DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
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ROBERT J. KRONING, P.E.
DIRECTOR DESIGNATE

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

WW.CSE 14-152

October 29, 2014

Ms. Jessica Wooley, Director
Office of Environmental Quality Control
State Department of Health
235 S. Beretania Street, Room 702
Honolulu, Hawaii 96813

SUBJECT: Environmental Assessment and Anticipated Finding of No Significant Impact for the Waikapoki Wastewater Pump Station Upgrade Project

Dear Ms. Wooley:

With this letter, the Department of Design and Construction hereby transmits the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFNSI) for the Waikapoki Wastewater Pump Station Upgrade Project situated at Tax Map Key (TMK) 4:5-003:010, in the District of Koolaupoko on the island of Oahu for publication in the next available edition of the Environmental Notice.

Enclosed is a completed Office of Environmental Quality Control (OEQC) Publication Form, two copies of the DEA-AFNSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact John Dai of our Wastewater Division at (808) 768-8744 or Ayako Kawabata, Project Manager at HDR Engineering, Inc., at (808) 697-6204.

Sincerely,

Robert J. Kroning, P.E.
Director Designate

Enclosures:
1. Draft Environmental Assessment for Waikapoki Wastewater Pump Station Upgrade Project Kaneohe, Oahu, Hawaii
2. OEQC Publication Form
3. CD Containing DEA-AFONSI in PDF and OEQC Publication in MS Word

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

Project Name: Waikapoki Wastewater Pump Station Upgrade
Island: Oahu
District: Koolaupoko
TMK: 4:5-003:010
Permits:

- Construction Plans Approvals
- Community Noise Permit (if required during construction)
- Noise Variance
- NPDES Dewatering Permit (contractor's option)
- Flood Elevation Certificate
- Special Management Area Permit
- Building Permit for building, electrical, plumbing, and demolition work
- Zoning Waiver for side yard setback
- Street Usage and Trenching Permit

Proposing/Determination Agency:
Robert J. Kroning, P.E., Director Designate
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Accepting Authority: Not Applicable

Consultant:
Ayako Kawabata, P.E. Project Manager
HDR Engineering, Inc.
1132 Bishop Street, Suite 1200
Honolulu, Hawaii 96813-2822
Phone: 808-697-6200

Status (check one only):

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

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

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

__Act 172-12 EISPN — Submit the proposing agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the

summary to oeqchawaii@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.

__DEIS

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

__FEIS

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

__ Section 11-200-23 Determination

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

__Section 11-200-27 Determination

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

__Withdrawal (explain)

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

The City and County of Honolulu is proposing to upgrade its Waikapoki Wastewater Pump Station (WWPS) in Kaneohe on the windward side of Oahu. Past studies evaluating historical flow data have found that due to high levels of infiltration and inflow (I/I) from rain induced flow entering the sewer system, the pumping capacity should be increased from 1.3 million gallons per day (mgd) to 2.6 mgd. In the past, this surcharged flow has led to wastewater spills in the area.

Proposed upgrades to the existing Waikapoki WWPS include replacement of the two existing pumps with three higher capacity pumps, renovation of existing pump station, and other miscellaneous onsite improvements. The generator room within the existing pump station building is proposed to be converted into an electrical/motor control center (MCC) room. A new emergency generator building is proposed to be constructed to house a new, upgraded diesel engine generator. Acoustical treatment will be provided to the pump station building and generator building to minimize noise emissions.

The construction will occur primarily within the Waikapoki WWPS site. A new underground electrical ductline and manhole system will be installed in the existing HECO utility easement within the Kauhale Beach Cove townhouse complex and a portion of Mahalani Place to accommodate a new HECO primary feeder. Since the project site is located within a townhouse complex, a residential neighborhood, measures to minimize impact to nearby residences will be implemented to the extent practicable. There will be some short-term construction impacts such as increase in the number of vehicles accessing the site, construction equipment noise, and dust. The anticipated determination for this Draft EA is an Anticipated Finding of No Significant Impact (AFNSI).

Draft Environmental Assessment and Anticipated Finding of No Significant Impact for

Waikapoki Wastewater Pump Station Upgrade

Kaneohe, Hawaii

Prepared For:

Department of Design and Construction
City and County of Honolulu

Prepared by:

HDR Engineering, Inc.

Contract No. F63547
HDR 176281|HNL 2011031
October 29, 2014

Draft Environmental Assessment and Anticipated Finding of No Significant Impact

for

WAIKAPOKI WASTEWATER PUMP STATION UPGRADE

Kaneohe, Oahu, Hawaii
TMK: 4-5-003:010

October 29, 2014

THIS ENVIRONMENTAL DOCUMENT HAS BEEN PREPARED PURSUANT TO CHAPTER 343, HAWAII REVISED STATUTES

Responsible Official: for M. Yamamoto Date: 10/28/14
Robert J. Kroning, P.E., Director Designate

PROPOSING AGENCY: Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

PREPARED BY: HDR Engineering, Inc.
1132 Bishop Street, Suite 1200
Honolulu, Hawaii 96813-2822

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ABBREVIATIONS AND ACRONYMS

ACM	Asbestos containing material
AFNSI	Anticipated Finding of No Significant Impact
BMP	Best Management Plan
CDP	Census-designated place
CITY	City and County of Honolulu
DOH	Department of Health
DPP	Department of Planning and Permitting
ELEV	Elevation
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
EXIST.	Existing
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GIS	Geographic information system
GPM	Gallons per minute
HECO	Hawaiian Electric Company
HP	Horsepower
I/I	Infiltration/inflow
INV.	Invert
KVA	Kilovolt amperes
KW	Kilowatt
KWH	Kilowatt hour
LUO	Land Use Ordinace
LUST	Leaking Underground Storage Tanks
MCC	Motor control center
MGD	Million gallons per day
MG/KG	Milligram per kilogram
MG/L	Milligram per liter
MSL	Mean sea level
NRHP	National Register of Historic Places
O&M	Operation and maintenance
PDH	Planned development housing
PLC	Programmed Logic Control
PPM	Parts per million
PVC	Polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
SCADA	Supervisory control and data acquisition
SMA	Special Management Area
SMP	SMA Use Permit
SMH	Sewer Manhole
TCLP	Toxicity Characteristic Leaching Procedure
TCP	Traditional cultural places
TMK	Tax Map Key
TSS	Total suspended solids
TMDL	Total maximum daily load
TYP.	Typical
UIC	Underground Injection Control
USGS	United States Geological Survey
WPTF	Wastewater Preliminary Treatment Facility
WWPS	Wastewater Pump Station

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SUMMARY

EXECUTIVE SUMMARY

The City and County of Honolulu is proposing to upgrade its Waikapoki Wastewater Pump Station (WWPS) in Kaneohe on the windward side of Oahu. The pump station, which was constructed in 1965 and placed into service in 1966, is located within the Kauhale Beach Cove townhouse complex near Keaahala Stream on the southwest shore of Kaneohe Bay. Evaluation of historical flow data have found that due to high levels of infiltration and inflow (I/I) from rain entering the collection system, the pumping capacity should be increased from 1.3 million gallons per day (mgd) to 2.6 mgd. In the past, this I/I induced flow has led to wastewater spills and exfiltration in the area. Other objectives of the project include reducing noise emissions from the pump station and improving the overall reliability and ease of maintenance of the facility.

Proposed upgrades to the existing Waikapoki WWPS include replacement of the two existing pumps with three higher capacity pumps, modifications and rehabilitation of the existing wetwell, replacement of the existing pump station piping, renovation of the pump station building, and other miscellaneous onsite improvements. The generator room within the existing pump station building is proposed to be converted into an electrical/motor control center (MCC) room. A new emergency generator building is proposed to be constructed to house a new, larger capacity diesel engine generator. A new fuel tank will also be provided. Acoustical treatment will be provided to the pump station building and generator building to minimize noise emissions.

The construction will occur primarily within the Waikapoki WWPS site. A new underground electrical ductline and manholes will be constructed in the existing HECO utility easement within the Kauhale Beach Cove townhouse complex and a portion of Mahalani Place to support a new HECO primary feeder. Since the project site is located within a townhouse complex and a residential neighborhood, measures to minimize impact to nearby residences will be implemented to the extent practicable. There will be some short-term construction impacts such as increase in the number of vehicles accessing the site, construction equipment noise, and dust.

The construction cost for this project is estimated to be approximately $6.0 million. Construction is expected to begin no earlier than summer of 2015. The construction work is estimated to require approximately 18 to 24 months following award of the construction contract.

This draft environmental assessment has been prepared in accordance with Chapter 343, Hawaii Revised Statues based on the Anticipated Finding of No Significant Impact (AFNSI) determination. The City and County of Honolulu Department of Design and Construction is the proposing and accepting agency.

PROJECT INFORMATION SUMMARY

1.	Proposing and Approving Agency:	City and County of Honolulu Department of Design and Construction 650 South King Street, 11th Floor Honolulu, Hawaii 96813
2.	Prepared By:	HDR Engineering, Inc. 1132 Bishop Street, Suite 1200 Honolulu, Hawaii 96813-2822 Ayako Kawabata, Project Manager, Ph. 808-697-6200
3.	Project Name:	Waikapoki Wastewater Pump Station Upgrade
4.	Project Location:	45-919 Wailele Road Kaneohe, Hawaii 96744
5.	Tax Map Key:	4-5-003:010
6.	Land Area:	8,101 square feet
7.	Property Owner:	City and County of Honolulu
8.	State Land Use:	Residential
9.	County Zoning:	R-10, Residential
10.	Special Designations:	Special Management Area
11.	Determination:	AFNSI (Anticipated Finding of No Significant Impact)

Section 1

Project Description

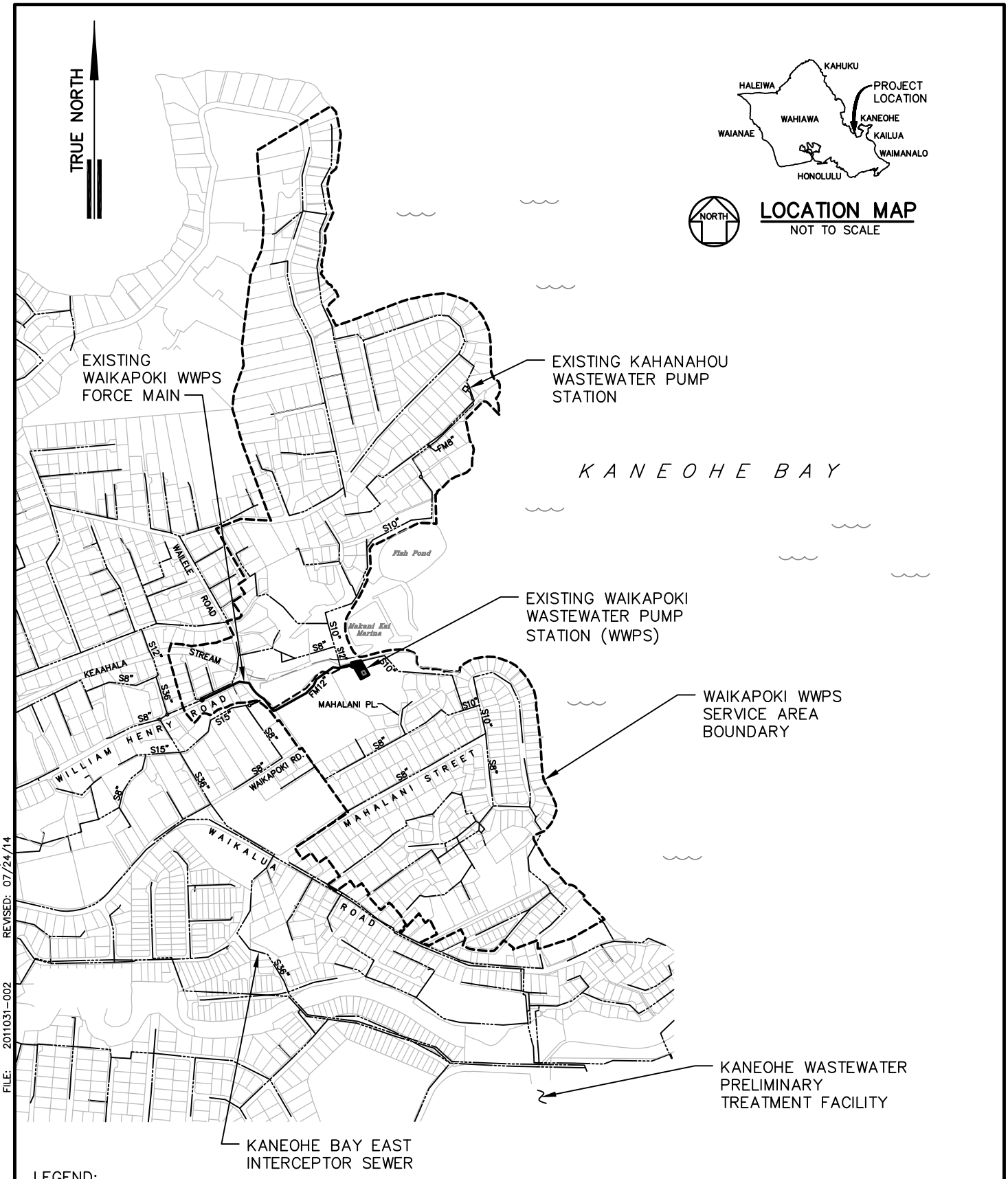
SECTION 1
PROJECT DESCRIPTION

A. INTRODUCTION AND GENERAL BACKGROUND

The Waikapoki Wastewater Pump Station (WWPS), owned and operated by the City and County of Honolulu (City), is located in Kaneohe on the windward side of Oahu. The site is situated within the Kauhale Beach Cove townhouse complex near the shoreline of Kaneohe Bay. The station is adjacent to Keaahala Stream on its north, Kaneohe Bay on its east and bounded by Kaneohe Stream to the south and Kamehameha Highway to the west as shown on Figure 1.

The pump station currently services approximately 3,000 residents in the residential developments on the southwest shore of Kaneohe Bay. Wastewater collected from the service area flows by gravity sewer lines to the Waikapoki WWPS, and is then pumped through a force main (pressurized line) and discharged to the Kaneohe Bay East interceptor sewer which flows to the Kaneohe Wastewater Preliminary Treatment Facility (WPTF). The wastewater is pumped from the WPTF to the Kailua Regional Wastewater Treatment Plant for secondary treatment. The treated effluent is discharged to Kailua Bay through the Mokapu Outfall.

The pump station, which was constructed in 1965 and placed into service in 1966, requires additional pumping capacity. Past studies evaluating historical flow data have found that due to high levels of infiltration and inflow (I/I) from rain entering the sewer system, the pumping capacity should be increased. This capacity upgrade project was recommended in the "Final Sewer I/I Plan, Rehabilitation and Infiltration and Inflow Minimization Study," December 1999, prepared by the City for the U.S. Environmental Protection Agency (EPA) under Consent Decree Civ. No. 94-00765 DAE. The mandated deadline for the completion of construction for this project is June 30, 2020. The "Wet Weather I/I Assessment Update" conducted in 2012 further refined the wet weather I/I design flow used in this project. The capacity upgrade is not intended to support additional development in the service area, which is essentially fully developed. In addition to pump capacity upgrades, piping, electrical, instrumentation and building upgrades are also proposed.



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REVISED: 07/24/14

LEGEND:

S8" SEWER LINE WITH PIPE SIZE

FM8" FORCE MAIN WITH PIPE SIZE

SERVICE AREA MAP

NOT TO SCALE

HDR	**WAIKAPOKI WWPS UPGRADE** KOOLAUPOKO, KANEOHE, OAHU, HAWAII	**LOCATION AND SERVICE AREA MAP**	FIGURE 1

B. DESCRIPTION OF THE PROPOSED PROJECT

1. Project Needs and Objectives

The City proposes to upgrade the Waikapoki WWPS to increase the pump station's capacity, improve its reliability, and to minimize and facilitate maintenance. Specific objectives and requirements of the project are as follows:

- Upgrade of the pumps is proposed to increase the flow capacity of the pump station to meet peak wastewater flow capacity requirements. Increasing the capacity will allow the station to pump the increased flow to the station due to high levels of I/I. Wastewater flows increase significantly during wet weather due to increased infiltration of groundwater and direct inflow of rainwater into sewer pipes and manhole defects and possible illicit connections such as roof gutters and outdoor drains. The existing Waikapoki WWPS and some of the sewer lines in the service area have inadequate capacity and are surcharged during high flows. High flows during major storm events have resulted in past sewage spills in the area. Future long-term plans include diverting flow from the upstream Kahanahou WWPS to another section of the collection system to reduce the Waikapoki WWPS flow.

- Promote improved overall reliability and ease of maintenance. Renovation of the pump station facility is proposed to upgrade the facility to more current technologies. This will include much needed electrical and instrument upgrades.

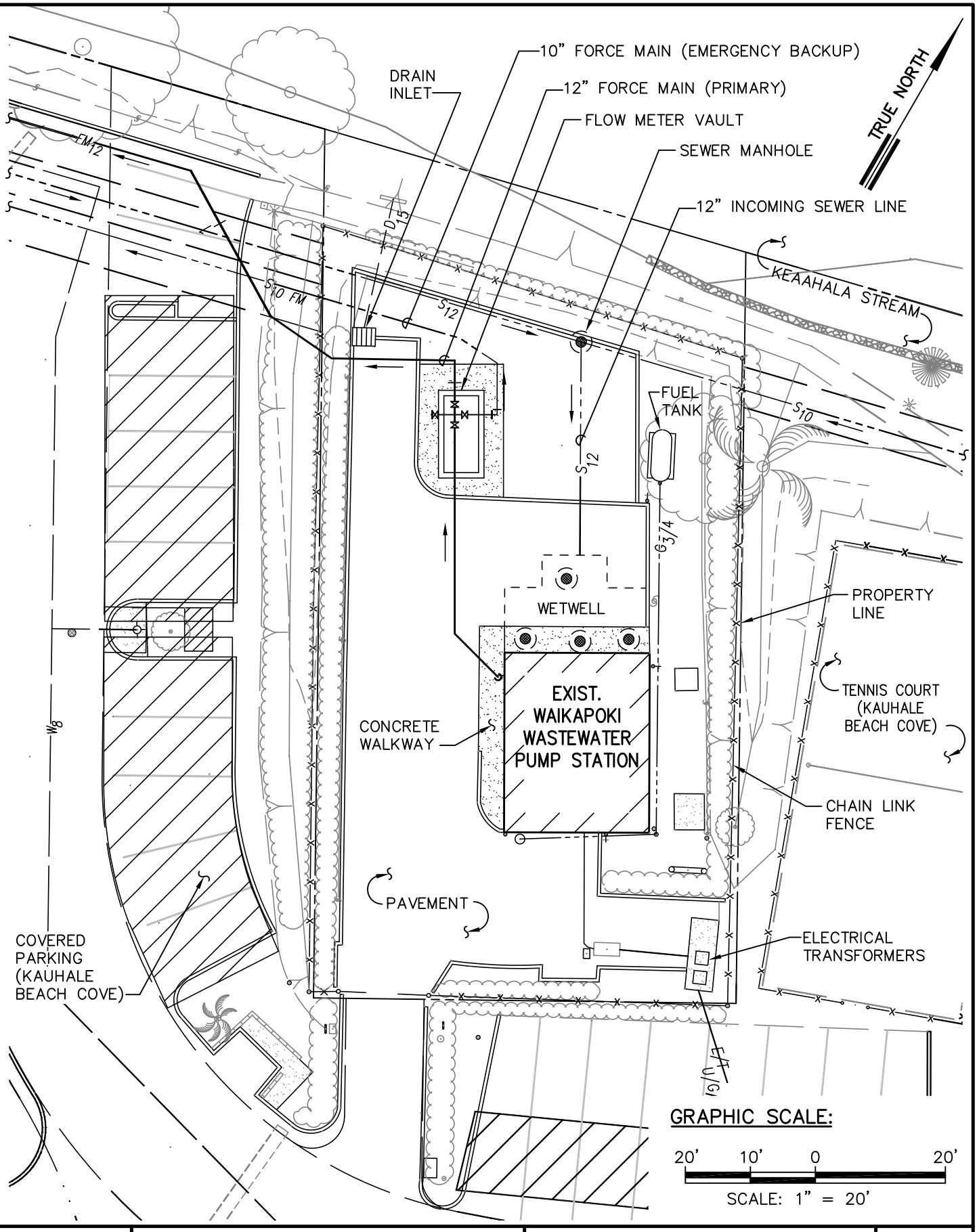
- Provide adequate and reliable backup power system. This will be achieved by installing a larger emergency generator in a new generator building.

- Reduce noise from the pump station. Acoustical treatment will be provided to minimize noise from the pumps and emergency generator.

- Meet applicable building codes, safety requirements and perform miscellaneous site improvements.

2. General Project Description

The details and basis of the proposed actions are presented in a planning engineering report titled "Waikapoki Wastewater Pump Station Upgrade Design Alternatives Report" prepared for the City in 2014. The report provides detailed discussions of the existing pump station, the proposed upgrade work, as well as the environmental setting and potential impacts and proposed mitigation measures. A general site plan showing the existing conditions at the Waikapoki WWPS is shown on Figure 2. A site plan showing the proposed modifications is shown on Figure 3.



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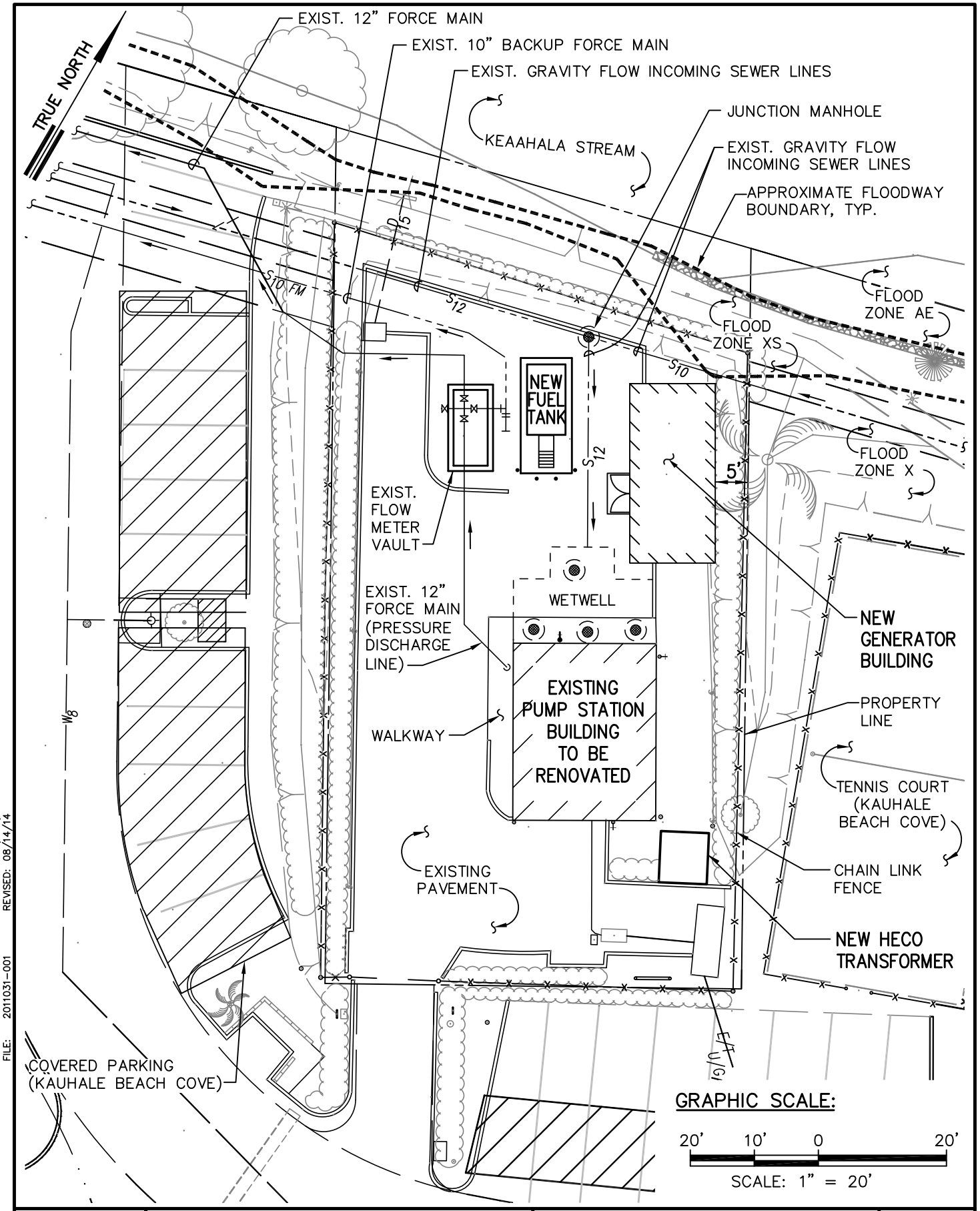
HDR	**WAIKAPOKI WWPS UPGRADE** KOOLAUPOKO, KANEOHE, OAHU, HAWAII	**EXISTING WAIKAPOKI WWPS SITE PLAN**	FIGURE 2



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HDR	**WAIKAPOKI WWPS UPGRADE** KOOLAUPOKO, KANEOHE, OAHU, HAWAII	**PROPOSED WAIKAPOKI WWPS SITE PLAN**	FIGURE 3

The proposed upgrades are summarized below:

Pumps

The existing pumps consist of two constant speed, vertical dry pit extended shaft sewage pumps. One pump serves as the lead pump and the other as the lag/standby pump. Three new dry-pit submersible pumps will replace the two existing vertical extended shaft pumps to increase the pump station capacity from 1.3 million gallons per day (mgd) to 2.6 mgd. Under normal conditions, two pumps will be in operation and the third pump will serve as a standby unit. Existing pipes and valves are also proposed to be replaced. A preliminary bottom floor plan and section plan of the pump station building are shown on Figures 4 and 5, respectively.

