DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
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KIRK CALDWELL
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DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
DIR 18-17

May 4, 2018

Mr. Scott Glenn, Director
Office of Environmental Quality Control
Department of Health
State of Hawai'i
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813-2437

Dear Director Glenn:

Subject: Final Environmental Assessment and Finding of No Significant Impact for the Honouliuli Wastewater Treatment Plant Biogas Project

The Department of Environmental Services has reviewed the *Final Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (FEA). Based on the requirements of Hawai'i Revised Statutes, Chapter 343 and its implementing regulations contained in Hawai'i Administrative Rules, Title 11, Chapter 200, we have determined that preparation of an Environmental Impact Statement is not required and have issued a Finding of No Significant Impact (FONSI) for this project.

We respectfully request that you publish a notice of this FEA-FONSI in the May 23, 2018, edition of *The Environmental Notice*. This letter transmits to you printed copies of the FEA and the completed Office of Environmental Quality Control (OEQC) publication form; it also includes a DVD with the FEA (in PDF) and the publication form (in MS Word).

Should you have any questions, please contact Tim Houghton, Deputy Director, at 768-3485, or via email at thoughton@honolulu.gov.

Sincerely,

Lori M.K. Kahikina, P.E.
Director

Enclosures:
1. Final Environmental Assessment (printed)
2. OEQC Publication Form (printed)
3. DVD Containing: (*i*) FEA in PDF, (*ii*) OEQC Publication Form in MS Word.

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

18-558

APPLICANT
PUBLICATION FORM

Project Name:	Honouliuli WWTP Biogas Project
Project Short Name:	Honouliuli WWTP Biogas Project
HRS §343-5 Trigger(s):	Waste-to-energy facility, use of County lands.
Island(s):	O'ahu
Judicial District(s):	Ewa
TMK(s):	(1) 9-1-013:007 (por.)
Permit(s)/Approval(s):	PUC Authorization to Commit Funds, HAR §11-60.1 Noncovered Source Air Permit, Chapter 343, HRS Environmental Assessment, Street Usage Permit, Noise Permit, Grubbing, Grading, and Stockpiling Permit, Building Permit.
Approving Agency:	City and County of Honolulu, Department of Environmental Services
Contact Name, Email, Telephone, Address	Mr. Cyril Hamada, chamada@honolulu.gov (808-768-5979) Department of Environmental Services City and County of Honolulu 1000 Ulu'ōhi'a Street, Suite 308 Kapolei, Hawai'i 96707
Applicant:	The Gas Company, LLC dba Hawai'i Gas
Contact Name, Email, Telephone, Address	Mr. Richard DeGarmo, rdegarmo@hawaiigas.com (808-596-1415) 745 Fort Street, Suite 1800 Honolulu, Hawai'i 96813
Consultant:	Sheehan Group Pacific, LLC
Contact Name, Email, Telephone, Address	Mr. Neil Sheehan, nsheehan@sheehangrouppacific.com (808-282-2153) 133 Ku'ukama Street Kailua, Hawai'i 96734

Status (select one)	**Submittal Requirements**
____ DEA-AFNSI	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
__X__FEA-FONSI	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the approving agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
___ FEIS Acceptance Determination	The approving agency simultaneously transmits to both the OEQC and the applicant a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no

comment period ensues upon publication in the Notice.

____ FEIS Statutory Acceptance	The approving agency simultaneously transmits to both the OEQC and the applicant a notice that it did not make a timely determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and therefore the applicant's FEIS is deemed accepted as a matter of law.
____ Supplemental EIS Determination	The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary

Provide a description of the proposed action and purpose and need in 200 words or less.

The City and Count of Honolulu, Department of Environmental Services (ENV) operates Honouliuli Waste Water Treatment Plant (HWWTP). The secondary stage of treatment at HWWTP produces raw biogas, which is currently used to fuel a boiler that warms sludge to temperatures optimal for anaerobic digestion and excess biogas is discarded by burning it off in an on-site flare. Hawai'i Gas, in partnership with ENV, is now proposing to purchase, construct, and operate biogas purification equipment on approximately 2,500 $ft.^2$ at HWWTP. It will use this installation to purify the raw biogas produced at HWWTP into utility-grade renewable natural gas, which will be compressed and injected into its pipeline system for distribution to Hawai'i Gas customers. It will also construct an approximately 1-mile length of new underground pipeline to connect the biogas purification equipment to the nearby Hawaii Gas pipeline along Kapolei Parkway.

Final Environmental Assessment
HONOULIULI WASTEWATER TREATMENT PLANT BIOGAS PROJECT

'EWA, O'AHU, HAWAI'I

PREPARED FOR:
The Gas Company, LLC

PREPARED BY:

Sheehan
GROUP-PACIFIC LLC

&

PLANNING
SOLUTIONS

APRIL 2018

PROJECT SUMMARY

Project:	**Honouliuli Wastewater Treatment Plant Biogas Project**
Applicant:	The Gas Company, LLC dba Hawai‘i Gas 745 Fort Street, Suite 1800 Honolulu, Hawai‘i 96813 Contact: Richard DeGarmo (808-596-1415)
Approving Agency:	Department of Environmental Services City and County of Honolulu 1000 Ulu‘ōhi‘a Street, Suite 308 Kapolei, Hawai‘i 96707 Contact: Cyril Hamada (808-768-5979)
Location:	91-1000 Geiger Road ‘Ewa Beach, Hawai‘i 96706
Proposed Action:	Installation of biogas purification equipment at Honouliuli Wastewater Treatment Plant and pipeline along Geiger Road to tie into Hawai‘i Gas’ existing distribution system at Kapolei Parkway.
Associated Actions Requiring Environmental Assessment:	Commitment of City and County of Honolulu land pursuant to HRS, Chapter 343-5(a)(1).
Tax Map Key:	(1) 9-1-013:007 (portion)
Parcel Area:	48.7 acres
Project Area:	2,500 square feet
Judicial District:	‘Ewa
Development Plan Designation:	Public Facility
State Land Use District:	Urban
County Zoning:	I-2 Intensive Industrial, AG-1 Restricted Agriculture, P-2 General Preservation, and R-5 Residential.
Required Permits & Approvals:	• PUC Authorization to Commit Funds • HAR §11-60.1 Noncovered Source Air Permit • Chapter 343, HRS Environmental Assessment • Street Usage Permit • Noise Permit and/or Noise Variance • Grubbing, Grading, and Stockpiling Permit • Building Permits
Determination:	Finding of No Significant Impact
Parties Consulted:	See Chapter 7
Consultant:	Sheehan Group-Pacific, LLC 133 Ku‘ukama Street Kailua, Hawai‘i 96734 Contact: Neil Sheehan (808-282-2153) Email: nsheehan@sheehangrouppacific.com

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List of Acronyms

Acronym	*Phrase*
ADF	Average Daily Flow
AIS	Archaeological Inventory Survey
CCH	City and County of Honolulu
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIA	Cultural Impact Assessment
ENV	Department of Environmental Services
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
EPA	Environmental Protection Agency
HAR	Hawai‘i Administrative Rules
HDOH	State of Hawai‘i Department of Health
HRS	Hawai‘i Revised Statutes
HWWTP	Honouliuli Wastewater Treatment Plant
kV	Kilovolt
MGD	Million Gallons per Day
MW	Megawatt
MWh	Megawatt Hour
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
PUC	Public Utilities Commission
RFP	Request For Proposals
ROW	Right of Way
RPS	Renewable Portfolio Standards
TMK	Tax Map Key

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1. PROJECT OVERVIEW

1.1 PROJECT SUMMARY

This Environmental Assessment (EA) evaluates the potential environmental effects of The Gas Company, LLC (henceforth "Hawai'i Gas") constructing and operating a biogas purification system within the existing Honouliuli Wastewater Treatment Plant (HWWTP) and an associated 4-inch diameter underground pipeline interconnecting the biogas system with Hawai'i Gas' existing natural gas distribution system along Kapolei Parkway. HWWTP is owned by the City and County of Honolulu (CCH) and operated by its Department of Environmental Services (ENV). HWWTP is located on two adjacent parcels of land in 'Ewa, O'ahu, Hawai'i: TMK Nos. (1) 9-1-013:007, which is 48.7 acres (ac.); (1) 9-1-069:004, which is 2.7 ac.; and (1) 9-1-069:003, which is 48 ac. in size and referred to as the expansion parcel. The proposed biogas facility would occupy approximately 2,500 square feet ($ft.^2$) of the larger parcel; the smaller parcel would not be affected by the proposed project. The location of HWWTP is shown in Figure 1.1; the project's immediate vicinity is shown in greater detail in Figure 1.2. A site plan of the existing plant is provided in Figure 1.3. The zoning designations in the vicinity of HWWTP are shown in Figure 1.4.

