occasional	seen with some regularity.
C - Common	observed numerous times during the survey.
A - Abundant	found in large numbers; may be locally dominant.
AA - Very abundant	abundant and dominant; defining vegetation type.

Numbers following an occurrence rating indicate clusters within the survey area. The ratings above provide an estimate of the likelihood of encountering a species within the specified survey area; numbers modify this where abundance, where encountered, tends to be greater than the occurrence rating:

Table 1 (continued).

1 – several plants present.
2 - many plants present .
3 – locally abundant.

NOTES: <1> – Plants that are weeds; ruderal species outside regularly maintained areas.
<2> – Native plant that is ornamental in this situation.
<3> – Plant lacking key diagnostic characteristics (flower, fruit).

palm. The three native species (*ʻohai, pōhinahina*, and *kokiʻo keʻokeʻo*) are all part of a planting bed near the library where native species are used in the landscaping. The status of naturalized (Nat) versus ornamental (Orn) may be somewhat misleading. Essentially all of the plants not flagged with Note <1> are plantings for landscaping purposes. Many landscape plants (including the grasses that dominate the playing field and other lawn areas) have become naturalized elsewhere, by which is meant they are non-native or introduced species that can now be found in the wild and grow and spread without human intervention. Thus, "status" refers to the species status in the Hawaiian Islands and not the use of the plant within the project survey area. Ornamental plants have not "escaped" human cultivation in Hawaiʻi.

No streams, relatively permanent or non-relatively permanent waterways, or wetlands occur in the project area. Although a survey to develop a faunal listing for the project area was not undertaken, no animals of special concern were encountered by the biologist on July 1 or 23. No habitats other than those supporting common lowland birds and introduced wild and feral mammals are present. However, the large grassed playing field likely provides winter feeding/resting habitat for one or more Pacific Golden-Plover (*Pluvialis fulva*); none was seen on the survey because these birds migrate away from Hawaiʻi to northern latitudes (Alaska) for the summer months. No federally endangered or threatened species (USFWS, 2005) were encountered during the survey, and none is anticipated to utilize habitats in the project area.

Listed Species

Included in plantings in front of the library is *ʻohai* (*Sesbania tomentosa*), an endangered plant species. Although likely purchased legally with an ESA tag, protection afforded this species is retained, even where used as an ornamental, so the native planting area on campus should be avoided by the project.

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***Appendix B**:*

Archaeological Literature Search and Field Inspection

SCS Project Number 1072-2

LITERATURE SEARCH AND FIELD INSPECTION OF THE KAHUKU STORM DAMAGE REDUCTION PROJECT KAHUKU AHUPUA`A, KO`OLAULOA DISTRICT, O`AHU ISLAND, HAWAI`I [TMK: (1) 5-6-006:003, 009, 010, 011 (por.), 015, and 025]

Prepared by:
Cathleen A. Dagher, B.A.
and
Robert L. Spear, Ph.D.

August 2009
Revised September 2010

Prepared for:
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, HI, 96817

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INTRODUCTION

At the request of Environet, Inc., Scientific Consultant Services, Inc. (SCS) has been contracted to provide a literature search and field inspection for the Kahuku Storm Damage Reduction Project. The literature search entails investigating known Land Commission Awards (LCAs) and other documents pertaining to the area to be impacted by the ground alterations associated with the Kahuku Strom Damage Project. Specifically, this includes the Kahuku Intermediate and High School property and an adjacent park located immediately to the west of the school ground located in the village of Kahuku, Kahuku Ahupua`a, Ko`olauloa District, O`ahu Island, Hawai`i [TMK: (1) 5-6-006:003, 009, 010, 011 (por.), 015, and 025] (Figures 1, 2, and 3).

Archival research focused on identifying LCAs and land grants located along the length of the project corridor and assessing how these properties were utilized in the past. Based on project area maps, no LCAs were awarded in the current project area. Additional research includes a review of previous archaeological investigations conducted in or near the current project area and a report detailing the findings of known archaeological sites within and near the project area. The Archaeological Field Inspection was conducted of the project area on July 24, 2009 by SCS archaeologist Cathy Dagher. One previously unidentified site (State Site 50-80-02-7134, two parallel concrete retaining walls with incorporated stairs, associated with a now destroyed outdoor stage, which were constructed during the 1940s or '50s) was documented during the Field Inspection.

PROJECT AREA

The project area consists of the Kahuku Intermediate and High School grounds and the adjacent park to the west, located on the northeast coast of the island of O`ahu, within the village of Kahuku, Kahuku Ahupua`a, Ko`olauloa District, O`ahu Island, Hawai`i. The project area is bounded on the north by Kamehameha Highway, on the west by Pualaea Street, on the east by TMK: (1) 5-6-006:020, which houses the Honolulu Police Department, Kahuku Branch, and on the south by natural topographic features. The project area is comprised of an urban landscape and has been thoroughly developed with modern infrastructure, pavement, utilities, and ornamental foliage. Thus, the overall project area has been subject to prior alterations, including grubbing, grading, and landscaping. Please note that the Archaeological Field Inspection included three proposed alternative project areas (see Figure 3).

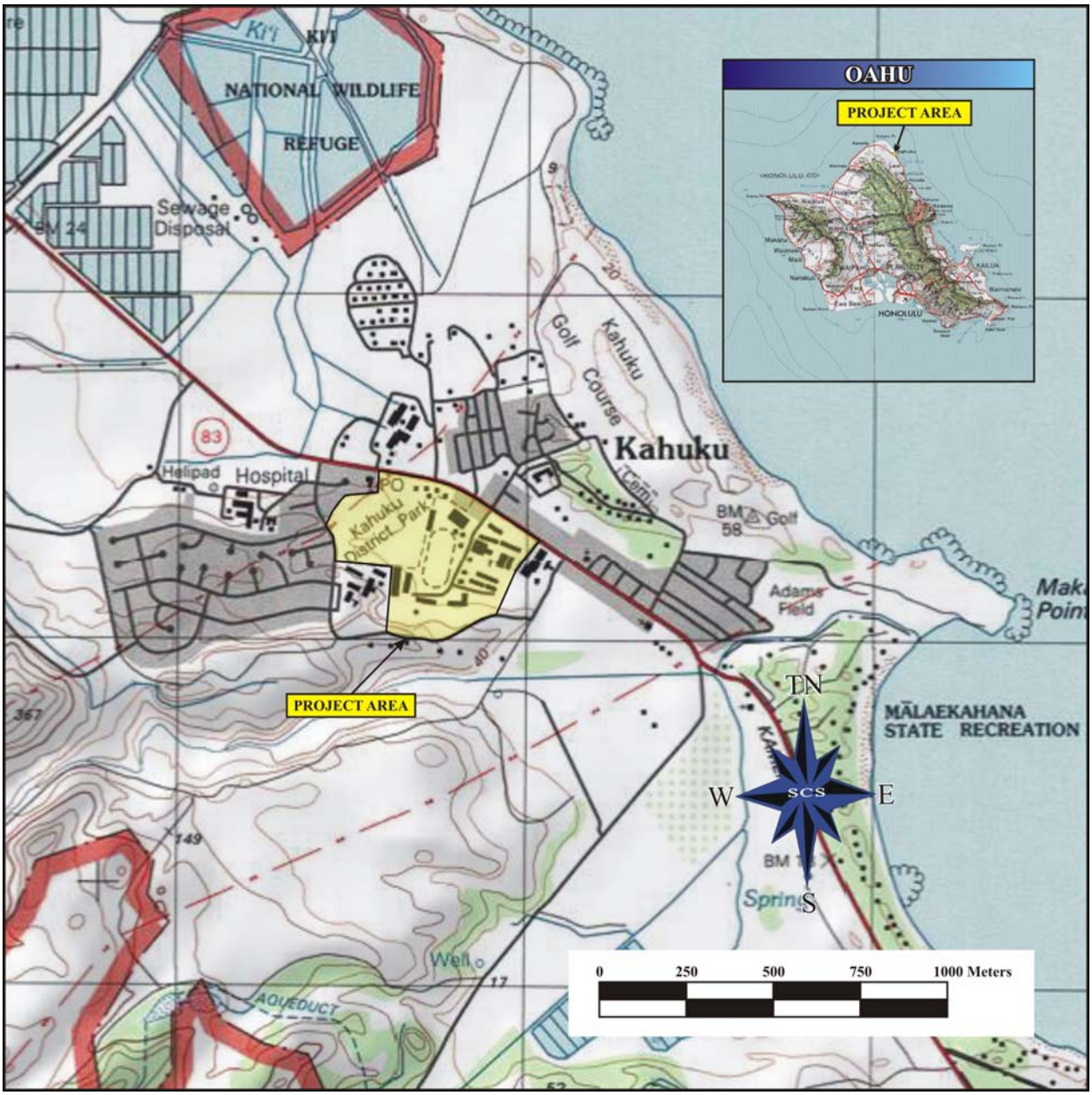

Figure 1: USGS Quadrangle (Kahuku) Showing Project Area Location.

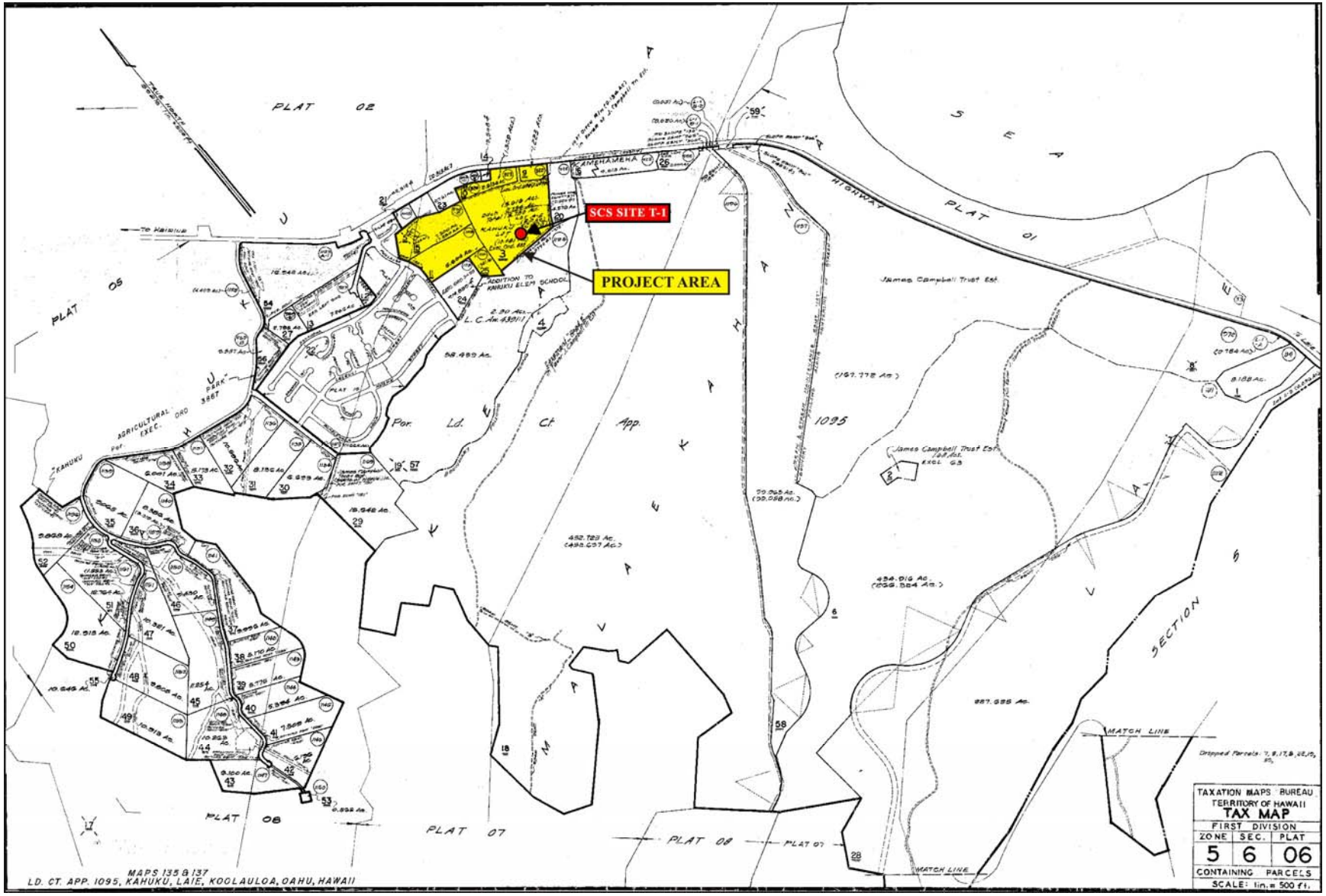

Figure 2: Tax Map Key [TMK: (1) 5-6-006: Various] Showing Project Area Location and Location of State Site 50-80-02-7134 (SCS Site T-1).

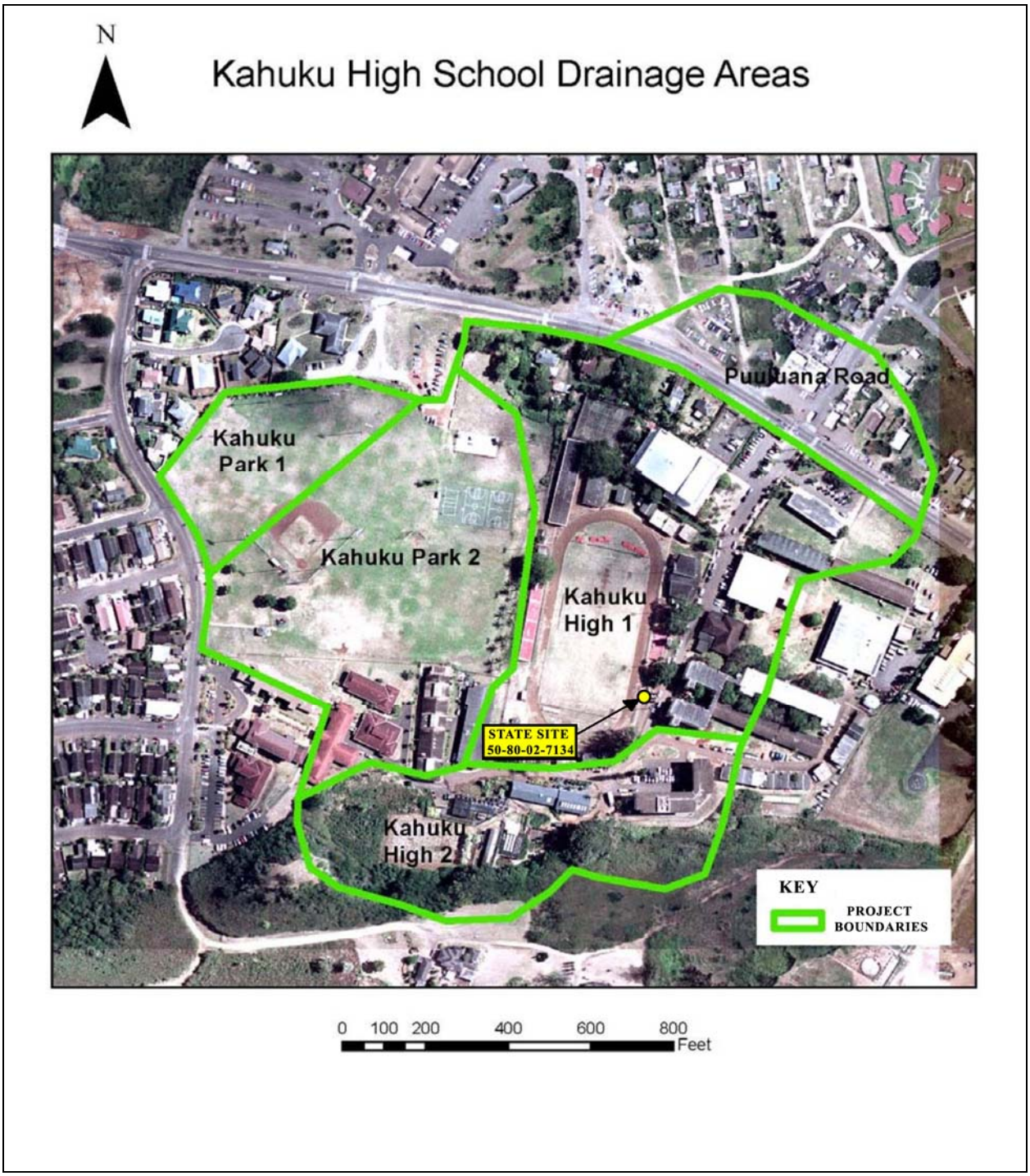

Figure 3: Kahuku High School Drainage Areas and Site Location Map. (Note Football Field is Kahuku High 1).