Wetwell

The wetwell will be modified to accommodate larger and repositioned piping for the new pumps. The work will require demolishing a portion of the sloping sidewalls and reconstructing the walls at a steeper slope to provide a larger area for new piping. A new epoxy coating will be provided to protect the wetwell walls.

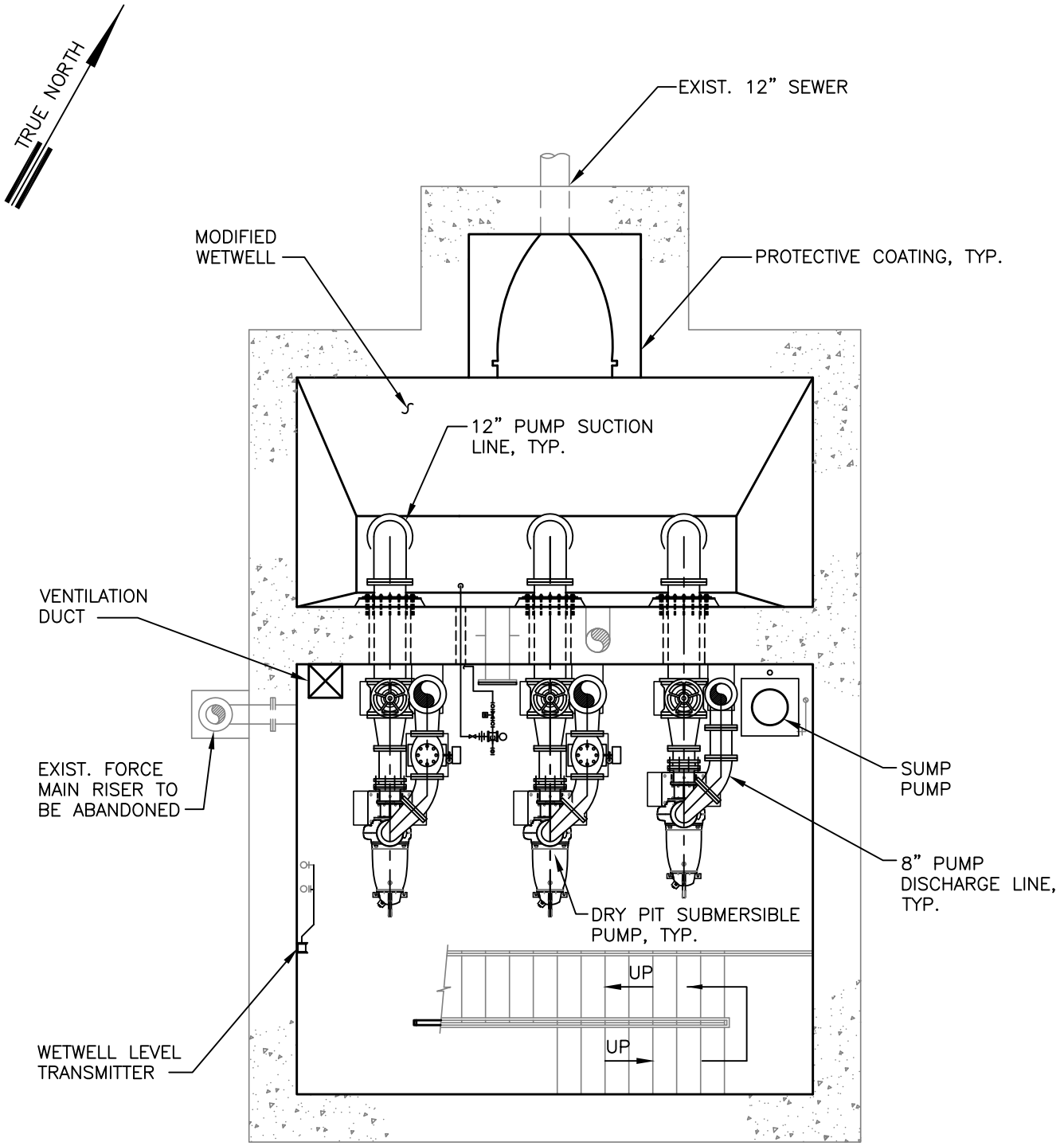
Ventilation System

The existing exhaust ventilation system will be replaced with a new ventilation system consisting of supply and exhaust fans, ductwork and air devices. Acoustical treatment will be provided for the ventilation system to reduce noise.

Emergency Generator and Fuel Tank

The proposed higher capacity pumps will require an upgraded electrical system and a larger emergency generator. A separate generator building will be constructed at the northeast corner of the site to house the new 125 kilowatt (KW) diesel engine generator. The size of the building is proposed to have approximate inside dimensions of 12 feet by 27 feet. The elevation view of the proposed new emergency generator building is shown on Figure 6.

To support the new emergency generator, a new 1,000 gallon aboveground double wall primary diesel storage tank sized for a seven day run time will replace the existing propone fuel tank. The new fuel tank will be located on a concrete slab near the new emergency generator building. Fuel leak detection systems will be provided.



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HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	PUMP STATION BUILDING BOTTOM FLOOR PLAN	FIGURE 4

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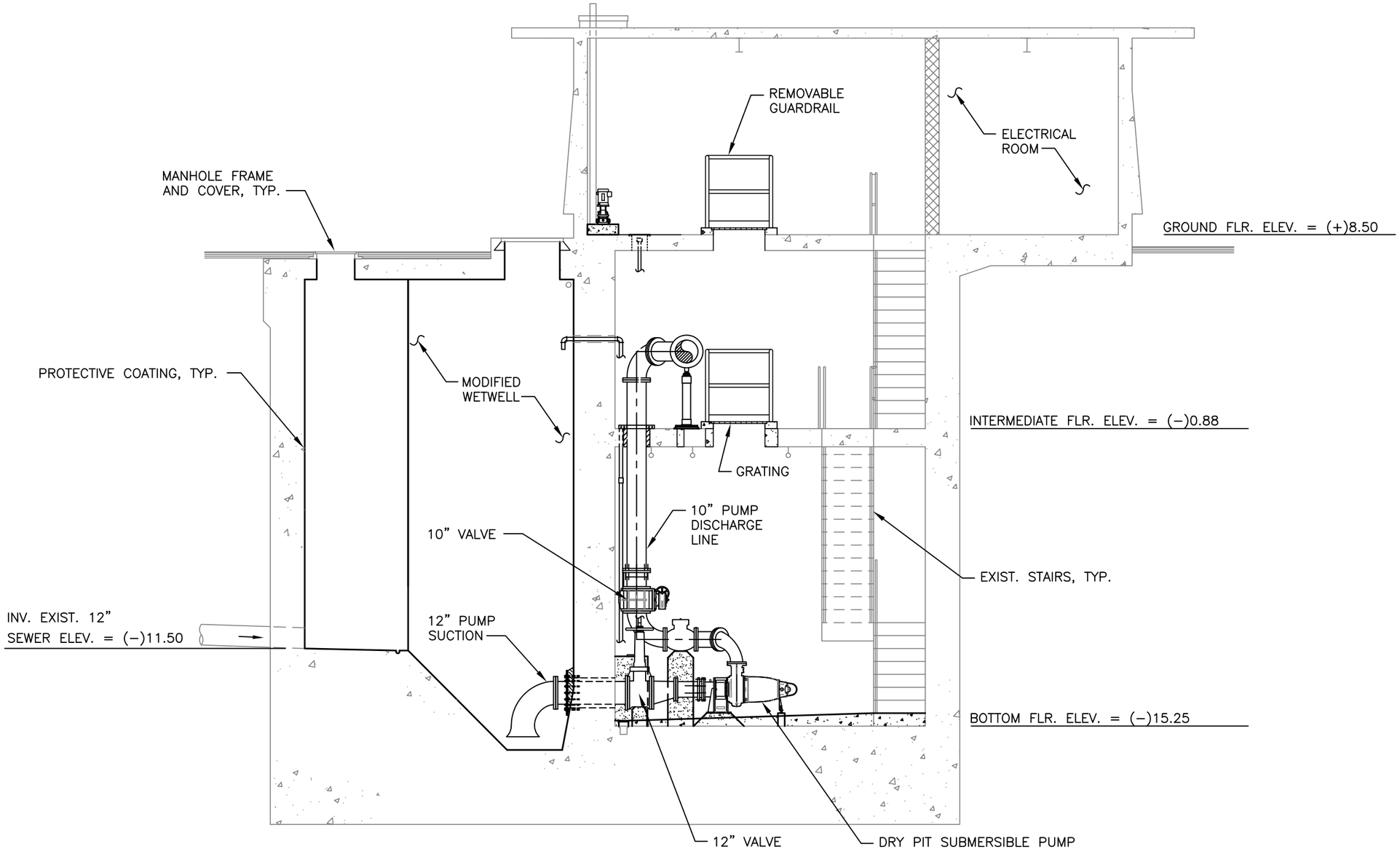

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FIGURE 5

PUMP STATION BUILDING SECTION PLAN

WAIKAPOKI WWPS UPGRADE

KOOLAUPOKO, KANEOHE, OAHU

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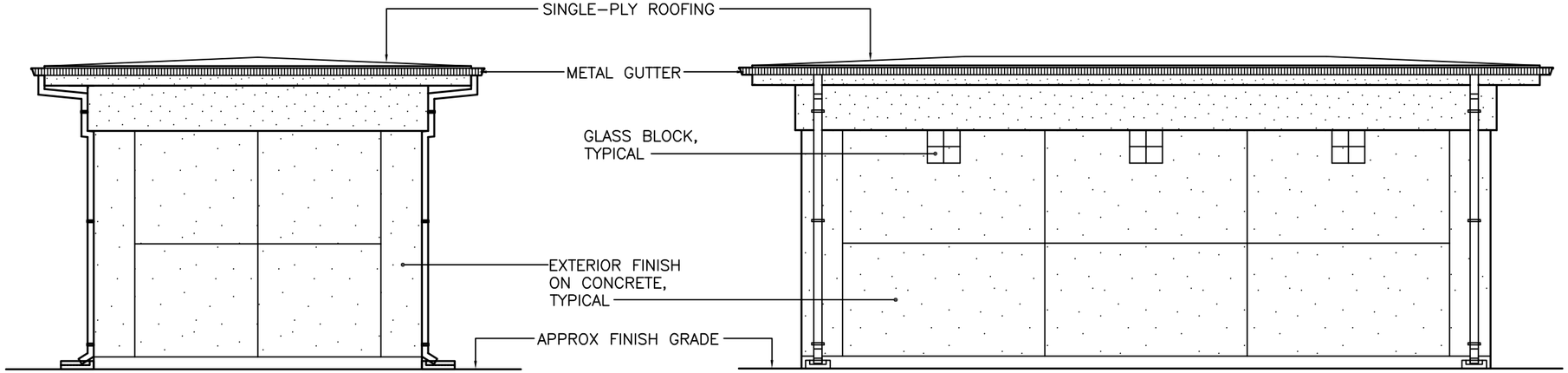
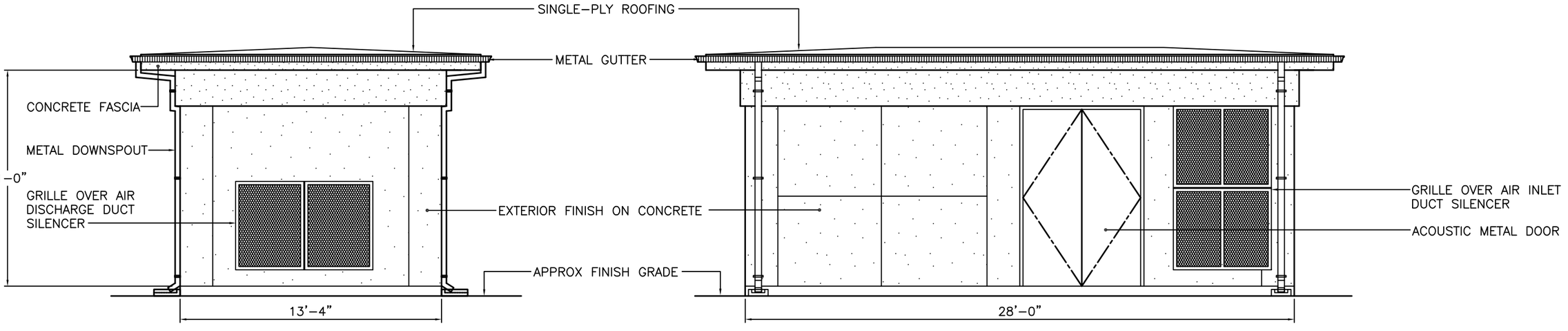


SOUTHEAST ELEVATION

NORTHEAST ELEVATION



NORTHWEST ELEVATION

SOUTHWEST ELEVATION

NOTE:
BUILDING COLORS TO MATCH COLOR SCHEME OF KAUHALE BEACH COVE TOWNHOUSE BUILDINGS AND TO BE APPROVED BY TOWNHOUSE ASSOCIATION'S BOARD OF DIRECTORS.

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FIGURE 6

GENERATOR BUILDING ELEVATION VIEW

WAIKAPOKI WWPS UPGRADE
KOOLAUPOKO, KANEOHE, OAHU

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Electrical

The existing emergency generator room located in the pump station building will be converted into an electrical and motor control center (MCC) room. New instrumentation and Supervisory Control and Data Acquisition (SCADA) system will be provided. Other proposed electrical improvements include the replacement of all existing branch circuit wiring and associated devices, the replacement of existing intrusion alarm and card access systems, and lighting upgrades.

To support the increased electrical load from the new pump motors, a new Hawaiian Electric Company (HECO) pad mounted transformer will be required to upgrade the existing electrical system from a 240-Volt, 3-phase system to a 480-Volt, 3-phase system.

A new underground electrical ductline and manholes will be installed in the existing HECO utility easement within the Kauhale Beach Cove townhouse complex and a portion of Mahalani Place to accommodate a new HECO primary feeder. The general route of the new electrical line is shown on Figure 7.

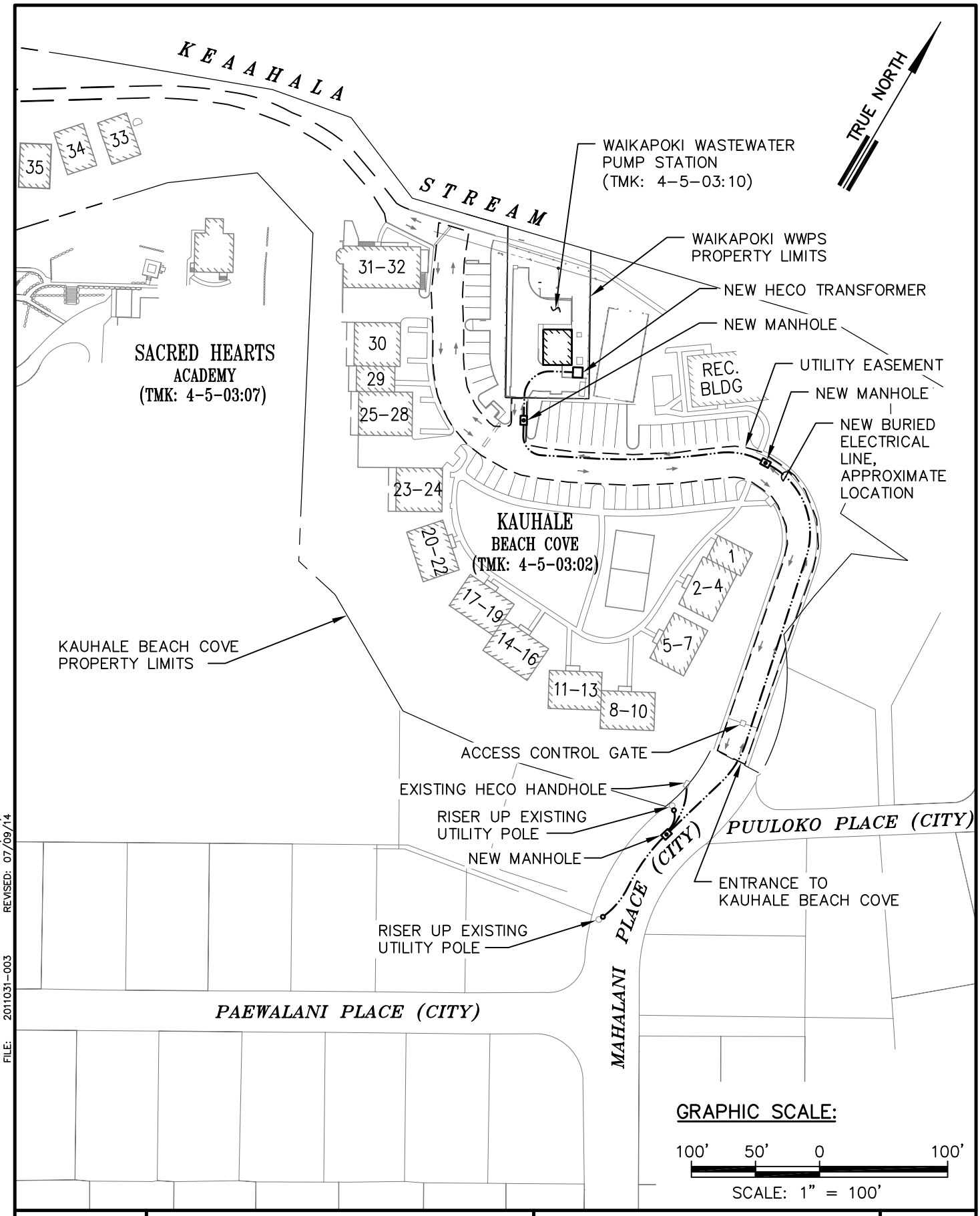
Other Facility Modifications

The pump station building renovation will provide acoustical treatment by removing existing wall louvers and jalousies, infilling and sealing ventilation openings, and installing new acoustical doors. A preliminary renovation plan for the existing pump station building is shown on Figure 8. Hazardous materials such as asbestos or arsenic containing materials and lead paint will be removed and properly disposed.

Proposed miscellaneous exterior site work will include replacing portions of the barbed wire chain-link fence.

3. Project Funding

The preliminary construction cost estimate for the project is $6.0 million. The project will be funded by the City and County of Honolulu under its Wastewater Capital Improvement Program budget. Direct assessments fees will not be levied on the residents served by the project.



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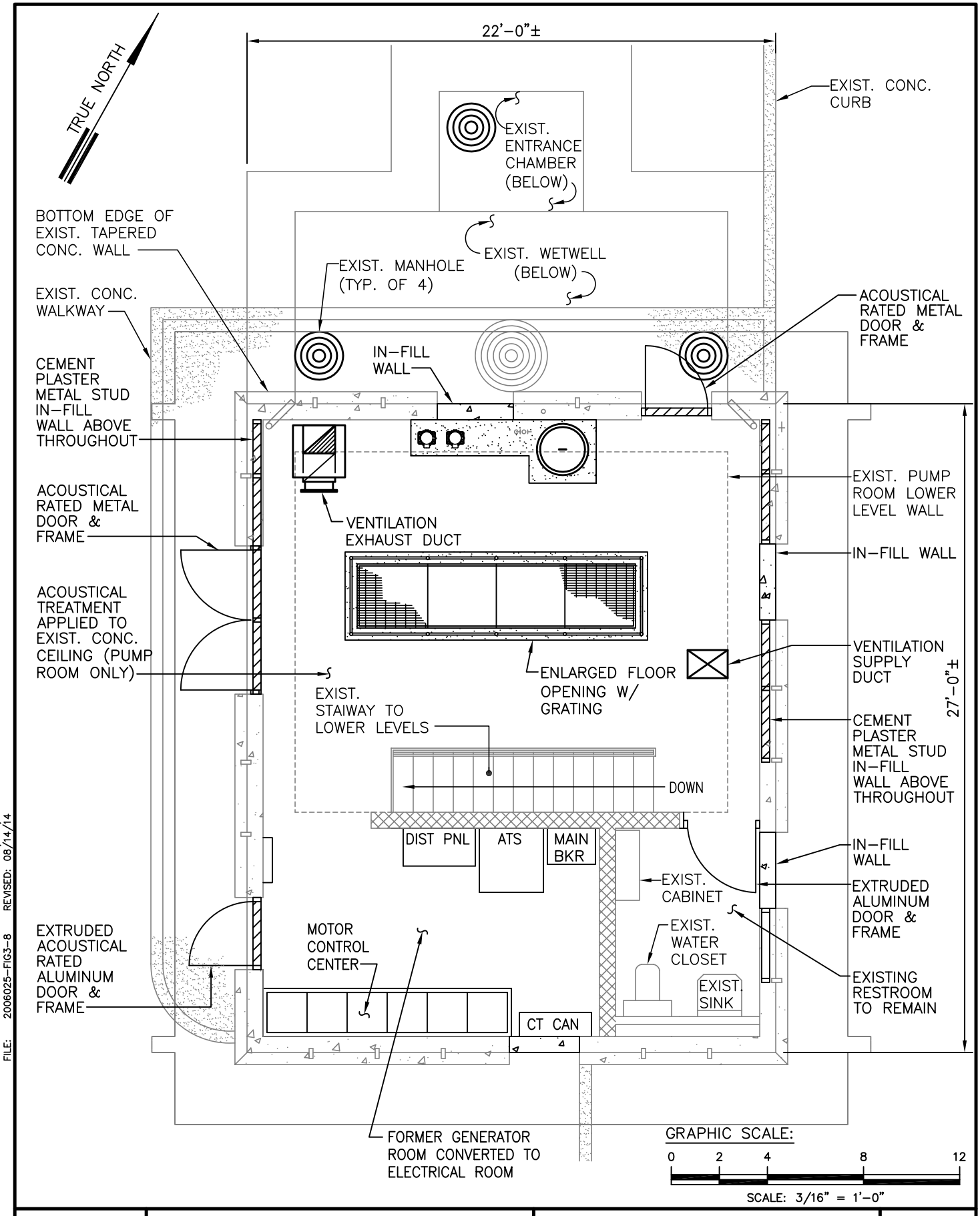
HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	LOCATION OF NEW ELECTRICAL LINE	FIGURE 7



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HDR	**WAIKAPOKI WWPS UPGRADE** KOOLAUPOKO, KANEOHE, OAHU, HAWAII	**GROUND FLOOR RENOVATION PLAN**	FIGURE 8

4. Project Schedule

Construction is expected to begin no earlier than summer of 2015. The construction work is estimated to require approximately 18 to 24 months following award of the construction contact. Engine driven bypass pumps will be used to bypass the wastewater flow entering the pump station during construction.

5. Permits and Approvals Required

State Permits/Approvals

Construction Plans Approvals	Department of Health
	Disability Communication Access Board
Community Noise Permit (if required during construction)	Department of Health
Noise Variance	Department of Health
NPDES Dewatering Permit (contractor's option)	Department of Health
Environmental Assessment	Office of Environmental Quality Control, Department of Health
Flood Elevation Certificate	Department of Planning and Permitting
Initial Review and Applicable Approvals	State Historic Preservation Division

City and County of Honolulu Permits/Approvals

Construction Plan Approvals	Department of Design and Construction
	Department of Planning and Permitting
	Department of Environmental Services
Special Management Area Permit	Department of Planning and Permitting

Building Permit for building, electrical, plumbing, and demolition work	Department of Planning and Permitting
Zoning Waiver for side yard setback	Department of Planning and Permitting
Street Usage and Trenching Permit	Department of Planning and Permitting
Industrial Wastewater Discharge Permit (contractor's option)	Department of Planning and Permitting

No other special permits are anticipated to be required for this project. No work is anticipated to occur within Keaahala Stream and therefore a permit from the Army Corp of Engineers is not required. Since the area disturbed by the project will be less than one acre, a NPDES permit for stormwater will not be required for the construction activity.

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Section 2

Environmental Setting

SECTION 2
ENVIRONMENTAL SETTING

A. INTRODUCTION

The environmental setting of a project can significantly affect the type and extent of the impacts. This section provides an overview of the environmental setting of the project site, including characteristics of the physical and biological aspects of the natural environment and the socio-economic of the surrounding community.

B. PHYSICAL AND BIOLOGICAL ENVIRONMENT CHARACTERISTICS

1. Location and Topography

The location of the Waikapoki WWPS is shown on the United States Geological Survey (USGS) topographic map on Figure 9. The 8,101 square foot pump station parcel is listed in the City and County of Honolulu's database as Tax Map Key 4-5-003:010. It is located on 45-919 Wailele Road and is accessed through the driveway of the Kauhale Beach Cove, which is located at 45-180 Mahalani Place.

The topography over much of the project area is relatively flat with slopes ranging between one and ten percent. The low lying area in the vicinity of the Waikapoki WWPS typically ranges between six and ten feet above MSL. The area along Keaahala Stream increases in slope to as much as 60 percent.

2. Climate

The climate of Oahu is dominated by northeast tradewinds. The project area has a climate that is typical of windward Oahu. Temperatures in the area are mild and uniform, with monthly average ranging between 71 degrees F and 83 degrees F. The highest recorded temperature is 96 degrees F and the lowest recorded temperature is 58 degrees F. The average annual rainfall in the area is approximately 54 inches.

3. Geology and Soils

The project site is located on severely eroded eastern side of the Koolau Volcano. This region is within the bounds of the former caldera (McDonald, et al., 1983). Near the end of the Koolau volcanic activity, lava filled much of the caldera. Volcanic gases passing through the rock in the caldera accelerated the weathering and erosion of the rock. Remnants of the caldera lavas presently appear as deeply weathered hills surrounded by thick deposits of alluvium.