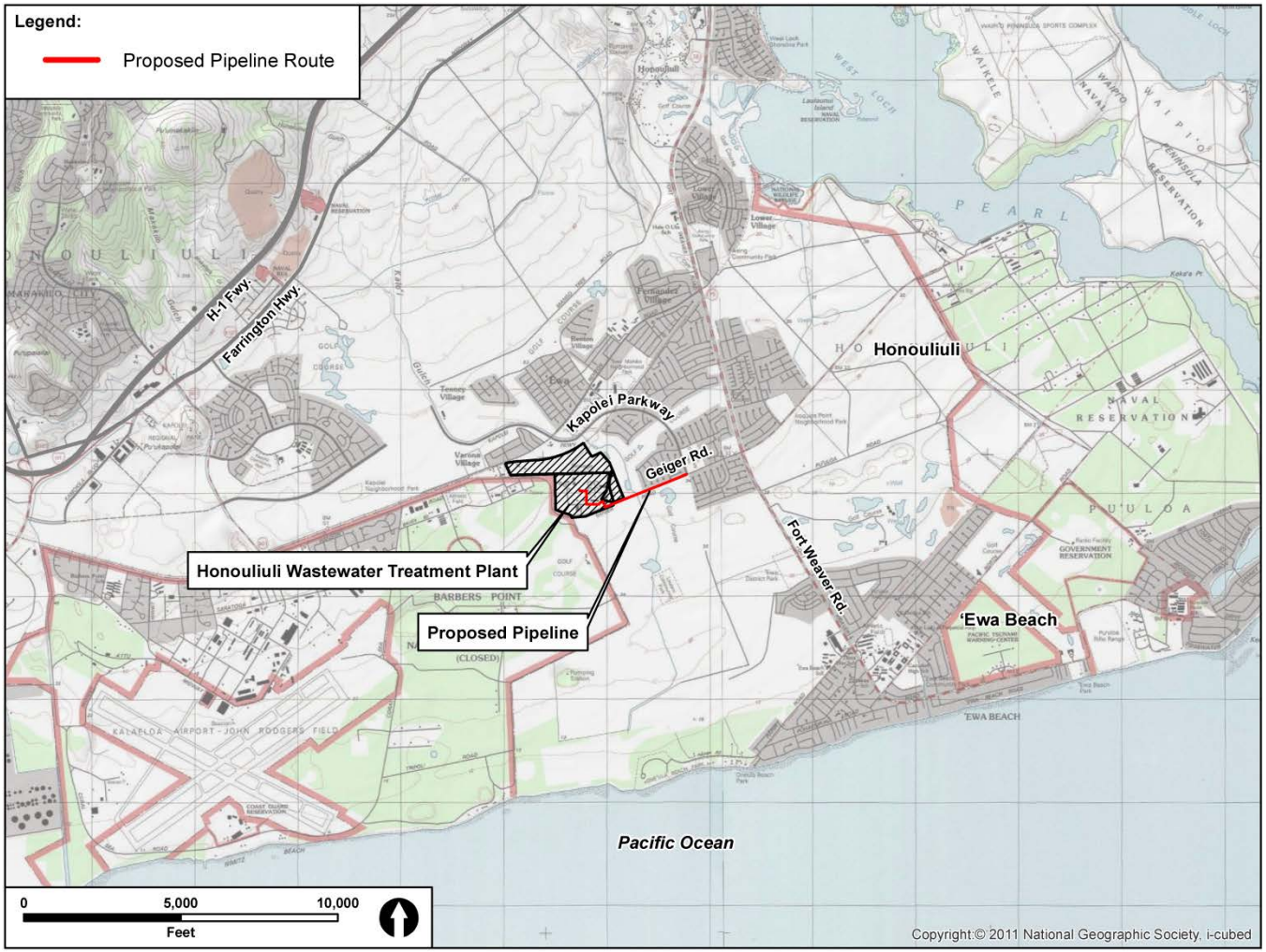
HWWTP was originally built in 1978, and became fully operational in 1984.[1] In 2013, the average daily flow (ADF) was approximately 26.1 million gallons per day (MGD). ADF at HWWTP includes flow generated by the population in the surrounding service area, including residential, commercial, and industrial uses. In addition to these sources, ADF includes water that may enter the system through infiltration, where pipes and mains lie below the water table during normal weather. HWWTP serves one of the fastest growing areas in the State of Hawai'i and flow to the plant is projected to increase based on the continuation of this population growth, and ENV has plans in place to gradually expand HWWTP in order to accommodate this trend.

All HWWTP wastewater inflow receives multi-stage treatment; wastewater receives primary treatment via clarifiers and secondary treatment via biotowers and clarifiers. Sludge collected in the clarifiers is further treated. The sludge treatment employs anaerobic biological processes that produce approximately 800,000 therms—or 23,400,000 kilowatt hours—of raw biogas annually. Currently, ENV utilizes the biogas in a boiler to heat the sludge to the mesophilic range (68 to 113 degrees F), which is the optimal range for anaerobic microorganisms, and discards excess biogas by burning it off in a flare located within HWWTP. Hawai'i Gas, in partnership with ENV, is now proposing to:

- Utilize roughly 2,500 ft^2 of vacant land within the plant from ENV.
- Purchase, install, operate, and maintain biogas purification equipment that will occupy approximately 2,500 ft^2 of land adjacent to the existing anaerobic digester tanks at HWWTP.
- Design, construct, and maintain approximately 1 mile of new underground pipeline within the HWWTP and Geiger Road right-of-way to connect the purification system to the existing Hawai'i Gas pipeline system along Kapolei Parkway.
- Purify the raw biogas produced at HWWTP into utility-grade renewable natural gas, which will be compressed and injected into the new pipeline for distribution to Hawai'i Gas customers.

[1] As of December 16, 1993 HWWTP operated under National Pollutant Discharge Elimination System (NPDES) Permit No. HI0020877. The ENV applied to the U.S. Environmental Protection Agency (EPA) to renew the permit prior to its expiration on June 5, 1996. In 2009, the EPA denied reissuing the permit. HWTTP operated under an administrative extension of the permit after it expired in 1996. The NPDES Permit was subsequently reissued by the State of Hawai'i's Department of Health (HDOH), effective March 30, 2014.

Figure 1.1 Location Map

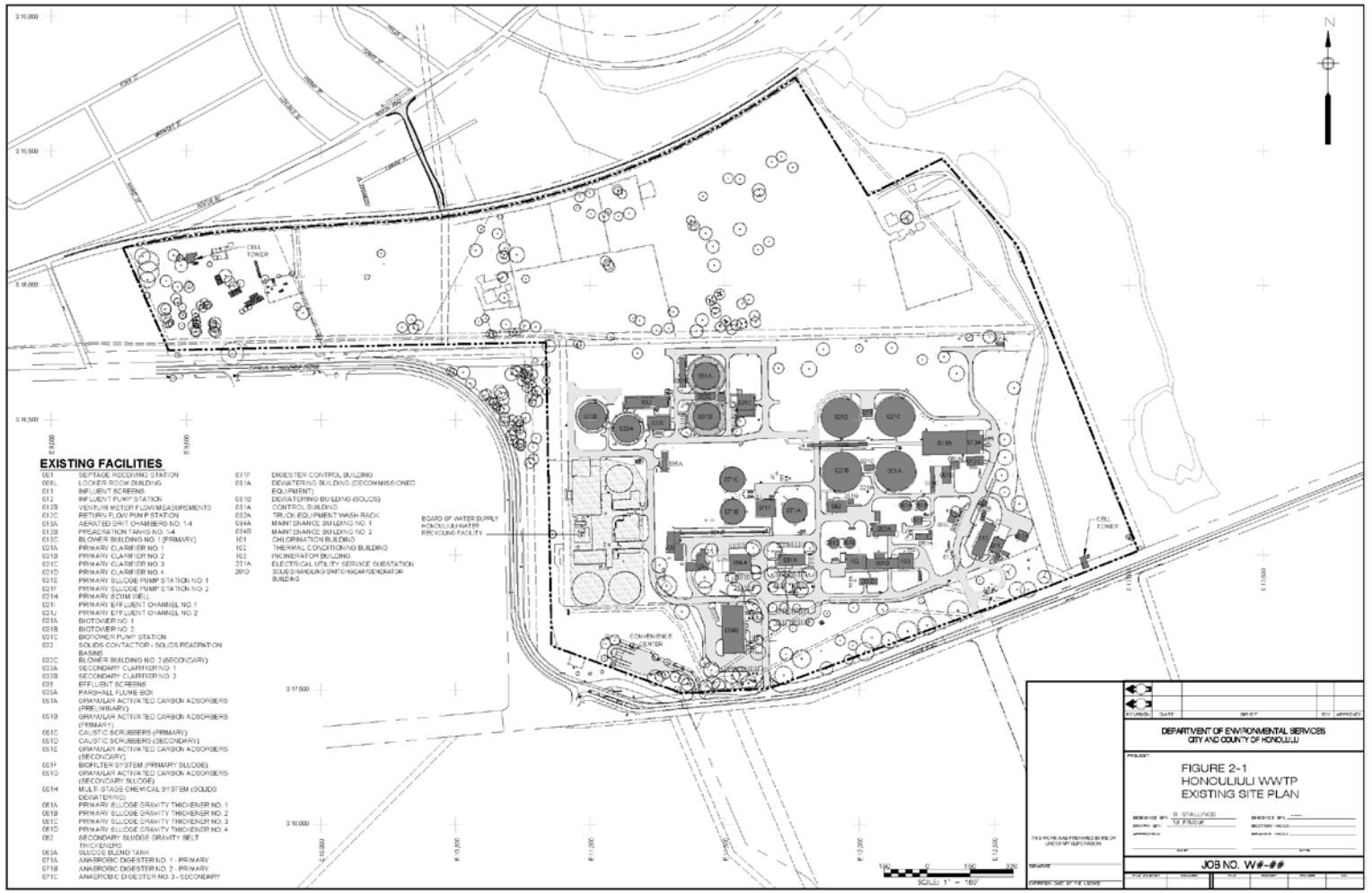


Source: Planning Solutions, Inc. (2018)