CLIMATE AND SOILS

The project area is situated approximately 12600 feet inland at elevations ranging from 20 to 40 feet above mean sea level. Mean annual rainfall in the area is approximately 850 mm (34 inches) (Armstrong 1983; Giambelluca *et al.* 1986), significantly less than the typical windward coast setting, and more in common with the drier North Shore of O`ahu. Portions of the project area are covered with asphalt and concrete; where present, vegetation is dominated by grassy lawns, coconut palms (*Cocus nucifera*), and small ornamental shrubs and flowering plants. According to Foote *et al.* (1972: 48, 49, 95: Map 46) the project area is comprised of Jaucus sands (JaC) deposits just south of Kamehameha Highway and Mokuleia clay loam (Mt) farther inland. The Mokuleia clay loam deposits occur along relatively level coastal areas and are often found in association with Jaucus sand deposits. The Mokuleia clay loam exhibits moderate permeability, slow runoff, and a very slight erosion hazard. These soils are often used for the commercial production of sugarcane, truck crops, and as ranchlands (*ibid*: 95). The Jaucus sands exhibit rapid permeability, slow to very slow runoff, slight erosion hazard, but erosion due to winds can be quite severe in areas with no vegetation (*ibid*: 48, 49).

CULTURAL HISTORICAL CONTENT

TRADITIONAL SETTLEMENT PATTERNS

Early settlement and agricultural development was probably first established on the windward side of the Hawaiian Islands and may have begun as early as A.D. 300s-600s on O`ahu during what is known as the Colonization Period (Cordy 1974; Kirch 1974, 1985:298; Hommon 1976). Most likely arriving from east Polynesia, these early inhabitants brought with them tools, fishing gear, and other artifacts, as well as useful plants and animals. Settling in favorable localities offering both fishing and agricultural opportunities and having near access to inland resources was a priority (Kirch 1985). Although receiving the majority of their protein from fish, Handy and Handy have stated: "…for every fisherman's house along the coasts there were hundreds of homesteads of planters in the valley and on the slopes and plains between the shore and forest" (1978: vi).

During the pre-Contact Period (pre-1778), there were primarily two types of agriculture, wetland (*lo`i*) and dry land (*kula*), both of which were dependent upon geography and physiography. River valleys, especially those on the windward side of an island, provided ideal conditions for wetland *kalo* (Colocasia esculenta) that incorporated pond fields and irrigation canals (*`auwai*). Other cultigens such as *kō* (sugar cane, Saccharum officinaruma) and *mai`a* (bananas, *Musa sp.*) were also grown and, where appropriate on the tablelands and dryer slopes, the production of such crops as *`uala* (sweet potato, Ipomoea batatas) occurred. Coastal sections

with fringing reefs eventually gave rise to the only true aquaculture developed in Polynesia: the fishpond (Kirch 1985:211). Unique to Hawai`i, fishpond technology allowed production and harvesting of marine life on a scale that was no longer dependent on the natural population, greatly expanding the food base. This was a typical pattern seen during traditional times on all the Hawaiian Islands (Kirch 1985; Kirch and Sahlins Vol. 1, 1992:5, 119.)

Oral history notes that the division of O`ahu's lands into districts (*moku*) and sub-districts was solidified by the *ali`i nui*, Mā`ili-kūkahi, during the early part of the 16th Century (Kamakau 1991:54; Cordy 2002:19). O`ahu contained six districts including Ko`olauloa and Waialua. Further land divisions within the *moku* were *ahupua`a*. The residents were able to harvest from both the land and the sea associated with the particular *ahupua`a* in which they lived. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111).

PRE-CONTACT PERIOD

Some of the earliest references to Kahuku Ahupua`a were made by European visitors. Observations by Captain James Cook and Lieutenant James King during a visit in 1779 indicate that the region had a high population and was amply cultivated (Handy and Handy 1972: 462 and Dorrance 1998). As they sailed past Kahuku on their way to Kaua`i, King noted in his journal that, "Nothing can exceed the verdure of the hills, the variety of wood and lawn, and the rich cultivated valley, which the whole face of the country conveyed" (Handy and Handy 1972:462; Dorrance 1998:119). However, only 13 years later, Captain George Vancouver observed that the land did not appear as rich and prosperous as had been described previously (Handy and Handy 1972:462; Dorrance 1998:119). Vancouver, unlike Cook, visited during the dry season, possibly occasioning these differences in opinion. However, it is also very likely that 13 years of contact with Europeans and their diseases had already had a massive negative impact on the population of the region (Anderson and Williams 1998:23). In 1838, one observer noted that "much taro land lies waste, because the diminished population of the district does not require its cultivation" (E.O. Hall in McAllister 1933:153, Handy and Handy 1972:462).

The dramatic decline in population and cultivation that is reflected in the written accounts mentioned above may reflect a period of social upheaval in O`ahu. O`ahu was a recently conquered land —invaded first by Maui (c. 1783) and later by Hawai`i (1795)—and the social, political and economic landscape had been restructured. Kirch and Sahlins (1992) were able to document some of these processes for the Waialua District, located southeast of the project area.

Although the feudal system was not in essence changed with the conquest, greater demands were made on the labor and products of the commoners than had been made traditionally (Kirch and Sahlins 1992:27). It may not have been unexpected to be required to pay more taxes after being conquered by a foreign power, such as Hawai`i Island, although the sudden and dramatic incorporation of the Hawai`i Islands into an economic World System resulted in increased demands by the chiefly elite whose needs had changed in order to suit their new position in this westernized world.

More demands were made of fewer and fewer people, leading to increasing social and economic stress. The observations of Vaillant, a French captain who visited the Islands in 1836, summarize these changes perfectly:

> Yet if one considers that the needs of these chiefs were [before the Europeans] very limited, as they were practically the same as those of the people (kanakas), little was needed to satisfy them. Since they have been in constant contact with Europeans, the latter have caused to be born in them needs which they knew not before, in order to satisfy which they are obliged to press more on the people. This then is the cause of the difference that has ensued in the situation of the kanaka: the establishment of the Whites in the Islands; for the father of the family has no hope of doing anything that will increase the well-being of his wife and children, since the more he acquires, the more the chiefs demand of him [Vaillant, cited in Kirch and Sahlins 1992:27].

Nevertheless, there was a limit to what chiefs could extract from the commoners based on traditional productive activities. With the discovery of China's predilection for sandalwood, Hawaiian chiefs discovered that money did indeed grow on trees and a new source of capital was tapped to the fullest extent possible. The period between approximately 1810 and 1830 was dominated by the sandalwood trade, during which time commoners were required to provide labor for the collection of sandalwood to finance the political economies of King Kamehameha, his high chiefs, and their descendants. The labor tax was so onerous that production of food was neglected, leading to starvation and further population decline:

> In the 1820s, the chiefs mounted massive campaigns of sandalwood cutting in the mountains using the forced labor of the people living on their large estates. Exacted as a kind of ground rent, the common people's work was poorly remunerated or not at all. Nor did the people have access to the sandalwood trade on their own account,

> except as granted by the *ali`i* on rare occasions and to a limited extent. And in contrast to the previous period of the provisioning trade, when the king and chiefs were known to encourage agricultural production, the division of labor to sandalwood entailed some neglect of cultivation. Scarcities of food were reported by Haole visitors in Honolulu, as well as rumors of famine among sandalwood cutters in the mountains. A drastic population decline, begun in the conquest period due to European-introduced diseases, probably accelerated after the turn of the century. By 1830 Hawaiian numbers were well below half the 300,000 to 350,000 usually accepted as the figure for Cook's time [Kirch and Sahlins 1992:4].

Although the above description gives a general picture of Hawai`i under the sandalwood trade, it may help explain why there are such great differences between the written accounts in 1810 through 1815 and 1838 in relation to the state of cultivation of the land. That people in the Kahuku region were actively involved in sandalwood collection is evidenced by Levi Chamberlain's observations while making a tour of mission schools in O`ahu in 1928. He visited at least one school near the project area that was attended by sandalwood cutters, in addition to visiting four mission schools in Lā`ie, Mālaekahana, Kahuku, and a small school somewhere on the flat lowlands of Waiale`e Ahupua`a (Chamberlain 1957:35–6, cited in Anderson and Williams 1998:24). Unfortunately, Chamberlain did not include more specific details in his account.

In the highly competitive political atmosphere of early 19th century Hawai`i, the forests were rapidly depleted of this precious resource. However, by this time, the traditional productive pursuits and lives of common people had been disrupted, possibly leading to continued population decline and population movements. As Vaillant (in Kirch and Sahlins: 1992:27) observed, with "no hope of doing anything that will increase the well-being of his wife and children," many people moved to the new commercial centers in search of work, further exacerbating the loss of a traditional way of life that was tied to the land and to the sea.

THE MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on Western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame`eleihiwa 1992:169–70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. I: 145). The Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the

government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were made available and private ownership was instituted, the *maka`āinana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *`okipū* (on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

A search of the Waihona `Aina database indicates eighty-three LCAs were awarded in Kahuku Ahupua`a. However, none of these awards involved the lands of the current project area.

Soon after the Māhele, between the years 1851 and 1852, the great majority of land in Kahuku Ahupua`a was sold to Charles Gordon Hopkins by Kamehameha III (Nakamura 1981:6). According to Anderson and Williams (1998:27), Charles Gordon Hopkins began his Mālaekahana Ranch with the purchase of livestock in 1850. Around the same time, Robert Moffitt began the Kahuku Ranch through the acquisition of large leases of Government land (Anderson and Williams 1998). A couple of decades later, Herman A. Widemann bought both ranches: Mālaekahana Ranch in 1867 and 1872, and Kahuku Ranch in 1873. However, these were almost immediately sold to Julius L. Richardson in 1874. Two years later, "Kahuku and Malaekahana Ranch" was purchased by James Campbell. According to Anderson and Williams, these ranches included both Pahipahi`ālua and Waiale`e Ahupua`a at the time of sale to Campbell (Anderson and Williams 1998:27–28).

After purchasing the 15,000-acre "Kahuku and Malaekahana Ranch" in 1876, Campbell sold his interest in the Pioneer Mill Co. to his remaining partner and moved to Honolulu with his wife Abigail. In 1889, Campbell leased his Honouliuli and Kahuku lands to Benjamin Dillingham for a 50-year term (Kuykendall 1967:68, Vol. III). Dillingham proceeded to build a railroad that would facilitate the transportation of sugar cane to the processing mills and to the ports. This railroad system not only serviced his sugar plantation, but it also provided transportation for other sugar plantations. Dillingham subleased a portion of Kahuku to James Castle, who proceeded to create the Kahuku Plantation, which was chartered in 1890.

The Kahuku Plantation was a small operation, with less than 4,000 acres planted (Dorrance 1998:120). By 1935, the Kahuku Plantation had more than doubled in size and extended to Hau`ula (*ibid.*). The mid-1930s also saw a plantation hospital, a movie theater, a nine-hole golf course, and other recreational facilities including, tennis courts (*ibid.*: 121). As the production of sugar became less expensive to produce elsewhere, the Kahuku Mill closed its doors in 1971.

When James Campbell died in 1900, his will ensured that the Campbell Estate would remain relatively untouched, as it could not be sold, mortgaged, or given away. However, in 1952, the Trustees "petitioned the Circuit Court and were granted the power to make certain long-term leases" (*ibid*: 25). This made large tracts of land in Kahuku available to the government.

During WWII, the U.S. Army placed a battery of four eight inch cannons between the sugar mill and the coast of Kahuku (Dorrance 1998:121). Subsequently, the U.S. Army constructed a landing strip just southwest of Kahuku. Large portions of Kahuku are still in use today by the military for training purposes.

PREVIOUS ARCHAEOLOGY

The earliest systematic survey of archaeological sites on O`ahu was conducted by McAllister (1933) in 1930. Numerous sites were noted by McAllister at that time. Of note were: Site 260, Puuala Heiau, destroyed at the time of McAllister's survey, but said to have be located on the ridge above Kahuku Ranch; Site 261, a water hole called Punamano located on near Kahuku Point and associated with legend; Site 262, a natural basin containing brackish water, associated with legend; Site 263, Keanakua Fishing Shrine, located on Kahuku Point; Site 264, natural basins on Kahuku Point said to be used in manufacturing salt ; Site 265, two stones known as Kahoa located approximately 250 feet from the shoreline and are associated with legend; Site 266, Kalaewila Heiau, located on slight rise at Kahuku Point; Site 267, Kalaiokahipa Ridge, a burial cave and associated with legend; Site 268, a fishpond known as Kaauhelemoa. Site 270, Keana Rockshelter located near the mountain side of the public school associated with legend (McAllister 1933: 152 – 155).

More recent archaeological studies have been conducted in the Kahuku area by the Bishop Museum (Clark 1978; Sinoto 1981; Rogers-Jourdane 1982), Paul H. Rosendahl, Inc., (Bath e*t al.* 1984), and Cultural Surveys Hawaii (Hammatt 2008; O'Hare *et al.* 2008). In

addition, numerous archaeological investigations have been carried out in the U.S. Army Kahuku Training Area (Chapman 1970; Rosendahl 1977; Davis 1981; Farrell and Cleghorn 1995; Williams and Patolo 1998; Drolet 2000; Zulick and Cox 2002; Buffum *et al.* 2004; O'Rourke 2004; Peterson and Desilets 2005; and Zulick 2006). In addition, numerous archaeological investigations have been carried out in the U.S. Army Kahuku Training Area (listed in Patolo *et a*l. 2009).

In 1978, the Kualoa Archaeological Research Project conducted an Archaeological Reconnaissance Survey of the Ko`olauloa Housing Project area and the Park Expansion (Clark 1978 in O'Hare *et al*. 2008)). The Park Expansion area was comprised of two parcels which included the current site of the Kahuku Elementary School and the Kahuku Regional Park (in O'Hare *et al.* 2008). During the Reconnaissance Survey, two previously identified sites were relocated: Site 50-80-02-269, a platform initially recorded by McAllister, and Site 50-80-02-270, Keana Cave which appears to have been a burial cave as evidenced by the human skeletal remains located on the slope at the entrance to the cave (O'Hare *et al.* 2008). A nearby rockshelter contained possible human skeletal remains and wood fragments, suggesting use as a burial cave. The survey identified an historic burial with a date of 1945 (O'Hare *et al.* 2008).

In 1979, William Barrera conducted a more intensive survey and subsurface testing of the Ko`olauloa Housing Project area. Five sites were identified; Sites 50-80-02-1425 through -1429, all of which appeared to be associated with the Historic Plantation Era (*ibid*). The Bishop Museum conducted a reconnaissance survey of the Kahuku School Expansion project area (Schilt 1979 in O'Hare *et al.* 2008). During the survey Sites 50-80-02-269 and -270 were relocated and Sites 50-80-02-2478, a rectangular stone mound, and Site -2479, a small rockshelter (O'Hare *et al.* 2008).

In 1980, the Bishop Museum conducted an *Archaeological Reconnaissance Survey of Ki`i Pond and Punamanō Wetland Refuge Units, Kahuku, O`ahu, Hawaii* (Sinoto 1981). The findings of the Reconnaissance Survey indicated that both the areas appeared to have undergone extensive ground alterations. According to Sinoto (1981), the Ki`i Pond area had been subject to prior dredging and filling and during the Plantation Era, was used as an irrigation reservoir. The Punamanō area had also been subject to previous ground altering activities, including evidence that the area had been subject to mechanical alterations (bulldozing), remnants of building foundations, and the remnants of concrete military bunkers. No new sites were identified during the survey. However, Punamanō Spring (Site 261) was relocated near the southern boundary of the project area and an historic railroad grade was noted along the northern boundary of the project area. Subsequently, in 1982, the Bishop Museum conducted an Archaeological

Reconnaissance Survey of Marine Culture Enterprises Land in Kahuku, O`ahu Island (Jourdane 1982). No new sites were identified during the survey, which included limited subsurface testing. However, this area also exhibited extensive historic and modern ground alterations including: paved roads, concrete foundations, historic railroad bed, the Kahuku airstrip and artifacts such as, metal ladders, engine parts, historic trash, and porcelain fragments

In 1984, PHRI conducted a Subsurface Archaeological Reconnaissance Survey Kuilima Resort Expansion Project (Bath *et al.* 1984). The excavation of 135 test units, 124 auger tests, and 11 faced-section tests of subsurface exposures yielded pre-Contact sites including burials, habitation, agricultural deposits, Historic walls, and a modern military structure. The age of these sites ranged in age from the early pre-Contact Period (possibly as early as 165 B.C to A.D. 210) to modern.