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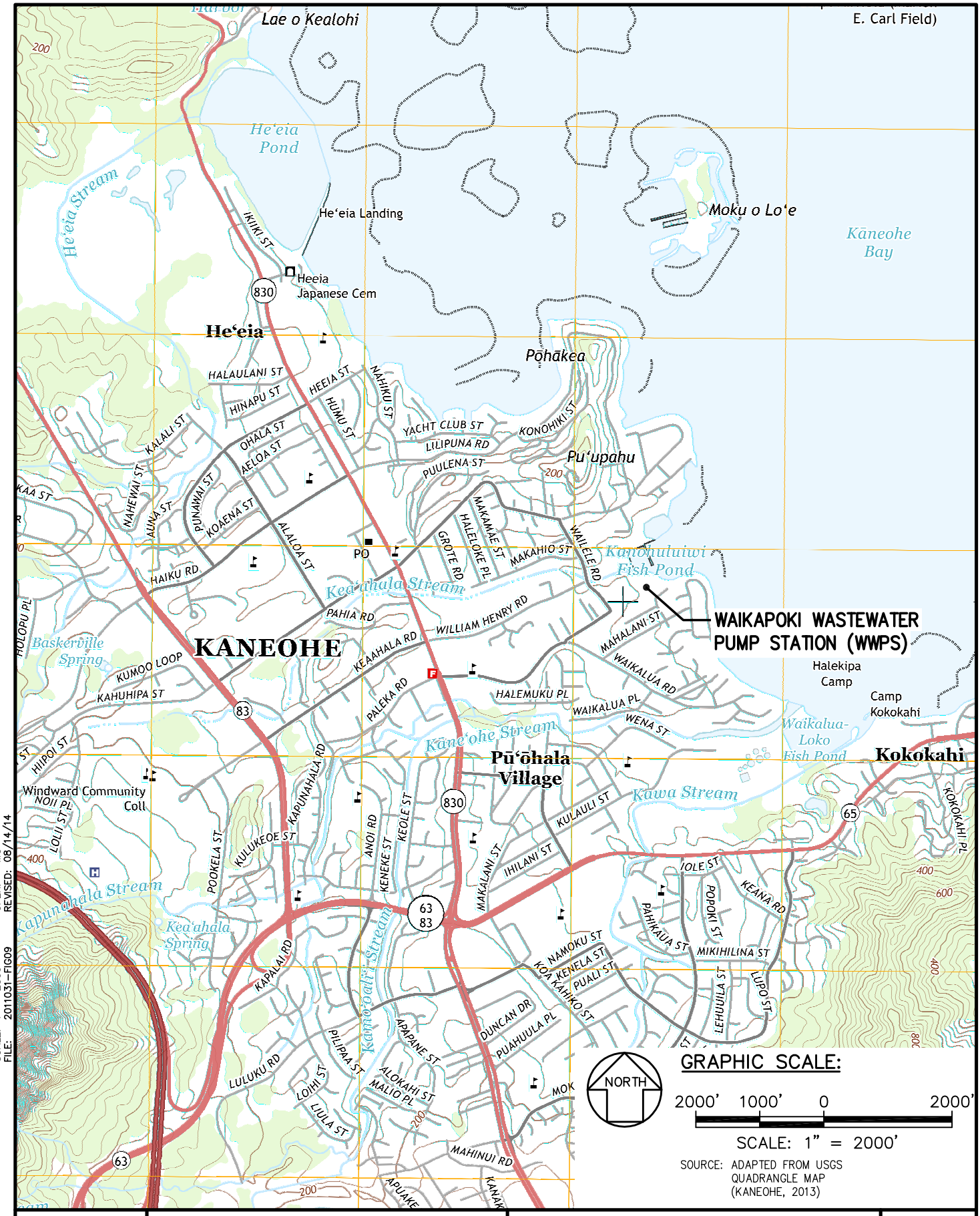

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FILE: 2011031-FIG09

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HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	USGS TOPOGRAPHIC MAP	FIGURE 9

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Most of the alluvium is old and consolidated. The alluvium generally consists of basaltic gravels in a matrix of clayey silts and sands. Since deposition, the alluvium has undergone deep weathering resulting in mottled clayey silts at the ground surface with decomposed gravel, cobbles and boulders that become less weathered with depth.

With the lowering of the sea level to its present elevation, streams have cut into the older alluvium resulting in the deposition of unconsolidated younger alluvium in the stream channels. One of these streams, Keaahala Stream, lies just north of the Waikapoki WWPS. The consistency of the younger alluvium is likely to be soft or loose. Where the depositional environment at the mouth of the stream is relatively calm, as it is at Keaahala Stream, the finer alluvial sediments mix with organic and marine deposits to form gray lagoonal silts and clays. Lagoonal deposits are characteristically highly compressible and very soft and loose in consistency.

A geologic map by Stearns (1939) indicates that the low lying area in the vicinity of the pump station and the Kauhale Beach Cove townhouse complex was previously covered by "taro patch" clay. Subsurface conditions encountered in previous borings drilled for the construction of the pump station and townhouse complex generally consisted of fill at the surface. The fill was generally underlain by compressible lagoonal deposits consisting of soft clayey silts and loose silty sands and gravels. The lagoonal deposits were underlain by stiffer clays and highly to completely weathered basalts. The low lying areas, which were previously at approximately two feet above MSL, have been built up with several additional feet of fill during the construction of the pump station, residential buildings, pavements and landscaping.

4. Streams and Wetlands

The Waikapoki WWPS is located near Kaneohe Bay and is adjacent to Keaahala Stream, which discharges into Kaneohe Bay. Under the State of Hawaii Department of Health (DOH) Administrative Rules, Chapter 11-54, "Water Quality Standards," Kaneohe Bay is classified as Class AA Marine Waters. Waters falling under this classification are to be kept in their natural pristine state with protection to the water's wilderness characteristics. Pollution and alteration of water quality in these waters are to be kept to an absolute minimum.

In the DOH's 2012 Water Quality Monitoring and Assessment Report[1], water bodies were assessed for pollutants such as total nitrogen, nitrate + nitrite nitrogen, total phosphorus, chlorophyll *a,* total turbidity, total suspended solids, enterococci, and other pollutants. Excessive amounts of nitrogen, nitrate + nitrite nitrogen, phosphorus, essential nutrients for animal and plant growth, can increase algal blooms in streams resulting in decreased levels of dissolved oxygen for stream organisms. Chlorophyll *a* is

[1] A draft April 2014 report has been issued by the DOH.

found in plants and is used as an indicator of biomass in the water body. High chlorophyll *a* levels after a rain event can also be attributed to nutrients being washed into the water body. Turbidity and total suspended solids (TSS) concentrations measure the amount of suspended solids in the water. High levels of TSS and turbidity can increase sedimentation and siltation. Enterococci are bacteria found in the intestines of humans and are an indication of the water quality with respect to human pathogens found in sewage. Priority ratings for the establishment of a Total Maximum Daily Load (TMDL) were also given to each water body in the list. A TMDL is the maximum amount of a pollutant that a body of water can receive and still meet water quality standards.

Kaneohe Bay was assessed in several different locations. The locations of the various streams are shown on Figure 9. The Kaneohe Stream was listed as medium (M) in priority for the establishment of a TMDL. The total nitrogen, nitrate + nitrite nitrogen, total phosphorus, total turbidity, and TSS were approved for TMDLs. The Kaneohe Stream was also approved for the establishment of a TMDL in 2010. The Kawa Stream was listed as low (L) in priority for the establishment of a TMDL. The total nitrogen, nitrate + nitrite nitrogen, total phosphorus, total turbidity, and TSS were approved for TMDLs. The Kawa Stream was also approved for the establishment of TMDLs in 2002 and 2005.

Keaahala Stream was listed as low (L) in priority for the establishment of a TMDL. The total nitrogen, nitrate + nitrite nitrogen, total phosphorus, and total turbidity were not attained within the standards. A drain inlet on the northwest corner of the Waikapoki WWPS site discharges into Keaahala Stream.

5. Hydrology and Water Resources

Previous geotechnical investigations in the area indicated that the groundwater table elevations typically range between zero and two feet above MSL. Due to the abundance of rain in Kaneohe, the groundwater table often rises during wet weather which causes more groundwater to seep into cracked pipes and increase infiltration. Rain events also cause increased inflow of rainwater into the sewer lines from manholes and illicit gutter and drain connections.

The project site is located below the Underground Injection Control (UIC) line established by the DOH. This indicates that the groundwater at the site is brackish and not considered suitable for potable purposes. The State of Hawaii Department of Land and Natural Resources records indicate that there are no wells within the project site. The closest well is an unused U.S. Army well located approximately three-eighths of a mile south of the project site.

6. Flood Hazard

The site is situated on filled land with an elevation of approximately eight feet above MSL. Based on flood zone boundaries established in 2011, the Waikapoki WWPS site has a Flood Insurance Rate Map (FIRM) Flood Zone designation of Zone AE (special flood hazard area inundated by 100-year flood) on the northern portion of the site near the Keaahala Stream and a designation of Zone X (areas determined to be outside the 500-year flood plain) on the southern portion of the site. Updated flood zone boundaries, effective on November 5, 2014, will revise the FIRM Flood Zone designations for the WWPS site to Zone AE and Zone XS (areas determined to be within the 500-year flood plain) along the northern boundary of the site adjacent to Keaahala Stream and a designation of Zone X for the remainder of the site. The flood zone designations are defined by Federal Emergency Management Agency (FEMA) as follows:

- Zone AE – *Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Base Flood Elevations are shown within these zones*.
- Zone XS – *Moderate risk areas within the 0.2-percent-annual-chance floodplains, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No Base Flood Elevations or base flood depths are shown within these zones*.
- Zone X – *Minimal risk areas outside the 1-percent and 0.2-percent-annual-chance floodplains. No Base Flood Elevations or base flood depths are shown within these zones*.

The preliminary flood hazard assessment report from the State of Hawaii National Flood Insurance Program is shown on Figure 10. The approximate boundaries for Zone AE, Zone XS, and Zone X for the pump station site are shown on Figure 3. Based on the 2011 flood zone boundaries, a portion of the generator building and fuel tank were located in Zone AE. Based on the 2014 flood zone boundaries, the majority of the pump station site, including the generator building and fuel tank, will be located in Zone X.

The project site is not located in the tsunami evacuation zone as indicated by the Tsunami Evacuation Zone Map by the Department of Emergency Management. In the event of a tsunami, waves should not exceed four feet above MSL in the area of the pump station and evacuation will not be necessary.

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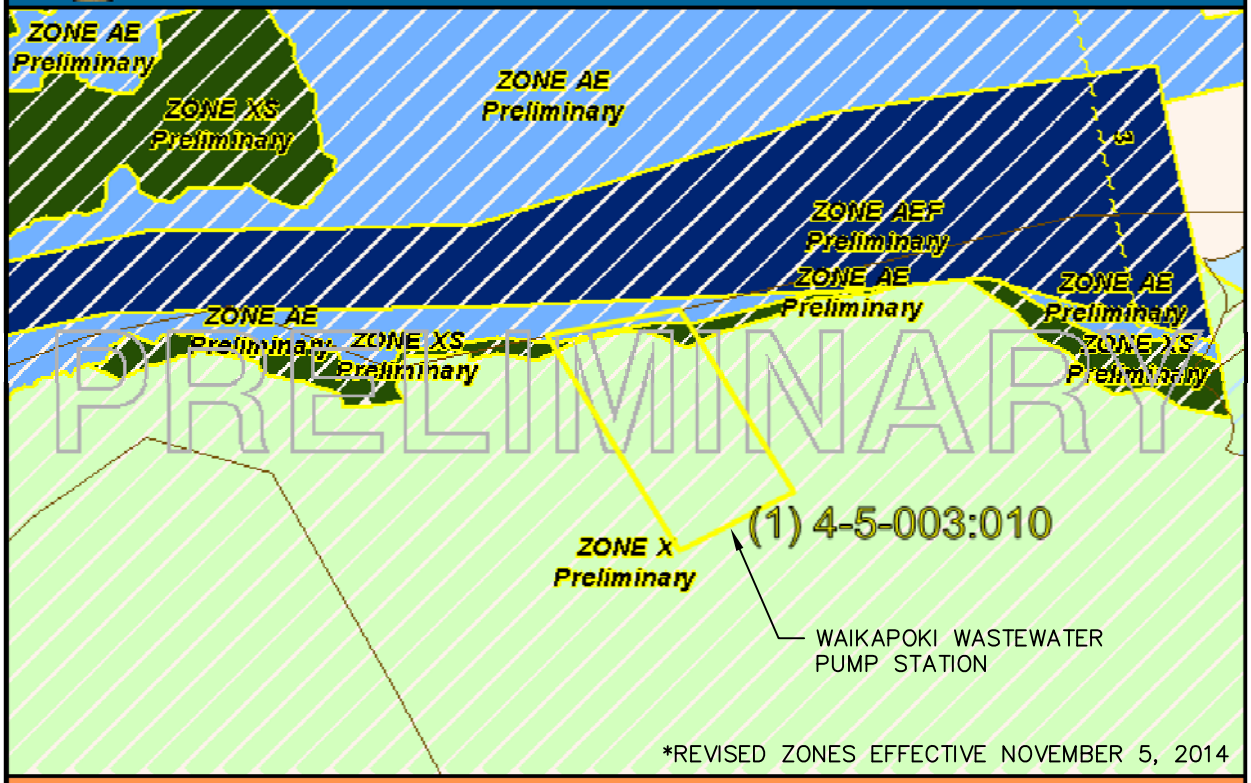
State of Hawaii

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) 4-5-003-010
PARCEL ADDRESS:	45-919 WAILELE RD KANEOHE, HI 96744
FIRM INDEX DATE:	JANUARY 19, 2011
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0270H
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	APRIL 2014
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 (DLNR) 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 DLNR from any liability, which may arise from its use.

If this map has been identified as "PRELIMINARY" or "UNOFFICIAL", please note that it is being provided for informational purposes and is not to be used for official/legal decisions, regulatory compliance, or flood insurance rating. Contact your county NFIP coordinator for flood zone determinations to be used for compliance with local floodplain management regulations.

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HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	PRELIMINARY FLOOD HAZARD ASSESSMENT REPORT	FIGURE 10

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7. Flora and Fauna

The proposed construction is located primarily within a developed residential area in the Kauhale Beach Cove townhouse development which is heavily landscaped with trees and ornamental plants.

The Geographic Information System (GIS) data from the State of Hawaii Office of Planning confirmed that endangered flora and fauna are not anticipated to be found within the project area. The critical habitat GIS data outlines areas that are essential for endangered or threatened species to recover. The review of the threatened and endangered plants GIS data indicated that the project site has "little or no threatened and endangered plant species."

The United States Department of Interior Fish and Wildlife Service indicated that the endangered Hawaiian hoary bat (Lasiurus cinereus semotus, 'ope'ape'a), the endangered Hawksbill sea turtle (Eretmochelys imbricata, 'ea) and the threatened green sea turtle (Chelonia mydas, honu) were documented within the project vicinity. In addition, the wedge-tailed shearwater (Puffinus pacificus, 'ua'u kani), protected under the Migratory Bird Treaty Act, may be present within the project vicinity.

Keaahala Stream is inhabited by the native Hawaiian prawn (opae' kala'ole) and several types of 'o'opu fish ('o'opu nakea, 'o'opu okuhe, and 'o'opu naniha).

There have been some observations of endangered waterbirds and mammals within a one and a half mile radius of the project area. Sightings of the Hawaiian duck (koloa maoli) have been reported at the Heeia Pond and Kaneohe Bay. The Hawaiian coot ('alae ke'oke'o), the Hawaiian stilt (ae'o), and the Hawaiian gallinule ('alae 'ula) have also been sighted at the Heeia Pond. Sightings of the Hawaiian monk seal on Coconut Island have also been documented. All of these animals are currently listed on the Federal government's endangered species list.

8. Historic and Archaeological Sites

The archeological assessment for this project is included in Appendix B. There is a low density of documented archaeological sites in Kaneohe Ahupuaa. This is in large part attributed to destruction of pre-Contact Hawaiian sites during historic farming and modern development (Hammatt and Shideler 2006:20). Background research produced no record of previous archaeological projects or documented sites in the Waikapoki WWPS project area. With the assistance of local informants, McAllister's (1933) systematic survey and recording of major sites throughout Oahu identified eight extant and former archaeological sites in the vicinity of the project area. The sites include four traditional Hawaiian fishponds (*loko*), two *heiau*, a traditional house site, and a ditch that reportedly separated the *'ili* of Punaluu and Waikalua.

Research indicates that numerous *loko* along the Kaneohe Bay coast produced an abundance of marine resources in the past, with four of these *loko* near the present-day project area. The largest of these *loko*, Kalokohanahou, was filled for residential development around 1949 (Hammatt and Shideler 2006:7). Directly south of this fishpond and still visible today is Kanohuluiwi *loko*, described in a 1975 study as a small private fishpond in good condition (Henry 1993: Table 3). Adjacent to and south of Kanohuluiwi was Waikapoki *loko*, which was combined with a smaller unnamed fishpond to the south. Lastly and immediately south of Waikapoki was Punaluu *loko*, which was filled for residential development prior to the 1950s (Henry 1993: Table 3).

Documented cultural deposits containing thousands of portable artifacts and in situ ancient Hawaiian burials indicate that a substantial pre-Contact Hawaiian village once existed at the mouth of Kaneohe Stream (Clark and Riford 1986). Archival research shows another large traditional Hawaiian community once existed on the lower floodplain of Kaneohe and Kawa Streams (Hammatt and Borthwick 1989). Based on land use history and previous research, Keaahala Stream was also a preferred area for early Hawaiian settlement.

9. Cultural Resources and Practices

There are no known significant cultural resources and practices identified within the project area. There are no recorded traditional cultural places (TCPs) or known National Register of Historic Places (NRHP) eligible sites within the project area. No impacts are anticipated. Past development of the project area has substantially altered the site from its natural condition.

10. Air Quality and Odors

Existing air quality data for the Kaneohe area is not readily available. The closest air monitoring point is located in Honolulu, located at 1250 Punchbowl Street, approximately 12 miles south of the project site. The station monitors coarse particulate matter ten microns or less in aerodynamic diameter (PM_{10}). These particulate matters could originate from the road, windblown dust, and crushing and grinding operations. In 2013, the annual average 24-hour PM_{10} in Honolulu was 11.4 $\mu g/m^3$, which was significantly below the state and federal standard of 150 $\mu g/m^3$. The Honolulu monitoring station does not necessarily characterize the air quality at the project site. The project site is not situated within an air quality maintenance or non-attainment area. There are no known significant permanent sources of air pollution located in Kaneohe.

Wastewater in wetwells may potentially generate odors due to the occurrence of septic conditions within the wetwell and growth of anaerobic sulfide producing bacteria. However, during field investigations of the Waikapoki WWPS site, strong odors were not noticeable. This is most likely due to the relatively small size of the upstream

sewage collection system. The detention time within the system is relatively short and therefore wastewater should not exhibit a high degree of septicity.

11. Noise

For the homes located near the Waikapoki WWPS, sources of noise in the area may be attributed to:

- Existing vertical dry pit extended shaft non-clog centrifugal pumps.
- Emergency generator located in the pump station building.
- Vehicular traffic (local traffic).
- Others such as aircrafts, boats, birds, wind and people engaged in routine activities.

The current noise levels of the site were not measured for this environmental assessment. The proposed project will include acoustical treatment to provide sound attenuation for the new pumps, ventilation system and emergency generator. This is discussed in more detail in Section 3.

12. Hazardous Substances

In 1996, a Phase I Environmental Site Assessment (ESA) was conducted on the Waikapoki WWPS site by Woodward-Clyde Consultants for the "Waikapoki WWPS Force Main Replacement" project. The ESA for this project was based on a site reconnaissance and review of information from records and interviews. The purpose of the study was to identify "recognized environmental conditions" that may impact the proposed project.

Hazardous substances or petroleum products in the soil or groundwater would be of concern with regards to excavation work, disposal of excavated material, disposal of dewatering effluent, and the structural integrity of plastic pipelines (i.e., potential chemical attack on polyvinyl chloride pipe materials). Past City and County of Honolulu Fire Department records indicated that two minor hazardous materials spills have occurred within a quarter mile radius of the Waikapoki WWPS site. The spills include a leaking five-gallon propane tank and leaking automobile fuel tank occurred on Waikalua Road in 1988 and 1995, respectively.

An aboveground liquid propane tank for the Waikapoki WWPS's emergency generator exists on the north end of the pump station site. There are no underground storage tanks that are registered with the DOH in the vicinity of the project site.

As part of the ESA for the Waikapoki WWPS Force Main Replacement project, VISTA Information Solutions, Inc. (VISTA), an independent information service, was subcontracted to conduct a records search of the project site and surrounding area. One

Leaking Underground Storage Tanks (LUST) site was identified. The site is the Kaneohe Police Station located at 45-270 Waikalua Road. Information regarding the status of the tank was not available. The LUST site is approximately 5,000 feet from the proposed construction and will not impact the project.

On February 9, 2007, a survey for asbestos containing materials (ACM), lead containing paint, and arsenic containing materials was conducted at the Waikapoki WWPS by Kimura International, Inc. The complete survey report is available upon request.

During the asbestos survey, 96 samples of suspected building material were collected for asbestos analysis. The following building materials were identified as asbestos containing materials: door caulking, window caulking, cementitious-like board, caulk around window louver, vibration dampening cloth in generator room. Due to risk of creating an exposure hazard, the exhaust system above the generator was not sampled since the asbestos sampling needed to be conducted by destructive sampling. Samples were also not obtained from electrical systems and interior machine components due to the risk of electric shock and other safety hazards. If necessary, electrical and other equipment can likely be removed without disturbing any potential asbestos containing material.

During the lead paint survey, 17 lead paint samples were taken for analysis. Detectable levels of lead were found on 16 of the samples. Three samples were identified as lead-based paints, which is defined as having lead in concentrations greater or equal to 0.5 percent by weight or 5,000 milligrams/kilogram (mg/kg). The three samples were as follows: gray paint on exhaust fan located on the intermediate floor, yellow paint on the ground floor control room, green paint on the generator.

An arsenic level of 3.9 mg/kg was found in the gray fissured-pattern panel located in the exterior of the building. The panels are approximately 96 square feet.

C. SOCIO-ECONOMIC SETTING

1. General

Prior to development, Kaneohe was an agricultural area because of the abundance of rainfall on the windward side of Oahu. Now the town is mostly residential and is one of the two largest residential communities on the windward side. The area consists mainly of low rise, low density, single family homes. The Koolaupoko Sustainable Communities Plan indicates that the area is targeted to remain as a residential suburb with limited growth in the future. The Kaneohe town core includes commercial businesses and retail activities to service the neighborhood. Kaneohe is Neighborhood Area No. 30 and is a census-designated place (CDP).

2. Population

Kaneohe has a resident population of 34,597 residents based on the 2010 Census data. The area includes 11,138 households with an average household size of 3.05 persons. In comparison, the average household size for Oahu is 2.95. The Waikapoki WWPS service area is fully developed and population growth is anticipated to be minimal.

3. Socio-Economic Background

Based on the 2010 Census data, the median household age is 41.9 for the Kaneohe area. Kaneohe has 34.5 percent of households with individuals under 18 years of age and 37.4 percent of households with individuals 65 or older. In comparison, the median age on Oahu is 37.8. The 2010 Census data indicates that Oahu has 34.8 percent of households with individuals under 18 years of age and 31.2 percent of households with individuals 65 or older. Based on the U.S. Census Bureau data for years 2008 to 2012, 93.2 percent of individuals over 25 years of age in Kaneohe obtained a high school diploma or higher and 33.7 percent obtained a bachelor's degree or higher. The median household income in Kanehoe is $82,366 and 5.7 percent of the Kanehoe residents are below the poverty level. In comparison, the median household income for the City and County of Honolulu is $72,292 and 9.6 percent of the population is below the poverty level.