Figure 1.2 Project Vicinity

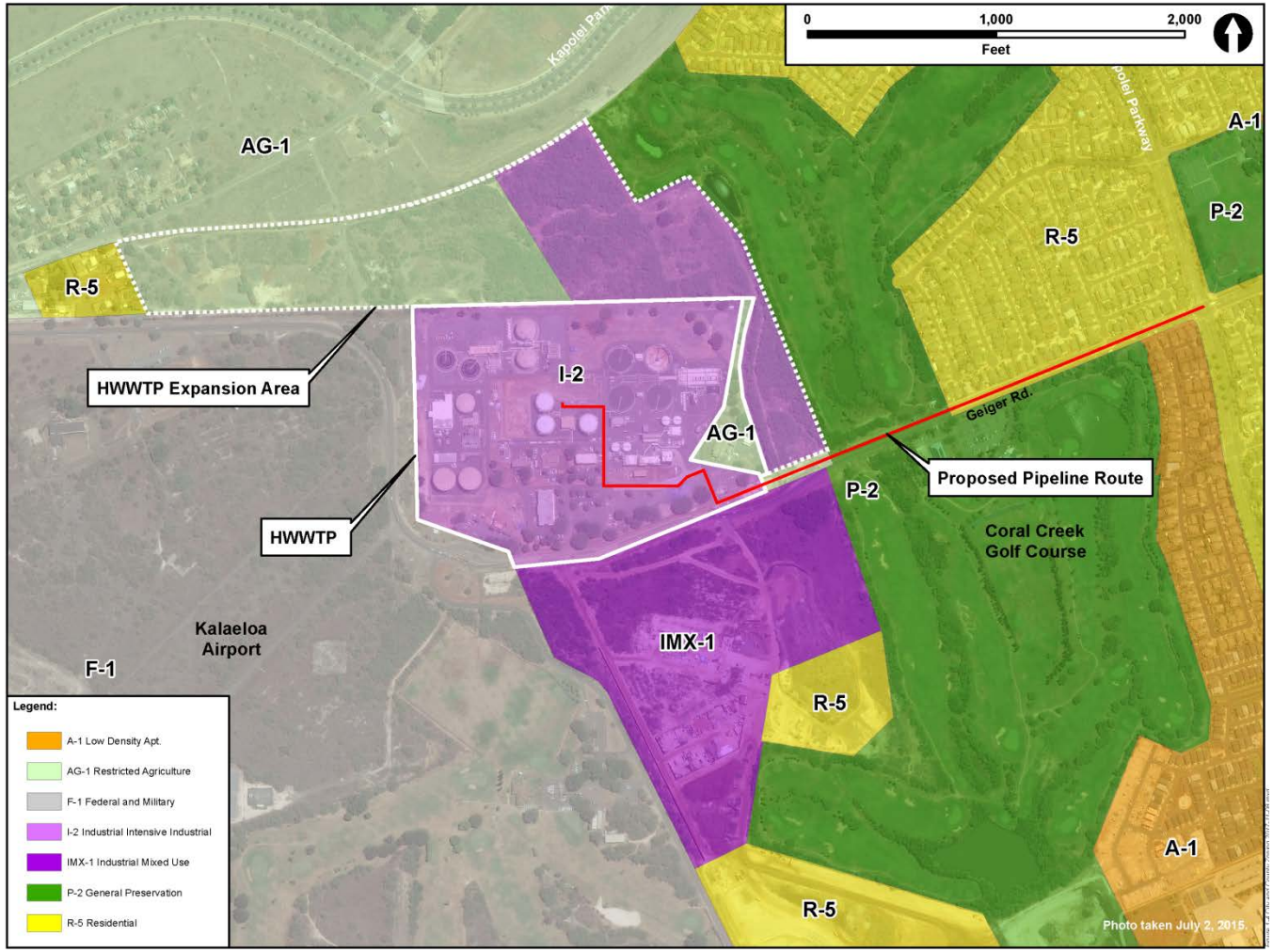
Source: Planning Solutions, Inc. (2018)

Figure 1.3 HWWTP Site Plan



Source: ENV (2017)

Figure 1.4 City and County Zoning



Source: City and County of Honolulu (2017)

This project represents a unique opportunity for the ENV, Hawai‘i Gas, its customers, and the State of Hawai‘i. If constructed as planned, the project has the potential to offer low-cost, renewable energy to the people of O‘ahu, as called for under the State’s Clean Energy Initiative, while providing a steady stream of revenue to the ENV for a byproduct of its wastewater treatment process which is currently discarded.

The proposed HWWTP Biogas Project will also allow Hawai‘i Gas to further diversify its supply chain, blending the renewable natural gas produced at HWWTP with its existing supply of synthetic natural gas. Hawai‘i Gas customers will be unaffected by fluctuations in the availability of the renewable natural gas produced at HWWTP because synthetic natural gas will buffer those fluctuations. In addition, this project may act as a testbed for additional biogas reclamation projects elsewhere in the State. Finally, Hawai‘i Gas customers will benefit from the fixed price of this biogas, which is not subject to the price-variability of gas produced from petroleum.

1.2 HAWAI‘I GAS

Hawai‘i Gas is a franchised public utility, overseen by the Public Utility Commission (PUC), holding a franchise granted by the State of Hawai‘i to (per Act 262, Session Laws of Hawai‘i 1967) “manufacture and supply gas for use as a fuel, illuminating purposes and otherwise, throughout the State.” Since 1904, Hawai‘i Gas and its predecessors have expanded its gas utility operations to encompass the entire State of Hawai‘i. Currently, it provides gas service throughout all of the major islands of Hawai‘i, engaging in regulated and non-regulated gas utility operations that serve approximately 68,700 customers throughout the state.

Hawai‘i Gas’ regulated operations include the purchase, production, transmission, and distribution through underground gas pipelines of synthetic natural gas (SNG) for residential, commercial, and industrial uses. Other PUC-regulated activities include the distribution of liquid petroleum gas (LPG) and synthetic natural gas (SNG) via pipelines. Hawai‘i Gas also conducts non-regulated operations related to the purchase, distribution, and sale of tanked and bottled LPG to residential, commercial, and industrial customers throughout the State of Hawai‘i. In total, Hawai‘i Gas has approximately 320 employees conducting operations on six islands.

1.3 DEPARTMENT OF ENVIRONMENTAL SERVICES

The Department of Environmental Services, or ENV, is responsible for the collection, treatment, and disposal of solid waste and wastewater throughout the CCH. ENV’s solid waste program includes the curbside collection, recycling, and disposal of residential garbage and green waste. The collected refuse and green waste is recycled, burned at the ENV’s H-Power waste-to-energy facility, or deposited in the municipal Waimanalo Gulch Landfill.

ENV’s wastewater program include the collection of approximately 100 MGD of wastewater from toilets, sinks, and drains of homes and businesses throughout O‘ahu through a 2,100-mile network of sewer pipelines, 70 pump stations, and 9 wastewater treatment plants spread out across the island. The wastewater collected by ENV in its treatment plants is typically screened to remove debris, settled to remove organic solids, and treated at varying levels—primary through tertiary—depending on the sophistication of the plant and the wastewater’s subsequent intended use. The resulting water, known as effluent, is monitored for quality and either discharged back into the environment via ocean outfall, reservoir, or underground injection wells; in some cases, the effluent is recycled and reused for irrigation and industrial uses.

1.4 NEED FOR AN ENVIRONMENTAL ASSESSMENT

Hawai‘i Gas has received PUC approval to expend the funds necessary to purchase and install the equipment to scrub biogas produced by the existing waste treatment facilities at HWWTP into utility-

grade natural gas and construct the pipeline extension necessary to add the gas to Hawai‘i Gas' existing distribution system.

Pursuant to Hawai‘i Revised Statutes, Section 343.5(a)(1), an EA is required if, "the proposed project involves the use of State or County lands." CCH is the owner of HWWTP (TMK No. 9-1-013:007); the commitment of a portion of this land to Hawai‘i Gas is a "trigger" for the environmental review process outlines in Hawai‘i Revised Statutes (HRS), Chapter 343 and its implementing regulations contained in Hawai‘i Administrative Rules (HAR), Title 11, Chapter 200. The purpose of this process is to determine the project's potential for impacts to the natural and human environment. This EA has been prepared to fulfill the purpose and content requirements of these regulations. In addition to this Chapter 343 environmental review process, Hawai‘i Gas, through its subcontractors, will need to obtain grading, building, and other permits and approvals prior to construction of the new biogas facility and associated pipeline.