Archaeological investigations along the Kahuku coast have yielded the inadvertent finding of numerous burials. A total of fourteen burials containing a minimum of 24 individuals (MNI=24) have been found at Turtle Bay Resort between Kawela Bay and Kahuku Point (O'Hare and Hammatt 2007 in O'Hare *et al*. 2008).

The State Department of Land and Natural Resources, State Historic Preservation Division has documented numerous inadvertent discoveries of traditional style burials along the coastal region of Kahuku. In 1998, the inadvertent finding of human skeletal remains representing an adult of Polynesian ancestry on Campbell Estate property in Kahuku was documented by the State Historic Preservation Division ((Dagher 1998). This site was subsequently designated Site 50-80-02-5594. Komori (1992) documents the inadvertent finding of infracranial remains on the surface of the Kahuku Sand Dunes. In addition, subsurface cultural deposits were noted in three areas. This site was subsequently designated Site 50-80-02-4518.

In addition, numerous archaeological studies have been carried out in the U.S. Army Kahuku Training Area (Chapman 1970; Rosendahl 1977; Davis 1981; Farrell and Cleghorn 1995; Williams and Patolo 1998; Drolet 2000; Zulick and Cox 2002; Buffum *et al.* 2004; O'Rourke 2004; Peterson and Desilets 2005; and Zulick 2006). For a summary of the findings of these investigations, please refer to Patolo *et al*. 2009)

KAHUKU HISTORICAL SEQUENCE

The long, yet not well-understood, historical sequence of the Kahuku area proceeds from pre-Contact through modern times, from traditional and Plantation-era agricultural pursuits to modern building construction. The Kahuku area itself has been considered one of Hawai`i's legendary places (*wahi pana*) as many legendary and traditional accounts point to this mythically rich area of O`ahu (Sterling and Summers 1978:148-150). Kahuku Ahupua`a has also been reported to have been a verdant area well-suited for the cultivation of wetland taro and other traditional crops (Handy and Handy 1972:462-463). The accounts of well-stocked fishponds, *ko`a* (fishing shrines), and legends referring to fishing in the area indicate marine resources were plentiful during the pre-Contact Period. Thus, it is quite probable that Kahuku was capable of supporting a large population as evidenced by the observations by Captain James Cook and Lieutenant James King, in 1779, which indicate that the region had a high population and was amply cultivated (McAllister 1933:153).

During the Historic Period, Kahuku was further tied to agricultural pursuits as well. Sugarcane production occurred extensively in the area from the middle to latter portions of the nineteenth century to the mid to late twentieth century. The industry faced some difficulty though as Native Hawaiians owned and worked their own lands and thus, had little incentive to work on plantations. This labor vacuum was filled by immigrants, predominantly Chinese laborers in the beginning and later, Portuguese, Filipino, and Japanese laborers.

In brief, archival research and a synthesis of past archaeological work in the Kahuku area depicts traditional cultivation of taro and habitation having occurred with some frequency in the past within and near the current project area. Thus, we may infer that structural features associated with agriculture, including terraces, mounds, and/or ditches (*`auwai*), were present at some point. Additionally, walls and platforms denoting house plots once occurred within, and adjacent to, the project area.

FIELD INSPECTION RESULTS

On Friday July 24, 2009 an Archaeological Field Inspection was conducted of the entire project area by SCS archaeologist Cathleen Dagher, B.A. (see Figures 1 and 2). During the Field Inspection one previously unidentified surface feature was identified. State Site 50-80-02-7134 (SCS Site T-1) consists of 2 parallel concrete retaining walls containing stairs located adjacent to the southern portion of Building Y on the east side of the football field and just outside of the eastern fenceline. According to Sonia Dominguez, the Kuhuku High School Custodian, the stairs were constructed during the 1940s or 1950s and were associated with an outdoor stage, which no longer exists. As this feature is believed to be over 50 years old, it is considered to be an Historic

Property. The retaining walls and associated stairs appear to be in good condition and have undergone limited alteration resulting from forces of nature. However, the associated stage no longer exists. Thus, we believe this site is no longer has cultural or historical significance.

STATE SITE 50-80-02-7134 (SCS SITE T-1)

State Site 50-80-02-7134 (SCS Site T-1) consists of two parallel concrete retaining walls with incorporated stairs (Figure 4). This site is located approximately 52 feet (16 meters) west (292 degrees) of the northwest corner of the south wing of Building Y. The bottom retaining wall measures 39.8 by 1.5 by 2.4 feet high (12.16 by 0.45 by 0.76 meters high). All of the steps associated with the lower retaining wall measure 4.0 by 0.9 feet (1.22 by 0.30 meters) and range in height from 4 to 6 inches (12 to 17 centimeters) in height.

The upper retaining wall measures 36 by 1.3 by 1.6 feet high (11.0 by 0.4 by 0.5 meters high). All of the steps associated with the upper retaining wall measure 4.0 by 0.9 feet (1.22 by 0.30 meters) and range in height from 4 to 7 inches (12 to 17 centimeters) in height.

CONCLUSION AND RECOMMENDATIONS

Archival research and a review of previous archaeological studies have shown that the Kahuku area has a considerable cultural history. During the Field Inspection one previously unidentified surface structure believed to be over 50 years in age was identified in close proximity to the football field. However, given the extensive ground alterations associated with the construction of Kahuku High School, it is unlikely that additional archaeological features will be present on the ground surface.

Archival research and previous archaeology conducted in the coastal reaches of Kahuku Ahupua`a, and similar geographic setting, has found that there is a relatively high probability of finding pre-Contact (and possibly early Historic Period) Native Hawaiian habitation sites and burials, in subsurface deposits closer to the coast, outside of the project area. As stated elsewhere in this document, the soils within the project area include Jaucus sand deposits. The Jaucus sands are known to be a traditional interment site for Native Hawaiian burials (Kirch 1985). The presence of these soil types is mitigated somewhat by the more inland location of the project. The inland project location suggests a relatively low probability of finding subsurface evidence of Traditional Native Hawaiian and/or early historic burials or other activities including hearths, midden deposits, and other occupation debris (e.g., stone tool waste, discarded artifacts related to habitation and fishing). While the potential is low, the potential still exists, so on-site Archaeological Monitoring is recommended for all ground altering activities associated with the current undertaking.

Figure 4: State Site 50-80-02-7134 (SCS Site T-1) Historic Foundation with Steps. View to East.

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***Appendix C**:*

Cultural Impact Assessment

SCS Project Number 1072-CIA-1

A CULTURAL IMPACT ASSESSMENT OF THE KAHUKU STORM DRAMAGE REDUCTION PROJECT, O`AHU SLAND, HAWAI`I [TMK 5-6-006: various]

Prepared by:
Leann McGerty, B.A.
and
Robert L. Spear, Ph.D.

September 2009

Prepared for:
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

SCIENTIFIC CONSULTANT SERVICES Inc.

HAWAII

711 Kapiolani Blvd. Suite 975 Honolulu, Hawai`i 96813

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INTRODUCTION

Scientific Consultant Services, Inc. (SCS) has been contracted by Environet, Inc., to conduct a Cultural Impact Assessment of the Kahuku Storm Damage Reduction Project, O`ahu Island [TMK: 5-6-006: various] (Figures 1 and 2). Out of four alternatives proposed by the Department of The Army, Alternative 2 was adopted (see Figure 1 and 2).

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to "protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua`a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778" (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua`*a tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, "native Hawaiian rights…may extend beyond the *ahupua`a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner" (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

In Section 1 of Act 50, enacted by the Legislature of the State of Hawai`i (2000) with House Bill 2895, it is stated that:

> …there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's culture, and traditional and customary rights…[H.B. NO. 2895].

Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs and practices, and resources of native Hawaiians as well as other ethnic groups. Act 50 also requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the "cultural practices of the community and State" as part of the HRS Chapter 343 environmental review process (2001).

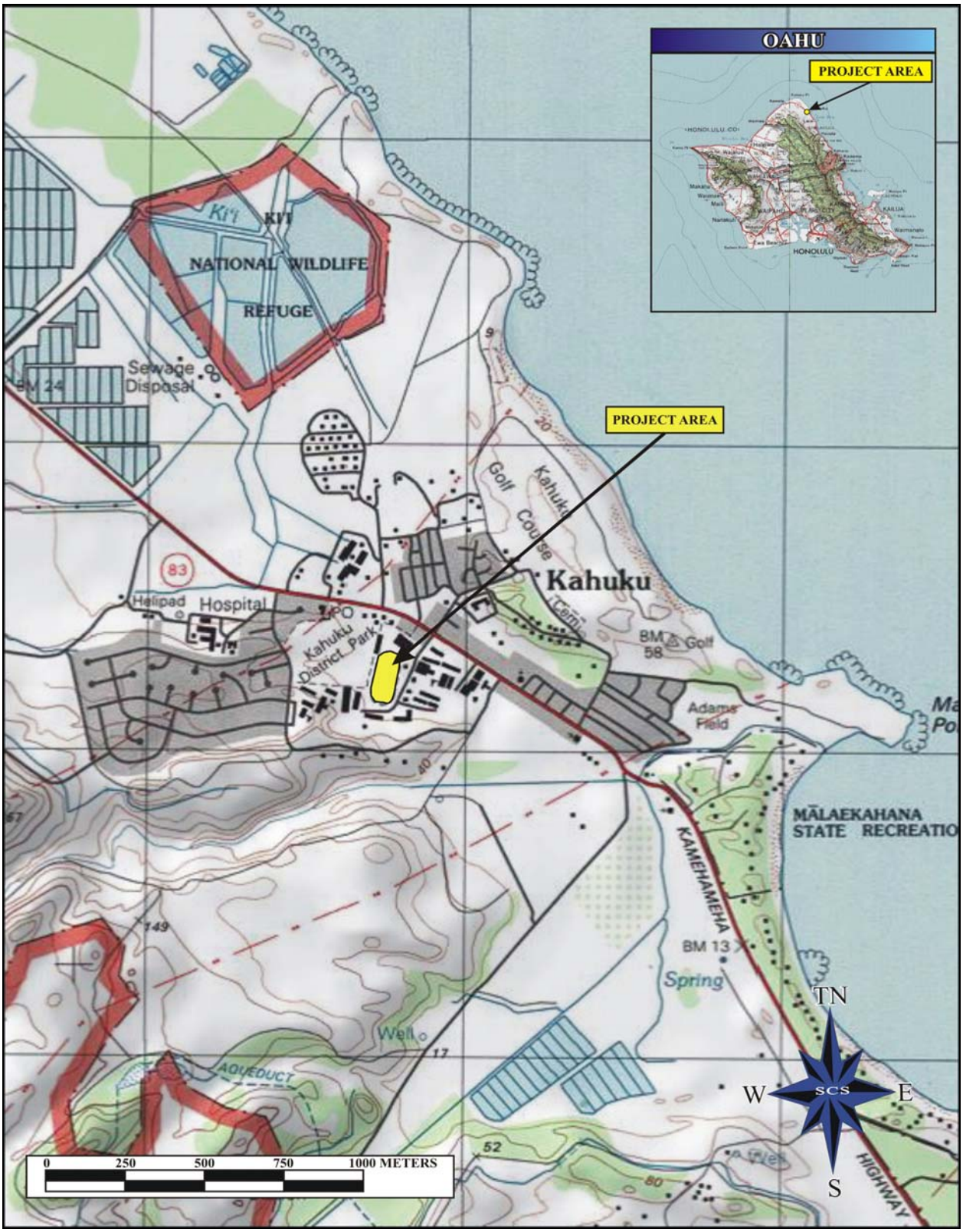
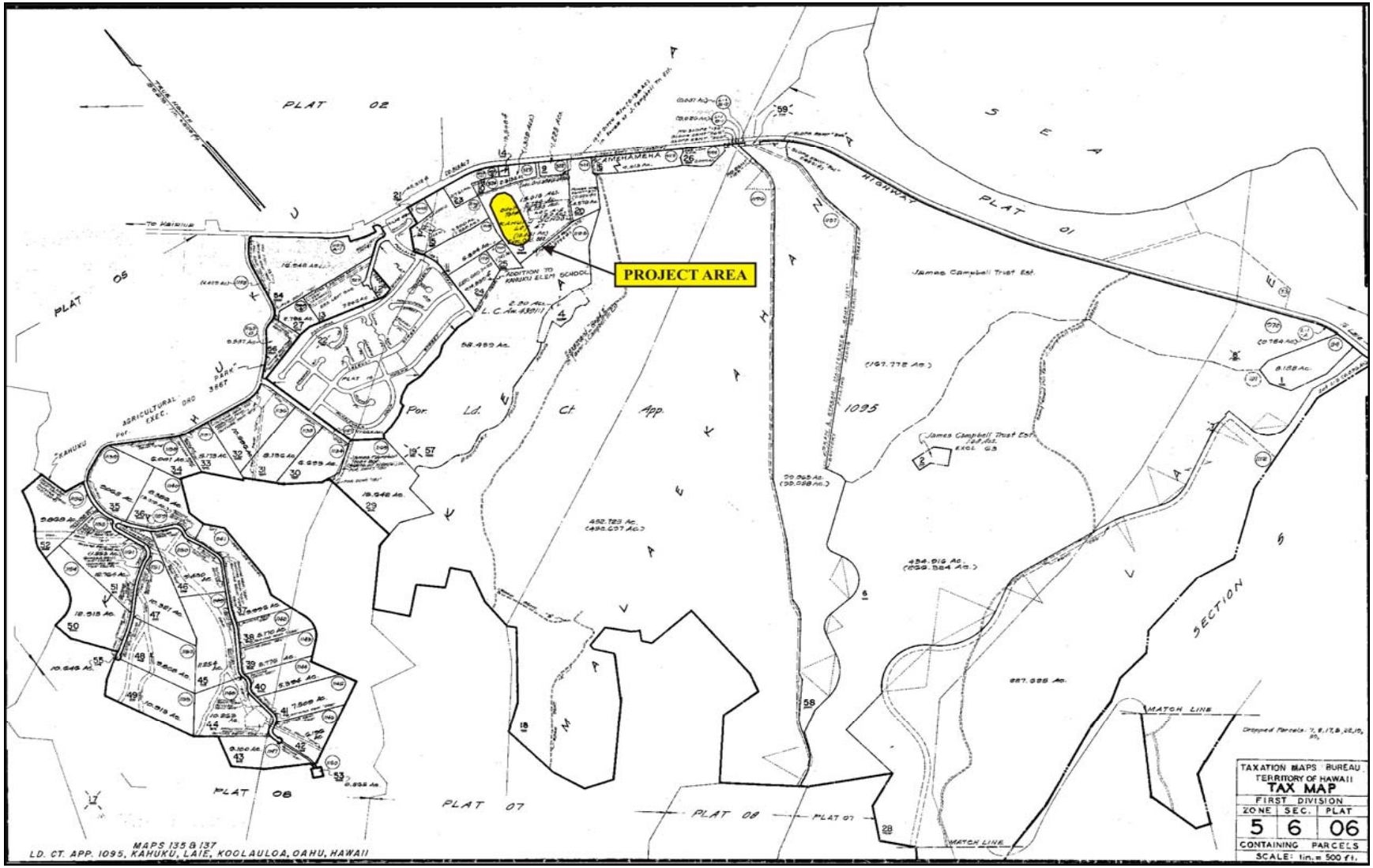


Figure 1: USGS Quadrangle Map Showing Project Area.


PROJECT AREA
PLAT 02
PLAT 01
PLAT 05
PLAT 08
PLAT 07
PLAT 08
PLAT 07
SEA
HIGHWAY
KAMEHAMEHA
ADDITION TO KAHUKU ELEM SCHOOL
L.C. Am. 4391:1
Por. Ld. Ct. App. 1095
James Campbell Trust Est.
SECTION 6
MATCH LINE
MATCH LINE
TAXATION MAPS BUREAU
TERRITORY OF HAWAII
TAX MAP
FIRST DIVISION
ZONE 5 SEC. 6 PLAT 06
CONTAINING PARCELS
SCALE: 1in. = 500 ft.
MAPS 135 & 137
LD. CT. APP. 1095, KAHUKU, LAIE, KOOLAULOA, OAHU, HAWAII

It also re-defined the definition of "significant effect" to include "the sum of effects on the quality of the environment including actions impact a natural resource, limit the range of beneficial uses of the environment, that are contrary to the State's environmental policies. . . or adversely affect the economic welfare, social welfare or cultural practices of the community and State" (H.B. 2895, Act 50, 2000). Cultural resources can include a broad range of often overlapping categories, including places, behaviors, values, beliefs, objects, records, stories, etc. (H.B. 2895, Act 40, 2000).