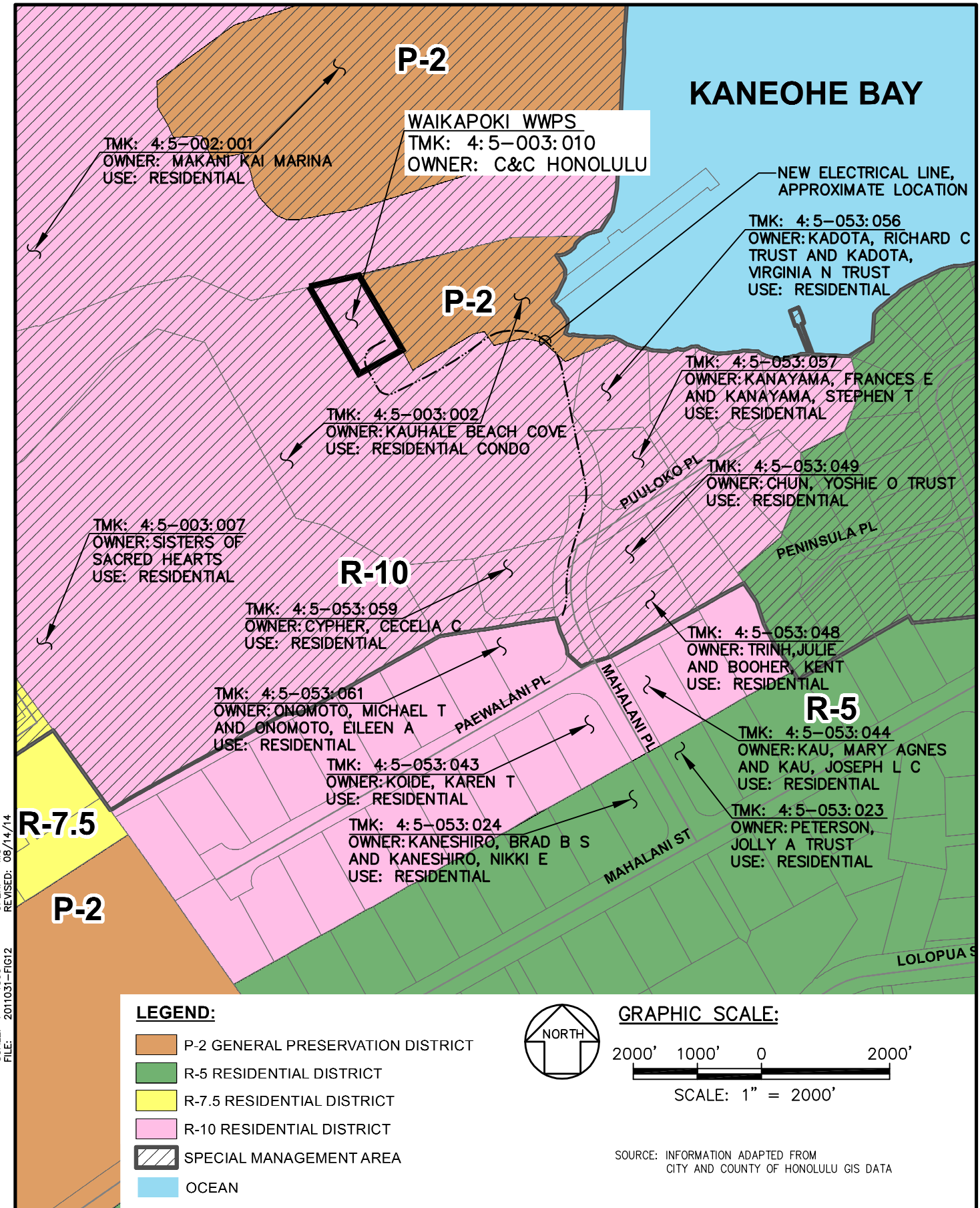
4. Land Ownership, Land Use, and Land Use Designations

The Waikapoki WWPS parcel is owned by the City. According to the City and County of Honolulu's Land Use Ordinance (LUO), the parcel is zoned R-10 Residential District, which is a district intended for large lot developments or transitional areas between preservation, agricultural or country districts and urban districts. This land use would also apply to lands where residential use is desirable but some development constraints are present. Due to its proximity to the shoreline, the project site is also within the City's Special Management Area (SMA) which is discussed further in Section 3. A map showing the zoning and SMA is shown on Figure 11.

The area around the Waikapoki WWPS is mainly residential. A study of aerial photographs dating back to 1949 show that the area was scarcely developed at the time and consisted mostly of farmlands and trees. The project site and the area surrounding it were overgrown with vegetation and trees. Some structures existed along Waikalua Road, Waikapoki Road, William Henry Road, Wailele Road and Mahalani Street, including some homes and the Sacred Hearts Academy.

Aerial photographs from the 1950s show more residential development in the area. Mahalani Circle and Mahalani Place were fully developed. A 14-acre residential yachting community called Makani Kai Marina to the north of the project site across Keaahala Stream was also developed.

In 1965, the Waikapoki WWPS was constructed on the project site. The surrounding area which would later become the Kauhale Beach Cove townhouse complex was still overgrown with vegetation. In the mid-1970s, the Kauhale Beach Cove townhouse complex, a planned development housing (PDH) project, was constructed in the area surrounding the pump station. The development is comprised of one to three story wooden residential buildings on a 5.15 acre parcel.



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HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	ZONING AND SPECIAL MANAGEMENT AREA (SMA) MAP	FIGURE 11

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Section 3

Potential Impacts and Proposed Mitigation Measures

SECTION 3
POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

A. INTRODUCTION

This section presents an assessment of the potential environmental impacts and describes the proposed mitigation measures for the Waikapoki WWPS Upgrade project.

Significant long-term negative impacts associated with the Waikapoki WWPS Upgrade project are not anticipated. Environmental impacts will be limited primarily to short-term disruptions associated with construction activities. The project will have the beneficial effects of reducing the potential for future wastewater spills and the associated public health hazards and adverse water quality impacts in Kaneohe Bay.

B. LAND ALTERATION AND AESTHETICS

Mitigative actions will be taken to minimize adverse impacts to the aesthetics of the area. Short-term impacts associated with land alteration and aesthetics will result from the construction activities. The work will include trenching in paved and non-paved areas, stockpiling of materials, dust fences and general visual/aesthetic deterioration. These impacts will cease upon completion of construction and the affected areas will be restored to their original condition to the extent possible. The City and County of Honolulu will provide construction inspection and monitoring services to ensure that the contractor performing the work adheres to all environmental regulations applicable to construction activities.

C. FLOOD HAZARD

No changes to existing grades in the floodway are proposed. The fuel tank and the generator building will be located within Flood Zone X. During construction, the contractor will be prohibited from erecting temporary structures and storing fill, excavated material, or equipment within the floodway to ensure that the floodway is not blocked or changed. A Flood Hazard District Certification for the project will be submitted as required to certify that there will be no adverse flood hazard impacts.

The project will not have an impact on the capacity of the floodway or be impacted by the regulatory 100-year flood.

D. FLORA AND FAUNA

No endangered flora is anticipated to be found at the project site. Flora outside of the pump station site will not be disturbed.

The endangered Hawaiian hoary bat, the endangered Hawksbill sea turtle, the threatened green sea turtle, and the wedge-tailed shearwater may be encountered within project vicinity during construction. The recommended Best Management Practices by the United States Department of Interior Fish and Wildlife Service will be implemented to protect the endangered and threatened fauna to the maximum extent practicable.

The proposed project is not expected to impact the fauna in Keaahala Stream and Kaneohe Bay. Mitigative measures will be taken to minimize potential adverse impacts to the water quality of Keaahala Stream and the native Hawaiian species which inhabit the stream.

E. SURFACE WATER QUALITY

The contractor will be required to develop and implement a Best Management Practices (BMP) plan to prevent adverse water quality impacts to the maximum extent practicable. The contractor will be required to prevent silt-laden runoff from active work areas, construction access roads, and material stockpiles by complying with the City's BMP Manual for construction sites. Provisions will be included in the contract plans and specifications that will limit the volume of soil that the contractor is allowed to stockpile at the construction site. This will minimize the risk of having significant amounts of soil washing into the storm drainage system during a major storm.

Work requiring dewatering is expected to be minimal since most of the construction will occur above the water table. Discharge of dewatering effluent to Keaahala Stream or Kaneohe Bay will not be permitted for this project unless the contractor obtains a National Pollutant Discharge Elimination System (NPDES) permit from the State Department of Health (DOH). Due to difficulties and time delays in obtaining an NPDES permit, particularly for discharging to the Class AA waters of Kaneohe Bay, it is anticipated that the contractor will utilize other methods of disposing the dewatering effluent and/or construction methods that will mitigate any dewatering. These methods may include discharging the effluent into other nearby excavation trenches, irrigating the surrounding vegetation, and hauling the water to an acceptable disposal site. It is anticipated that the contractor will utilize construction methods which will minimize the production of dewatering effluent.

Although the BMP plan and NPDES permit will help to minimize water quality impacts, there will still be some potential for discharge of silt and other construction debris into the storm drainage system or directly into Keaahala Stream. The DOH or City's Stormwater Branch will be responsible for citing the contractor for any illicit discharges and water quality violations. The City will notify the residents of the townhouse developments on either side of Keaahala Stream upon commencement of the construction to be aware of and report to DOH any discoloration or other unusual appearances of the stream water. City construction inspectors will monitor the operations of the contractor to the extent possible.

The proposed effort to prevent the discharge of silt and other pollutants into Kaneohe Bay to the maximum extent practicable through best management practices and diligent monitoring

is consistent with the pollution control objectives and recommendations of the Kaneohe Bay Master Plan (Kaneohe Bay Master Plan Task Force, et al., 1992).

F. GROUNDWATER QUALITY

The proposed upgrade project is not anticipated to have adverse impacts on the groundwater. The project may improve groundwater quality in the service area because the increased pump capacity will reduce the potential for spills and groundwater contamination.

G. AIR QUALITY AND WASTEWATER ODORS

The use of construction equipment such as backhoes, trucks, compressors, portable generators, hand compactors, and pavers will create noise, dust and exhaust emissions. The contractor will be required to control the generation of dust by adequately watering down the construction site, keeping the construction site and access roadways reasonably free of dust causing materials, and implementing other appropriate dust control practices in accordance with the City's BMP Manual for construction sites.

The proposed pumping capacity upgrade is not expected to generate noticeable odors. The system has not had significant odor problems in the past and is not likely to have odor problems during or following construction of the upgrade project. The higher pumping capacity may potentially reduce odor in the downstream sewer system by allowing for improved flushing of the lines to decrease solids accumulation and hydrogen sulfide gas production.

H. NOISE

The noise level will increase during the construction period. The construction equipment noise and sounds associated with construction activities will be minimized by ensuring properly functioning mufflers are provided on machinery and restricting construction activity to normal working hours. The contractor will be required to meet applicable vehicular and community noise standards established by the DOH. Work on weekends will be limited to the extent possible.

Under the DOH Regulations, Title 11 Chapter 46 Hawaii Administrative Rules, the Waikapoki WWPS is classified as Class A which applies to residential, conservation, preservation, public and open spaces. The noise requirement for this class is 55 dBA for daytime (from 7 a.m. to 10 p.m.) and 45 dBA for nighttime (from 10 p.m. to 7 a.m) along property boundaries. Acoustical treatment recommended by an acoustical consultant will be provided in the existing pump station building and new emergency generator building to minimize noise emissions.

Sound attenuation treatments will be required to reduce sound levels from the pump station building. Existing exterior doors will be replaced with acoustical rated metal doors and frames. Existing wall louvers and high jalousies around the building perimeter will be

removed and openings in-filled with solid walls to control equipment noise transmission to the neighborhood. For the ventilation system for the existing building, internally lined ducts, and spring vibration isolators for the discharge exhaust and inlet supply fans will be provided.

The new emergency generator building will have acoustical rated metal doors. Interior bare surfaces of the exterior walls and the underside of the roof deck are proposed to be lined with semi-rigid fiberglass panels totaling four inches in thickness for acoustical treatment. Duct silencers are proposed to be installed at the air intake and discharge wall openings to reduce equipment noise to the outside. The generator will be equipped with an exhaust silencer, exhaust piping and engine cooling ductwork with acoustical treatment for noise attenuation. The generator is also proposed to be mounted on spring vibration isolators.

I. ARCHAEOLOGICAL AND HISTORIC SITES

The previous development of the project area and immediate vicinity largely occurred before the enactment of cultural resource management rules and regulation. Records on soil stratigraphy and earlier archaeological results within the project area are not available. Thus, anticipated archaeological findings are based on previous archaeological investigations in comparable environments along Kaneohe Bay.

Historic maps indicate the low elevation area within which the present-day Waikapoki WWPS site exists, was once a traditional Hawaiian fishpond, filled to an unknown depth during the dredging of the Waikapoki fishpond between 1928 and 1949 (Henry 1993: Table 3; Park et al. 2008: Figure 8). The Waikapoki *loko* once had a southern dividing wall as depicted on an 1876 map. Superposition of the Waikapoki WWPS property over georectified historic maps places the majority of the project area directly over the dividing wall that separated the original Waikapoki *loko* and the adjacent unnamed fishpond. However, a 1928 map no longer shows this dividing wall, indicating the dividing wall was removed between 1877 and 1927, combining Waikapoki *loko* with the adjacent unnamed fishpond.

Archaeological investigations at Kalokohanahou *loko,* which is approximately 218 yards (200 m) north of Waikapoki *loko*, unearthed a pond facies layer (sedimentary deposits) directly below the construction fill (Park et al. 2008). A large basalt boulder was also discovered; likely a remnant of the Kalokohanahou *loko* retaining wall. Similarly, it is anticipated that subsurface evidence of the Waikapoki *loko* may be encountered in the form of a gleyed soil layer or remnants of the retaining wall that once separated the small unnamed fishpond from Waikapoki *loko*.

Land use history and previous archaeological studies indicate the mouths of streams, like Keaahala Stream, were preferred areas for early Hawaiian settlement (Hammatt and Shideler 2006:20). Thus, there is a possibility that undisturbed cultural deposits associated with an early traditional Hawaiian settlement could exist beneath the construction fill.

Construction will take place on previously disturbed areas. Construction excavations at the Waikapoki WWPS will generally be limited to the fill layer. Potential for findings during excavations is minimal. The emergency generator building and fuel tank will be supported on deep foundations consisting of drilled and grouted micropiles with an outside diameter of 7 inches. During the micropile drilling operation, there is a possibility of encountering evidence of a former *loko* and possibly its associated retaining wall. Potential adverse effects resulting from ground disturbing actions will be mitigated by implementing a proactive archaeological monitoring program that includes detailed documentation and protocol for managing inadvertent discoveries.

J. CULTURAL RESOURCES AND IMPACTS

There are no known significant cultural resources and practices identified within the project area. There are no recorded TCPs or known NRHP eligible sites within the project area. No impacts are anticipated. Past development of the project area has substantially altered the site from its natural condition.

K. HAZARDOUS SUBSTANCES

Based on the previous land use of the project site for agriculture and wastewater treatment, remediation work for underground hazardous materials is not anticipated to be required at the project site.

The contractor will also be required to hire a qualified asbestos abatement contractor to remove materials containing asbestos in areas where renovation activities are likely to disturb the asbestos containing material. The untested generator exhaust silencer and electrical components that may contain asbestos will be required to be removed intact and disposed of by the abatement contractor. The services of a qualified consultant will be obtained to monitor and inspect the removal activities to ensure compliance with applicable federal, state and local guidelines and regulations pertaining to the handling of asbestos containing material.

Due to the presence of lead in the painted surfaces, the contractor will be required to hire a qualified lead abatement contractor to remove lead paint for renovation activities that are likely to disturb painted surfaces. A qualified consultant will also be retained during construction to conduct inspections, air monitoring and clearance sampling during the removal of lead paint. The detectable levels of lead were below 5 milligram per liter (mg/L), the definition of Resource Conservation and Recovery Act (RCRA) regulated hazardous waste. No special disposal requirements for lead paint are therefore anticipated. During the construction phase of the project, however, the contractor will be required to verify the levels of lead in paint for building components that are removed by sampling using the Toxicity Characteristic Leaching Procedure (TCLP) prior to disposal. If it is determined during construction that the levels of lead exceed 5 mg/L, the entire building component must be disposed of as RCRA regulated hazardous waste. The contractor will be required to dispose

of the lead containing paint as a RCRA regulated hazardous waste. Metal scraps are exempt from TCLP testing if the scraps are recycled.

Currently, there are no regulatory standards for arsenic in building material. Activities such as sanding, grinding, cutting, abrading, and drilling can create airborne arsenic containing particulates or dusts that can be inhaled and pose a health risk. Such activities will be avoided. If affected by the renovation or demolition work, the arsenic containing panels will be required to be removed and properly disposed by qualified personnel.

The contractor will remove as much hazardous material as possible. Undisturbed potential hazardous materials to remain on site will be identified and documented in the pump station's operation and maintenance manual with instructions for the appropriate measures.

L. TRAFFIC

Prior to the commencement of the project, the residents and neighborhood board will be apprised of the project. Residents in the immediate work area may be inconvenienced by restrictions to driveway access and roadway frontage usage. The contractor and the City will coordinate closure of private driveways with the affected property owners prior to the closure.

The contractor will be required to make provisions for emergency access and will be required to provide full access during non-working hours. Emergency services (fire, ambulance and police) will be notified prior to implementation of any required detours or street closures, though none are anticipated. The contractor will be required to notify the City Department of Transportation Services to alert Oahu Transit Services of the construction activity.

Contractor will be required to establish base yard to park and store all equipment when not in use. The contractor will be required to provide adequate and safe sidewalk widths, allow for adequate visibility, and institute other actions to ensure pedestrian and motorist safety. The contractor will be required to provide the residents of Kauhale Beach Cove with pedestrian access to their units, mailboxes and cars at all times.

M. USE OF ENERGY

The proposed upgrade will utilize efficient solid-state variable speed drives and new higher efficiency pumps; however, the overall energy use may be comparable or higher than the current energy use due to the increased overall pumping capacity of the pump station. Based on the proposed project's three 34-horsepower pumps configuration, the new electrical load for the pump station and emergency generator building was calculated to be approximately 160 KVA (kilo-volt-ampere).

N. USE OF POTABLE WATER

The proposed upgrade will not result in an increase in the use of potable water. The new dry pit submersible pumps will not require potable water for cooling and lubrication of pump seals. Potable water will continue to be used for periodic washdowns of the pump room and wetwell.

O. SUSTAINABLE DESIGN

The proposed project will employ sustainable design features and concepts where possible and practicable. The proposed upgrade to the existing facility will promote efficient use of water, energy and construction materials. The project will also help to protect pubic health and preserve the environment by reducing the potential for sewage spills and promoting efficient wastewater transmission.

The upgraded facilities will reduce energy consumption and minimize the use of resources. Anticipated sustainable design features include reuse of topsoil, reuse of excavated material for fill, and salvaging of equipment and recycling of metals from demolition work. Exposed soil will be replanted as soon as possible and consideration will be given to use of cut vegetation for mulch.

P. SOCIO-ECONOMIC AND LAND USE IMPACTS

The proposed upgrade project is not intended to increase the pumping capacity for development and population growth in the area, but rather to accommodate current and future dry- and wet-weather generated flows. Since the Waikapoki WWPS service area is essentially fully developed, no population increase due to the project is anticipated.

This project will benefit the residents of the service area by minimizing the probability of future public health hazards and sewer service disruptions caused by sewage spills due to inadequate pumping capacity. The proposed acoustical treatment will reduce noise emission and provide for a quieter environment. The City will benefit by reducing the expenditure of manpower for clean up and for reporting/administrative tasks associated with wastewater spills. The City will further benefit by the reduction of risk of legal actions and fines associated with the Clean Water Act. The City will also benefit by reducing cost to operate and maintain the station.

The construction cost of the project is estimated to be approximately $6.0 million. The project will provide employment for contractors and their employees, material suppliers, and others associated with the construction industry.

Q. RELATIONSHIP TO LAND USE POLICIES AND CONTROLS

1. State Land Use District

The Waikapoki WWPS site is classified as "Urban" by the State Land Use Commission and the proposed project is consistent with this designation.

2. Hawaii State Plan

The proposed project is consistent with the Hawaii State Plan (Hawaii Revised Statutes Chapter 226) and complies with the objective of "maintenance and pursuit of improved quality in Hawaii's land, air, and water resources" (§226-13[a][2]). It is also consistent with the policy of the State to "promote the proper management of Hawaii's land and water resources," (§226-13 [b][2]) and "promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters" (§226-13 [b][3]). The project will decrease the risk of sewage spills and thereby improve stream and coastal water quality. The project will meet the needs of the Kaneohe community and does not conflict with the State Plan with respect to the well being of the residents and protection of the environmental and cultural resources.

3. City and County of Honolulu General Plan

The proposed project is consistent with the following policies and objectives of the City's General Plan:

III. *Natural Environment*

Objective A *To protect and preserve the natural environment*

Policy 7 *Protect the natural environment from damaging levels of air, water, and noise pollution.*

V. *Transportation and Utilities*

Objective B *To meet the needs of the people of Oahu for an adequate supply of water and for environmentally sound systems of waste disposal*

Policy 5 *Provide safe, efficient, and environmentally sensitive waste-collection and waste disposal services.*

Policy 7 *Require the safe disposal of hazardous waste.*

Objective C *To maintain a high level of service for all utilities*

Policy 1 *Maintain existing utility systems in order to avoid major breakdowns.*

Policy 2 Provide improvements to utilities in existing neighborhoods to reduce substandard conditions.

Policy 3 Plan for the timely and orderly expansion of utility systems

VII. Health and Education

Objective A To protect the health of the people of Oahu.

Policy 3 Coordinate City and County health codes and other regulations with State and Federal health codes to facilitate the enforcement of air-, water-, and noise-pollution controls.

The project will result in a cost-effective and timely capacity upgrade of the Waikapoki WWPS to decrease the risk of sewage spills and water pollution.

4. Koolaupoko Sustainable Communities Plan

Kaneohe is part of the Koolaupoko District which spans from Makapuu Point, the easternmost point of Oahu, to Kaoio Point at the northernmost end of Kaneohe Bay.

The proposed project is consistent with the following Wastewater General Policies outlined in Section 4.3.3 of the Koolaupoko Sustainable Communities Plan:

- Section 4.3.3 states "Direct all wastewater produced within the Urban Community Boundary and Rural Community Boundary to municipal or military sewer service systems." The pump capacity upgrade in the proposed project will allow for greater efficiency in pumping wastewater to the Kaneohe Bay East Interceptor sewer which discharges to the Kaneohe WWPTF and then the Kailua WWTP, all of which are municipal sewer systems.

- Section 4.3.3 states "Mitigate visual, noise, and odor impacts associated with wastewater collection and treatment systems, especially when they are located adjacent to residential designated areas." Acoustical treatment of the pump station and the proposed generator building will minimize noise emissions from the site. Odors generated by the proposed project are not expected to be a concern.

5. City and County of Honolulu Special Management Area

In Chapter 205A of the Hawaii Revised Statutes (HRS), each county in the State is mandated to establish land near the shoreline as Special Management Areas (SMA). For the City and County of Honolulu, Special Management Areas are established in Chapter 25 of the Revised Ordinances of Honolulu (ROH). Developments within Special Management Areas require a permit.

Due to its vicinity to the shoreline of Kaneohe Bay, the project site is located in the SMA. A request was submitted to the Department of Planning and Permitting (DPP) for a ruling of whether an SMA Use Permit (SMP) is required for the project. DDP has determined that a Major Special Management Area Permit (Major SMP) is required for the project because the new generator building meets the definition of a "development" and the project cost is over $125,000. Major SMPs are processed by the DPP and the authority for approval lies with the City Council.

The proposed project is consistent with the following policies and objectives outlined in Chapter 25 of the ROH:

- Section 25-3.2.a.3 states "Provisions are made for solid and liquid waste treatment, disposition and management which will minimize adverse effects upon special management area resources." The project will have the beneficial effects of reducing the potential for future wastewater spills due to surcharged pipelines and thereby improve stream and coastal water quality.

- Section 25-3.2.a.4 states "Alterations to existing land forms and vegetation; except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation or failure in the event of earthquake." The exterior paint of the proposed generator building will match the appearance of the adjacent buildings. Short-term impacts associated with land alteration and aesthetics will result from the construction activities, and these impacts will cease upon completion of construction and the affected areas will be restored to their original condition to the extent possible. It is not anticipated that the construction activities will affect the existing water resources, scenic and recreational amenities, nor the project area and its vicinity due to floods, landslides, erosion, siltation or failure in the event of earthquake.

- Section 25-3.2.b.2 states "The development is consistent with the objectives and policies set forth in Section 25 3.1 and area guidelines contained in HRS Section 205A 26." This project is in compliance with the objectives and policies set forth in both Section 25.3.1 of the ROH and Section 205A 26 of the HRS.

6. Land Use Ordinance and Zoning

The pump station services primarily residential developments on the southwest shore of Kaneohe Bay and is located in a townhouse complex off Mahalani Place near the shoreline of Kaneohe Bay. The parcel is zoned R-10 Residential District and is within the City's Special Management Area. This project would benefit the residents of the service area by reducing the risk of wastewater spills and associated adverse water quality impacts.

According to the City's Land Use Ordinance, the required front yard setback for uses other than dwellings is 30 feet, and the required side and rear yard setbacks for uses other than dwellings is 15 feet. The existing pump station building encroaches into the required front yard setback by approximately five feet if the front yard is assumed to be the south side of the site where the driveway is located.

Since the new emergency generator building would be classified as an "other use," the setback as required by the Land Use Ordinance (LUO), Chapter 23 of the Revised Ordinances of Honolulu (ROH) is 15 feet. However, due to the required size of the building and limited space, it is proposed that the building be located at five feet clear from the property line. A Zoning Waiver will need to be obtained to allow the new building to encroach within the setback area. The City's Department of Planning and Permitting indicated that the waiver would need to be requested and issued as part of the building permit approval process.

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Section 4

Alternatives Considered

SECTION 4
ALTERNATIVES CONSIDERED

A. INTRODUCTION

This section discusses various alternatives for the proposed Waikapoki WWPS Upgrade project. The alternatives considered and basis for selecting the best alternative are discussed below.

B. PROJECT ALTERNATIVES

1. Preferred Alternative

The preferred alternative is the upgrade work proposed for the existing pump station facility discussed in Section 1 of this environmental assessment. Since this alternative involves upgrading existing facilities, it is the most cost effective and efficient alternative in meeting the pump capacity needs of the Waikapoki WWPS service area.

2. No Action Alternative

The "no build" or "no action" alternative proposes that no action will be taken to upgrade or change the existing pump station. With this alternative, no new environmental impacts would arise, however, existing adverse environmental impacts, such as wastewater spills out of manholes, will continue.

3. Postponed Action Alternative

In the postponed action alternative, like the "no action" alternative, the problem of wastewater spills will continue to pose a threat to public health and safety until the action is taken. The pumping capacity of the pump station needs to be increased by the timeline set forth by the EPA's Consent Decree.