1.5 PROJECT PURPOSE AND NEED

The purpose of the HWWTP Biogas Project is to convert a byproduct of the wastewater treatment process (biogas) into a clean, renewable source of energy for sale to customers of Hawai‘i Gas. The need for the project is rooted in Hawai‘i's renewable energy goals. The objectives which Hawai‘i Gas has identified for the proposed project are summarized in Table 1.1.

Table 1.1 Objectives of the HWWTP Biogas Project

No.	*Objective*
1	To diversify Hawai‘i Gas' fuel supply with cost-effective, locally-produced renewable natural gas (RNG).
2	To increase the proportion of Hawai‘i Gas' total gas sales which will be produced renewably.
3	To obtain a fixed-price source of renewable natural gas (RNG).
4	To reduce the cost of its gas, as compared with the average historical SNG fuel cost on a weighted average basis.
5	To move towards a more stable price of energy for its customers.
6	To serve as a testbed model for additional, future RNG reclamation projects.
Source: Hawai‘i Gas (2016)	

In addition, the sale of the methane produced by ENV at HWWTP, which is currently discarded, will provide the ENV with an ongoing, continuous source of revenue while reducing pollution and assisting the State of Hawai‘i in achieving its renewable energy goals.

1.6 ORGANIZATION OF THE REPORT

The remainder of this report is organized as follows:

- Chapter 2 describes the proposed project elements in detail, including location, design, construction, cost, and mode of operation as well as several alternatives to the proposed project which Hawai‘i Gas has considered in earlier phases of the planning process.
- Chapter 3 provides descriptions of the existing environment and analyzes the ways in which the proposed action and its alternatives could impact the natural and human environment. It also outlines strategies for minimizing the potential for adverse effects and mitigating unavoidable impacts.

- Chapter 4 discusses the consistency of the proposed project with applicable county and state plans, policies, and controls.
- Chapter 5 states the determination that the proposed project will not have significant adverse effects on the environment.
- Chapters 6 and 7 identify parties which were consulted and references cited during preparation of this EA.

2. DESCRIPTION OF PROPOSED PROJECT AND ALTERNATIVES

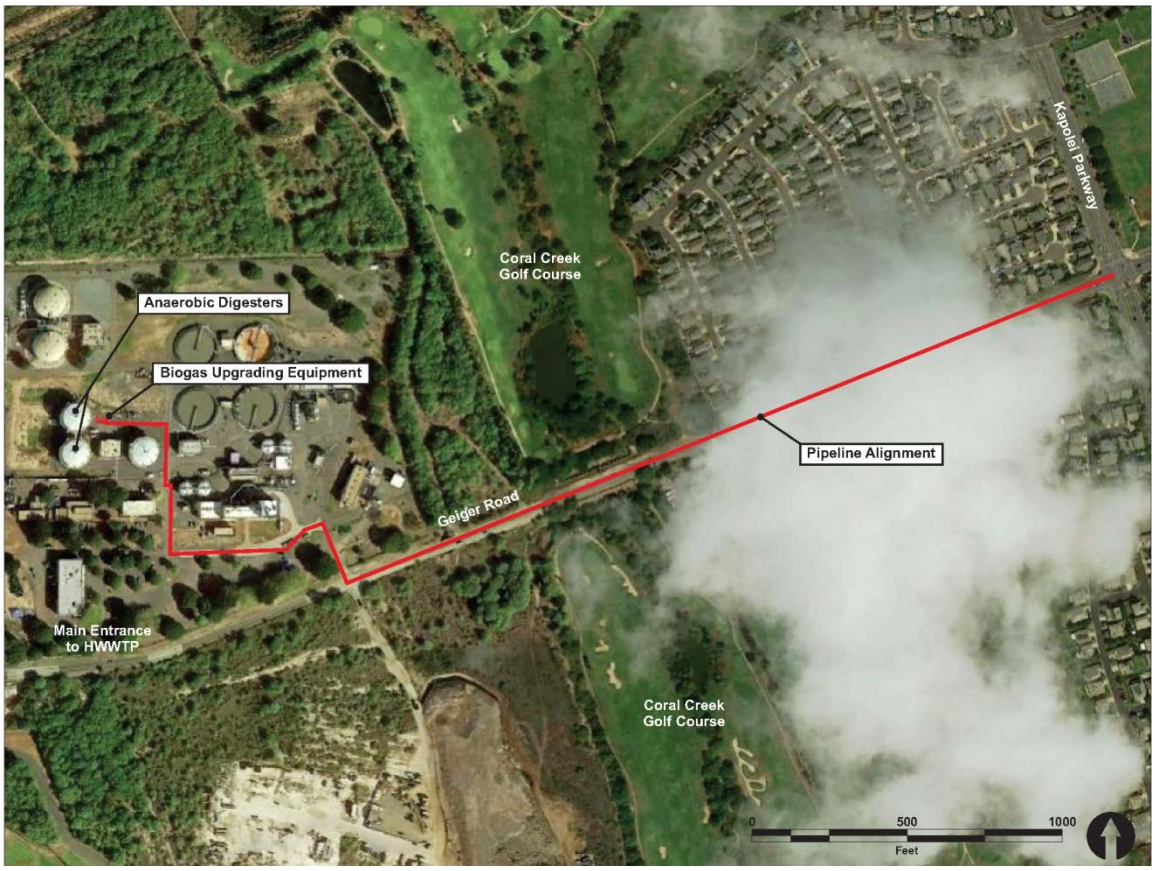
HAR Title 11, Chapter 200 contains the State of Hawai'i, Department of Health's environmental impact assessment rules. That section: (*i*) defines the assessment process for applicant actions such as the one Hawai'i Gas is proposing; (*ii*) requires that the approving agency, in this case ENV, analyze alternatives; and (*iii*) establishes the required contents of EAs. Among the content requirements listed is the identification and summary of the project and alternatives considered.

This chapter provides more detailed information about the location and design of the various elements of the proposed project. It also includes the procedures that will be used in its construction, operation and maintenance, the materials that will be used, the estimated costs, and the anticipated schedule for the project's development. It concludes with a discussion of alternatives to the proposed action, including those alternatives which were originally considered in early phases of planning, but which were ultimately rejected from further consideration because they would not achieve the project objectives summarized in Table 1.1.

2.1 ALTERNATIVE 1: THE HWWTP BIOGAS PROJECT

The proposed project involves the construction, installation, and operation of a biogas purification system within the existing HWWTP and an associated 4-inch diameter underground pipeline interconnecting the biogas system with Hawai'i Gas' existing pipeline along Kapolei Parkway. The project, which would provide locally-produced RNG to Hawai'i Gas' pipeline network will provide as-available, low-cost renewable fuel and provide a moderate reduction in the overall use of fossil fuel on O'ahu. The following subsections describe the various project elements in further detail. A site plan for the proposed biogas facility at HWWTP is shown in Figure 2.1 below.

Figure 2.1 Site Plan of HWWTP Biogas Project



Source: Hawai'i Gas (2017)

2.1.1 BIOGAS UPGRADING TECHNOLOGY

As part of its ongoing wastewater treatment operations at HWWTP, ENV operates large anaerobic digester tanks (see Figure 1.3) which process sludge separated from the wastewater stream by clarifiers. In the digester tanks the biodegradable matter in the sludge is broken down by microorganisms in the absence of oxygen (hence "anaerobic"), which reduces the amount of solids which need to be disposed of. The process of anaerobic digestion is used at wastewater treatment plants around the world to manage biologic waste and to produce fuels; a pairing of these purposes is at the heart of the HWWTP Biogas Project.

A byproduct of the anaerobic digestion process is "biogas" which is composed primarily of: (*i*) methane (CH_4), which is also known as natural gas; (*ii*) carbon dioxide (CO_2); and (*iii*) trace levels of other gasses, primarily hydrogen sulfide (H_2S), but also mercaptans, terpenes, and water (H_2O); Table 2.1 below summarizes the content of the raw biogas. A technique known as "biogas upgrading" is used to separate the methane from the carbon dioxide and other gasses, resulting in a stream of renewable natural gas (i.e., methane) suitable for use as fuel.