Thus, Act 50 requires that an assessment of cultural practices and the possible impacts of a proposed action be included in Environmental Assessments and Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, "the broad geographical area, e.g. district or *ahupua`a*" (OEQC 1997). It was decided that the process should identify 'anthropological' cultural practices, rather than 'social' cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

Therefore, the purpose of a Cultural Impact Assessment is to identify the possibility of cultural activities and resources within a project area, or its vicinity, and then assessing the potential for impacts on these cultural resources. The CIA is not intended to be a document of in depth archival-historical land research, or a record of oral family histories, unless these records contain information about specific cultural resources that might be impacted by a proposed project.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

The meaning of "traditional" was explained in *National Register Bulletin*:

> Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations', usually orally or through practice. The traditional cultural significance of a historic property, then is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices. . . . [Parker and King 1990:1]

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the suggested methodology and content protocol in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC states that:

"…information may be obtained through scoping, community meetings, ethnographic interviews and oral histories…" (1997).

This report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the suggested methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997), when possible. The assessment concerning cultural impacts may address, but not be limited to, the following matters:

(1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations which might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the

project area, as well as information concerning the persons submitting information or being interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices, or beliefs; the potential of the proposed action to isolate cultural resources, practices, or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission

Awards, Royal Patent Grants, and Boundary Commission records; historic accounts; and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws, and guidelines, when knowledgeable individuals are able to identify cultural practices in, or in close proximity to the project area. If they have knowledge of traditional stories, practices and beliefs associated with a project area or if they know of historical properties within the project area, they are sought out for additional consultation and interviews. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information concerning particular cultural resources. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs (OHA), historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview. It should be stressed that this process does not include formal ethnographic interviews or oral histories as described in the OEQC's *Guidelines for Assessing Cultural Impacts* (1997). The assessments are intended to identify potential impacts to ongoing cultural practices or resources within a project area or in its close vicinity.

No interviews were conducted for the present project as there were no responses from any of the contacted organizations and/or individuals. There was one inquiry as to the exact location of the project area brought about from the announcement in the Maui News, from the Waikapū Community Association.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. When telephone interviews occur, a summary of the information is usually sent for correction and approval, or dictated by the informant and then incorporated into the document. If no cultural resource information is forthcoming and no knowledgeable informants are suggested for further inquiry, interviews are not conducted.

Letters were sent to organizations whose jurisdiction included knowledge of the area. Consultation was sought from Phillis (Coochie) Cayan, History and Culture Branch Chief with SHPD; the Ko`olau Hawaiian Civic Club; and Cy Bridges with the O`ahu Island Burial Committee (Appendix A). An e-mail with Sonia Garcia of Environet asking if she had informants to suggest for interviews, was sent. Ms. Garcia did not know of anyone specific. In addition, a Cultural Impact Assessment Notice was published on August 30 and September 2, and 3, 2009 in *The Honolulu Advertise*r and in the August or September issue if the OHA newspaper, *Na Wai Ola* (Appendix B). These notices requested information of cultural resources or activities in the area of the proposed project, gave the TMK number and where to respond with information. Based on the responses, an assessment of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

PROJECT AREA AND VICINITY

The project area is located within the grounds of Kahuku High School, under the football field. Kahuku High School is located on the northeast coast of the island of O`ahu, Hawai`i within the community of Kahuku and along Kamehameha Highway.

CULTURAL HISTORICAL CONTEXT

The island of O`ahu ranks third in size of the eight main islands in the Hawaiian Archipelago. The Wai`anae and Ko`olau Mountain ranges were formed by two volcanoes. Through the millennia the constant force of water carved fertile amphitheater-headed valleys and rugged passes eroded at lower elevations providing access from one side of the island to another (Macdonald and Abbott 1970).

PAST POLITICAL BOUNDARIES

Traditionally, the division of Oahu's land into districts (*moku*) and sub-districts was said to be performed by a *Mā`ilikukahi* who was chosen by the chiefs to be the *mō`īho`oponopono o ke aupuni* (administrator of the government; Kamakau 1991). Cordy places Mā`ilikukahi at the beginning of the 16th century (2002). Mā`ilikukahi created six districts and six district chiefs (*ali`i `ai moku*). Land was considered the property of the king or *ali`i `ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. The title of *ali`i `ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn, distributed

smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land. It is said that Mā`ilikukahi gave land to *maka`āinana* (commoners) all over the island of O`ahu (*ibid*).

In general, several terms, such as *moku*, *ahupua`a*, *`ili* or *`ili` āina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*) that customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were therefore able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili `āina* or *`ili* were smaller land divisions next in importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which it was located (Lyons 1875:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa `āina* residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61). The present project area was located in the *ahupua`a* of Ke`ana, which literally means "the cave" (Pukui *et al.*1974:103).

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinaruma*) and *mai`a* (banana, *Musa* sp.), were also grown and, where appropriate, such crops as *`uala* (sweet potato, *Ipomoea batatas*) were produced. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985).

NĀ WAHI PANA/LEGENDARY PLACES

Ke`ana is a small *ahupua`a* whose name referred to a cave located near the Kahuku sugar mill. Legend has it that the cave was the home of a mother and her two sons. Disobeying their mother's instructions to remain silent during thunderstorms, they cried out in alarm and were turned to stone by Kānehekili, the god of thunder (Emerson 1978 :233) There are two pillar-shaped stones that were once the boys, that mark the entrance to the cave.

There are several myths concerning how the lands of Ke`ana and Kahuku came to be (Chamberlain 1957; Paki 1972). Levi Chamberlain, a missionary, was told a legend concerning the creation of this part of the island:

> The natives tell a marvelous story respecting the origin of this district which they say floated in from the sea, and attached itself to the ancient shore of the island, that there was subterranean communication between the sea & the ancient shore, by which a shark used to pass, & make depredations up on land. The basis of the tract, which is 5-7 miles in length, & from 1 to 2 miles in breadth, appears to be of coral; and it was evidently redeemed from the sea…[1957:35-36]

Paki's (1972) version recounts that Kahuku was a separate island that was populated by *menehune* (legendary race of small people who worked at night). As an island, Kahuku didn't have a fresh water supply, forcing the *menehune* to paddle their island into O`ahu coves every night to replenish their water supply. A man from Kahuku suggested that all the people make hooks of whalebone, fixing them to *olonā* ropes to catch the island and hold it fast. This worked well and the *menehune* were unable to free it from the ties.

A large, deep pool named Polou was located on the border of Ke`ana and Kahuku. Another version relates that Kahuku was once a floating land blown around by the winds. Hawaiians said that Polou was the place where Kahuku fastened on to O`ahu. One could dive into the pool and at a depth of 40 fathoms and rest on a rock shelf. Below this, one could look towards Mālaekahana and see the hook holding the islands together. Another pool, named Kalou, marks the spot where Kahuku was attached to Waiale`e.

HISTORIC LAND USE

Some of the first historical descriptions of O`ahu were of the northern coast, including land near the project area, recorded by members of Capt. Cook's third voyage in 1779 and leaving no doubt as to a viable population and associated activities located along their route. Leaving Hawai`i Island for the second time, Captain Clerke, who had succeeded to command of the *H.M.S. Resolution* following the death of Captain Cook, entered in his journal:

> Run round the Noern [northern] Extreme of the Isle [O`ahu] which terminates in a low Point rather projecting [Kahuku Point]; off it lay a ledge of rocks extending a full Mile into the Sea, many of them above the surface of the Water; the country in this

> neighborhood is exceeding fine and fertile; here is a large Village, in the midst of it run up a large-Pyramid doubtlessly part of a Morai [Beaglehole 1967:572, Part One, Vol III].

The north side of O`ahu was also praised by Lieutenant King, who recorded:

> We…sailed along its NE & NW sides but saw nothing of the Soern [Southern] part. What we did see of this Island was by far the most beautiful country of any in the Group; particularly the Neck that Stretches to the Noward: & its NW side. Nothing could exceed the verdure of the hills, nor the Variety which the face of the Country display'd. It [s north–eastern] parts were cliffy, and rugg'd to the Sea side, but the Valleys look'd exceedingly pleasant, near the N Point [Kahuku Point] we were charmd with the narrow border full of Villages, & the Moderate hills that rose behind them; but as we came more into the bay which the N & West extremity forms, the low land extended far back, & was highly cultivated. Where we Anchord was a charming Landscape [Waimea Bay; Beaglehole 1967:611, Part one, Vol. III].

Surgeon, David Samwell added more information concerning its physical appearance and the population's activities:

> This Island has a pleasant Appearance, having much wood upon it; the Land is in general high…the Island produces plenty of breadfruit, Cocoa nuts, Plantains, Yams, Taroo root & sweet Potaotes & Sugar Canes and …there are many hogs upon it. In the afternoon saw the appearance of a good anchoring place in an open road [roadstead] with a fine Sandy Beach, on which stood many Towns, with green Plants behind extending to the Hills which rose at no great distance off; as we were sailing along we saw three or four of their burying Places called E-heiaw [*heiau*] with the kind of high obelisks erected on them of wood, & on the Pales which inclosed them we could see with our Glasses many human Skulls. We saw many Indians sitting by their Houses looking at us & shouting now & then. Between two and three o'Clock both Ships came to an Anchor about ¾ of a mile distant off shore, before the mouth of a small River [Waimea Bay; Beaglehole 1967:1221, Part Two, Vol III].

THE GREAT MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame`eleihiwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. I:145). The Great Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka`āinana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *`okipū* (on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16). There were nine LCA claims registered for land in the Ke`ana Ahupua`a, however none were within the project area.

RANCHING

Ranching became an early commercial success once a 1794 *kapu* originated by Kamehameha I was lifted and cattle could be legally hunted for their skins, tallow, and meat. Providing these and other cultivated western resources to an ever-increasing foreigner population meant a great profit for those who took the opportunity. Once land became available through the Māhele, large grants of land in the Ko`olauloa District were leased or sold to foreigners for the pasturing of cattle and sheep. Charles Hopkins formed the Mālaekahana Ranch around 1850 with a purchase of livestock from Kahuku, the general area of the proposed project. Robert Moffitt had acquired a number of large leases for government lands in the Ko`olauloa District around the same time, forming the Kahuku Ranch. Oliver Emerson, son of the missionary Nathaniel Emerson whose station included Ko`olauloa, noted:

> Kahuku…was once a populous district green with forests of *lauhala* trees, nestled among which the homes of the natives were sheltered from the strong trade winds. They used the choice *lauhala* leaves for lining their grass huts and for skillfully braided

> mats for their gravel floors. While the fruit also had its uses. But Kahuku had passed from the control of its chief to that of an Englishman. The pastures of his big ranch extended along the shore for 12 miles, reaching inland to the mountain chain, and he was so autocratic that the natives could not own a dog, or pasture a cow or horse, without his consent. The depredations of herds and flocks on their small homesteads became unbearable, but they appealed in vain for their beloved *hala* trees and patches of vegetables…There was no redress, however, and with the fading of the forests the people also disappeared and the once populous district of Kahuku [Ko`olauloa] became a lonely sheep and cattle ranch [Emerson 1928:135-136].

James Campbell purchased the Kahuku and Mālaekahana Ranch in 1876. The land area included 14 *ahupua`a* from Mālaekahana north, including Ke`ana, to Waiale`e, along with approximately 3,000 branded cattle, 90 horses, approximately 1,700 sheep, carts, yolks, harness, agricultural implements, tools, furniture, personal and mixed property (Drolet 2000).

SUGAR AND PINEAPPLE CULTIVATION

During the middle to late 19th century and into the 20th century, sugarcane and pineapple became dominant cash crops in Hawai`i. Campbell, then quickly leased lands to James Castle and Alexander Young to form the Kahuku Plantation. Pineapple was grown in some portions of the uplands and camps for the plantation workers were situated in the lowlands of several Ko`olauloa *ahupua`a*.

MILITARY

During WWII, the U.S. Army placed a battery of four eight inch cannons between the Kahuku sugar mill and the coast (Dorrance and Morgan 2000). Subsequently, the U.S. Army constructed a landing strip just southwest of Kahuku. Large portions of Kahuku are still in use today by the military for training purposes.

SUMMARY

The "level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who know of cultural resources and activities that may be affected by the project or who know its history, conducting research identifying sensitive areas and previous land use, holding

meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be a "good faith effort". However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the present parcel, letters were sent to organizations whose jurisdiction included knowledge of the area. Consultation was sought from Phillis (Coochie) Cayan, History and Culture Branch Chief with SHPD; the Ko`olau Hawaiian Civic Club; and Cy Bridges with the O`ahu Island Burial Committee (Appendix A). In addition, a Cultural Impact Assessment Notice was published on August 30 and September 2, and 3, 2009 in *The Honolulu Advertise*r and in the August or September issue if the OHA newspaper, *Na Wai Ola*. These notices requested information of cultural resources or activities in the area of the proposed project, gave the TMK number and where to respond with information.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I`i, Kamakau, Malo, Beckwith, Chinen, Kame`eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku`i and Elbert, Thrum, Sterling, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai`i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina 2009 Data base.

In addition, archaeological reports specific to the project vicinity were reviewed. The earliest systematic survey of archaeological sites on O`ahu was conducted by McAllister (1971) in 1930. Numerous site were identified by him in the Kahuku area at that time, however Most of these referred to sites located in the coastal area or on the ridges. An exception was Site 270, Ke`ana Rockshelter which was located near the mountain side of the public school. There were no other sites recorded for Ke`ana Ahupua`a (McAllister 1971: 152 – 155).

More recent archaeological studies have been conducted in the Kahuku area by the Bishop Museum (Clark 1978; Sinoto 1981; Rogers-Jourdane 1982), Paul H. Rosendahl, Inc.

(PHRI) (Bath e*t al.* 1984); Cultural Surveys Hawaii (Hammatt 2008; O'Hare *et al.* 2008). In addition, numerous archaeological investigations have been carried out in the U.S. Army Kahuku Training Area (listed in Patolo 2009).

In 1978, a reconnaissance survey of the Ko`olauloa Housing Project and the Park Expansion area was conducted. The Park Expansion area was comprised of two parcels, the current site of the Kahuku Elementary School and the Kahuku Regional Park (O'Hare *et al.* 2008). Two previously identified sites were relocated: Site 50-80-02-269 consists of a platform initially recorded by McAllister (*ibid*.); Site 50-80-02-270, Keana Cave, appears to have been a burial cave as evidenced by the human skeletal remains located on the slope at the entrance to the cave. A nearby rock shelter contained possible human skeletal remains and wood fragments, suggesting use as a burial cave. The survey identified an historic burial with a date of 1945 (Patolo 2009).

In 1979, William Barrera conducted a more intensive survey and subsurface testing of the Ko`olauloa Housing Project area. Five sites were identified; Sites 50-80-02-1425 through -1429, all of which appeared to be associated with the Historic Plantation Era (*ibid*). The Bishop Museum conducted a reconnaissance survey of the Kahuku School Expansion project area (Schilt 1979 in O'Hare *et al.* 2008). During the survey Sites 50-80-02-269 and -270 were relocated and Sites 50-80-02-2478, a rectangular stone mound, and Site -2479, a small rock shelter (O'Hare *et al.* 2008).

The State Department of Land and Natural Resources, State Historic Preservation Division has documented numerous inadvertent discoveries of traditional style burials along the coastal region of Kahuku. In 1998, the inadvertent finding of human skeletal remains representing an adult of Polynesian ancestry on Campbell Estate property in Kahuku was documented by the State Historic Preservation Division ((Dagher 1998). In addition, subsurface cultural deposits were noted in three areas, which were subsequently designated, Site 50-80-02-4518.

Archaeology deals with material remains, and although cultural beliefs are often reflected through some sort of architecture, like *heiau*, or *ko`a,* there are many examples of cultural associations still important to the community with no physical structures to mark their significance. One such place, *Ulukukui O Lanikāula*, located on Moloka`i, is considered an extremely sacred spot. Another might be Kīlauea and Halema`uma`u, home of Pele. These places have become important sites supporting a traditional belief system still held by the many peoples of Hawai`i. They contain no

identified archaeological features, however they are highly meaningful "…because of [their] association with cultural practices or beliefs of a living community . . ." (King 2003:3).