4. Alternative Locations

Seeking alternative locations for a new pump station will require substantial cost and generate numerous environmental impacts. The pump station is the low point in the sewer system that services the region; therefore, all collection system lines will need to be rerouted to the new site. This will require significant construction and the impacts to the community and environment will be substantial.

5. Reconstruct a New Pump Station Building on the Same Site

Reconstructing a new pump station building on the same site will require substantial cost and generate numerous environmental impacts. Due to space constraints, the existing pump station building will need to be demolished prior to the construction of the new

pump station building. This alternative will have a prolonged construction period. The construction cost will exceed the City's construction budget for this project; therefore, this alternative will not be feasible.

Section 5

Determination

SECTION 5
DETERMINATION

A. DETERMINATION

This assessment for the proposed Waikapoki WWPS upgrade project determines that no significant environmental impact will occur and an Environmental Impact Statement is not required. In accordance with the provisions of Chapter 343, Hawaii Revised Statues, an Anticipated Finding of No Significant Impact (AFNSI) is therefore deemed to be in order.

B. SUPPORTING RATIONALE

Reasons supporting the above determination include:

1. **The proposed action does not involve an irrevocable commitment or loss of or destruction of any natural or cultural resources.**

   There are no known significant natural or cultural resources associated with the project site. There are no recorded TCPs or known NRHP eligible sites within the project area. No impacts are anticipated. Past development of the project area has substantially altered the site from its natural condition. There are no anticipated adverse impacts on Native Hawaiian access and gathering rights.

2. **The proposed action does not curtail the range of beneficial uses of the environment.**

   The proposed project is consistent with land use plans, policies and controls and would not curtail beneficial uses of the environment in the area.

3. **The proposed action is in concert with the State's long-term environmental policies, goals and guidelines as expressed in Chapter 344, HRS, and any revisions and amendments thereto, court decisions and executive orders.**

   The proposed project is consistent with the State's Land Use Plan which is in concert with all applicable policies, goals and guidelines. No long-term adverse environmental conflicts are foreseen.

4. **The proposed action does not substantially affect the economic or social welfare of the community or State.**

   There will be some positive economic impacts related to short-term construction activities.

5. **The proposed action does not involve substantial secondary impacts, such as population changes or effects on public facilities.**

   The proposed project will not result in an increase of population in the area. The service area is largely fully developed and is therefore not subject to additional development. The project will not have adverse impacts on other public facilities such as roads, electrical power and water system.

6. **The proposed action does not have significant adverse effects on public health.**

   Short-term impacts associated with construction will have minimal potential for affecting public health. Construction activities will be regulated to minimize noise, dust and exhaust emissions. The project will not result in significant increases in odors and noise. The project will have the beneficial impact of reducing the potential for wastewater spills and the associated risks to public health. Acoustical treatment will be provided to the existing pump station building and new emergency generator building to minimize noise emissions.

7. **The proposed action does not involve a substantial degradation of environmental quality.**

   The existing physical aspects of the surrounding area will be preserved. The project will not result in a significant increase in adverse odor, noise or aesthetic impacts. In addition, reduction of sewage spills will benefit water quality in Keaahala Stream and Kaneohe Bay.

8. **The proposed action is individually limited and cumulatively does not have a significant effect upon the environment or involve a commitment for larger actions.**

   The Waikapoki WWPS Upgrade project is limited in scope to the proposed pump upgrade, facility modifications and other miscellaneous work.

9. **The proposed action does not substantially affect rare, threatened or endangered species or habitats.**

   Based on review of available information, no endangered flora is anticipated to be found at the project site. Several endangered and threatened fauna were documented within the project vicinity. To protect those species, Best Management Practices will be implemented to the maximum extent practicable. Effort will be made to minimize the discharge of silt and other pollutants into Keaahala Stream during construction to prevent to the maximum extent practicable adverse impacts to water quality and native Hawaiian species.

10. The proposed action does not detrimentally affect air, water quality, or ambient noise levels.

Short-term impacts on air, water quality and noise may occur during the construction period, but will be mitigated by construction practices and will be regulated by the project's plans and specifications. Acoustical treatment will be applied to keep noise levels of the proposed facilities within the regulated limits. No increase in odor generation is anticipated. The project will have the beneficial impact of reducing the risk of wastewater spills and the potential for adverse water quality impacts.

11. The proposed action does not affect or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary or coastal waters.

The proposed project is not located in an environmentally sensitive area nor within a tsunami zone. The project is not located on unique geologically hazardous lands. The proposed project is also not anticipated to have any significant adverse impacts on fresh or coastal waters. No unpermitted discharge will be allowed into Kaneohe Bay during construction.

12. The proposed project does not substantially affect scenic vistas and viewplanes identified in County or State plans or studies.

The project site is not part of a unique or valuable scenic resource. The project will have no long-term visual impacts. The generator building proposed to be erected at the northeast corner of the site will be compatible in scale, mass and height with the existing pump station building. The other proposed modifications will be applied to the existing pump facilities and will not impact the viewplane.

13. The proposed action does not require substantial energy consumption.

The additional energy, if any, required to operate the proposed facilities is not significant.

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Section 6

Persons and Agencies Contacted

SECTION 6
PERSONS AND AGENCIES CONTACTED

A. PRE-ASSESSMENT CONSULTATION

Pre-assessment consultation correspondence and other relevant consultation information associated with the preparation of this environmental assessment are presented in Appendix A. Pre-assessment consultations included:

- Written correspondence to various agencies and community members soliciting input.
- Presentation at the Kauhale Beach Cove Board of Directors meeting on January 22, 2014.

Parties contacted for pre-assessment consultation input are listed below. Parties that provided written input are indicated by an "*". Parties which received written responses are indicated with a "+". The following pre-assessment consultation documents are included in Appendix A.

- Sample copy of a typical letter requesting input on the project.
- Copies of correspondence (arranged in order of the agencies/persons listed below).
- Excerpts of the Kauhale Beach Cove Board of Directors meeting minutes.

1. Federal Government

Department of the Interior, Fish and Wildlife Service+
U.S. Army Corps of Engineers, Regulatory Branch+

2. State Government

Department of Health, Office of Environmental Quality Control
Department of Health, Wastewater Branch+
Department of Land and Natural Resources, State Historic Preservation Division
Department of Land and Natural Resources, Oahu Island Burial Council
State of Hawaii, Division of Aquatic Resources+
Office of Hawaiian Affairs
Senator Jill Tokuda, District 24
Representative George Okuda, District 48

3. County Government

Department of Planning and Permitting
Council Member Ikaika Anderson, District 3

4. Others

Ko`olaupoko Hawaiian Civic Club
ALU LIKE, Inc. Central Administration
Hui Malama I Na Kupuna o Hawaii Nei
Kaneohe Neighborhood Board No. 30
The Nature Conservancy of Hawaii
Mr. Thomas French, Makani Kai Marina, General Manager

5. Utilities

Hawaiian Electric Company[+]

6. Kauhale Beach Cove

Ms. Sasha Tsuda, Hawaii First Inc., Property Manager
Ms. Laurel LaClair, Hawaii First Inc., Association Manager
Mr. Larry Lusk, Site Manager
Mr. Brian Kelly, President, Board of Directors
Ms. Tammy Olsen, Vice President, Board of Directors
Mr. Kevin Cotton, Secretary, Board of Directors
Ms. Barbara Lee, Co-Treasurer, Board of Directors
Mr. James Slagel, Co-Treasurer, Board of Directors[+]
Mr. Clayton Iseke, Director, Board of Directors
Mr. Duane Keys, Director, Board of Directors

B. PARTIES TO BE CONSULTED PRIOR TO PREPARATION OF THE FINAL ENVIRONMENTAL ASSESSMENT

Copies of the draft environmental assessment will be mailed or delivered to the following agencies, organizations and other interested parties listed below. Parties consulted during the pre-assessment phase that are not included on the distribution list will be notified of the availability of the environmental assessment and sent a copy if one is requested.

1. Federal Government Agencies

Department of Agriculture, Natural Resources Conservation Service
Department of the Interior, Fish and Wildlife Service
U.S. Army Corps of Engineers, Regulatory Branch

2. State Government Agencies

Department of Business, Economic Development and Tourism, Office of Planning
Department of Health, Office of Environmental Quality Control (2 copies)
Department of Health, Environmental Management Division, Clean Water Branch
Department of Health, Environmental Management Division, Wastewater Branch
Department of Land and Natural Resources, Land Division (5 copies)
Department of Land and Natural Resources, State Historic Preservation Division
Office of Hawaiian Affairs

3. County Government Agencies

Honolulu Board of Water Supply
Department of Planning and Permitting (5 copies)

4. Elected Officials

Senator Jill Tokuda, District 24
Representative George Okuda, District 48
Council Member Ikaika Anderson, District 3

5. Kauhale Beach Cove

Ms. Sasha Tsuda, Hawaii First Inc., Property Manager
Ms. Laurel LaClair, Hawaii First Inc., Association Manager
Mr. Larry Lusk, Site Manager
Mr. Brian Kelly, President, Board of Directors

6. Others

Ko`olaupoko Hawaiian Civic Club
Mr. Roy Yanagihara, Chair, Kaneohe Neighborhood Board No. 30
Mr. Thomas French, Makani Kai Marina, General Manager
Hawaiian Electric Company
Kaneohe Public Library

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Section 7

References

SECTION 7
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Appendix A

Pre-Assessment Consultation Correspondence and Documentation

SAMPLE LETTER REQUESTING INPUT

July 28, 2014

C/O Pacific Reefs Nwr Complex
Fish and Wildlife Service
Department of the Interior
300 Ala Moana Boulevard, Box 50167
Honolulu, HI 96850-5000

Subject: Waikapoki Wastewater Pump Station (WWPS) Upgrade
Pre-assessment Consultation for Environmental Assessment
TMK: 4-5-003:010

To Whom It May Concern,

HDR Engineering, Inc. (HDR), on behalf of the Department of Design and Construction of the City and County of Honolulu (City), is preparing an environmental assessment for the Waikapoki Wastewater Pump Station Upgrade project. HDR is soliciting pre-assessment comments and input on this project.

Background Information and Project Objectives

The Waikapoki Wastewater Pump Station (WWPS), owned and operated by the City, is located in Kaneohe on the windward side of Oahu. The site is situated adjacent to Keaahala Stream and within the Kauhale Beach Cove townhouse complex near the shoreline of Kaneohe Bay. The 8,101 square foot parcel site is located on 45-919 Wailele Road and is accessed through the driveway of the Kauhale Beach Cove, which is located at 45-180 Mahalani Place.

The pump station currently services approximately 3,000 residents in the residential developments on the southwest shore of Kaneohe Bay. Wastewater collected from the service areas flows by gravity flow sewer lines to the Waikapoki WWPS, and is then pumped and discharged to the Kaneohe Bay East interceptor sewer for transmission to the Kaneohe Wastewater Preliminary Treatment Facility. Flow is conveyed from the pump station via a force main (pressurized line). A location and service area map is shown on Figure 1.

The pump station, which was placed into service in 1966, requires additional pumping capacity. Past studies evaluating historical flow data have found that due to high levels of infiltration and inflow (I/I) from rain induced flow entering the sewer system, the pumping capacity should be increased. This capacity upgrade project was recommended in the "Final Sewer I/I Plan, Rehabilitation and Infiltration and Inflow Minimization Study," December 1999, prepared by the City for the U.S. Environmental Protection Agency (EPA) under Consent Decree Civ. No. 94-00765 DAE. The capacity upgrade is not intended to support additional development in the service area, which is essentially fully developed.

The City proposes to upgrade the Waikapoki WWPS to increase the pump station's capacity, reduce the noise from the pump station, improve its reliability, and minimize and facilitate maintenance. Specific objectives and requirements of the project are as follows:

- Upgrade of the pumps is proposed to increase the capacity of the pump station to increase the margin of safety in meeting peak wastewater flow capacity requirements. Increasing the capacity will allow the station to accommodate the increased flow to the station due to high levels of I/I. Wastewater flows increase significantly during wet weather due to increased infiltration of groundwater and direct inflow of rainwater into sewer pipes through pipe and manhole defects and illicit connections such as roof gutters and outdoor drains. The existing Waikapoki WWPS and some of the sewer lines in the service area have inadequate capacity and are stressed during high flows. High flows during major storm events have resulted in past sewage spills in the area. Future long-term plans include diverting flow from the upstream Kahanahou WWPS to another portion of the system to reduce the Waikapoki WWPS flow.
- Promote improved overall reliability and ease of maintenance. Renovation of the pump station facility is proposed to upgrade the facility to more current technologies. This will include much needed electrical and instrument upgrades.
- Provide adequate and reliable backup power systems. This will be achieved by installing a larger emergency generator in a new generator building.
- Reduce noise from the pump station. Acoustical treatment will be provided to minimize noise from the pumps and emergency generator.
- Meet applicable building codes, safety requirements and perform miscellaneous site improvements.

Proposed Project

A general site plan for the project is shown on Figure 2. The proposed project includes the following:

- Three new dry-pit submersible pumps with larger capacities will replace the two existing vertical extended shaft pumps. The new pumps will produce less noise because the pump motors, rather than being located on the ground floor, will be on the bottom floor, approximately two stories below ground. The pumps and motors are designed to operate underwater when flooding occurs.
- The existing exhaust system will be removed and replaced with a new ventilation system to meet current safety standards. The ventilation system will be provided with noise attenuation features.
- A new generator building will be constructed in the northeast corner of the site and a new diesel fuel tank will replace the existing propane fuel tank.
- The existing generator room will be converted to an electrical and motor control center (MCC) where electrical and instrument upgrades will be implemented.

1132 Bishop Street, Suite 1200, Honolulu, HI 96813-2822
T 808.697.6200 F 808.697.6201

- A new Hawaiian Electric Company (HECO) pad mounted transformer will replace the existing transformer to support the increased electrical load. A new underground electrical line will be installed through the existing utility easement from Mahalani Place to the new transformer. The general route of the new electrical line is shown on Figure 3.
- Pump station facilities will receive acoustical treatment such as acoustical louvers to decrease noise emissions.
- Other miscellaneous facility renovations such as the removal of hazardous materials where needed and miscellaneous onsite upgrades such as painting and fence repairs will also be performed.

Preliminary Project Assessment

The environmental impacts associated with the project will be evaluated in the environmental assessment currently being prepared by HDR. The following is a brief discussion addressing the preliminary assessment of the environmental impacts and issues.

The project is expected to have minimal environmental impacts during both construction and subsequent operation of the facilities. The City intends to mitigate any negative impacts to the extent practicable.

The primary short-term construction impacts to surrounding residents will result from trenching work within the Kauhale Beach Cove driveway utility easement and a portion of Mahalani Place for installation of a new electrical line. Impacts from the trenching work and work at the pump station include construction within roadways, truck traffic to and from the site, construction equipment noise, and dust. The contractor will be required to implement appropriate traffic control and safety measures, meet applicable noise standards established by the State Department of Health, and control the generation of dust by implementing appropriate dust control practices. Best Management Practices will be implemented to minimize silt runoff from the project site and impacts to Keaahala Stream and nearshore waters.

No increases in noise and odors associated with the operation of the upgraded pump station are expected. Pump station facilities will be provided with new pumps and acoustical treatment to minimize noise levels. Odors from the pump station, which are currently not a significant issue, is expected to decrease in the future once the flow from the Kahanahou WWPS is diverted.

The construction cost for this project is estimated to be $6.0 million. Construction is expected to begin not earlier than summer of 2015. The construction work is estimated to require approximately 18 to 24 months following award of the construction contact.

Request for Input and Comments

We would appreciate receiving any pre-assessment input and comments that you may have at this time by August 28, 2014. We will make every effort to address your concerns in the draft environmental assessment. Please submit your comments to:

Ayako Kawabata
HDR Engineering, Inc.
1132 Bishop Street, Suite 1200
Honolulu, HI 96813
Facsimile: (808) 697-6201
Email: Ayako.Kawabata@hdrinc.com

To address potential cultural impacts in the environmental assessment, we would especially appreciate any input and information that you may have related to possible impacts on the traditional practices of any ethnic group. The names and phone numbers of individuals that we could contact regarding the practices that may be affected would be very helpful to us.

Please feel free to call me at 697-6204 to discuss any aspect of the proposed project. Thank you for your participation in the environmental review process for this project.

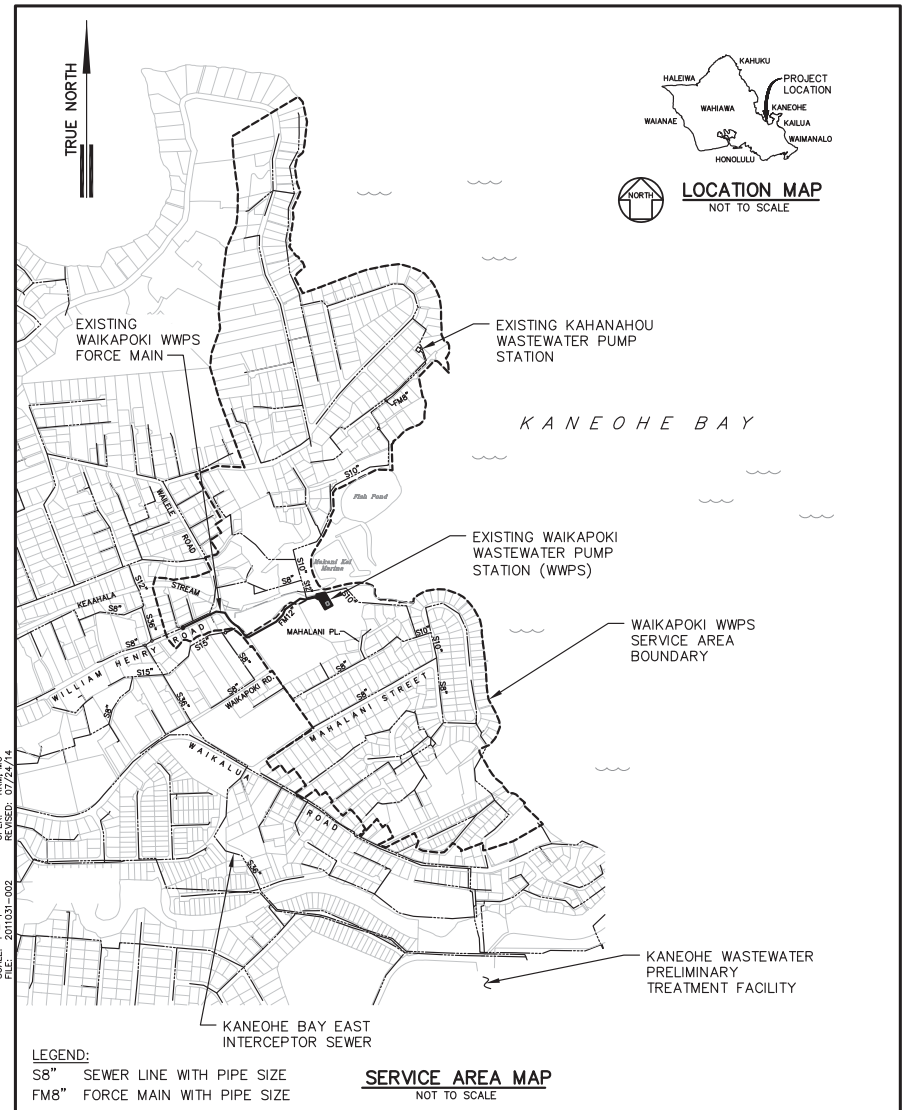
Sincerely,

HDR Engineering, Inc.

Ayako Kawabata

Ayako Kawabata
Project Manager

Attachment (3 figures)



HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	LOCATION AND SERVICE AREA MAP	FIGURE 1

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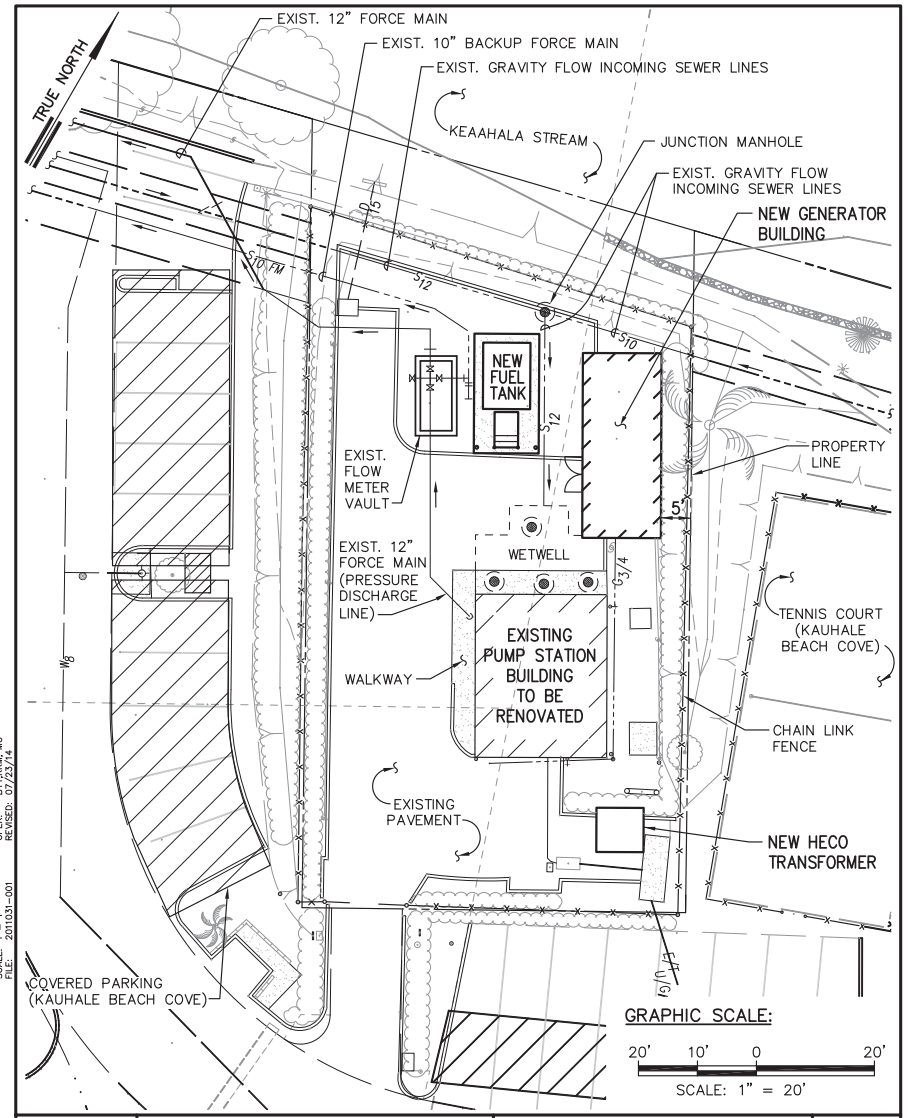
OPER: RKM,*MC
REVISED: 07/24/14



HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	PROPOSED WAIKAPOKI WWPS SITE PLAN	FIGURE 2

DATE: 01/20/14
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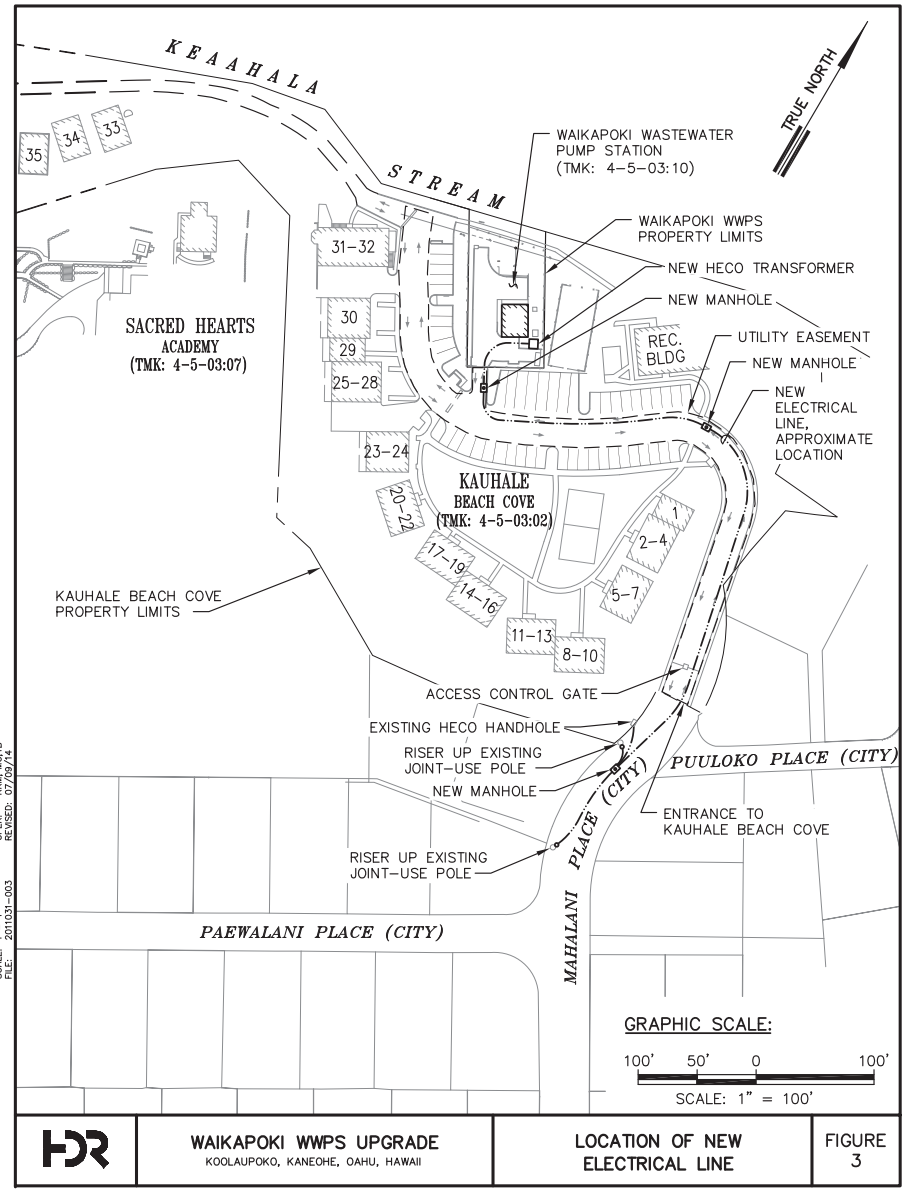
FILE: 2011031-001
PM: AK
OPER: BTY,RKM,*MC
REVISED: 07/23/14



PM: AK
OPER: RKM,*MC,YB
REVISED: 07/09/14

DATE: 01/20/14
SCALE: 1 = 1
FILE: 2011031-003

HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	LOCATION OF NEW ELECTRICAL LINE	FIGURE 3

Kawabata, Ayako

From: Apana, Elizabeth E CONTRACTOR @ POH <Elizabeth.E.Apana@usace.army.mil>
Sent: Monday, August 04, 2014 3:28 PM
To: Kawabata, Ayako
Cc: Apana, Elizabeth E CONTRACTOR @ POH
Subject: Waikapoki Wastewater Pump Station Upgrade: Pre-Assessment Consultation for Environmental Assessment TMK:4-5-003:0101 (UNCLASSIFIED)
Attachments: ecr-Questionnaire.doc; ENG Form 4345 2010.pdf; General Drawing Checklist.pdf; Sect 10 Rivers and Harbors Act Drawing Recommendations.pdf; Sect 404 Clean Water Act Drawing Recommendations.pdf

Classification: UNCLASSIFIED
Caveats: NONE

Aloha Mr. Kawabata,

In response to your letter dated 28 July 2014 requesting pre-assessment comments for the environmental assessment to be done for the Waikapoki Wastewater Pump Station Upgrade project, TMK: 4-5-003:010, in Kaneohe, the following information and attachments are for your consideration.