Table 2.1 Composition of Raw Biogas

Composition	*Concentration*
Methane (CH_4)	50.0-60.0 %
Carbon Dioxide (CO_2)	30.0-50.0 %
Hydrogen Sulfide (H_2S)	1000-1600 ppm
Siloxanes	200-300 ppb
Saturated Water Vapor (H_20)	-

Notes: ppm = parts per million; ppb = parts per billion
Source: DMT Clear Gas Solutions (2017)

The HWWTP Biogas Project involves the use of DMT Clear Gas Solutions' Carborex™ MS filament system, in a containerized unit, to separate the methane from the carbon dioxide and other gasses using membranes, pressure, and activated carbon to separate these biogas constituents without the use of chemicals or water, and with a low amount of energy. The primary impurity, carbon dioxide, is separated using solution diffusion through polymer tubules inside the Carborex™ MS units; the separation of the methane from the carbon dioxide occurs because of differences in their solubility through the tubules. The molecular structure of carbon dioxide allows it to pass through the tubules more quickly than the methane, resulting in a carbon dioxide rich stream at the permeate end of the unit and a methane rich stream at the retentive end of the unit.

As noted above, the raw biogas produced in the anaerobic digesters consists primarily of methane and carbon dioxide, but other components are present. These include hydrogen sulfide, mercaptans, terpenes, and water. It is preferable that these compounds are removed from the stream at the outset. To address this, the pre-treatment process uses activated carbon filters to remove and trap these components. Once the gas has undergone pre-treatment, it is compressed up to 16 bar by a compressor.[2] The pressure level for the treated gas is optimized for the separation of the methane and carbon dioxide in the subsequent step.

The entire biogas upgrading process can be summarized as follows:

1. Biogas accumulates in the anaerobic digester(s) as a result of anaerobic activity by acidogenic and methanogenic bacteria.
2. The raw biogas is passed through activated carbon filters to remove the hydrogen sulfide, terpenes, mercaptans, siloxanes, and water. The water and used carbon containing the hydrogen sulfide, terpenes, and mercaptans are disposed of at an approved offsite location.
3. The remaining biogas containing methane and carbon dioxide is pressurized to 16 bar and pumped into the Carborex™ MS unit.
4. The Carborex™ MS unit's tubules system separates the carbon dioxide permeate stream from the methane retentive stream; this CO_2 is released into the atmosphere.
5. At the retentive end, the methane stream still contains some residual amounts of carbon dioxide, so the stream is passed through multiple stages of Carborex™ MS filters for further

[2] The bar is a unit of pressure defined as 100 kilopascals. It is about equal to the atmospheric pressure on Earth at sea level.

purification, resulting in an up to 98 percent pure methane stream. On the permeate side, through these multiple cycles of separation, the methane concentration can be reduced to less than 0.5 percent. The retentive stream composition is summarized in Table 2.2 below; as a safety measure an odorizing agent is also introduced to the output so that any methane release is detectable.

The entire biogas upgrading system is containerized and has very few moving parts. Because of this, it requires little more than a raw biogas input, an output for the permeate and retentive streams, and occasional replacement of the activated carbon pre-treatment filters. This technology results in a very low-maintenance system, with no required after treatment of the waste and off-gas, and a low-cost and ready to use stream of RNG. Additionally, it reduces pollutants released into the air or burned off within the facility.

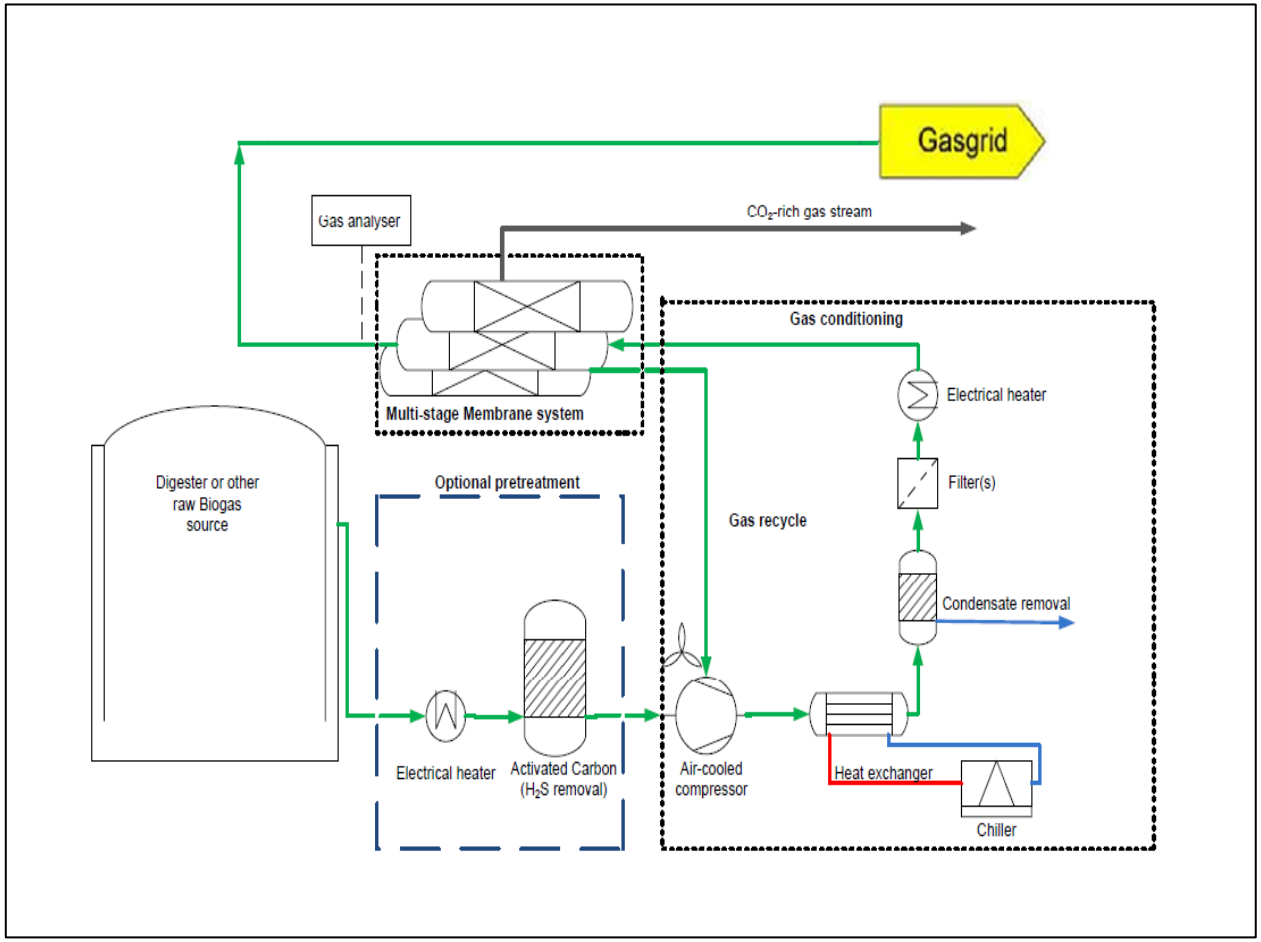
Table 2.2 Composition of RNG Output

Composition	***Concentration***
Methane (CH_4)	>95.0%
Carbon Dioxide (CO_2)	<2.5%
Hydrogen (H_2)	<1.0%
Oxygen (O_2)	<0.4%
Other Inert Gasses	<2.0%
Hydrogen Sulfide (H_2S)	<4 ppm
Siloxanes	Non-detectable
Water Vapor (H_20)	<32 ppb

Note: ppm = parts per million; ppb = parts per billion
Source: DMT Clear Gas Solutions (2017)

A graphic summarizing the biogas upgrading process is provided in Figure 2.2. While the size and capacity of DMT Carborex^{TM} MS biogas upgrading systems can be scaled across a broad range of applications, the general appearance of similar units is shown in Figure 2.2 below.

Figure 2.2 Biogas Upgrading Process Flow Diagram



Source: DMT Clear Gas Solutions (2016)

Figure 2.3 Sample Views of Biogas Upgrading Systems


500 standard cubic feet per minute (SCFM) raw biogas upgrading for injection into local gas grid in the UK.


300 SCFM raw biogas upgrading for use as compressed natural gas in Sweden.


1,500 SCFM raw biogas upgrading for injection into the local gas grid in the UK.

Source: DMT Clear Gas Solutions (2016)

2.1.2 PROJECT CONSTRUCTION

2.1.2.1 Biogas Upgrading Facility Construction

Because the Carborex™ MS unit is containerized, activity required for the construction of the biogas upgrading system is very limited. As shown in Figure 2.1, an approximately 2,500 ft.^{2} area will be prepared for the containerized unit, and the ancillary electrical equipment which will serve it, adjacent to the existing anaerobic digesters already present at HWWTP. Because the site has already been mass graded during construction of the wastewater treatment facility, this will involve only very

minor earthwork (i.e., <50 cubic yards (c.y.)) and the addition of a porous gravel surface treatment intended to prevent ponding around the biogas equipment. Existing conditions on the biogas equipment site are shown in Figure 2.4 below.

Figure 2.4 Existing Conditions on Biogas Upgrading Equipment Site at HWWTP

View toward the west from approximate location of biogas upgrading equipment site showing the neighboring anaerobic digester.

View toward the north of the biogas upgrading equipment site in the grassy area beyond the hydrant and waterline.

View toward the northwest showing the relationship between the anaerobic digester and the proposed biogas upgrading equipment site.