CIA INQUIRY RESPONSE

No responses were received from any of the above listed organizations or news periodical announcements. Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project area has not been used for traditional cultural purposes within recent times.

CULTURAL ASSESSMEMNT

Based on, no additional suggestions or information from the contacted organizations, newspapers, and negative results of the archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities. Because there were no cultural activities identified within the project area, there are no adverse effects.

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APPENDIX A: CIA INQUIRY LETTERS

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Cy Bridges
Ko`olauloa District Rep.
O`ahu Island Burials
bridgesc@polynesia.com

August 24, 2009

Dear: Mr. Bridges

Scientific Consultant Services, Inc. (SCS) has been contracted by Environet, Inc., to conduct a Cultural Impact Assessment (CIA) of the Kahuku Storm Damage Reduction Project (TMK: 5-6-006 Various). According to documents supplied by Environet, Inc, the project proposes a measure to reduce the impact of storm flooding on the campus of Kahuku High School. Four alternatives were proposed by the Dept. of the Army, and Alternative 2 was adopted. SCS has been asked to assess the probability of impacting cultural values and rights within the project area and its vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs…The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs…

We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by development of the property. The assessment results are dependent on the response and contributions made by individuals and organizations such as yours. Enclosed are maps showing the proposed project area. Please contact me at our SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosure (2)

Ph: 808-597-1182 SCS... SERVING ALL YOUR *ARCHAEOLOGICAL* NEEDS Fax: 808-597-1193
Neighbor Island Offices • Hawai'i Island • Maui • Kaua'i

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai`i 96813

Phyllis Coochie Cayan, History and Culture Branch Chief
C/O State Historic Preservation Division
601 Kamokila Blvd. Room 555
Kapolei, Hawai`i 96707

August 24, 2009

Dear Ms. Cayan:

Scientific Consultant Services, Inc. (SCS) has been contracted by Environet, Inc., to conduct a Cultural Impact Assessment (CIA) of the Kahuku Storm Damage Reduction Project (TMK: 5-6-006 Various). According to documents supplied by Environet, Inc, the project proposes a measure to reduce the impact of storm flooding on the campus of Kahuku High School. Four alternatives were proposed by the Dept. of the Army, and Alternative 2 was adopted. SCS has been asked to assess the probability of impacting cultural values and rights within the project area and its vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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Sincerely yours,

Leann McGerty

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Senior Archaeologist
Enclosure (2)

Ph: 808-597-1182 SCS... SERVING ALL YOUR *ARCHAEOLOGICAL* NEEDS Fax: 808-597-1193
Neighbor Island Offices • Hawai'i Island • Maui • Kaua'i

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Ko`olauloa Hawaiian Civic Club
C/o Cathleen Matton
P.O. Box 532
Hau`ula, HI 96717

August 24, 2009

Dear Ms. Mattoon:

Scientific Consultant Services, Inc. (SCS) has been contracted by Environet, Inc., to conduct a Cultural Impact Assessment (CIA) of the Kahuku Storm Damage Reduction Project (TMK: 5-6-006 Various). According to documents supplied by Environet, Inc, the project proposes a measure to reduce the impact of storm flooding on the campus of Kahuku High School. Four alternatives were proposed by the Dept. of the Army, and Alternative 2 was adopted. SCS has been asked to assess the probability of impacting cultural values and rights within the project area and its vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by development of the property. The assessment results are dependent on the response and contributions made by individuals and organizations such as yours. Enclosed are maps showing the proposed project area. Please contact me at our SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosure (2)

Ph: 808-597-1182 SCS... SERVING ALL YOUR *ARCHAEOLOGICAL* NEEDS Fax: 808-597-1193
Neighbor Island Offices • Hawai'i Island • Maui • Kaua'i

APPENDIX B: LEGAL NOTICE

The Honolulu Advertiser
605 KAPIOLANI BLVD
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2i

Account Information

Name:	
Company:	SCIENTIFIC CONSULTANT SERVICES
Address:	711 KAPIOLANI BLVD 975
City:	HONOLULU, HI 96813
Account ID:	23090
Account #:	
Telephone:	(808) 597-1182

Publications:	Start	Stop	Inserts
The Honolulu Advertiser	08/30/09	09/03/09	3
Online	08/30/09	09/03/09	3

Ad Information

Ad ID:	721352
Run dates:	08/30/09 to 09/03/09
Class:	Legal Ads
Sales Person:	TOYAMA
Printed by:	TOYAMA
Inserts:	6
Lines:	30
Columns:	1
Depth (Inches):	2.125
Net Cost:	$192.50
Tax:	$9.07
Paid Amount:	$201.57
Amount Due:	$0.00
Keywords:	
P.O. number:	1072

Payments:

Method	Card Type	Name on Card	Last 4 Digits	Expire Date	Check Number	Amount Paid
CC	MC	SUARRA BAKER	5287	03/12		$201.57

Ad Copy: (Actual Size)

CULTURAL IMPACT ASSESSMENT NOTICE:

Information requested by SCS of cultural resources or ongoing cultural activities on or near this parcel in Kahuku, Oahu, TMK: 5-6-006. Please respond within 30 days to SCS at (808) 597-1182.

(Hon. Adv.: Aug. 30; Sept. 2, 3, 2009) (A-721352)

1072

Received Time Aug.26. 12:09PM

***Appendix D**:*

April 2008 Community Meeting Memorandum

Memorandum

To: The Record

From: Michael Wong

Date: 23 April 2008

Subject: Kahuku High School Drainage Community Meeting

The subject meeting was held at the Kahuku High School Cafeteria on 22 April from 6 to 730pm. About 14 community members and high school staff attended with 6 agency persons attending or presenting (3 Corps of Engineers, 1 Department of Education, 1 Fish and Wildlife Service, and 1 staff person from Senator Inouye's office). A briefing was presented and questions and comments were addressed or noted. Overall the meeting went well.

Specific flooding concerns that were brought up are listed below. My comments in italics:

Flows from the east/dead man's gulch *(Keealu Gulch)*impact high school by entering campus on east side. *This would be outside flows entering campus.*

Flows from across Kamehameha Highway also enter the campus from the superette area and other high ground behind there. *This would be outside flows entering campus.*

Dry wells installed in 1970s do not work; community told school this was a waste of money.

If drainage pathways towards the low area/detention area west of high school (*low area is on City Park land*) is kept clean, then flows would leave the campus.

Hospital Ditch cannot accept High School flows without improvement to ditch.

Put French drains in on campus and on athletic field.

Athletic field is low spot. Drainage towards low area would be good. New drains would also help areas by PE building, which also have ponded water.

Old drain grate and drainage system across Kamehameha Highway is plugged up. System worked prior to beautification work in front of sugar mill—now does not work and creates flooding problems to High School.

During plantation time—plantation kept ditches clean and no flooding problems—it's a maintenance issue.

***Appendix E**:*

Comment Letters and Responses

Summary of Public Comments
Draft Environmental Assessment
Kahuku Storm Damage Reduction Project, Kahuku Oahu, Hawaii
November 23, 2011-December 23, 2011

Name	Affiliation	Source	Date of Comment	Summary of Comment	Response to Comments
Stephen Anthony, Center Director	U.S. Geological Survey	Letter	11/23/2011	Due to prior commitments and lack of available staff, unable to review the document.	Thank you for your response.
Dean Yonezawa, OSP Engineer	Oceanic Time Warner	Letter	11/23/2011	Drawing for location of underground and aboveground CATV system attached.	The project team will include Oceanic Time Warner during the design process of the project in order to avoid conflicts with the CATV system.
Les Loo, Network Engineer	Hawaiian Telecom	Letter	11/25/2011	Hawaiian Telecom has underground facilities throughout the proposed project site. Please include us during the design process of the project in order to avoid any conflicts with these facilities.	Comment acknowledged. The project team will include Hawaiian Telecom during the design process of the project.
Louis Kealoha, Chief of Police	Honolulu Police Department	Letter	11/30/2011	The project should have no significant impact on the facilities or operations of the Honolulu Police Department.	Comment noted. Thank you for your response.
Susan Uyesugi, Program Administrator	Board of Water Supply, City and County of Honolulu	Letter	11/30/2011	The construction drawings should be submitted for review.	Construction drawings will be submitted for review during the design process of the project.
Gary Cabato, Director	Department of Parks and Recreation, City and County of Honolulu	Letter	12/2/2011	No comment at this time as your office has confirmed that the preferred alternative will have no impact to Kahuku District Park. If a different alternative that impacts the park is selected, we request that you contact the Department of Parks and Recreation as soon as possible.	Comment noted. If a different alternative that may have impact on the park is selected, we will contact the Department as soon as possible.
Ralph Makaiau	Kahuku resident	Letter	12/2/2011	• Section 7.1 "Community Meetings" of the Draft Environmental Assessment does not list the community individuals and groups in attendance at the April 22, 2008 meeting. It is unfortunate that these community people who are devoted members of Kahuku are not listed in this	• The list of community members who were in attendance at the April 22, 2008 meeting provided in your comment letter will be included in the Final Environmental Assessment.

Name	Affiliation	Source	Date of Comment	Summary of Comment	Response to Comments
				section. • Recommend Alternative 1 as a design to move flood waters within the school boundaries in combination with a fifth alternative "Culvert Diversion Kam Hwy, 36" Underground Piping Burroughs Rd., Outlet Culvert Buffer Land East of Wildlife Preserve", a model that was reviewed in the ACOE Kahuku Watershed Flood Mitigation Cost Benefit Ration Study, as a means to move large amounts of water in a quick way beyond the greater Kahuku flood plain boundaries.	• The recommended combination of alternatives cannot be implemented because it is outside of the scope of the project to resolve flooding issues in the entire Kahuku community and to include lands owned by other entities besides the DOE.
Kenneth Silva, Fire Chief	Honolulu Fire Department	Letter	12/7/2011	The Department reviewed the Draft EA and determined that there will be no significant impact to fire department services.	Comment noted. Thank you for your response.
Jan Gouveia, Acting Comptroller	State of Hawaii Department of Accounting and General Services	Letter	12/8/2011	The proposed project does not impact any of the Department's projects or existing facilities, and we have no comments at this time.	Comment noted. Thank you for your response.
Dwight Takamine, Director	State of Hawaii Department of Labor and Industrial Relations	Letter	12/12/2011	The Department has no comments and foresees no impact on existing or proposed programs.	Comment noted. Thank you for your response.
Clyde Nāmuʻo Chief Executive Officer	State of Hawaii Office of Hawaiian Affairs	Letter (received via email on 1/4/2012)	12/12/2011	OHA looks forward to seeing the project completed, and the learning environment for and safety of students at Kahuku High School and the surrounding community improved.	Comment noted. Thank you for your response.
Wayne Yoshioka, Director	Department of Transportation Services, City and County of Honolulu	Letter	12/13/2011	The Department has no comments at this time.	Comment noted. Thank you for your response.

Summary of Public Comments
Draft Environmental Assessment
Kahuku Storm Damage Reduction Project, Kahuku Oahu, Hawaii
November 23, 2011-December 23, 2011

Name	Affiliation	Source	Date of Comment	Summary of Comment	Response to Comments
David Tanoue, Director	Department of Planning and Permitting, City and County of Honolulu	Letter	12/19/2011	The Department has no comments to offer.	Comment noted. Thank you for your response.
Collins Lam, P.E. Director	Department of Design and Construction, City and County of Honolulu	Letter	12/19/2011	The Department supports the proposed plan and does not perceive any adverse impacts resulting from the project.	Comment noted. Thank you for your response.
Westly K.C. Chun, Ph.D., P.E., BCEE Director and Chief Engineer	Department of Facility Maintenance, City and County of Honolulu	Letter	12/21/2011	The Department does not have any comments.	Comment noted. Thank you for your response.
Glenn M. Okimoto, Ph.D., Director	State of Hawaii Department of Transportation	Letter	12/21/2011	While the project is not anticipated to have a significant impact on the State highway facilities area, the Department of Transportation (DOT) offers the following comments: 1. No additional storm water run-off shall enter the State highway facility as a result of the project construction. 2. The use of construction vehicles and heavy equipment used to transport oversized and overweight equipment and loads within the State highway facilities will require a permit from the DOT Highways Division. 3. Construction activity shall be coordinated with and a traffic management plan provided to the DOT Highways Division to minimize traffic delays on Kamehameha Highway due to transportation of heavy equipment and materials.	1. Site-specific BMPs will be implemented during the construction of the project to ensure that no additional storm water run-off enters the State highway facilities. 2. A permit will be obtained for such use of construction vehicles and heavy equipment. 3. Construction activities for the project will be coordinated with the DOT Highways Division to minimize any traffic delays on Kamehameha Highway, and a traffic management plan for the construction activities will be provided to the DOT Highways Division for review and

Summary of Public Comments
Draft Environmental Assessment
Kahuku Storm Damage Reduction Project, Kahuku Oahu, Hawaii
November 23, 2011-December 23, 2011

Name	Affiliation	Source	Date of Comment	Summary of Comment	Response to Comments
				4. Construction plans for all work done within the State highway right-of-way is required to be submitted to the DOT Highways Division for review and approval. 5. All necessary permits shall be obtained from the DOT Highways Division, Oahu District Office prior to start of construction.	approval. 4. The project is not anticipated to involve work within the State highway right-of-way. 5. All necessary permits will be obtained from the DOT Highways Division, Oahu district Office prior to start of project construction.
Alec Wong, P.E. Chief	State of Hawaii Department of Health	Letter	12/23/2011	All project related construction and operation activities will be required to be in compliance with applicable sections of the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55, and fulfill additional requirements related to the Department of Health, Clean Water Branch (CWB).	Comment noted. Thank you for your response.
Russell Tsuji, Land Administrator	State of Hawaii Department of Land and Natural Resources Land Division	Letter (received via email on 1/4/2012)	12/21/2011 (included in letter dated 12/28/2011)	The Department of Land and Natural Resources, Land Division has no comments.	Comment noted. Thank you for your response.
Carty Chang, Chief Engineer	State of Hawaii Department of Land and Natural Resources Engineering Division	Letter (received via email on 1/4/2012)	12/23/2011 (included in letter dated 12/28/2011)	Please note that the correct Flood Zone Designations for the project site are Zones X and AE. Developments within Zone AE are regulated by the National Flood Insurance Program (NFIP) and must comply with the rules and regulations of the NFIP presented in Title 44 of the Code of Federal Regulations (44CFR).	Comment noted. The Flood Zone Designations of the project site will be updated in the Final Environmental Assessment and the project will comply with the regulations of the NFIP presented in 44 CFR.

Summary of Public Comments
Draft Environmental Assessment
Kahuku Storm Damage Reduction Project, Kahuku Oahu, Hawaii
November 23, 2011-December 23, 2011

Name	Affiliation	Source	Date of Comment	Summary of Comment	Response to Comments
Melvin N. Kaku, Director	Department of Emergency Management, City and County of Honolulu	Letter	12/29/2011	The Department supports the project and commends the Department of Education for being proactive in flood mitigation.	Comment noted. Thank you for your response.
Keith K. Yamamoto, Acting Manager, Engineering	The Gas Company	Letter	1/10/2012	The project area is currently clear of utility gas facilities and we have no objections to the proposed project.	Comment noted. Thank you for your response.

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Pacific Islands Water Science Center
677 Ala Moana Blvd., Suite 415
Honolulu, Hawaii 96813
Phone: (808) 587-2400/Fax: (808) 587-2401

November 23, 2011

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Subject: Draft Environmental Assessment (DEA) for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii, (TMK: 1-5-6-006:003, 009, 010,011 (por), 015, and 025)

Thank you for forwarding the subject DEA for review and comment by staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

We appreciate the opportunity to participate in the review process.