Please be advised, if the proposed project involves work in waters of the U.S., Department of the Army (DA) authorization may be required.
Under Section 10 of the Rivers and Harbors Act, structures and/or work in or affecting the course, location, condition, or capacity of navigable waters of the U.S. require DA authorization. Navigable waters of the U.S. are waters subject to the ebb and flow of the tide. Under Section 404 of the Clean Water Act, DA authorization is required for discharges of dredged or fill material into waters of the U.S., including wetlands. Generally, discharges of fill material include materials that change the bottom elevation of a water of the U.S. and includes rock, sand, soil, debris, overburden, etc. Waters of the U.S. include navigable waters of the U.S. and other waters including wetlands, rivers, streams, lakes, and ponds.

Thank you for your cooperation with the DA Regulatory Program. Please contact this office if you have any questions, to request a jurisdictional determination, or to submit a permit application package (see enclosures). You may contact the Regulatory Office by telephone at (808) 835-4303, by email at CEPOH-RO@usace.army.mil, or by mail at the following address:

Mahalo,

E. Brandilywn Apana, Admin Asst.
U.S. Army Corps of Engineers
Honolulu District, Regulatory Office, CEPOH-RO Building 214 Fort Shafter, Hawaii 96858-5440
808.835.4303

Classification: UNCLASSIFIED
Caveats: NONE

HDR

August 29, 2014

Ms. E. Brandilywn Apana
Admin Assistant
U.S. Army Corps of Engineers
Honolulu District
Regulatory Office
CEPOH-RO Building 214
Fort Shafter, HI 96858-5440

Subject: Waikapoki Wastewater Pump Station (WWPS) Upgrade
Pre-assessment Consultation for Environmental Assessment
TMK: 4-5-003:010

Dear Ms. Apana,

Thank you for your August 04, 2014 pre-assessment comments on the proposed Waikapoki WWPS Upgrade Project.

The proposed project will not involve any work in the United States waters.

We intend to prevent the discharge of silt and debris from construction activities into the Keaahala Stream and nearshore waters of Kaneohe Bay to the maximum extent practicable through best management practices.

If you have any questions, please feel free to contact me at 697-6204, or you can email me at Ayako.Kawabata@hdrinc.com.

Sincerely,

HDR Engineering, Inc.

Ayako Kawabata

Ayako Kawabata
Project Manager

hdrinc.com
1132 Bishop Street, Suite 1200, Honolulu, HI 96813-2822
T 808.697.6200 F 808.697.6201

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LINDA ROSEN, M.D., 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:
File:

LUD–1 4 5 003 010 Waikopoki WWPS
Upgrade PreA Cons– ID1831

August 5, 2014

RECEIVED
AUG 13 2014
HDR ENGINEERING, INC.

Ms. Ayako Kawabata, Project Manager
HDR
1132 Bishop Street Suite 1200
Honolulu, Hawaii 96813-2822

Dear Ms. Kawabata:

Subject: Waikopoki Wastewater Pump Station (WWPS) Upgrade
Pre-Assessment Consultation for Draft Environmental Assessment
45-919 Wailele Road, Kaneohe, Oahu 96744 TMK (1) 4-5-003: 010

We appreciate the opportunity to review the subject document and have determined that we have no comments to offer at this time.

Should you have any questions, please contact Mr. Mark Tomomitsu of our branch at 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM/MST:lmj

c: Ms. Laura McIntyre, DOH-Environmental Planning Office

HDR

August 29, 2014

Ms. Sina Pruder, P.E., Chief
Wastewater Branch
Environmental Management Division
State Department of Health
919 Ala Moana Boulevard, Room 309
Honolulu, HI 96814-4920

Subject: Waikapoki Wastewater Pump Station (WWPS) Upgrade
Pre-assessment Consultation for Environmental Assessment
TMK: 4-5-003:010

Dear Ms. Pruder,

Thank you for your August 5, 2014 response stating that the Department of Health, Wastewater Branch does not have any pre-assessment comments to offer on the proposed Waikapoki WWPS Upgrade Project.

If you have any questions, please feel free to contact me at 697-6204, or you can email me at Ayako.Kawabata@hdrinc.com.

Sincerely,

HDR Engineering, Inc.

Ayako Kawabata
Project Manager

hdrinc.com
1132 Bishop Street, Suite 1200, Honolulu, HI 96813-2822
T 808.697.6200 F 808.697.6201

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

August 27, 2014

HDR Engineering, Inc.
Attn: Ayako Kawabata
1132 Bishop Street, Suite 1200
Honolulu, HI 96813

via email: Ayako.Kawabata@hdrinc.com

Dear Ms. Kawabata,

SUBJECT: Waikapoki Wastewater Pump Station (WWPS) Upgrade, Pre-Assessment Consultation for Environmental Assessment

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

At this time, enclosed are comments from (1) Land Division – Oahu District; (2) Division of Boating and Ocean Recreation; (3) Division of State Parks; (4) Engineering Division; and (5) Division of Aquatic Resources. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

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

August 4, 2014

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X 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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Waikapoki Wastewater Pump Station (WWPS) Upgrade, Pre-assessment Consultation for Environmental Assessment
LOCATION: TMK: 4-5-003:010
APPLICANT: Department of Design and Construction of the City and County of Honolulu, by its consultant, HDR Engineering, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by August 26, 2014. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed:
Print Name:
Date: 8/5/14

56235

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

August 4, 2014

MEMORANDUM

2014 AUG 13 PM 3:10
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII
RECEIVED LAND DIVISION

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X 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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Waikapoki Wastewater Pump Station (WWPS) Upgrade, Pre-assessment Consultation for Environmental Assessment
LOCATION: TMK: 4-5-003:010
APPLICANT: Department of Design and Construction of the City and County of Honolulu, by its consultant, HDR Engineering, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by August 26, 2014. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: Edward R. Underwood
Print Name: Edward R. Underwood
Date: 8/6/14

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

RECEIVED
STATE PARKS
'14 AUG -5 P1:15

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

August 4, 2014

MEMORANDUM

2014 AUG 20 PM 2:43
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII
RECEIVED LAND DIVISION

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X 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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Waikapoki Wastewater Pump Station (WWPS) Upgrade, Pre-assessment Consultation for Environmental Assessment
LOCATION: TMK: 4-5-003:010
APPLICANT: Department of Design and Construction of the City and County of Honolulu, by its consultant, HDR Engineering, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by August 26, 2014. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed:
Print Name: Daniel S. Quinn
Date: 8/19/14

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

'14 AUG 4 PM 2:40 ENGINEERING

2014 AUG 21 PM 2:49
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII
RECEIVED
LAND DIVISION

August 4, 2014

MEMORANDUM

~~TO:~~ From:

DLNR Agencies:
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X 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

~~FROM:~~ To: Russell Y. Tsuji, Land Administrator

SUBJECT: Waikapoki Wastewater Pump Station (WWPS) Upgrade, Pre-assessment Consultation for Environmental Assessment

LOCATION: TMK: 4-5-003:010

APPLICANT: Department of Design and Construction of the City and County of Honolulu, by its consultant, HDR Engineering, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by August 26, 2014. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: _____
Print Name: Carty S. Chang, Chief Engineer
Date: 8/28/14

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
Ref.: Pre-assessment Consultation for EA for Waikapoki Wastewater Pump Station Upgrade Oahu.044

COMMENTS

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

(X) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zones AEF and X. The National Flood Insurance Program regulates developments within Zone AEF as indicated in bold letters below, but not Zone X.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

(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. 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. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.
( ) Mr. Stanford Iwamoto at (808) 241-4846 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: _____

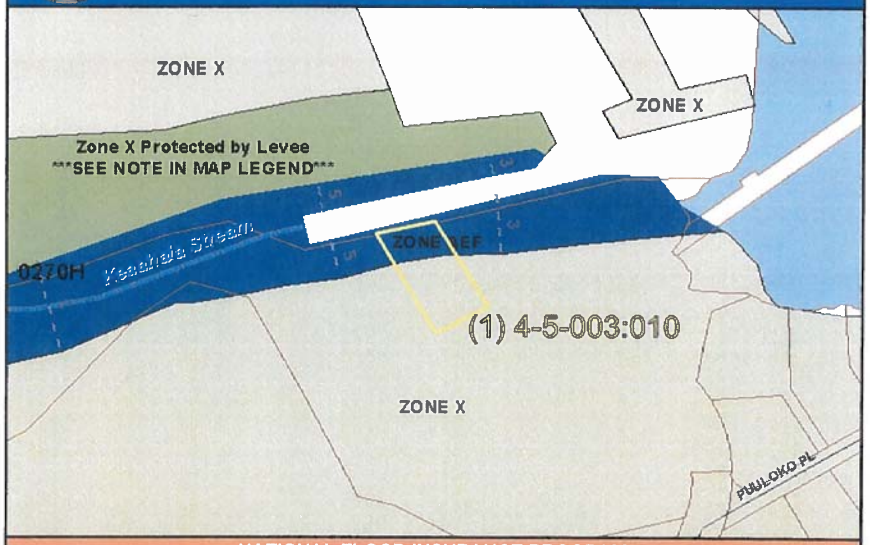
Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 8/26/14

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) 4-5-003-010
PARCEL ADDRESS:	45-919 WAILELE RD KANEOHE, HI 96744
FIRM INDEX DATE:	JANUARY 19, 2011
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0270H
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	APRIL 2014
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 (DLNR) 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 DLNR from any liability, which may arise from its use.

If this map has been identified as 'PRELIMINARY' or 'UNOFFICIAL', please note that it is being provided for informational purposes and is not to be used for official/legal decisions, regulatory compliance, or flood insurance rating. Contact your county NFIP coordinator for flood zone determinations to be used for compliance with local floodplain management regulations.

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
AUG 05 2014
AQUATIC RESOURCES

DAR #5003

August 4, 2014

MEMORANDUM

RECEIVED
2014 AUG 25 AM 10:01
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII
LAND DIVISION

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X 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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Waikapoki Wastewater Pump Station (WWPS) Upgrade, Pre-assessment Consultation for Environmental Assessment
LOCATION: TMK: 4-5-003:010
APPLICANT: Department of Design and Construction of the City and County of Honolulu, by its consultant, HDR Engineering, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by August 26, 2014. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: _____
Print Name: MCGIVRAY
Date: AUG 22 2014

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

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

JESSE K. SOUKI
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Date: Aug. 11, 2014
DAR # 5003

MEMORANDUM
TO: Frazer McGilvray, Administrator
FROM: Annette Tagawa, Aquatic Biologist
SUBJECT: Pre-assessment consultation for EA

Comment	Date Request	Receipt	Referral	Due Date
	Aug. 4, 2014	Aug. 5, 2014	Aug. 5, 2014	Aug. 26, 2014

Requested by: Russell Y. Tsuji, Land Administrator

Summary of Proposed Project

Title: Waikapoki Wastewater Pump Station (WWPS) Upgrade, Pre-assessment Consultation for Cnvironmental Assessment

Project by: Department of Design and Construction of the City and County of Honolulu, by its consultant, HDR Engineering, Inc.

Location: Kaneohe, Oahu TMK: 4-5-003:010

Brief Description: An Environmental Assessment is being prepared for the Waikapoki Wastewater Pump Station Upgrade Project. The pump station requires additional pumping capacity to accommodate high wastewater flows during wet weather due to increased filtration of groundwater and direct inflow of rainwater into sewer pipes through pipe and manhole defects and illicit connections such as roof gutters and outdoor drains. High flows during major storm events have resulted in past sewage spills in the area. The Pump Station Upgrade is intended to alleviate this problem.

Comments: The Division has no objection to the proposed project and supports the intention to alleviate sewage spills during high flows from major storm events. The Division is in agreement with the City intending to mitigate any negative impacts to the extent possible. Mitigation measures should include preventing any siltation and debris due to construction activities from entering the aquatic environment which would include Keaahala Stream and the nearshore waters of Kaneohe Bay.

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plans, DAR requests the opportunity to review and comment on those changes.

August 29, 2014

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

Subject: Waikapoki Wastewater Pump Station (WWPS) Upgrade
Pre-assessment Consultation for Environmental Assessment
TMK: 4-5-003:010

Dear Mr. Tsuji,

Thank you for your August 27, 2014 pre-assessment comments on the proposed Waikapoki WWPS Upgrade Project.

We met with Mr. Mario Siu-Li of the City and County of Honolulu, Department of Planning and Permitting to discuss the requirements of the National Flood Insurance Program (NFIP). We were informed that the flood zone boundaries for our project site have been revised. The new flood boundaries will become effective on November 5, 2014. The map showing the revised flood zone boundaries is attached with this letter. Based on the new flood zone boundaries, our project site will be located in Zones AE, XS, and X. The proposed fuel tank, new generator building, and majority of our project site will be located in Zone X. We will coordinate with Mr. Siu-Li as the project progresses to ensure we comply with the NFIP regulations.

We intend to prevent the discharge of silt and debris from construction activities into the Keaahala Stream and nearshore waters of Kaneohe Bay to the maximum extent practicable through best management practices.

We understand that the Land Division – Oahu District, Division of Boating & Ocean Recreation, and Division of State Parks have no comments to offer at this time.

If you have any questions, please feel free to contact me at 697-6204, or you can email me at Ayako.Kawabata@hdrinc.com.

Sincerely,

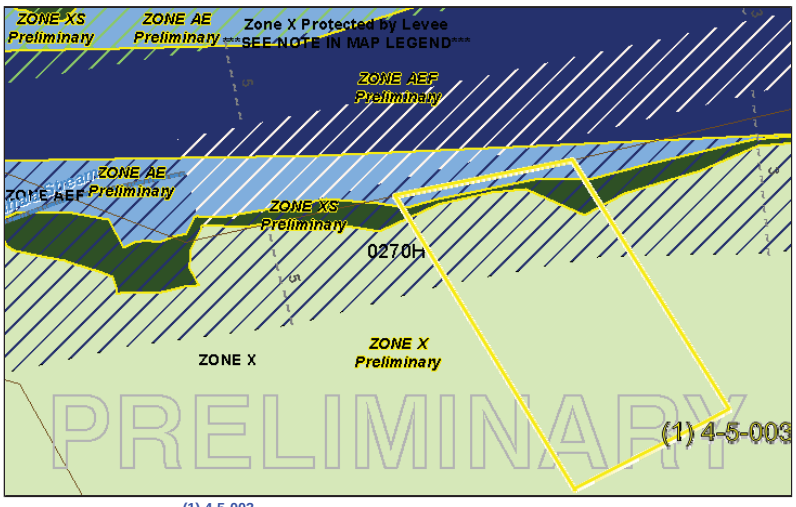
HDR Engineering, Inc.

Ayako Kawabata
Project Manager

hdrinc.com
1132 Bishop Street, Suite 1200, Honolulu, HI 96813-2822
T 808.697.6200 F 808.697.6201

Hawaii - National Flood Insurance Program
Flood Hazard Assessment Tool

Zoom In | Zoom Out | Pan | Measure | Full View | Last View | Select Parcel | LOMC | Report | Datasheet | Home



County: HONOLULU TMK: (1) 4-5-003-010 Address: 45-919 WAILELE RD LOMC: NONE Clear Map

Preliminary DFIRM Disclaimer: If this map has been identified as 'PRELIMINARY' or 'UNOFFICIAL', please note that it is being provided for informational purposes and is not to be used for official/legal decisions, regulatory compliance, or flood insurance rating. Contact your county NFIP coordinator for official flood zone determination for compliance with local floodplain management regulations.

For Honolulu County: Please contact your County Floodplain Manager, Mario Siu-Li at (808) 768-8098 if you have comments on the Preliminary DFIRMs.

Layers
Property Search
Map Legend

Click legend label for explanation:
- VE / V Zones
- AO Zone
- AE Zone
- AH Zone
- A Zone
- Floodway
- X Zone
- X Protected by Levee Zone (Click to see note)
- XS Zone
- D Zone
- Letter of Map Change (LOMC)
- Tsunami Evacuation Zones

Zone X S (X shaded) is an area within the 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less

Letter of Map Change (LOMC)
Elevation Certificate
Flood Insurance Studies (FIS)
Island Number
H E L P . . .

Using Toolbox Buttons
Property Search
How to View Proposed Flood Maps
Letter of Map Changes
Elevation Certificate

Kawabata, Ayako

From: Liu, Rouen <rouen.liu@hawaiianelectric.com>
Sent: Friday, August 15, 2014 2:15 PM
To: Kawabata, Ayako
Subject: Pre assessment Consultation for Environmental Assessment- request for comments on Waikapoki Wastewater Pump Station

Dear Mr. Kawabata,
Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objections to the project. Should HECO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.
We appreciate your efforts to keep us apprised of the subject project in the planning process. As the Waikapoki Wastewater Pump Station comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 543-7245.

Sincerely,
Rouen Q. W. Liu
Permits Engineer

HDR

August 29, 2014

Mr. Rouen Q. W. Liu
Permits Engineer
Hawaiian Electric Company
820 Ward Avenue
Honolulu, HI 96814

Subject: Waikapoki Wastewater Pump Station (WWPS) Upgrade
Pre-assessment Consultation for Environmental Assessment
TMK: 4-5-003:010

Dear Mr. Liu,

Thank you for your August 15, 2014 pre-assessment comments on the proposed Waikapoki WWPS Upgrade Project.

HECO's right of entry to maintain the electrical facilities at the pump station will not be affected by the proposed project. We will continue to coordinate with HECO as the project progresses.

If you have any questions, please feel free to contact me at 697-6204, or you can email me at Ayako.Kawabata@hdrinc.com.

Sincerely,

HDR Engineering, Inc.

Ayako Kawabata

Ayako Kawabata
Project Manager

hdrinc.com
1132 Bishop Street, Suite 1200, Honolulu, HI 96813-2822
T 808.697.6200 F 808.697.6201

Kawabata, Ayako

From: Kimlynne Slagel <kislagel@gmail.com>
Sent: Wednesday, August 27, 2014 8:49 PM
To: Kawabata, Ayako
Cc: James Slagel
Subject: Concerns about Proposed Pump Station

Dear Ayako Kawabata,

I write on behalf of the Board of Directors and residents of Kauhale Beach Cove. We are aware that we are, so to speak, ground zero for this project. We wish you much success in what appears to be a necessary and worthwhile endeavor, and we intend to be good neighbors and hosts.

The purpose of this letter is to outline our concerns, focusing on those under your control, initially during the construction period and then with the resultant Pump Station.

1. We hope that every effort is made to minimize the disruption to our lives, both in terms of noise and access to our homes. Work should commence after 8 am on Monday through Friday and conclude no later than 5 pm. We understand that occasional traffic egress issues and parking restrictions will occur

2. Security provided by our gate will no doubt be compromised by the work. We assume that you will take the necessary steps to provide surveillance to protect our homes. We further assume that you will compensate any resident victimized by this breach.

3. The project will necessitate large trucks using our somewhat fragile driveway. We believe fair compensation, to be determined through further discussions with the Board of Directors, for the damage incurred is appropriate.

4. In the Background Information and Project Objectives section of your July 28, 2014 communication, you assert that you intend to "Reduce noise from the pump station." Our contention is that the current station is relatively quiet; we will hold you to your pledge to minimize noise.

5. Along that same line, we currently have no odor associated with the Pump Station. We are adamant that no odors shall be generated by the new Pump Station. While odor is a subjective issue, we will not fall victim to a change in our quality of life.

Thank you for hearing us, and feel free to contact me with further questions.

Sincerely,

Jim Slagel

Treasurer

Board of Directors

Kauhale Beach Cove

August 29, 2014

Mr. Jim Slagel
Co-Treasurer
Board of Directors
45-180 Mahalani Place #31
Kaneohe, HI 96744

Subject: Waikapoki Wastewater Pump Station (WWPS) Upgrade
Pre-assessment Consultation for Environmental Assessment
TMK: 4-5-003:010

Dear Mr. Slagel,

Thank you for your August 27, 2014 pre-assessment comments on the proposed Waikapoki WWPS Upgrade Project.

We intend to minimize the impact of the construction activities to the maximum extent practicable. The construction equipment noise and sounds associated with construction activities will be minimized by ensuring properly functioning mufflers are provided on machinery and restricting construction activity to normal working hours of 8:00 AM to 5:00 PM, Monday through Friday.

Contractor's employees will not be permitted to loiter, will remain only within the designated active work areas, and will only utilize the designated ingress and egress routes. Workers will not be permitted near individual residences. Workers who violate the work restrictions will be removed from the project site.

Before the commencement of the construction activity, the contractor will be required to document the existing site conditions which will include the paved roadway leading to the pump station. If the roadway was damaged by construction traffic, the contractor will be responsible to repair the damage caused by his operation.

Acoustical treatment will be applied to keep noise levels of the proposed facilities within the regulated limits. No increase in odor generation is anticipated.

If you have any questions, please feel free to contact me at 697-6204, or you can email me at Ayako.Kawabata@hdrinc.com.

Sincerely,

HDR Engineering, Inc.

Ayako Kawabata

Ayako Kawabata
Project Manager

hdrinc.com

1132 Bishop Street, Suite 1200, Honolulu, HI 96813-2822
T 808.697.6200 F 808.697.6201

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai`i 96850

In Reply Refer To:
2014-TA-0413

RECEIVED
OCT 02 2014
HDR ENGINEERING, INC.

SEP 3 0 2014

Ms. Ayako Kawabata
HDR Engineering, Inc.
1132 Bishop Street, Suite 1200
Honolulu, HI 96813

Subject: Technical Assistance for the Proposed Upgrades to the Waikapoki Wastewater Pump Station in Kaneohe, Oahu

Dear Ms. Kawabata:

The U.S. Fish and Wildlife Service (Service) received your letter, dated July 28, 2014, in which you requested our comments on the proposed upgrades to the Waikapoki Wastewater Pump Station in Kaneohe as a pre-consultation for the associated Environmental Assessment. The proposed upgrades include the replacement of the existing two vertical extended shaft pumps with three new dry-pit submersible pumps with larger capacities; the existing exhaust system will be removed and replaced with a new ventilation system to meet current safety standards, and the ventilation system will be provided with noise attenuation features; a new generator building will be constructed in the northeast corner of the site and a new diesel fuel tank will replace the existing propane fuel tank; the existing generator room will be converted to an electrical and motor control center where electrical and instrument upgrades will be implemented; a new Hawaiian Electric Company pad mounted transformer will replace the existing transformer to support the increased electrical load, and a new underground electrical line will be installed through the existing utility easement from Mahalani Place to the new transformer; the pump station facilities will receive acoustical treatment to decrease noise; and other miscellaneous facility renovations such as the removal of hazardous materials where needed, painting, and fence repairs. The below comments are provided in accordance with section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended (ESA), the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712), as amended (MBTA), and the Fish and Wildlife Coordination Act of 1934 [16 U.S.C. 661 et seq.; 48 Stat. 401], as amended.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program as it pertains to federally listed species. Species documented within the project vicinity include: the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*, 'ope'ape'a), the endangered Hawksbill sea turtle (*Eretmochelys*

imbricata, 'ea) and the threatened green sea turtle (*Chelonia mydas*, honu) (collectively referred to as sea turtles). Additionally, the wedge-tailed shearwater (*Puffinus pacificus*, 'ua'u kani), protected under the MBTA, may occur within the project vicinity. To aid in the drafting of your Environmental Assessment, we provide some Best Management Practices for avoidance and minimization impacts to listed species.

Hawaiian Hoary Bat

The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, will leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid disturbance to Hawaiian hoary bats in the project area.