Closer view toward the northeast of the site for the proposed biogas upgrading equipment.

Source: Planning Solutions, Inc. (Photos dated September 30, 2016)

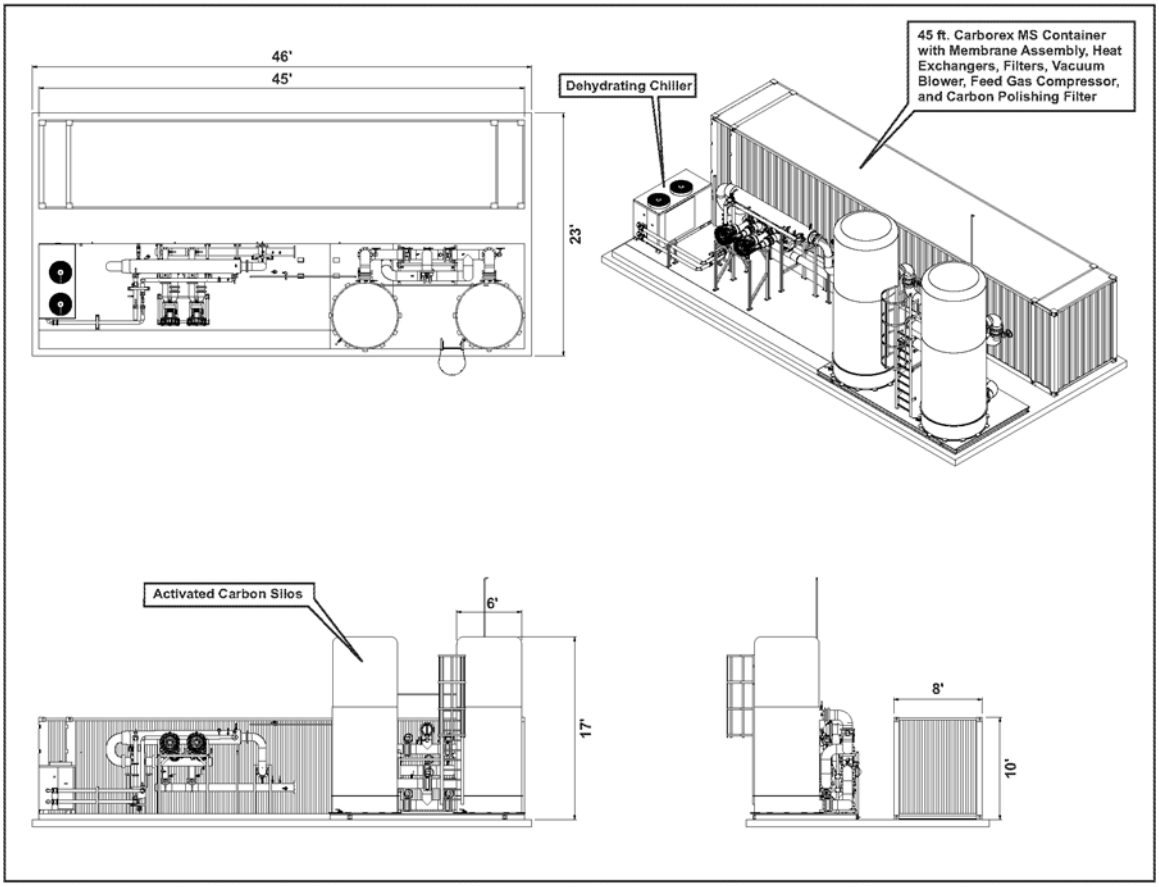
Some additional minor earthwork (i.e., <20 c.y.) will be required to emplace the equipment associated with the biogas upgrading unit and the ancillary electrical equipment which will power the system. This additional infrastructure includes:

- The power supply cabinet and interconnections;
- The gas compressor cabinet and interconnections;
- The biogas inlet and compressor;
- The condensate housing;

- Biogas outlet;
- Air compressor; and
- Other minor conduits, piping, controls, and equipment.

The general appearance of the biogas upgrading system site, with all appurtenant structures, is shown in the rendering in Figure 2.5 below.

Figure 2.5 Rendering of Proposed Biogas Upgrading System Site



Source: DMT Clear Gas Solutions (2017)

Construction of the biogas upgrading equipment identified above will require the use of heavy, combustion-engine powered equipment including heavy and light utility vehicles, excavators, all-terrain forklifts, and pickup trucks to deliver material, equipment, and workers to the site. The work will require the services of managers, truck drivers, heavy equipment operators, licensed journeymen electricians, and laborers to working on the HWWTP site. The biogas upgrading unit and associated equipment will be transported to the site via tractor-trailer as needed and staged on-site for as long as it is required. The storage, maintenance, and fueling of these vehicles and pieces of equipment would follow all applicable laws, regulations, and Best Management Practices (BMPs).

The contractor will excavate (minimum) 2-foot deep trenches in which it would place the conduits that would carry the electrical cables interconnecting the individual pieces of equipment with the existing, on-site power supply at HWWTP. The excavated soil would then be back-filled into the trench and the soil tamped to the appropriate level of compaction. The excavation work for the

conduits and cables would be conducted using an excavator or mini-excavator, followed by the appropriate compaction equipment. If the construction contractor determines that it is more efficient to run the electrical conduits above ground, the contractor will provide and install above ground stanchions with appropriate unistruts for conduit attachment.

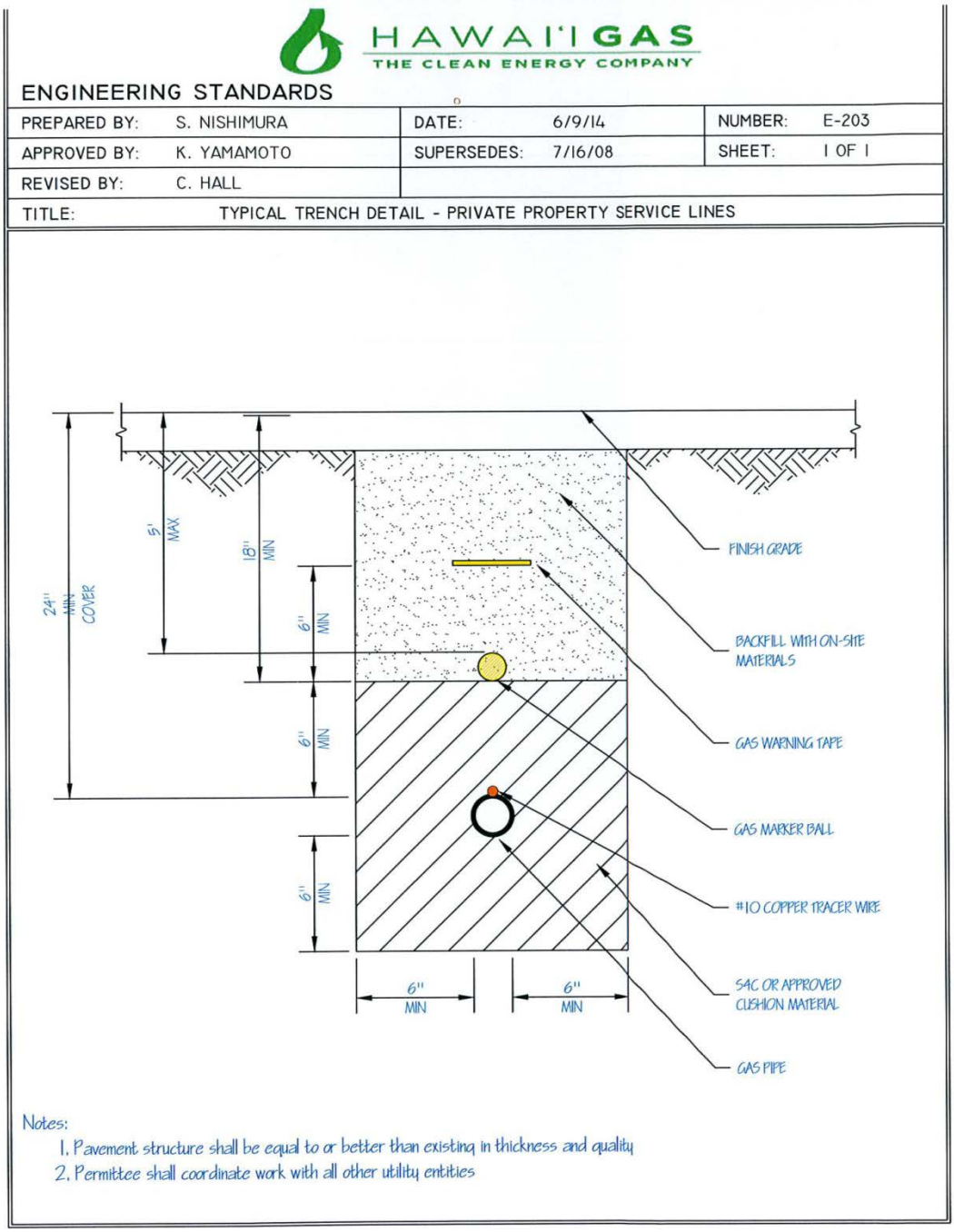
2.1.2.2 Biogas Pipeline Construction

As discussed in Section 2.1.2.1, the biogas upgrading system results in a more than 95 percent pure stream of renewably produced methane which will be transferred to Hawai'i Gas's pipeline network via a new 4-inch high-density polyethylene (HDPE) pipe. As depicted in Figure 1.2, this HDPE pipe will exit HWWTP and travel along the CCH's Geiger Road right of way (ROW), where it will tie in to a Hawai'i Gas existing distribution pipe which extends north and south along Kapolei Parkway and east to Fort Weaver Road's existing 6-inch pipeline. Although the jurisdiction will change as the pipeline exits CCH property and enters the CCH ROW, the construction materials and methods will be similar.