Sincerely,

SSS Ah

Stephen S. Anthony
Center Director

Transmittal

OCEANIC TIME WARNER CABLE
200 Akamainui Street ◆ Mililani HI 96789
(808) 625 - 2100

Date: *November 23, 2011*

RE: PROJECT LOCATION/WORK ORDER

To: *Environet, Inc*
650 Iwilei Rd, Suite 204
Honolulu, HI 96817

Kahuku Storm Damage Reduction Project

Attention: *Ms. Colette Sakoda*

GENTLEMEN: We are sending you the following:

- ☐ Pole / Conduit Application
- ☐ Permit Applications
- ☐ Copy of Letter
- ☐ Preliminary / Final Drawings
- ☐ Return Prints
- ☒ Other

Copies	Sht / Appl. #	Description
1		CATV site dwg

The Above is transmitted:

- ☐ For Your Approval
- ☐ For Review and Comment
- ☐ For Your Use / Records
- ☒ As Requested
- ☐ As Approved
- ☐ Other

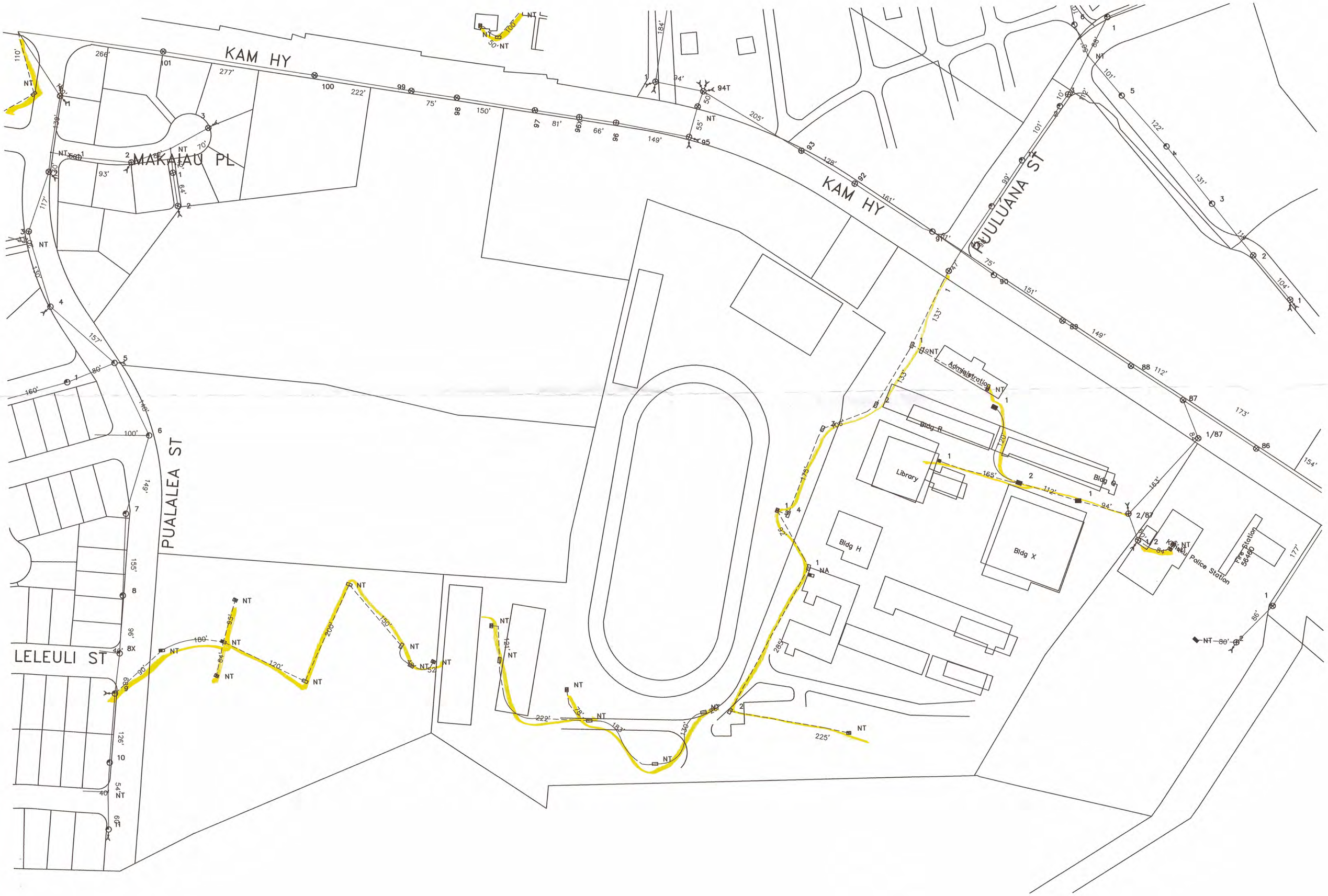
Comments / Remarks: *Please see attached dwg for location of CATV system. The yellow highlite indicates where the system is underground. The non-highlite is where the system are on poles.*

Pls call 625-8456 and make reference to documentation E-16961 should you have any questions.

Thank-you,

CC: *E-16961*
Kahuku Storm Damage Reduction Project

Signed: Dean Yonezawa
Title: *OSP Engineer (Dean Yonezawa)*


KAM HY
MAKAIAU PL
PUALALEA ST
LELEULI ST
PUULUANA ST
Administration
Bldg R
Library
Bldg H
Bldg X
Bldg
Kaneohe Police Station
Fire Station 56460

Hawaiian Telcom

November 25, 2011

Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817
Attention: Ms. Colette Sakoda

Dear Ms. Sakoda:

Subject: **Draft Environmental Assessment (DEA)**
Kahuku Storm Damage Reduction Project
Kahuku, Oahu, Hawaii
Tax Map Keys: 1-5-6-006:003, 009, 010, 011 (por), 015, and 025

Thank you for the opportunity to review and comment on the draft environmental assessment phase for the subject project.

Hawaiian Telcom has underground facilities throughout the proposed project site. In order avoid any conflicts with these facilities, please include us during the design process of the project.

If you have any questions or require assistance in the future on this project, please call me at 546-7761.

Sincerely,

Les Loo
Network Engineer – Outside Plant Engineering
Network Engineering & Planning

cc: File

PO Box 2200 • Honolulu • Hi 96841

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

PETER B. CARLISLE
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE DAT-LS

November 30, 2011

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

This is in response to a letter we received from the State Department of Education requesting comments on a Draft Environmental Assessment for the Kahuku Storm Damage Reduction project.

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

If there are any questions, please call Major Susan Ballard of District 4 (Kaneohe) at 247-2166.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By
DEBORA A. TANDAL
Assistant Chief of Police
Support Services Bureau

BOARD OF WATER SUPPLY

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

PETER B. CARLISLE, MAYOR

RANDALL Y. S. CHUNG, Chairman
DENISE M. C. DE COSTA, Vice Chair
THERESIA C. McMURDO
DUANE R. MIYASHIRO
ADAM C. WONG

WESTLEY K.C. CHUN, Ex-Officio
GLENN M. OKIMOTO, Ex-Officio

DEAN A. NAKANO
Acting Manager

November 30, 2011

Mr. Duane Kashiwai
Hawaii State Department of Education
Facilities Development Branch
Kalanimoku Building, Room 501
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Kashiwai:

Subject: Your Letter Dated November 17, 2011 Requesting Comments on the Draft Environmental Assessment for the Kahuku Storm Drainage Reduction Project, TMK: 5-6-6: 3, 9, 10, 11, 15, 25

Thank you for the opportunity to comment on the proposed drainage project.

The construction drawings should be submitted for our review.

If you have any questions, please contact Robert Chun at 748-5443.

Very truly yours,

Susan Uyesugi

SUSAN UYESUGI
Program Administrator
Customer Care Division

cc: Mr. Milton Yoshimoto, U.S. Army Corps of Engineers
Ms. Colette Sakoda, Environet, Incorporated

DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

PETER B. CARLISLE
MAYOR

GARY B. CABATO
DIRECTOR

ALBERT TUFONO
DEPUTY DIRECTOR

December 2, 2011

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Subject: Draft Environmental Assessment
Kahuku Storm Damage Reduction Project
Kahuku, Oahu, Hawaii
TMK 1-5-6-006:003, 009, 010, 011 (por), 015 and 025

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project.

The Department of Parks and Recreation has no comment at this time as your office confirmed that the preferred alternative is to construct all related improvements on school property and there will be no impact to Kahuku District Park.

If for any reason a different alternative is selected that impacts the park in any way, we request that you contact us as soon as possible.

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

Sincerely,

GARY B. CABATO
Director

GBC:jr
(442428)

cc: Miles Hazama, Department of Parks and Recreation

December 2, 2011

Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817
Phone: (808) 833-2225
Fax: (808) 833-2231
Email: enetmail@environetinc.com

Dear Sir,

I am writing my comments regarding the Draft Environmental Assessment for the **"Kahuku Storm Damage Reduction Project"** as a lifelong resident of Kahuku Community who's commentary are independent of any organizations.

Beginning with pg. 7-1, chapter 7.0 "Comments and Coordination", para. 7.1 "Community Meetings": it is unfortunate that there is no mention of the community individuals and groups in attendance at the April 22, 2008 meeting. These community people were then and are still today devoted members of Kahuku with a long standing dedication to a common cause and that is to mitigate flooding in Kahuku. In attendance was historical representation that better times were had in the stewardship of flooding attributable to a single land manager of the greater Kahuku area committed to maintain waterways.

- Kahuku High and Intermediate Schools Administration
- Kahuku High and Intermediate Schools Athletic Department
- Kahuku Community Library Administration
- Kahuku Community Association Directorship
- Ko'olau Loa Neighborhood Board #28 Kahuku Community Representative
- Ko'olau Loa Lions Club Administration
- Kahuku Family Medical Center Administration
- Kahuku Sugar Mill Management
- Kahuku 2000 (501©3 Non-profit) Flooding Community Champion Organization
- Kahuku Catholic Church Ministry
- Kahuku Village Association Management
- Kahuku Farmers Association Representative
- Kahuku Phase IV Residents

My point is that, small numbers in attendance but broad in representation of Kahuku and definitely holds significant knowledge living the lay of the land, as opposed to only agency implied reflection, and minimal reference to community involvement. Each attendee contributes to the greater Kahuku however the need for any one entity to begin their part to help mitigate flooding is strongly supported throughout the community.

Alternative 4 : No Action **is not an acceptable option**, it is assumed that this Draft EA is written as a must do outcome to help our school maximize number of education days, healthier education days, stabilize school environment, access athletic facilities, and not replace on-grade flooring so much.

Alternative 3: Culvert Diversion to Hospital Ditch has always been **supported strongly rated as the third option**, not only giving the school a means to move large amounts of water but also to do it in a quick way. It is my opinion that:

- The work is looked upon as being outside the boundary of school project.
- Cost to build major infrastructure along Kam Hwy within State DOT's "cluttered" rights of way.
- I do not agree Hospital Ditch has a direct route to ocean. Hospital Ditch dead heads into James E. Campbell Wildlife Preserve and in-turn USFWS lifts, by mechanical pump, ditch water into Kii Stream which outlets to the ocean. Should the USFWS chose not to transfer ditch water into Kii Stream, ditch water meanders to the west of preserve boundary into aquaculture lands (to be owned by USFWS), and/or ditch water meanders into the east of preserve boundary into City wastewater facility and to also pond on 200 acres of buffer Ag/conservation land (to be owned by USFWS).
- Average norm Hospital Ditch water height is <8 feet elevation but large acreage rains and subject to downstream discharge management average stream height is >9 feet elevation, topping Kamehameha Hwy Bridge at 10 feet elevation. This is a concern because Kahuku football field sits at 8.5 feet elevation.
- Land ownership for this alternative is the State DOE, City and County Honolulu, State DOT, USFWS.

Alternative 2: Underground Storage although it is desirable to demo the existing field and in return we may have a finished football field to near stadium quality and able to produce regulation size field, it is difficult to comprehend the feasibility of funding its' cost thru state and federal governments in this economy, nor the reality to expect the State DOE to fund the maintenance of the storage unit on an ongoing bases suggest to me that this alternative is **supportive but not practical rated as the fourth option**.

- It is safe to reference that the football field is at 8.5 feet elevation, which is perceived as the lowest point and largest surface area of greater Kahuku's flood plain. Substantial rainfall coupled with reduced area stream (ocean) outflows does create flood levels which seek out the football field from east Kahuku and west Kahuku. Therefore given the amounts of rain gauges, their recordings, and their locations are not indicative of volumes of water coming from Malaekahana watershed via Malaekahana stream that originates in the Ko'olaus above Laie nor Kahuku watershed stream flows originating from the DOD training area, plus Kahuku Ag Park and Kahuku Aquaculture. Rain gauge reflects inches at any one point, and stream flows are not consistently monitored however the Kahuku flood plain is a collection of square miles of rain seeking the football field sump.

- Given the scenario that winter windward Oahu rains for long hours, for multiple days can fill the underground storage detention basins, saturate grounds for the same reasons making seepage very slow, one may formulate that design to discharge detention basins may have to rely on the ability of greater Kahuku and not only the school to have the means to move large amounts of water but also to do it in a quick way.

Alternative 1: Divert Water to Helipad Basin and Park Areas, is necessary that some work is required on campus and is **supported strongly rated as the second option.**

Ralph Alternative 5: Culvert Diversion Kam Hwy, 36" Underground Piping Burroughs Rd., Outlet Culvert Buffer Land East of Wildlife Preserve, a model that was reviewed in ACOE Kahuku watershed flood mitigation Cost Benefit Ratio study, **Ralph supports rating as first option**.

- The work is looked upon as being outside the boundary of school project.
- Alternative not included in Environet, Inc. Draft EA.
- Cost not determined.
- Land ownership for this alternative is the State DOE, City and County Honolulu, State DOT, USFWS.
- Burroughs Rd. is not cluttered with infrastructure and is owned by City and County Honolulu.
- City partnership via Burroughs Rd. is appropriate to absorb other developments to participate and benefit in cost sharing.
- City to maintain in conjunction with Kahuku Villages Phase IV Housing Project, Kahuku Sugar Mill, Kahuku Commercial Center future development/s.
- Greater Kahuku and not only the school to have the means to move large amounts of water but also to do it in a quick way.

"**Kahuku Storm Damage Reduction Project**" is an appropriate title for Kahuku flood mitigation effort attached to the Kahuku High and Intermediate Schools. It says the need to take small bites at Kahuku's flooding problems. The scope of Kahuku's flood problem not only encumbers huge acreage but is also host to multiple land owners on undeveloped lands having marginal to no infrastructure. It is with a sincere understanding of the land that I recommend **Draft EA Alternative 1** as a model design to move flood waters from point A to point B within the school boundaries plus **Ralph Alternative 5** as a practical means to move large amounts of water but also to do it in a quick way beyond the greater Kahuku flood plain boundaries. Should you have any questions, please call me at (808) 478-6548.

Respectfully submitted, Mahalo

Ralph K. Makaiau Jr.

Kahuku Resident
56-134 Pualalea St.
Kahuku, Hawaii 96731
Phone: (808) 293-5220
Cellular: (808) 478-6548
Email: rmakaiau@tbrdevelopment.com

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

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

PETER B. CARLISLE
MAYOR

KENNETH G. SILVA
FIRE CHIEF

EMMIT A. KANE
DEPUTY FIRE CHIEF

December 7, 2011

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Subject: Draft Environmental Assessment
Kahuku Storm Damage Reduction Project
Kahuku, Hawaii
Tax Map Keys: (1) 5-06-006: 003, 009, 010, 011 (portion), 015, and 025

In response to your letter of November 17, 2011, regarding the above-mentioned subject, the Honolulu Fire Department reviewed the material provided and determined that there will be no significant impact to fire department services.

Should you have any questions, please contact Battalion Chief Socrates Bratakos of our Fire Prevention Bureau at 723-7151 or sbratakos@honolulu.gov.

Sincerely,

KENNETH G. SILVA
Fire Chief

KGS/GL:bh

NEIL ABERCROMBIE
GOVERNOR

JAN S. GOUVEIA
ACTING COMPTROLLER

KERRY K. YONESHIGE
ACTING DEPUTY COMPTROLLER

STATE OF HAWAI'I
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAI'I 96810-0119

(P)1331.1

DEC - 8 2011

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawai'i 96817

Dear Ms. Sakoda:

Subject: Draft Environmental Assessment (DEA) for
Kahuku Storm Damage Reduction Project
Kahuku, Oahu, Hawaii

Thank you for the opportunity to provide comments for the DEA on the subject property. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, please call me at 586-0400 or have your staff call Ms. Gayle Takasaki of the Public Works Division at 586-0584.

Sincerely,

for JAN S. GOUVEIA
Acting Comptroller

NEIL ABERCROMBIE
GOVERNOR

DWIGHT TAKAMINE
DIRECTOR

AUDREY HIDANO
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
830 PUNCHBOWL STREET, ROOM 321
HONOLULU, HAWAII 96813
www.hawaii.gov/labor
Phone: (808) 586-8844/Fax: (808) 586-9099

December 12, 2011

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, HI 96817

Dear Ms. Sakoda:

This is in response to your request for comments dated November 17, 2011 on the Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, located in Kahuku on island of Oahu. The Department of Labor and Industrial Relations has no comments, and we foresee no impact on our existing or proposed programs.