Seabirds and sea turtles

Outdoor lighting, such as street lights, can adversely impact listed (*i.e.*, sea turtles) and migratory seabird species (*e.g.*, wedge-tailed shearwater) found in the vicinity of the proposed project. Seabirds fly at night and are attracted to artificially lighted areas which can result in disorientation and subsequent fallout due to exhaustion or collision with objects such as utility lines, guy wires, and towers that protrude above the vegetation layer. Once grounded, they are vulnerable to predators or often struck by vehicles along roadways. Wedge-tailed shearwater nesting colonies are located nearby on offshore islets and every year many young shearwaters are downed and struck along Oahu roadways. Additionally, Newell's shearwaters have recently inhabited the James Campbell Refuge and experience the same threats as wedge-tailed shearwaters. Any increase in the use of night-time lighting, particularly during each year's peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality. Impacts to seabirds can be minimized by shielding outdoor lights associated with the project to the maximum extent possible, eliminating night-time construction, and providing all project staff and residents with information about seabird fallout. All lights, including street lights, should be shielded so the bulb can only be seen from below and use the lowest wattage bulbs possible.

Wedge-tailed shearwaters nest in littoral vegetation along coastlines. Nesting adults, eggs, and chicks are particularly susceptible to impacts from human disturbance and predators. Surveys should be conducted throughout the project area during the species' peak breeding season (August through October) to determine the presence and location of nesting areas. If it is found that wedge-tailed shearwaters nest within the proposed project area, project construction should be timed outside of the breeding season.

Sea turtles are susceptible to artificial lighting because artificial lighting can disorient turtles away from the ocean. Sea turtles come ashore to nest on beaches from May through September, peaking in June and July. Optimal nesting habitat is a dark beach free of barriers that restrict their movement. Nesting turtles may be deterred from approaching or laying successful nests on lighted or disturbed beaches. If they do come ashore, they may become disoriented by artificial lighting, leading to exhaustion and placement of a nest in an inappropriate location (such as at or below the high tide line where nests are unlikely to be successful). Hatchlings that emerge from

unprotected nests may be disoriented by artificial lighting. In addition, turtle nests and hatchlings are susceptible to human disturbance and predation by feral mammals such as small Indian mongoose (*Herpestes auropunctatus*), cats (*Felis catus*), dogs (*Canis familiaris*).

To minimize and avoid artificial lighting impacts to sea turtles and seabirds, a lighting plan should be developed and incorporated into the project description, including educating all project staff and residents with information about seabird fallout. If lights cannot be eliminated due to safety or security concerns then they should be positioned low to the ground, be motion-triggered and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below and so that light from the shielded source cannot be seen from the beach. Construction activities should occur during daylight hours only. Where appropriate, we recommend adding signage or a kiosk to educate park-goers regarding the seabird fallout issue and to let people know that downed birds can be taken to Sea Life Park for rehabilitation. The project description should address all potential impacts to seabirds and outline conservation measures to minimize these impacts.

General Comments

Because there are aquatic fish and wildlife resources (*i.e.*, Keaahala Stream) within the proposed project vicinity, and the proposed activities may cause soil erosion and sedimentation into these adjacent aquatic environments, we are attaching the Service's recommended Best Management Practices regarding sedimentation and erosion in aquatic environments. We encourage you to incorporate the relevant practices into your project design. We also recommend that you incorporate a post construction storm water runoff management plan into your Environmental Assessment.

Thank you for the opportunity to review and comment on the proposed project. If you have questions regarding this letter, please contact Carrie Harrington, Fish and Wildlife Biologist (phone: 808-792-9400; fax: 808-792-9581).

Sincerely,

Aaron Nadig
Assistant Field Supervisor
Oahu, Kauai, NWHI, and American Samoa

Enclosure: Service BMPs for erosion and sediment control

U.S. Fish and Wildlife Service
Recommended Standard Best Management Practices

The U.S. Fish and Wildlife Service (USFWS) recommend the following measures to be incorporated into project planning to avoid or minimize impacts to fish and wildlife resources. Best Management Practices (BMPs) include the incorporation of procedures or materials that may be used to reduce either direct or indirect negative impacts to aquatic habitats that result from project construction-related activities. These BMPs are recommended in addition to, and do not over-ride any terms, conditions, or other recommendations prepared by the USFWS, other federal, state or local agencies. If you have questions concerning these BMPs, please contact the USFWS Aquatic Ecosystems Conservation Program at 808-792-9400.

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.

2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods are variable throughout the Pacific islands, we recommend contacting the relevant local, state, or federal fish and wildlife resource agency for site specific guidance.

3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.

4. All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see *http://www.haccp-nrm.org/Wizard/default.asp*) can help to prevent attraction and introduction of non-native species.

5. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (*e.g.*, with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.

6. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.

7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

October 24, 2014

Mr. Aaron Nadig
Assistant Field Supervisor
Pacific Islands Fish and Wildlife Office
U.S. Department of the Interior
300 Ala Moana Boulevard, Room 3-122
Honolulu, HI 96850

Subject: Waikapoki Wastewater Pump Station (WWPS) Upgrade
Pre-assessment Consultation for Environmental Assessment
TMK: 4-5-003:010

Dear Mr. Nadig,

Thank you for your September 30, 2014 pre-assessment comments on the proposed Waikapoki WWPS Upgrade Project.

We intend to implement the recommended Best Management Practices outlined in your letter and protect the endangered Hawaiian hoary bat, endangered Hawksbill sea turtle, threatened green sea turtle, and wedge-tailed shearwater within the project vicinity to the maximum extent practicable.

The proposed project will not be removing any trees and the contractor will be required to protect the trees within the project site during construction.

Construction activities will be restricted to normal working hours of 8:00 AM to 5:00 PM, Monday through Friday. As part of the proposed project, new energy efficient light-emitting diode (LED) lights will be installed directing down to minimize disturbance to the endangered species.

The proposed project will not involve any work in the aquatic environment. We intend to prevent the discharge of silt and debris from construction activities into the Keaahala Stream and nearshore waters of Kaneohe Bay to the maximum extent practicable through Best Management Practices.

If you have any questions, please feel free to contact me at 697-6204, or you can email me at Ayako.Kawabata@hdrinc.com.

Sincerely,

HDR Engineering, Inc.

Ayako Kawabata
Project Manager

hdrinc.com

1132 Bishop Street, Suite 1200, Honolulu, HI 96813-2822
T 808.697.6200 F 808.697.6201

AOAO KAUHALE BEACH COVE
BOARD OF DIRECTORS' MEETING MINUTES
JANUARY 22, 2014

DATE & PLACE OF MEETING
The regularly scheduled meeting of the Board of Directors of AOAO Kauhale Beach Cove was held at 6:30 p.m. on Wednesday, January 22, 2014, On-site, The Clubhouse, 45-180 Mahalani Place, Kaneohe, Hawaii 96744.

ESTABLISHED A QUORUM
A quorum was established.

Members Present: President Brian Kelly, Vice President Tammy Olsen, Secretary Kevin Cotton, Co-Treasurers Barbara Lee and James Slagel, and Director Clayton Iseke.

Invited Guest(s): Larry Lusk, Site Manager, Kauhale Beach Cove
Sasha Tsuda, Community Association Manager, Hawaii First, Inc.
Ayako Kawabata & Roy Abe, HDR Engineering, Inc.
Glen Lau, Pacific Geotechnical Engineers, Inc.

CALL TO ORDER
The meeting was called to order by President Kelly at 6:30 p.m.

MINUTES OF PREVIOUS MEETING
President Kelly called for corrections to the minutes of the regular Board of Directors Meeting held November 20, 2013. Motion was made by Co-Treasurer Slagel, seconded by Director Iseke to approve the minutes as circulated. Voice vote, motion carried unanimously.

President Kelly called for corrections to the minutes of the 2013 Annual Owners' Meeting held December 11, 2013. Motion was made by Co-Treasurer Slagel, seconded by Director Iseke to approve the minutes as circulated. Voice vote, motion carried unanimously.

TREASURER'S REPORT
1. October and November 2013 Financial Statements – were reviewed by the Board of Directors. It was the consensus of the Board to file the October and November 2013 Financial Statements, subject to audit.

MANAGER'S REPORT
Site Manager, Larry Lusk submitted a written report to the Board of Directors. The report is on file in the office of the Managing Agent. Any items requiring Board action were added to the agenda and addressed accordingly.

COMMITTEE REPORTS
1. Recycling Committee – SM Lusk took over recycling duties from Clayton Iseke has approximately $200 in the recycle fund and plans to use the funds for the next Welcome Party to be held on February 15, 2014. SM Lusk stated he has collected approximately $250 towards the recycle fund since taking over recycling duties in October 2013.

UNFINISHED BUSINESS
1. Unit 39 Unit Repair Update - Renaissance Flooring is tentatively scheduled to commence interior flooring repairs on February 17, 2014. It was the consensus of the Board to approve and authorize the association's in-house staff to remove the gusset plywood plate that was installed and replace it with an extended high grade stainless steel gusset plate; approximately 3' long.

2. Tree Trimming Proposals re Java Plums – SM Lusk obtained proposals from American Island Arbor ($13,500) and H.T.M. Contractors ($20,942.40) to trim the Java Plum trees located toward the back end of the property. Motion was made by Co-Treasurer Slagel, seconded by Director Iseke to approve and accept American Island Arbor's proposal for a cost of approximately $13,500. Voice vote, motion carried unanimously.

NEW BUSINESS
1. Waiakapoki Waste Water Pump Station Project Upgrade – Guest Speakers Ayako Kawabata and Roy Abe of HDR Engineering, Inc. and Glenn Lau of Pacific Geotechnical Engineers, Inc. conducted an informational discussion regarding the upcoming waste water pump station project upgrade. A handout was distributed to the Board for review regarding the project's background information and objectives. A copy of the handout is appended to these minutes for record purposes.

2. Appointment of Interim Director – Motion was made by Co-Treasurer Slagel, seconded by President Kelly to nominate and appoint Duane Keys, Owner of Unit #4 to serve on the Board as an interim director until the next Annual Owners' Meeting. Voice vote, motion carried unanimously.

NEXT MEETING
The next Regular Board of Directors' meeting will be held on Wednesday, April 23, 2014 at 6:30 p.m., On-site, The Clubhouse, 45-180 Mahalani Place, Kaneohe, Hawaii 96744.

ADJOURNMENT
There being no further business to bring to the floor, the meeting adjourned at 6:59 p.m.

Submitted,

Sasha E.M. Tsuda
Community Association Manager
Recording Secretary

For: Kevin Cotton, Secretary

HDR | ONE COMPANY *Many Solutions*
1132 Bishop Street, Suite 1200
Honolulu, Hawaii 96813-2830
Phone: (808) 697-6200 Fax: (808) 697-6201

DATE: January 22, 2014

TO: Consulted Party

SUBJECT: Waikapoki Wastewater Pump Station (WWPS) Upgrade
Pre-assessment Consultation for Environmental Assessment
TMK: 4-5-003:010

HDR Engineering, Inc. (HDR), on behalf of the City and County of Honolulu Department of Design and Construction (City), is preparing an environmental assessment for the Waikapoki Wastewater Pump Station Upgrade project. HDR is soliciting pre-assessment comments and input on this project.

Background Information and Project Objectives

The Waikapoki Wastewater Pump Station (WWPS), owned and operated by the City, is located in Kaneohe on the windward side of Oahu. The site is situated adjacent to Keaahala Stream and within the Kauhale Beach Cove townhouse complex near the shoreline of Kaneohe Bay. The 8,101 square foot parcel site is located on 45-919 Wailele Road and is accessed through the driveway of the Kauhale Beach Cove, which is located at 45-180 Mahalani Place.

The pump station currently services approximately 3,000 residents in the residential developments on the southwest shore of Kaneohe Bay. Wastewater collected from the service areas flows by gravity to the Waikapoki WWPS, and is then pumped and discharged to the Kaneohe Bay East interceptor sewer for transmission to the Kaneohe Wastewater Preliminary Treatment Facility. A location and service area map is shown on Figure 1.

The pump station, which was placed into service in 1966, requires additional pumping capacity. Past studies evaluating historical flow data have found that due to high levels of infiltration and inflow (I/I) from rain induced flow entering the sewer system, the pumping capacity should be increased. This capacity upgrade project was recommended in the "Final Sewer I/I Plan, Rehabilitation and Infiltration and Inflow Minimization Study," December 1999, prepared by the City for the U.S. Environmental Protection Agency (EPA) under Consent Decree Civ. No. 94-00765 DAE. The capacity upgrade is not intended to support additional development in the service area, which is essentially fully developed.

The City proposes to upgrade the Waikapoki WWPS to increase the pump station's capacity, reduce the noise from the pump station, improve its reliability, and minimize and facilitate maintenance. Specific objectives and requirements of the project are as follows:

- Upgrade of the pumps is proposed to increase the capacity of the pump station to increase the margin of safety in meeting peak wastewater flow capacity requirements. Increasing the capacity will allow the station to accommodate the increased flow to the station due to high levels of I/I. Wastewater flows increase significantly during wet weather due to increased infiltration of groundwater and direct inflow of rainwater into sewer pipes through pipe and manhole defects and illicit connections such as roof gutters and outdoor drains. The existing Waikapoki WWPS and some of the sewer lines in the service area have inadequate capacity and are stressed during high flows. High flows during major storm events have resulted in past sewage spills in the area. Future long-term plans include diverting flow from the upstream Kahanahou WWPS to another portion of the system to reduce the Waikapoki WWPS flow.
- Promote improved overall reliability and ease of maintenance. Renovation of the pump station facility is proposed to upgrade the facility to more current technologies. This will include much needed electrical and instrument upgrades.
- Provide adequate and reliable backup power systems. This will be achieved by installing a larger emergency generator in a new generator building.
- Reduce noise from the pump station. Acoustical treatment will be provided to minimize noise from the pumps and emergency generator.
- Meet applicable building codes, safety requirements and perform miscellaneous site improvements.

HDR | ONE COMPANY *Many Solutions*

Proposed Project

A general site plan for the project is shown on Figure 2. The proposed project includes the following:

- Three new dry-pit submersible pumps with larger capacities will replace the two existing vertical extended shaft pumps. The new pumps will produce less noise because the pump motors, rather than being located on the ground floor, will be on the bottom floor, approximately two stories below ground. The pumps and motors are designed to operate underwater when flooding occurs.
- The existing exhaust system will be removed and replaced with a new ventilation system to meet current safety standards. The ventilation system will be provided with noise attenuation features.
- A new generator building will be constructed in the northeast corner of the site and a new diesel fuel tank will replace the existing propane fuel tank.
- The existing generator room will be converted to an electrical and motor control center (MCC) where electrical and instrument upgrades will be implemented.
- A new Hawaiian Electric Company (HECO) pad mounted transformer will replace the existing transformer to support the increased electrical load. A new underground electrical line will be installed through the existing utility easement from Mahalani Place to the new transformer. The general route of the new electrical line is shown on Figure 3.
- Pump station facilities will receive acoustical treatment such as acoustical louvers to decrease noise emissions.
- Other miscellaneous facility renovations such as the removal of hazardous materials where needed and miscellaneous onsite upgrades such as painting and fence repairs will also be performed.

Preliminary Project Assessment

The environmental impacts associated with the project will be evaluated in the environmental assessment currently being prepared by HDR. The following is a brief discussion addressing the preliminary assessment of the environmental impacts and issues.

The project is expected to have minimal environmental impacts during both construction and subsequent operation of the facilities. The City intends to mitigate any negative impacts to the extent practicable.

The primary short-term construction impacts to surrounding residents will result from trenching work within the Kauhale Beach Cove driveway utility easement and a portion of Mahalani Place for installation of a new electrical line. Impacts from the trenching work and work at the pump station include construction within roadways, truck traffic to and from the site, construction equipment noise, and dust. The contractor will be required to implement appropriate traffic control and safety measures, meet applicable noise standards established by the State Department of Health, and control the generation of dust by implementing appropriate dust control practices. Best Management Practices will be implemented to minimize silt runoff from the project site and impacts to Keaahala Stream and nearshore waters.

No increases in noise and odors associated with the operation of the upgraded pump station are expected. Pump station facilities will be provided with new pumps and acoustical treatment to minimize noise levels. Odors from the pump station, which are currently not a significant issue, is expected to decrease in the future once the flow from the Kahanahou WWPS is diverted.

The construction cost for this project is estimated to be $6.0 million. Construction is expected to begin not earlier than summer of 2015. The construction work is estimated to require approximately 18 to 24 months following award of the construction contact.

Request for Input and Comments

We would appreciate receiving any pre-assessment input and comments that you may have at this time by February 28, 2014. We will make every effort to address your concerns in the draft environmental assessment. Please submit your comments to:

Ayako Kawabata
HDR Engineering, Inc.
1132 Bishop Street, Suite 1200
Honolulu, HI 96813
Facsimile: (808) 697-6201
Email: Ayako.Kawabata@hdrinc.com

To address potential cultural impacts in the environmental assessment, we would especially appreciate any input and information that you may have related to possible impacts on the traditional practices of any ethnic group. The names and phone numbers of individuals that we could contact regarding the practices that may be affected would be very helpful to us.

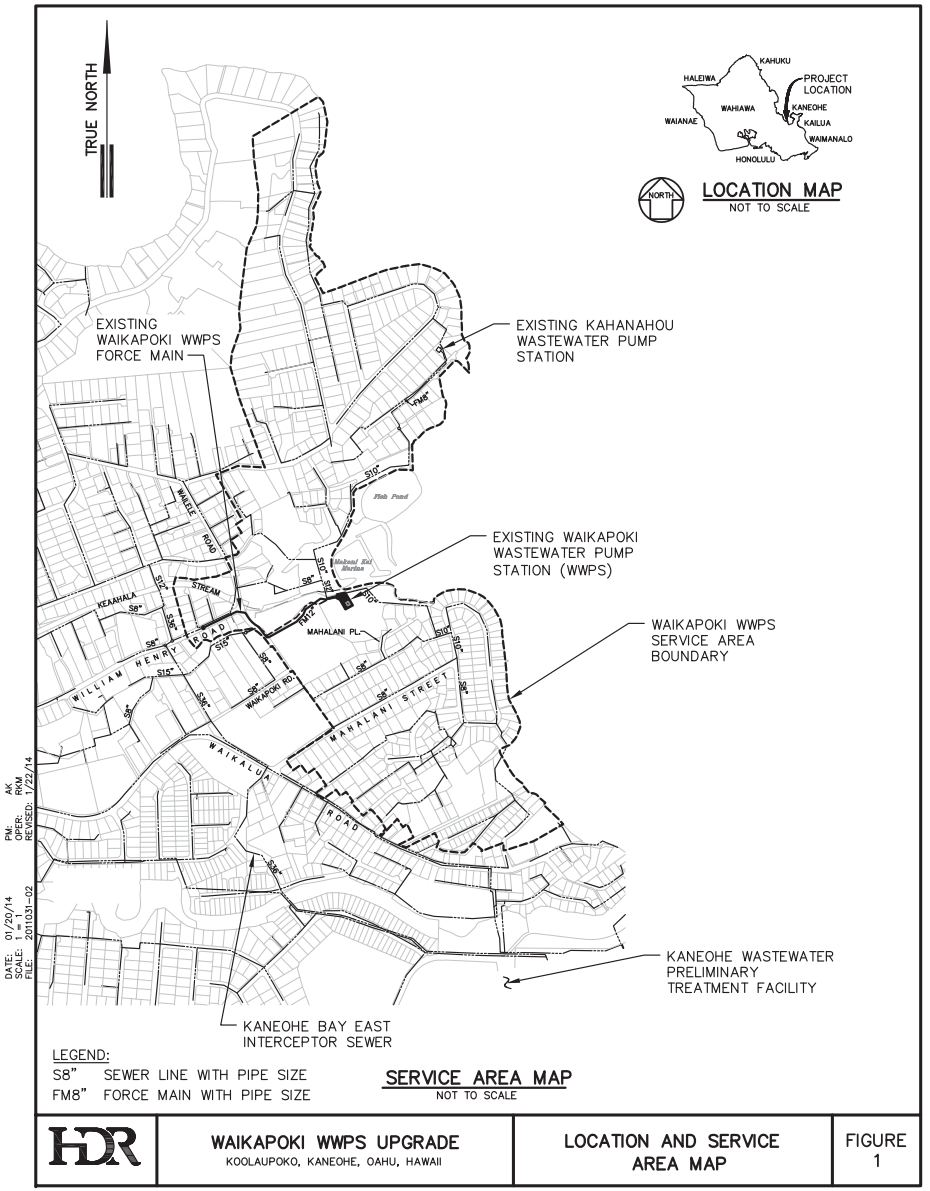
Please feel free to call me at 697-6204 to discuss any aspect of the proposed project. Thank you for your participation in the environmental review process for this project.

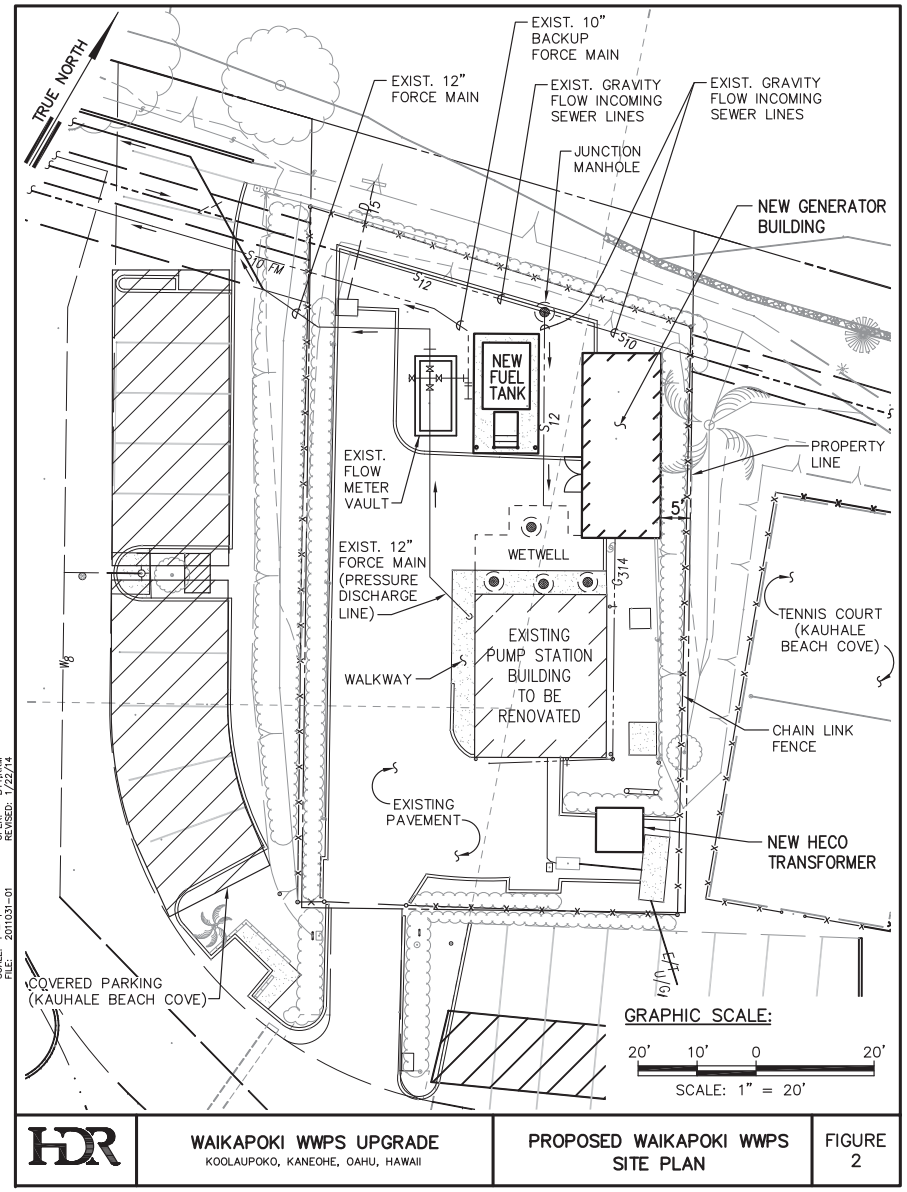
Sincerely,

HDR Engineering, Inc.