Construction of the proposed pipeline will involve several types of activities; including: (*i*) pre-construction surveying; (*ii*) clearing and minor grading as needed; (*iii*) trenching; (*iv*) hauling and laying the HDPE pipe; (*v*) pipefitting; (*vi*) joining; (*vii*) connecting new pipe to existing pipe; (*viii*) laying tracer wire, marking balls, and warning tape; (*ix*) back filling; (*x*) testing; and (*xi*) cleaning up and restoring construction areas. The details of this process are:

1. Hawai'i Gas or its contractor will survey the proposed alignment from HWWTP, along Geiger Road, to the intersection of Geiger Road and Kapolei Parkway. This will include any geotechnical assessment of soils or geohazards to help engineers design the pipeline parameters, and also help develop erosion control measures for pipeline construction and operation. A detailed *Construction Traffic Management Plan* will be developed for areas where construction activities are anticipated to require a lane closure or otherwise interfere with the normal flow of traffic. Hawai'i Gas will coordinate development and implementation of the plan with the CCH Department of Transportation Services (DTS) and obtain a Street Usage Permit, as needed.
2. Beyond the project scoping which has already occurred, Hawai'i Gas will notify landowners adjacent to the construction area or which have the potential for their residences or businesses to be affected by the construction operations. Notification of landowners would generally occur by mail. Notification may also be made by other means, such as posting one or more signs along Geiger Road in advance of construction. Hawai'i Gas will also make a presentation to the No. 23 'Ewa Neighborhood Board.
3. While the alignment of the proposed pipeline, the majority of which is in the Geiger Road ROW, is relatively free of obstructions, some minor clearing in areas adjacent to the roadway may be required. This includes removal of any shrubs, rocks, or other obstacles along the pipeline alignment. No large-scale grubbing or grading is anticipated.
4. Once the pipeline design details have been finalized, trenching operations would commence. Plans call for the trenching to be conducted by tracked excavators and backhoes; an exception to this would be in areas where hand digging may be used to locate buried utilities, such as other conduits, cables, water mains, or sewers. Paved areas will be saw-cut prior to trenching. While in special conditions the depth of the trench may vary, the trench will typically be approximately 36″ deep and 16″ wide. Figure 2.6 below provides a typical Hawai'i Gas trench detail.

Figure 2.6 Typical Hawai'i Gas Trench Detail



Source: Hawai'i Gas (2014)

5. Piping and other material would be delivered to the work area from a nearby staging site and placed in the trench on a 6″ layer of approved cushioning material, along with No. 10 copper tracer wire, followed by an additional 6″-8″ of cushion material. Over this layer gas marker balls will be placed and then backfilled with on-site cut material. Any excess cut material which was not used for backfill would be disposed of in accordance with county guidelines in an available landfill or used for another approved purpose. A gas pipeline warning tape

would be placed in the trench at an approximate depth of 18″ as a safety measure, warning future excavators of the pipeline's presence.

6. Once the pipeline is installed and tested, pavement restoration would occur to meet or exceed CCH standards in terms of the thickness and quality of the repaved layer. In the event of any potential impacts to their infrastructure, Hawai'i Gas will work with other utilities to coordinate work and ensure any necessary adjustments are conducted to their standards.

Figure 2.7 below provides sequenced photographs of various phases of the pipeline installation process along with descriptions of the activity.

2.1.2.3 Operations and Maintenance Activities

Once the biogas upgrading equipment is installed and placed into service, although it is fully automated, it will need to be monitored and inspected regularly by trained operators. A remote monitoring system allows the biogas upgrading process to be monitored 24-hours per day by Hawai'i Gas personnel, with an automated service call sent when the system requires an operator or engineer response. If a problem occurs in the process flow, the biogas will be redirected to the existing flare while the problem is addressed.

In addition to continuous remote monitoring of operations and servicing the equipment regularly, the activated carbon filters which scrub the hydrogen sulfide from the gas stream must be changed out periodically, typically approximately every 6 months. Hawai'i Gas will coordinate with its vendor DMT Clear Gas Solutions to ensure that the system is maintained in good working order and serviced regularly per manufacturer recommendations. Occasional maintenance of ancillary equipment such as the compressor and chiller may also be required, as needed. In total, it is estimated that the facility will be taken out of operation for servicing approximately 2 to 3 weeks per year.

Once installed, the pipeline and interconnections will not require regular maintenance.

Figure 2.7 Gas Pipeline Installation Process in CCH ROW

Pavement is saw-cut to prepare work area.

Trenching occurs with a combination of machinery and hand tools.

Pipeline and No. 10 copper locator wire are placed in excavated trench.

Another view of the pipeline and locator wire installation.

Warning tape is installed during the backfill process.

Road surface is restored to meet or exceed CCH standards for thickness and quality.

Source: Hawai‘i Gas (2017)

2.2 ALTERNATIVE 2: NO ACTION

Under the "No Action" alternative, the proposed HWWTP Biogas Project would not be implemented. The site identified for the project within the wastewater treatment plant would remain unused, or would be put into use for some other, unrelated purpose, and consequently no gas pipeline would be built. Hawai'i Gas would continue to purchase and import gas obtained from fossil fuels for sale to its customers. In addition to not meeting the project objectives summarized in Table 1.1, the categories of natural and human resources identified in Chapter 3.0 would not be affected, and conditions would remain as described in the discussion of existing conditions.

Without the HWWTP Biogas Project, Hawai'i Gas would lessen its ability to:

- Diversify its fuel supply with cost-effective, locally-produced, RNG;
- Increase the proportion of its total gas sales produced locally or renewably;
- Reduce or stabilize the cost of energy for its consumers; and
- Test biogas reclamation and upgrading technology for additional future projects.

In addition, under the No Action Alternative the ENV would not obtain a source of revenue from the sale of the biogas or contribute to achieving the State of Hawai'i's renewable energy goals in the near future.

Because the No Action Alternative would not allow Hawai'i Gas to meet any of the project objectives, the Company has determined that it is not a feasible or desirable alternative to the proposed action. It is included here pursuant to the recommendations of Hawai'i Revised Statutes (HRS), Chapter 343, and its implementing regulations contained in Hawai'i Administrative Rules (HAR) §11-200. Including the No Action Alternative herein provides a baseline against which to measure the potential impacts of the HWWTP Biogas Project.

2.3 ALTERNATIVES ELIMINATED FROM DETAILED CONSIDERATION

In addition to the two alternatives described in the previous sections, Hawai'i Gas considered several other potential alternatives early in the planning process. These alternatives were considered before being ultimately rejected because they were unable to meet the project objectives defined in Table 1.1.

2.3.1 ALTERNATIVE LOCATION

Because the locations of the existing anaerobic digesters at HWWTP are fixed, Hawai'i Gas was limited in the extent to which it could consider alternative locations for the biogas reclamation and upgrading equipment. However, the Company did consider several options to the proposed action that involved alternative locations which included: (*i*) alternative routes for the proposed biogas pipeline; and (*ii*) employing biogas reclamation and upgrading technology at an alternative wastewater treatment facility elsewhere on the Island of O'ahu.

2.3.1.1 Alternative Wastewater Treatment Plant

One potential alternative site for a similar biogas reclamation and upgrading project which Hawai'i Gas and ENV evaluated in earlier stages of the planning process was Sand Island Wastewater Treatment Plant (SIWWTP). SIWWTP is located on Sand Island, O'ahu on TMK No. (1) 1-5-041:005. The facility, owned by the State of Hawai'i and managed by ENV in accordance with Executive Order No. 3939, is the largest wastewater treatment plant in the State, serving the Sand Island Sewer Basin service area, which encompasses approximately 79 square miles of the most concentrated development in the state from Niu Valley in the east to Salt Lake-Aliamanu in the west.

SIWWTP began operations in 1978 as a primary treatment wastewater plant. Since that time, SIWWTP has undergone many major modifications in accordance with its master plan, *Sand Island WWTP Modifications and Expansion Work* (DDC, 2001; DDC 2005). Most recently in 2016 a second anaerobic digester was added to SIWWTP. As a result of these projects, the facility's capacity was expanded to an average daily flow of 90 mgd and its hydraulic capacity to 271 mgd. This is several times the average daily flow at HWWTP, and at least in theory, would allow for a much larger stream of raw biogas feedstock for purification and resale.