Should you have any questions, please call me at 586-8844.

Sincerely,

DWIGHT TAKAMINE
Director

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD11/6021

December 12, 2011

Duane Kashiwai
State of Hawai'i-Department of Education
Facilities Development Branch
Kalanimoku Building, Room 501
1151 Punchbowl Street
Honolulu, Hawai'i 96813

Re: Draft Environmental Assessment
Kahuku Storm Damage Reduction Project
Kahuku, island of O'ahu

Aloha e Duane Kashiwai,

The Office of Hawaiian Affairs (OHA) is in receipt of your November 17, 2011 request for comments on a draft environmental assessment (DEA) which has been prepared to support the Kahuku Storm Damage Reduction Project (project) proposed by the U.S. Army Corps of Engineers (USACE) and the State of Hawai'i-Department of Education (DOE) in Kahuku on the Island of O'ahu. The project intends to construct measures (including drainage improvements) to mitigate floodwaters which occur in low lying areas of and surrounding Kahuku High School.

It is our understanding that the USACE is responsible for designing the project and the DOE will be responsible for maintaining it upon completion. The combination of federal and State of Hawai'i involvement has resulted in this DEA being prepared in compliance with the National Environmental Policy Act and Chapter 343, Hawaii Revised Statutes.

OHA looks forward to seeing the project completed and the learning environment for and safety of students at Kahuku High School and the surrounding community improved. Thank you for the opportunity to comment. Should you have any questions or concerns, please contact Keola Lindsey at 594-0244 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

CWN:kl

C: Milton Yoshimoto- USACE
Colette Sakoda- Environet, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

'11 DEC 15 P3:24
DEPT. OF EDUCATION
FACILITIES DEV BRANCH
Planning Section Rec'd
DEC 16 2011
Fac. Dev. Branch

PETER B. CARLISLE
MAYOR

WAYNE Y. YOSHIOKA
DIRECTOR

KAI NANI KRAUT, P.E.
DEPUTY DIRECTOR

TP11/11-442363R

December 13, 2011

Mr. Duane Kashiwai
Public Works Administrator
Facilities Development Branch
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Mr. Kashiwai:

Subject: Draft Environmental Assessment (DEA) Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii; Tax Map Key (TMK): 1-5-6-006:003, 009, 010, 011 (por.), 015, and 025

This responds to your letter of November 17, 2011, requesting our comments concerning this project.

We have no comments to offer at this time.

Thank you for the opportunity to review this matter. Should you have any further questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

WAYNE Y. YOSHIOKA
Director

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

RECEIVED
DEC 21 2011

PETER B. CARLISLE
MAYOR

DAVID K. TANOUE
DIRECTOR

JIRO A. SUMADA
DEPUTY DIRECTOR

2011/ELOG-2624 (df)

December 19, 2011

Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Attention: Ms. Colette Sakoda

Dear Ms. Sakoda:

Subject: October 2011 Draft Environmental Assessment for Kahuku Storm Damage Reduction Project, Kahuku, TMK: 5-6-006: 003, 009, 010, 011 (por), 015 and 025

In response to the November 17, 2011 letter from the State of Hawaii, Department of Education, requesting our review and comments to the subject document, we have no comments to offer.

If there are any questions, please contact Don Fujii of the Site Development Division at 768-8107.

Very truly yours,

David K. Tanoue, Director
Department of Planning and Permitting

DKT:ky

[897305]

cc: Department of Education

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

RECEIVED
DEC 21 2011

PETER B. CARLISLE
MAYOR

COLLINS D. LAM, P.E.
DIRECTOR

LORI M. K. KAHIKINA, P.E.
DEPUTY DIRECTOR

December 19, 2011

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii

Thank you for the opportunity to review the Draft Environmental Assessment. The Department of Design and Construction has the following comments to offer:

The Department of Design and Construction supports the proposed plan by the U.S. Army Corps of Engineers to construct underground stormwater storage underneath the Kahuku High School football field. The project promises to provide much needed storm drainage improvements to Kahuku High School, as well as surrounding properties, including the Kahuku District Park owned by the City and County of Honolulu, Department of Parks and Recreation. We do not perceive any adverse impacts resulting from the project.

Should there be any questions, please contact Clifford Lau at 768-8483.

Sincerely,

for Collins D. Lam, P.E.
Director

CDL(442381)

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

PETER B. CARLISLE
MAYOR

WESTLEY K.C. CHUN, Ph.D., P.E., BCEE
DIRECTOR & CHIEF ENGINEER

KENNETH A. SHIMIZU
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 11-1058

December 21, 2011

Mr. Duane Kashiwai
State of Hawaii
Department of Education
Facilities Development Branch
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Kashiwai:

Subject: Draft Environmental Assessment (DEA)
Kahuku Storm Damage Reduction Project
TMK: 5-6-006:003, 009, 010, 011, 015 & 025

Thank you for the opportunity to review the subject DEA. We do not have any comments.

Should you have any questions, please call Thomas Takeuchi of the Division of Road Maintenance, at 768-3608.

Sincerely,

Westley K.C. Chun, Ph.D., P.E., BCEE
Director & Chief Engineer

cc: Environet, Inc. – Ms. Colette Sakoda

NEIL ABERCROMBIE
GOVERNOR

GLENN M. OKIMOTO
DIRECTOR

Deputy Directors
JADE T. BUTAY
FORD N. FUCHIGAMI
RANDY GRUNE
JADINE URASAKI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
STP 8.0689

December 21, 2011

Ms. Colette Sakoda
Senior Environmental Planner
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Subject: Kahuku High School Storm Damage Reduction Project
Draft Environmental Assessment (DEA)

Thank you for requesting State Department of Transportation's (DOT) review of the subject project. DOT understands the Department of Education (DOE) proposes to improve the existing drainage and reduce the impact of storm flooding at Kahuku High School which is fronted by Kamehameha Highway.

While the subject project is not anticipated to have a significant impact on the State highway facilities in the area, DOT offers the following comments:

1. No additional storm water run-off shall enter the State highway facility as a result of the construction of the subject project.

2. The use of construction vehicles and heavy equipment that will be used at the job site will require a permit from the DOT Highways Division to transport oversized and overweight equipment and loads within the State highway facilities.

3. Construction activity shall be coordinated with the DOT Highways Division to minimize any traffic delays on Kamehameha Highway due to the movement of heavy equipment and materials. A traffic management plan for construction activity shall be provided to the DOT Highways Division for review and approval.

4. Construction plans for all work done within the State highway right-of-way is required to be submitted to the DOT Highways Division for review and approval.

5. All necessary permits shall be obtained from the DOT Highways Division, Oahu District Office prior to the start of construction.

DOT appreciates the opportunity to provide comments. If there are any questions, including the need to meet with DOT Highways Division staffs, please contact Mr. Elton Teshima of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7978.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

c: Duane Kashiwai, Department of Education (DOE), Facilities Development Branch
Milton Yoshimoto, U.S. Army Corps of Engineers

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/CWB

12022PDCL.11

December 23, 2011

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

SUBJECT: Comments on Draft Environmental Assessment (DEA) for the Kahuku Storm Damage Reduction Project Kahuku, Island of Oahu, Hawaii

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for an NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. This includes areas used for a construction base yard and the storage of any construction related equipment, material, and waste products. An NPDES permit is required before the start of the construction activities.

The NOI must be submitted 30 calendar days before to the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

3. For other types of wastewater not listed in Item No. 2 above or wastewater discharging into Class 1 or Class AA waters, an NPDES individual permit will need to be obtained. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/environmental/water/cleanwater/forms/indiv-index.html.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

Darryl Lum TA FOR

ALEC WONG, P.E., CHIEF
Clean Water Branch

DCL:ml

c: DOH-EPO #11-245 [via email only]
Mr. Duane Kashiwai, DOE, Facilities Development Branch (via fax 586-8223 only)
Mr. Milton Yoshimoto, USACE

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

December 28, 2011

Environet, Inc.
Attention: Ms. Colette Sakoda
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

via email: csakoda@environetinc.com

Dear Ms. Sakoda:

SUBJECT: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project located in Kahuku, Island of Oahu; Various TMK's

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 (a) Engineering Division; and (b) Land Division – Oahu District on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosures

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
LAND DIVISION
2011 DEC 23 A 10:43
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

December 14, 2011

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

'11 DEC 20 PM 12:37 ENGINEERING

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project
LOCATION: Kahuku, Island of Oahu; Various TMK's
APPLICANT: Department of Education

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 23, 2011.

Only one (1) copy of the document is available for your review in Land Division office, Room 220.

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 Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____
Date: 12/23/11

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/DarleneNakamura
Ref.:DEAKahukuStormDamageReductionDamageProject
Oahu.872

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

( ) Please note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone____.

(X) Please note that the correct Flood Zone Designations for the project site, according to the Flood Insurance Rate Map Panel Number 15003C0045G dated January 19, 2011 (Copy attached), are Zones X and AE. The National Flood Insurance Program does not regulate developments within Zone X. However, the National Flood Insurance Program does regulate developments within Zone AE as indicated in bold letters below.

(X) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

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

(X) Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.

( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.

( ) Ms. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.

( ) The applicant should include 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.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

( ) Other: _____

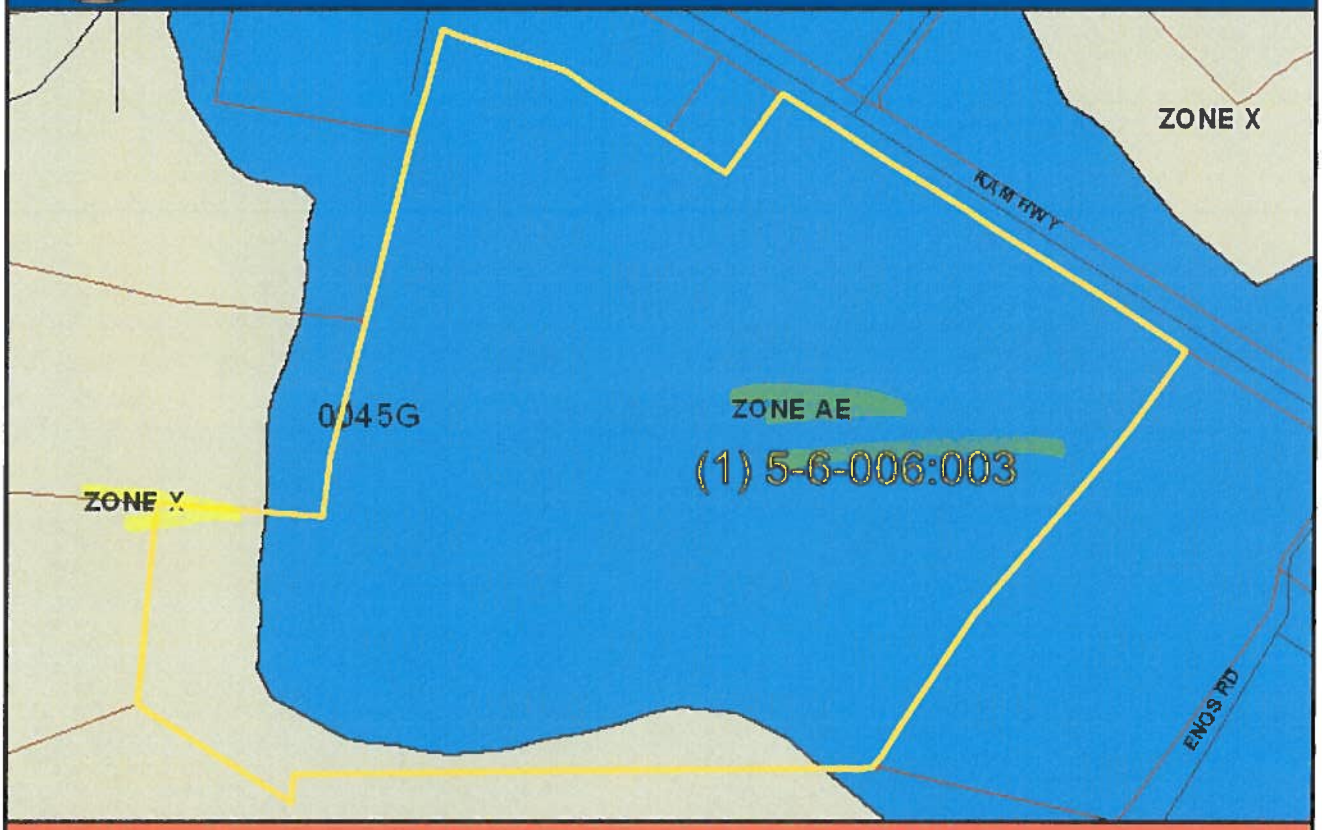
Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: _____
for CARTY S. CHANG, CHIEF ENGINEER

Date: 12/23/11

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A:** No BFE determined.
- **Zone AE:** BFE determined.
- **Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 5-6-006-003
PARCEL ADDRESS:	56-170 PUALALEA ST
FIRM INDEX DATE:	JANUARY 19, 2011
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0045G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	JULY 2011
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

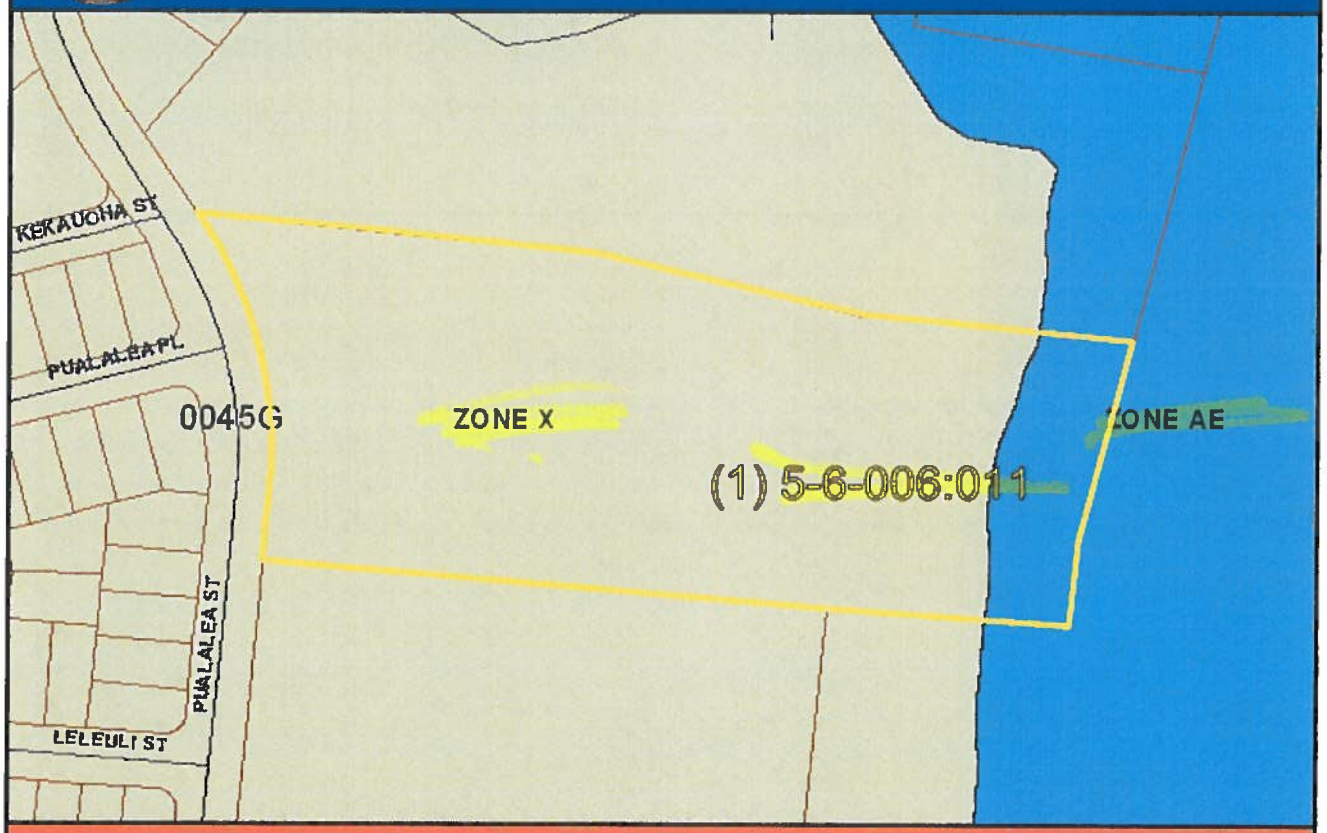
County NFIP Coordinator	
City and County of Honolulu	
Mario Siu-Li, CFM	(808) 768-8098
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

Disclaimer: The Department of Land and Natural Resources assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the Department of Land and Natural Resources from any liability, which may arise from its use.