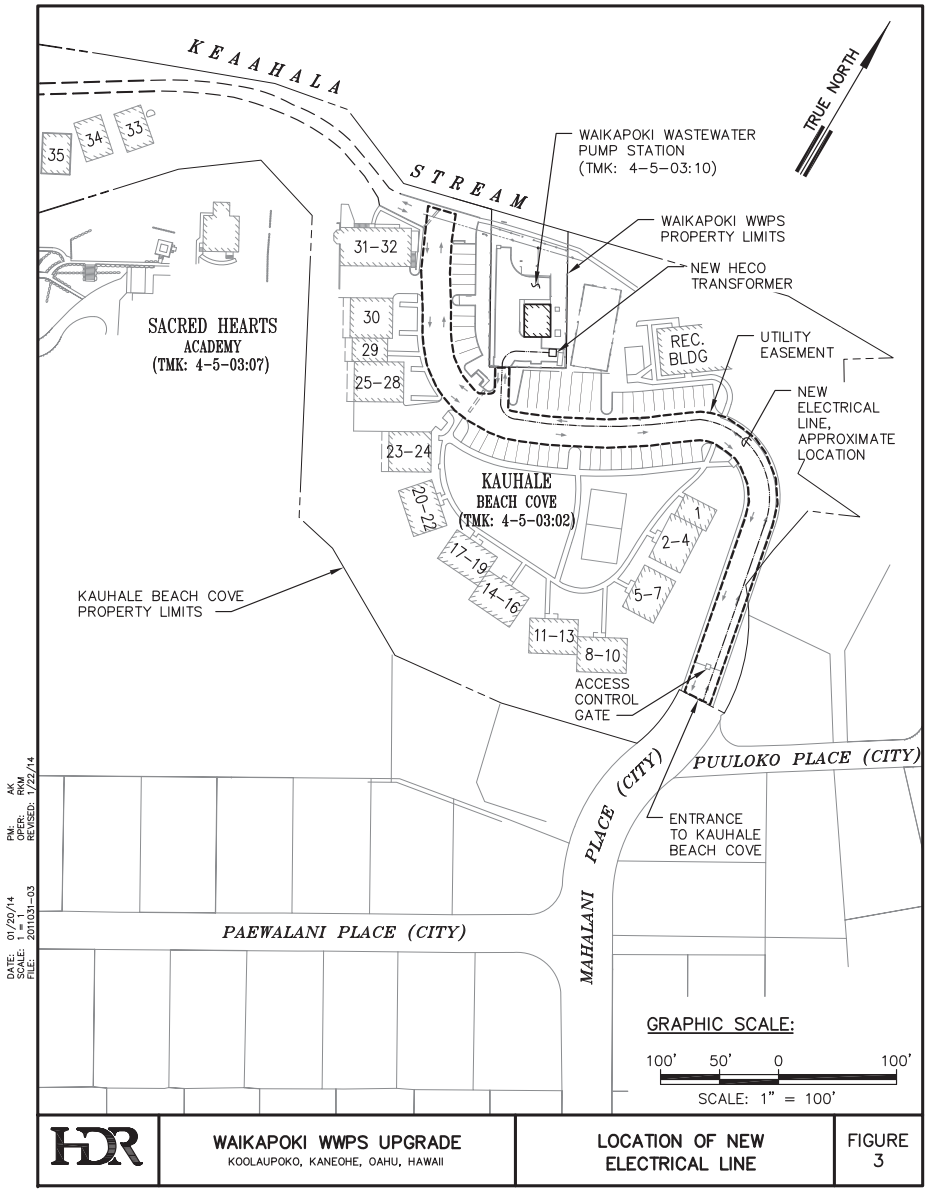
Ayako Kawabata
Project Manager

Attachment (3 figures)





HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	PROPOSED WAIKAPOKI WWPS SITE PLAN	FIGURE 2



HDR	WAIKAPOKI WWPS UPGRADE KOOLAUPOKO, KANEOHE, OAHU, HAWAII	LOCATION OF NEW ELECTRICAL LINE	FIGURE 3

Appendix B

Archaeological Assessment

GARCIA AND ASSOCIATES – PACIFIC REGION
HAWAI'I: 146 HEKILI STREET, SUITE 101, KAILUA, HAWAI'I 96734 PHONE 808.262.1387 FAX 808.262.1384
GUAM: GARDEN VILLA H302, 800 PALE SAN VITORES ROAD, TUMON, GUAM 96913 PHONE 671.488.2005 FAX 671.647.0870

6 August 2013

Sheila K. Uyeoka, P.E.
HDR Engineering, Inc.
1132 Bishop St., Suite 1003
Honolulu, HI, 96813-2830

Phone: 808.697.6229
Fax: 808.697.6201
sheila.uyeoka@hdrinc.com

RE: Archaeological Assessment for the Waikapoki Waste Pump Station Upgrade Project, TMK (1) 4–5–003:007, 011, Kāneʻohe Ahupuaʻa, Koʻolaupoko District, Island of Oʻahu, Hawaiʻi.

Dear Ms. Uyeoka,

Garcia and Associates has prepared this Archaeological Assessment for HDR Engineering to address concerns for possible adverse impact to cultural resources during the Waikapoki Waste Pump Station (WWPS) Upgrade Project in Kāneʻohe Ahupuaʻa, Koʻolaupoko District, Island of Oʻahu, Hawaiʻi. The project area is in the vicinity of TMK (1) 4–5–003:007, 011. The purpose of the Archaeological Assessment is to determine the potential for traditional Hawaiian or early historic cultural deposits in the project's Area of Potential Effect (APE). The proposed actions for the project include renovation of the existing WWPS building, installation of a new onsite emergency generator building supported on deep foundations, replacement of existing 12" onsite gravity sewer pipes, and installation of a new electrical duct line.

Area of Potential Effect

The project APE is 50 to 150 meters west of Kāneʻohe Bay shoreline, immediately south of the Makani Kai Marina Aoao at the mouth of Keaʻahala Stream (Figure 1). The WWPS parcel measures approximately 20 m by 35 m and is in the Kahuhale Beach Cove townhouse development at approximately 3 m above mean sea level. The electrical duct line is proposed to follow paved surface roads for approximately 700 linear meters; extending from the townhouse development's parking area to the intersection of Mahalani Place and Paewalani Place at 7 m above mean sea level. Residential subdivisions and associated utilities are now present in the project area.

Methodology

Background literature review included examination of maps, historical and archival documents, and previous archaeological studies in the vicinity of the project area. Historical maps relevant to the current project were georeferenced and analyzed to determine the potential for archaeological resources within the APE. Previous archaeological reports from the area were compiled and analyzed to determine the presence or absence of known archaeological resources with the APE. Additionally, reports from comparable environmental contexts in Kāneʻohe were reviewed for information helpful in determining the probability of archaeological resources in the APE.

Physical Environment Overview

Notable features in the terrain near the APE include the 85 m high volcanic cone Pu'upahu, located 0.5 km to the north, and Kea'ahala Stream, flowing into Kāne'ohe Bay just north of the WWPS parcel. Kāne'ohe's topography and abundant freshwater made the *ahupua'a* a traditionally important region for agriculture and aquaculture (Kamakau 1961:303).

Soils and Sediments

Soils in the APE consist of Lolekaa silty clays with three to eight percent slopes (NRCS 2012). These are well-drained soils with moderately rapid permeability that developed in old, gravelly colluvium and alluvium. The soils are situated on fans and terraces near sea level to 500 feet, with the water table more than 200 cm below ground surface.

Dredged material from Kāne'ohe Bay was used as construction fill to level former traditional fishponds and support residential developments along the shoreline, including immediately east of the proposed duct line corridor.

Agriculture

Kāne'ohe Valley contains numerous streams that contribute to the richness of its natural resources. Kea'ahala Stream (at the north border of the WWPS property), among others in the area, supported irrigation canals feeding into *lo'i* (irrigated terrace). The *lo'i* were used to cultivate wetland taro and sweet potato on terraced lands during the pre-Contact period.

In 1789, Captain Nathaniel Portlock of the British HMS King George observed the low valleys "in a high state of cultivation, and crowded with plantations of taro, sweet potatoes, sugarcane, etc. . . . ." (Handy and Handy 1972:455). Toward the end of the 19th century, Chinese immigrants leased former *lo'i* lands from Hawaiian landowners in the Kāne'ohe lowlands. Taro was replaced by rice agriculture, which covered nearly all of Kāne'ohe's floodplains by the late 1880s (Hammatt and Shideler 2006:10–11). This pattern continued until the 1920s when production in California undercut Hawaiian rice prices, leading to the return of taro production by the 1940s. An early 20th century source reported that "some of the best terraces now in use . . . . are irrigated by Kea'ahala" (Handy 1940, cited in Sterling and Summers 1978:205). At this time cattle grazing and the production of sugar cane and pineapple began in the area.

Fishponds

The numerous traditional Hawaiian fishponds (*loko*) once located along the shore of Kāne'ohe Bay produced an abundance of marine resources. Four to five *loko* were located near the project area, one of which was likely in the APE. The largest *loko,* Kalokohanahou*,* was filled for the development of a subdivision around 1949 (Hammatt and Shideler 2006:7). Directly south of this *loko* was Kanohuluiwi *loko*, described in a 1975 study as a small private fishpond in good condition (Henry 1993:Table 3) (Figure 2 and 3). This *loko* is still observable on the coast. Adjacent and to the south was Waikapoki *loko*, which in the 1876 map had a southern dividing wall. This wall is not present in a 1928 map, suggesting that Waikapoki *loko* was expanded by combining it with the smaller unnamed *loko* to the south sometime in the late 1800s or early 1900s (Figure 2 and 3). Punalu'u *loko*, immediately south of the now expanded Waikapoki *loko*, was filled for residential development prior to the 1950s (Henry 1993:Table 3).

According to early historic maps, the WWPS and much of the proposed electrical duct line is within the boundary of the former Waikapoki *loko*. Between 1928 and 1949, part of Waikapoki *loko* was dredged with the resultant fill apparently being deposited inland and south (Henry 1993:Table 3; Park et al. 2008:Figure 8). Superposition of the APE boundary over the georectified historic maps clearly shows the majority of the APE on construction fill that is covering a traditional fishpond. The southern two-thirds of the electrical duct line are not in fill material. Importantly, WWPS appears to be located directly over the dividing wall between the originally sized Waikapoki *loko* and the adjacent unnamed fishpond.

Previous Archaeological Investigations and Known Sites

There is a low density of documented archaeological sites in Kāneʻohe Ahupuaʻa. This is in large part attributed to destruction of traditional cultural resources during historic farming and modern development (Hammatt and Shideler 2006:20). Background research produced no archaeological projects or documented sites in the APE. Six investigations were conducted close to the project area and contain information useful in evaluating the archaeological potential of the property (Table 1).

With the assistance of local informants, McAllister's (1933) systematic survey and recording of major sites throughout Oʻahu identified eight extant and former archaeological sites in the vicinity of the APE (Table 2). The sites include four *loko*, two *heiau*, a traditional house site, and a ditch that reportedly separated the *ʻili* of Punaluʻu and Waikalua. Locations for these sites are presented as accurately as the source material will allow in Figure 4.

Waikapoki fishpond, under the APE, is mentioned by McAllister (1933:178), but is not described or assigned a site number. He discusses it in the section on Kanohuluiwi fishpond (McAllister Site 344) as follows: "On one of the old maps in the land office there are two adjacent ponds of about the same size. The broken wall of one is still seen, the name of which is probably Waikapoki, with an area of 4 acres. The other pond has been obliterated" (McAllister 1933:178). Research at the Hawaii State Historic Preservation Division produced no site number or records for Waikapoki fishpond.

The Bishop Museum conducted archaeological investigations for the proposed Nani Pua Gardens II Subdivision, near the mouth of Kāneʻohe Stream (Clark and Riford 1986). Salvage operations were undertaken at a former habitation site, Hawaiʻi State Inventory of Historic Properties (SIHP) Site No. 50-Oa-G5-101. Unearthed during the excavations were 12,200 portable artifacts, in situ burials encountered below habitation floors, and evidence of large pole/thatched houses. The unusually large lithic artifact assemblage suggests the site may have been a specialized stone tool manufacturing local, perhaps used in adze production (Clark and Riford 1986:110). Collected charcoal samples produced radiocarbon date ranges suggesting that settlement occurred between AD 1070 and 1405. Sometime prior to AD 1510–1680, a major flooding event buried a large portion of the settlement.

Hammatt and Borthwick (1989) conducted archaeological survey for the expansion of the Bay View Golf Course on the lower floodplain of Kāneʻohe and Kawa Streams. Their background research indicated that a large Hawaiian community formerly occupied the area. Extant evidence of the settlement was limited to Waikalua *loko* and a layer of gleyed sediments. The gleyed layer, buried beneath 60–120 cm of construction fill, is evidence of a former taro *loʻi* or rice paddy (Hammatt and Borthwick 1989:40).

Archaeological inventory survey with subsurface testing was conducted on an approximately 1.3 ha shoreline parcel off Waikalua Road (Stride et al. 1994). Historic research indicated that traditional Hawaiian use of the area might have included settlement and dryland cultivation. Modern disturbance

has destroyed any surface and subsurface archaeological sites or features indicative of these activities (Stride et al. 1994:i).

Perzinski and Hammatt (2000) conducted archaeological inventory survey for the Kāne'ohe Civic Center Playground parking lot. The single test unit excavated revealed modern and historic trash.

In 2008, Pacific Consulting Services, Inc. carried out archaeological monitoring for the replacement of existing waterlines at Ka Hanahou Place, Lilipuna Place, and Springer Place (Park et al. 2008). The remains of Kalokohanahou *loko* (SIHP 50-80-10-343) were identified by a layer of gleyed sediment. The pond facies layer was unearthed directly below construction fill at two discrete locations. The first location, which contained a possible retaining wall fragment, was approximately 75 cm below ground surface and measured about 30 cm thick. The second location was encountered 1.75 m below ground surface and measured 10 cm thick.

Discussion

Background research for the WWPS project identified documentation of cultural deposits indicative of a substantial pre-Contact village (SIHP 50-Oa-G5-101) at the mouth of Kāne'ohe Stream (Clark and Riford 1986) and archival research showing a large Hawaiian community resided on the lower floodplain of Kāne'ohe and Kawa Streams (Hammatt and Borthwick 1989). The former traditional habitation area was buried and preserved by a flooding event while little may remain of the latter settlement except for waterlogged surfaces. These sites are significant to the current project as they identify extensive traditional occupation along streamsbeds emptying into Kāne'ohe Bay and the potential for unearthing remains of complex habitation sites. The project APE is situated adjacent to a stream outflow and is a choice location for traditional occupation.

Superposition of the APE onto historic maps indicates that the project area appears to be situated within the expanded Waikapoki fishpond, and squarely on the boundary between Waikapoki and the smaller fishpond to the south that it subsumed during its expansion. Remnants of the surfaces and walls of the *loko* lining the bay remain protected beneath a thick cap of construction fill placed in preparation for residential development. Previous archaeological testing along the Kāne'ohe Bay shoreline where this construction fill was deposited may not have identified cultural deposits due to the shallowness of the excavations and because excavations occurred along existing utilities corridors.

Archaeological Expectations

Based on historic maps, the area of low elevation where the WWPS property is located is likely a fishpond filled to an unknown depth during the dredging of the adjacent Waikapoki fishpond between 1928 and 1949. It is anticipated that subsurface evidence of the *loko* may be encountered in the form of a gleyed soil layer or remnants of the retaining wall separating the small fishpond from the adjacent Waikapoki *loko*. Archaeological investigations approximately 200 m north at another filled *loko* site unearthed a pond facies layer directly below the construction fill (Park et al. 2008). Also uncovered was a large basalt boulder interpreted to be a remnant of the wall retaining Kalokohanahou *loko*. If similar evidence is encountered in the current project area, coring of soil samples has the potential to identify pollen and organic materials that can reveal the chronology of environmental transformations at Waikapoki *loko*.

The proposed electrical duct line corridor, ascending the Kahuhale Cove driveway south of the WWPS property, contains deep alluvial soils likely overlain with modern construction fill. There is a possibility that beneath this fill material are undisturbed cultural deposits or possibly human burials

associated with a traditional village. Based on land use history and previous archaeological research, the mouths of streams, such as here at Kea'ahala Stream, were preferred areas for early Hawaiian settlement (Hammatt and Shideler 2006:20). This, in combination with the proximity of the APE to numerous *loko* and traditional and historic agricultural sites, suggest this area may be a pre-Contact settlement site.

Conclusions

As prior development of the APE and the immediately surrounding area largely occurred before the implementation of cultural resource management laws, records documenting soil stratigraphy or archaeological findings are not available. Anticipated archaeological findings are based on previous archaeological investigations in comparable environments along Kāne'ohe Bay. The variable elevation of the project area in conjunction with historic maps and nearby documented cultural sites guides expectations for the WWPS Upgrade Project.

The potential for encountering traditional Hawaiian or early historic cultural deposits in the APE is ranked as medium. Surface evidence of archaeological features was displaced during the construction of housing and paved surfaces. However, based on findings at comparable coastal locations along Kāne'ohe Bay, earthmoving during construction might encounter subsurface evidence of traditional Hawaiian settlement and will likely unearth evidence of a former *loko* and possibly its associated retaining wall.

It is suggested that potential adverse effects during ground disturbing activities be mitigated through a program of archaeological monitoring and documentation of subsurface deposits. Should intact *loko* deposits be encountered, it might be worthwhile to conduct paleoenvironmental coring in an attempt to identify transformations in the surrounding environment prior to Western contact.

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Tables and Figures

Table 1. Previous Archaeological Investigations in Vicinity of WWPS Upgrade Project

Reference	Type	Location	Findings
McAllister 1933	Island-wide study	O'ahu	Documented eight sites near current project area (Table 2)
Clark and Riford 1986	Subsurface testing and archaeological salvage Excavations at Site 50-Oa-G5-101	Waikalua-Loko	12,200 portable artifacts; evidence of large pole/thatched houses; in situ human burials below habitation floors
Hammatt and Borthwick 1989	Archaeological survey and assessment	Bay View Golf Course Expansion (36 ha)	Documented Waikalua *loko* and evidence of a former taro *lo'i* or rice paddy
Stride et al. 1994	Inventory survey and subsurface testing	Waikalua Road, TMK 4-5-005: 001, 002, 012, 013, 014; 1.4 ha at shoreline	No archaeological sites identified
Perzinski and Hammatt 2000	Archaeological inventory survey	Kāne'ohe Civic Center	Modern and historic refuse
Park et al. 2008	Archaeological monitoring	TMK 4-5-047, -057	Observed remnants of Kalokohanahou *loko* (SIHP 50-80-10-343)

Table 2. Sites Recorded by McAllister (1933) Near the WWPS Upgrade Project

Site No.	Name	Status	Description
342	Puupahu Heiau	Destroyed	Located on Puupahu, Kāne'ohe [ca.1931]
343	Kalokohanahou (may not be original name)	1951/54 photos indicate the pond was filled (Henry 1993:30)	7.3 ha *loko*
344	Kanohuluiwi	Intact	4.4 ha *loko* with narrow lava rock walls
345	Punalu'u (Mahalani)	1951/54 photos indicate the pond was filled for residential use (Henry 1993:30-1)	5.8 ha *loko* with a 490 m long basalt wall
346	Unnamed ditch	Destroyed	Deep ditch dividing the *'ili* of Punalu'u and Waikalua
347	Kalaoa Heiau	Destroyed	Material from the *heiau* was used to build a mill
348	Laamaikahiki house sites	Possible remnants	Located 30 m from Kāne'ohe Bay with an oval rock pile indicative of chiefly residence
349	Waikakua	Rebuilt	7.2 ha *loko* with 433 m long waterworn basalt wall

Figure 1. WWPS Upgrade Project in Kāneʻohe Ahupuaʻa, Koʻolaupoko District, Island of Oʻahu, Hawaiʻi.

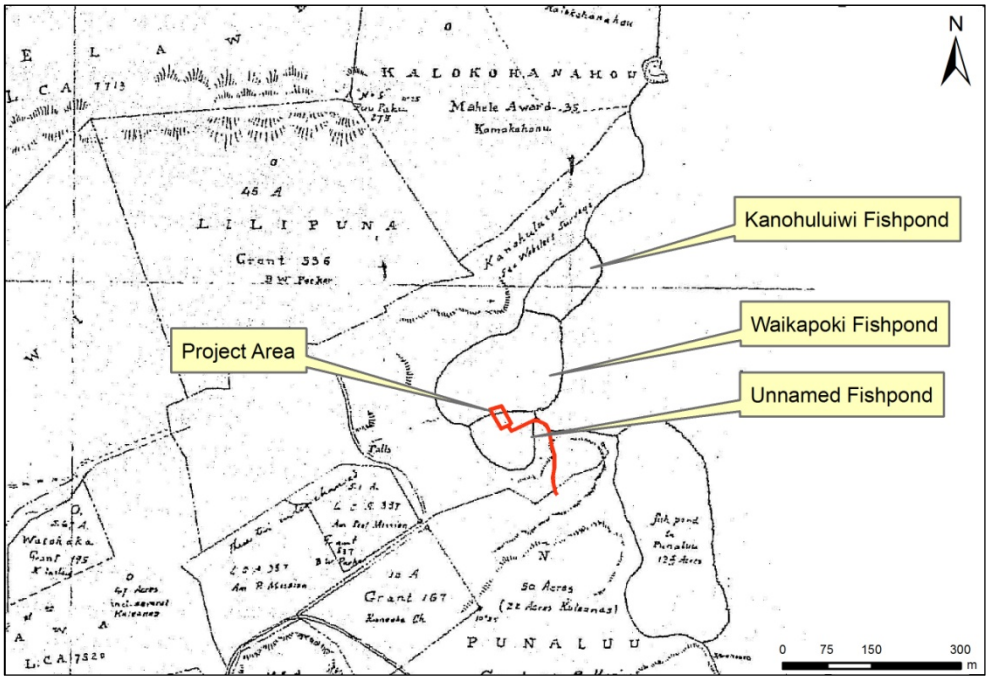

Figure 2. Project area in 1876 Lyons' Map of Kāne'ohe O'ahu with West Kailua.

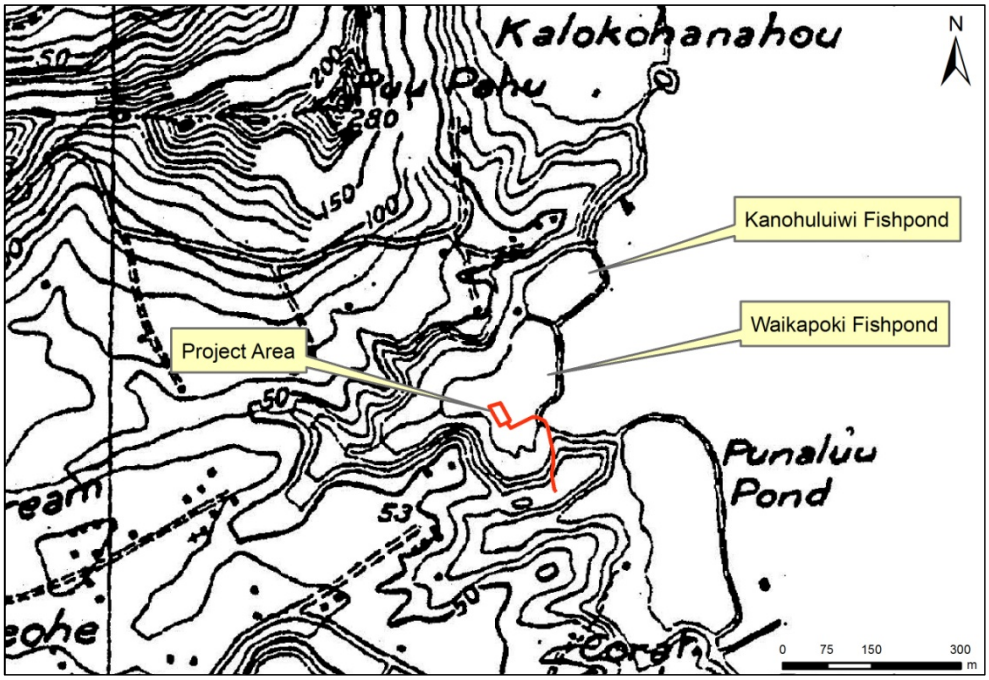

Figure 3. Project area in 1928 U.S.G.S Kāne'ohe Quad map.

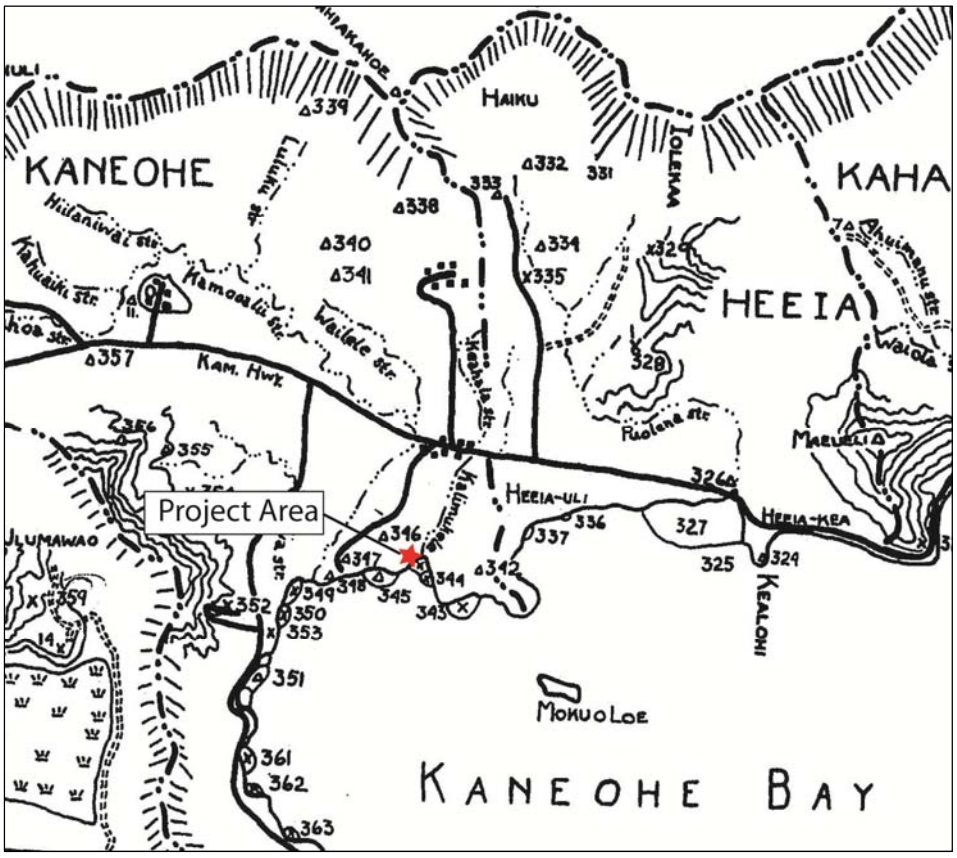

Figure 4. Section from Sterling and Summers' map (1959) of sites recorded by McAllister c.1933.