Preliminary DFIRM Disclaimer: If this map has been identified as "PRELIMINARY", please note that it is being provided for commenting purposes only and is not to be use for official/legal decisions or regulatory compliance.

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A:** No BFE determined.
- **Zone AE:** BFE determined.
- **Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 5-6-006-011
PARCEL ADDRESS:	56-170 PUALALEA ST
FIRM INDEX DATE:	JANUARY 19, 2011
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0045G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	JULY 2011
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

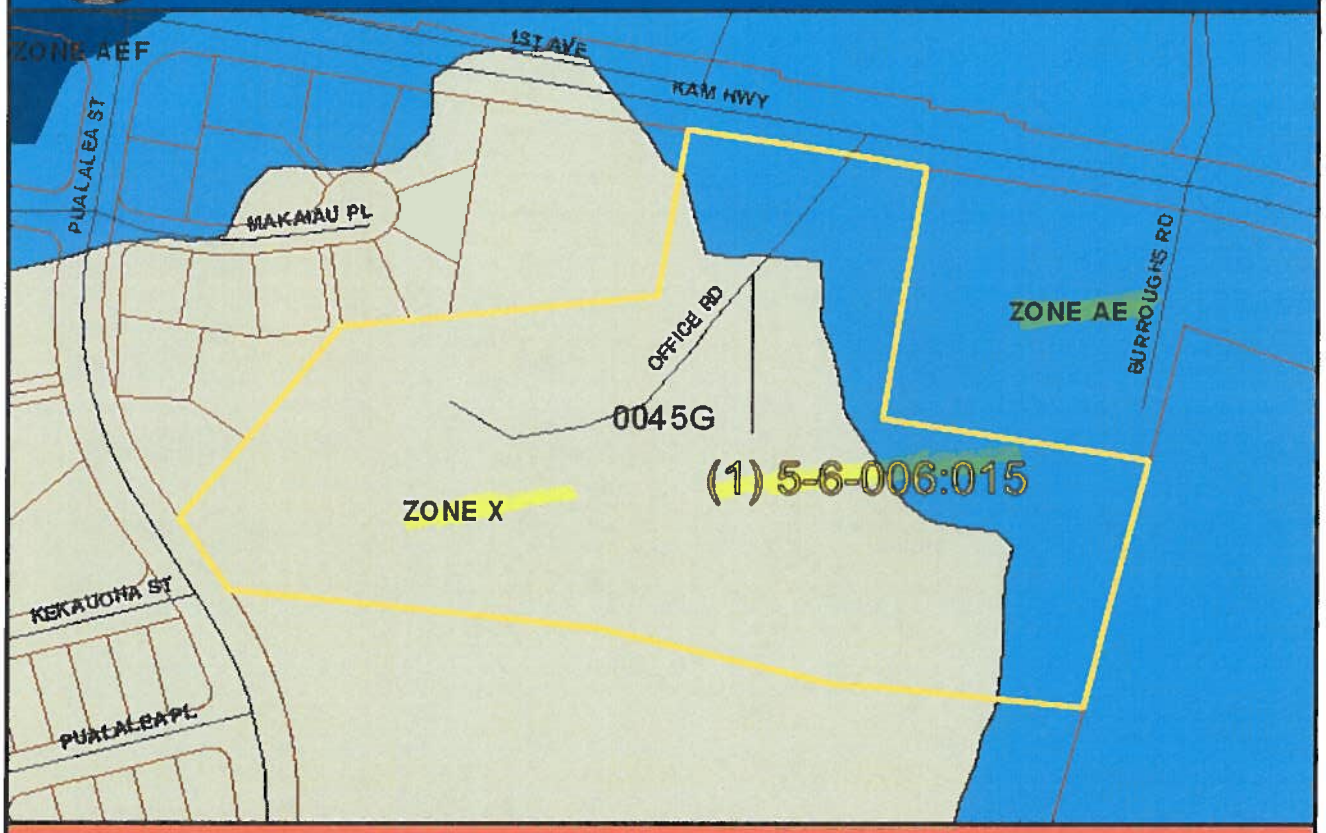
County NFIP Coordinator	
City and County of Honolulu	
Mario Siu-Li, CFM	(808) 768-8098
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

Disclaimer: The Department of Land and Natural Resources assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the Department of Land and Natural Resources from any liability, which may arise from its use.

Preliminary DFIRM Disclaimer: If this map has been identified as "PRELIMINARY", please note that it is being provided for commenting purposes only and is not to be use for official/legal decisions or regulatory compliance.

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A:** No BFE determined.
- **Zone AE:** BFE determined.
- **Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain), average depths determined.
- **Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 5-6-006-015
PARCEL ADDRESS:	
FIRM INDEX DATE:	JANUARY 19, 2011
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0045G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	JULY 2011
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

County NFIP Coordinator	
City and County of Honolulu	
Mario Siu-Li, CFM	(808) 768-8098
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

Disclaimer: The Department of Land and Natural Resources assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the Department of Land and Natural Resources from any liability, which may arise from its use.

Preliminary DFIRM Disclaimer: If this map has been identified as "PRELIMINARY", please note that it is being provided for commenting purposes only and is not to be use for official/legal decisions or regulatory compliance.

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

December 14, 2011

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
X Engineering Division
___Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

To:

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project
LOCATION: Kahuku, Island of Oahu; Various TMK's
APPLICANT: Department of Education

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 23, 2011.

Only one (1) copy of the document is available for your review in Land Division office, Room 220.

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 Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: T. Chee for
Date: 12/21/2011

cc: Central Files

DEPARTMENT OF EMERGENCY MANAGEMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET HONOLULU, HAWAII 96813
PHONE: (808)523-4121 FAX: (808)524-3439 WORLDWIDE WEB: www.oahudem.org

PETER B. CARLISLE
MAYOR

MELVIN N. KAKU
DIRECTOR

December 29, 2011

Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817
Ms. Colette Sakoda

Dear Ms. Sakoda:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE KAHUKU STORM DAMAGE REDUCTION PROJECT

The City and County of Honolulu's Department of Emergency Management has the following comments for the Environmental Assessment for the Kahuku storm damage reduction project, Oahu:

1) The State Department of Education is to be commended for being proactive in flood mitigation; an ounce of prevention is worth a pound of cure. The Department of Emergency Management supports disaster mitigation and encourages the implementation of this project.

Should you have any questions, please call Deputy Director Mr. Peter Hirai at 723-8960 or e-mail phirai@honolulu.gov. Thank you for your support of public safety programs.

Sincerely,

Peter Hirai for

MELVIN N. KAKU
Director

cc: Mr. David Tanoue, Director of Planning and Permitting

THE GAS COMPANY

P.O. Box 3000
Honolulu, Hawaii 96802-3000
www.hawaiigas.com

January 10, 2012

Ms. Colette Sakoda
Environet, Inc.
650 Iwilei Road, Suite 204
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Subject: Draft Environmental Assessment (EA)
Kahuku Storm Damage Reduction Project
TMK: 1-5-6-006:003, 009, 010, 011 (por), 015, and 025
Kahuku, Oahu, Hawaii

We refer to your letter dated November 17, 2011. Based on our review of the CD provided, it has been determined that the area is currently clear of utility gas facilities, and we have no objections to the proposed project.

Thank you for the opportunity to comment on the Environmental Assessment. Should there be any questions, or if additional information is desired, please call Jared Pasalo at 594-5008.

Sincerely,

The Gas Company, LLC

Keith K. Yamamoto
Acting Manager, Engineering

KKY:krs
12-100

Environet, Inc.

February 29, 2012

Mr. Stephen S. Anthony, Center Director
U.S. Geological Survey
Pacific Islands Water Science Center
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

Dear Mr. Anthony:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

Thank you for your participation in the Environmental Assessment review process. We acknowledge your comment that due to prior commitments and lack of available staff the U.S. Geological Survey is unable to review the document. We appreciate your response and look forward to working with you in the future.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Dean Yonezawa, OSP Engineer
Oceanic Time Warner Cable
200 Akamainui Street
Mililani, Hawaii 96789

Dear Mr. Dean:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received the drawing for location of the CATV system within the proposed project area. In order to avoid conflicts with these facilities, Oceanic Time Warner Cable will be consulted during the design phase of the project. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Les Loo, Network Engineer
Hawaiian Telcom
1177 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Loo:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We acknowledge your letter dated November 25, 2011 in which you indicate that Hawaiian Telecom has underground facilities throughout the proposed project site. In order to avoid conflicts with these facilities, Hawaiian Telecom will be consulted during the design phase of the project. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Louis M. Kealoha, Chief of Police
Honolulu Police Department
801 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Kealoha:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated November 30, 2011 regarding the subject project in which you indicate that this project should have no significant impact on the facilities or operations of the Honolulu Police Department. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Ms. Susan Uyesugi, Program Administrator
Customer Care Division
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Ms. Uyesugi:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated November 30, 2011 on the subject project. The requested construction drawings of the proposed action will be submitted to the Board of Water Supply during the design phase of the project. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Gary B. Cabato, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

Dear Mr. Cabato:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We acknowledge your comment that your Department has no comment at this time on the subject Draft Environmental Assessment as the preferred alternative will have no impact to Kahuku District Park. If for any reason a different alternative that may have impact on the park is selected, we will contact you as soon as possible. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Ralph K. Makaiau Jr.
56-134 Pualalea Street
Kahuku, Hawaii 96731

Dear Mr. Makaiau:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

Thank you for reviewing the subject Draft Environmental Assessment and providing us with your comments. We greatly appreciate your participation in the Environmental Assessment review process.

Regarding your first comment on Section 7.1 "Community Meetings", we agree with your opinion that the community members who were in attendance at the April 22, 2008 meeting are devoted members of Kahuku with a long standing dedication to mitigate flooding in Kahuku. In response to your comment, the list of community members you have provided in your comment letter will be included in the Final Environmental Assessment.

In response to the fifth alternative "Alternative 5: Culvert Diversion Kam Hwy, 36" Underground Piping Burroughs Rd., Outlet Culvert Buffer Land East of Wildlife Preserve" you have proposed, this alternative cannot be included in this project because it is outside the boundary of the DOE property. Although it is agreed that flood mitigation needs to take into consideration the entire Kahuku community as a whole, the subject project is intended to alleviate flooding problems within the high school property. It is outside the scope of the project to resolve flooding issues in the entire Kahuku community and to include lands owned by other entities besides the DOE. Thus unfortunately, the alternative you have suggested cannot be included in this project at this time. Alternative 1, the alternative you have suggested to be implemented in conjunction with Alternative 5, focuses on diverting stormwater from one point to another, and was not considered a comprehensive measure to mitigate flooding problems on the campus property. The preferred alternative, Alternative 2, was chosen as the most comprehensive means of collecting excess stormwater on campus and draining it in a more controlled manner. We regret to inform you that your suggestion cannot be considered at this time. We would like to thank you again for participating in the Environmental Assessment process and look forward to working with you in the future.

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

Environet, Inc.

February 29, 2012

Fire Chief Kenneth G. Silva
Honolulu Fire Department
636 South Street
Honolulu, Hawaii 96813-5007

Dear Fire Chief Silva:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 7, 2011 regarding the subject project. We acknowledge your comment that this project will have no significant impact to fire department services. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Ms. Jan S. Gouveia, Acting Comptroller
Department of Accounting and General Services
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Ms. Gouveia:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 8, 2011 regarding the subject project. We acknowledge your comment that the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and that you have no comments at this time. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Dwight Takamine, Director
Department of Labor and Industrial Relations
830 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Takamine:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 12, 2011 regarding the subject project. We acknowledge that the Department of Labor and Industrial Relations has no comments and foresees no impact on the Department's existing or proposed programs. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Clyde Nāmuʻo, CEO
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Nāmuʻo:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 12, 2011 regarding the subject project. We acknowledge that OHA supports and looks forward to seeing the completion of this project. Thank you for your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineer

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Wayne Y. Yoshioka, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, Third Floor
Honolulu, Hawaii 96813

Dear Mr. Yoshioka:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 13, 2011 regarding the subject project. We acknowledge that the Department of Transportation Services has no comments at this time. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. David K. Tanoue, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Tanoue:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 19, 2011 regarding the subject project. We acknowledge that the Department of Planning and Permitting has no comments to offer at this time. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Collins D. Lam, P.E., Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Lam:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 19, 2011 regarding the subject project. We acknowledge that the Department of Design and Construction supports the proposed action and does not perceive any adverse impacts resulting from the project. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Dr. Westley K.C. Chun, Director & Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Uluohia Street, Suite 215
Kapolei, Hawaii 96707

Dear Dr. Chun:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 21, 2011 regarding the subject project. We acknowledge that the Department of Facility Maintenance has no comments at this time, and appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Glenn M. Okimoto, Ph.D., Director
Department of Transportation
Aliiaimoku Building
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Okimoto:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 21, 2011 regarding the subject project, and acknowledge that the project is not anticipated to have a significant impact on the State highway facilities in the area. The following are responses to your comments:

1. Site-specific BMPs will be implemented during the construction of the project to ensure that no additional storm water run-off enters the State highway facilities.

2. A permit will be obtained from the DOT Highways Division for the use of any construction vehicles or heavy equipment that will be used at the job site to transport oversized and overweight equipment and loads within the State highway facilities.

3. Construction activities for the project will be coordinated with the DOT Highways Division to minimize any traffic delays on Kamehameha Highway due to the movement of heavy equipment and materials. A traffic management plan for the construction activities will be provided to the DOT Highways Division for review and approval.

4. The subject project is not anticipated to involve work within the State highway right-of-way.

5. All necessary permits will be obtained from the DOT Highways Division, Oahu District Office prior to start of project construction.

Thank you for your participation in the Environmental Assessment review process.

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineer

Environet, Inc.

February 29, 2012

Mr. Alec Wong, P.E., Chief
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Wong:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 23, 2011 regarding the subject project. We acknowledge your comment that all project related construction and operation activities will be required to be in compliance with applicable sections of the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55 as well as additional requirements related to the Department of Health, Clean Water Branch (CWB). We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Russell Y. Tsuji, Land Administrator
Department of Land and Natural Resources
Land Division
Kalanimoku Building
1151 Punchbowl Street, Room 220
Honolulu, Hawaii 96813

Dear Mr. Tsuji:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 21, 2011 regarding the subject project. We acknowledge that the Department of Land and Natural Resources, Land Division has no comments at this time. Thank you for your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineer

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Carty S. Chang, Chief Engineer
Department of Land and Natural Resources
Engineering Division
Kalanimoku Building
1151 Punchbowl Street, Room 221
Honolulu, Hawaii 96813

Dear Mr. Chang:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your comments dated December 23, 2011 regarding the subject project. We acknowledge that the correct Flood Zone Designations for the project site are Zones X and AE, and that the National Flood Insurance Program regulates developments within Zone AE. The Final Environmental Assessment will be revised to include the updated Flood Zone Designations as indicated, and the project will comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR). We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineer

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Melvin N. Kaku, Director
Department of Emergency Management
Basement
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Kaku:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated December 29, 2011 regarding the subject project. We acknowledge that the Department of Emergency Management supports this project and commends the Department of Education for being proactive in flood mitigation. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineer

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com

Environet, Inc.

February 29, 2012

Mr. Keith K. Yamamoto, Acting Manager, Engineering
The Gas Company
515 Kamakee Street
Honolulu, Hawaii 96814

Dear Mr. Yamamoto:

Subject: Draft Environmental Assessment for the Kahuku Storm Damage Reduction Project, Kahuku, Oahu, Hawaii (TMK 1-5-6-006:003, 009, 010, 011 (por), 015, and 025)

We have received your letter dated January 10, 2012 regarding the subject project in which you indicate that the subject project area is clear of utility gas facilities, and you have no objections to the proposed project. We appreciate your participation in the Environmental Assessment review process.

Sincerely yours,

Colette Sakoda,
Senior Project Manager
Environet, Inc.

cc: Mr. Duane Kashiwai, Facilities Development Branch, Department of Education
Mr. Milton Yoshimoto, U.S. Army Corps of Engineers

650 Iwilei Road, Suite 204 | Honolulu, Hawaii 96817 | Tel: (808) 833-2225 | Fax: (808) 833-2231 | Email: enetmail@environetinc.com