However, two critical factors militate against this potential alternative. First, as noted in the project objectives summarized in Table 1.1, the intent of the HWWTP Biogas Project was, "to serve as a testbed model for additional, future RNG reclamation projects." While biogas reclamation and upgrading systems are a proven technology in wide use, this is the first project of its type undertaken by Hawai'i Gas and ENV. The complex nature of the operations SIWWTP, its size, and its position as the critical wastewater treatment plant for Honolulu's urban core made using HWWTP as a testbed for a pilot project of this type a more logical, moderately scaled choice while the challenges of producing and incorporating the biogas stream are better understood.

Second, since 2002, ENV has had an agreement with Synagro Waste Water Treatment, Inc. ("Synagro") to conduct operations at SIWWTP. Per the terms of this agreement, Synagro designed, built, and now operates a bioconversion facility within SIWWTP. This facility provides anaerobic digestion, dewatering, heat drying, and pelletization of bio-solids. Synagro now produces and sells these pellets as a commercial-grade fertilizer for agricultural and commercial use on the island. This public-private partnership between ENV and Synagro raised questions related to how the terms of their agreement would affect proprietorship of the biogas stream produced at SIWWTP. These questions would incur significant costs, in both time and money, to resolve. By partnering with Hawai'i Gas on a pilot project at HWWTP, ENV was able to defer this dialogue while it evaluates the merits of biogas reclamation and upgrading.

Because the availability of the biogas stream at SIWWTP is not yet secured by ENV, and because the scale of the plant weighs against its use as a test bed for this emerging technology, this alternative was determined not to be viable now. As ENV and Hawai'i Gas better understand the technology and its applications, conditions may favor future use of gas upgrading technology at SIWWTP at a later date.

2.3.1.2 Alternative Pipeline Routes

In addition to considering alternative wastewater treatment facilities as the potential site of a biogas reclamation and purification, Hawai'i Gas has considered alternative routes for its proposed pipeline interconnecting the HWWTP Biogas Project with its existing network of gas pipelines. Because the nearest 6″ transmission-level pipeline is located running along Kapolei Parkway which curves from the north to the east around HWWTP, exploration of this possibility centered on alternative means to link the project site to this pipeline. Two principal means of doing so were identified as:

Alternative Route East

Under this alternative pipeline route (see Figure 2.8), the pipeline would exit the HWWTP along its eastern boundary as opposed to along Geiger Road, as called for under Alternative 1 (see Section 2.1). From there, the new pipeline would skirt the northern green of Coral Creek Golf Course, then travel along the eastern edge of the golf course parallel to Papapuhi Place. Finally, under this alternative the new pipeline would travel under Kahi'uka Street, across its intersections with Papapuhi Place, 'Awawalei Place, Ho'oilo Place, Keone'ae Place, and Waihuna Place to connect with existing gas transmission pipeline running along Kapolei Parkway.

Figure 2.8 Alternative Route East

Source: Planning Solutions, Inc. (2017)

Multiple factors argued against the selection of this alternative. First, its run is approximately 5,145 feet in length, as opposed to 4,190 feet called for under Alternative 1, incurring greater construction costs with no additional project benefit. Further, this alternative would require negotiations with Coral Creek Golf Course because of the potential adverse impact to their operations caused by the construction activity required for installation. Furthermore, Alternative Route East would impact residential neighborhoods to a far greater extent than the proposed action, incurring construction noise, dust, and impacts to traffic flow due to construction activity along Kahi‘uka Street, including disruptions to five separate intersections which serve as the sole means of vehicular access to dozens of private residences.

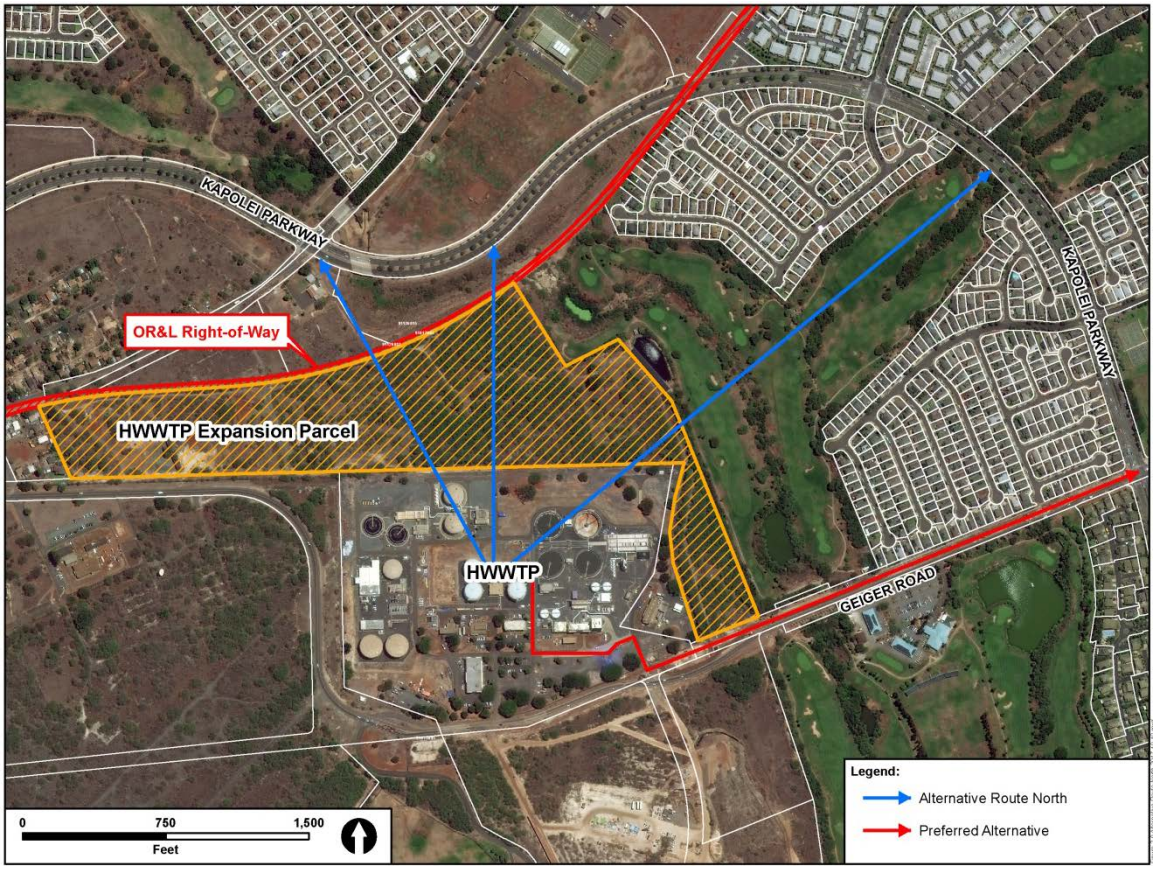
Because this route incurred greater costs and had the potential to be more impactful to nearby sensitive residential and recreational uses, and because it did not provide any additional project-related benefits, Hawai‘i Gas concluded that this was not a valid option and eliminated it from further consideration.

Alternative Route North

During the initial planning phase of the project, Hawai‘i Gas also considered a pipeline exiting the facility along its northern boundary to connect with the existing gas transmission pipeline along Kapolei Parkway. While no exact route was ever selected, Figure 2.9 shows the basic orientation which an alternative northern pipeline route could follow. Because of the proximity of Kapolei Parkway to the northern edge of HWWTP, a potential pipeline route with a northern orientation could

be significantly shorter than other options, including the preferred alternative identified in Section 2.1.

Figure 2.9 Alternative Route North



Source: Planning Solutions, Inc. (2017)

However, as can be seen in Figure 2.9, conditions in the project vicinity limited the viability of this route as a serious alternative. Pipeline route traveling northward would have to cross the HWWTP expansion parcel, which has already been set aside for future improvements to the Honouliuli sewer basin wastewater conveyance and treatment facilities, required to meet the anticipated service demands for the year 2035 and beyond. This substantial enhancement of HWWTP is being conducted pursuant to the 2010 Consent Decree (Civil No. 94–00765) established by the CCH, State of Hawai‘i’s DOH, and the U.S. Environmental Protection Agency, which required the CCH to update its wastewater collection and treatment system. Potential conflicts between these two uses argued against development of this option as a complete alternative.

In addition, pipeline routes which would connect to Kapolei Parkway to the north or northwest would have to cross the ROW of the former O‘ahu Railroad and Land Company (OR&L ROW) railway. Crossings of the OR&L would require an easement from the Federal Highways Administration, which is tasked with management of this historic ROW. This ROW is on the National Register of Historic Places and is protected by the terms of the National Historic Preservation Act of 1966 (NHPA), as amended. As such, all licenses, permits, or easements authorizing the use or occupancy of the 40-foot wide easement are issued only with the written approval of the director of the Federal Highways Administration, Hawai‘i Division’s director, making it a “federal action” and requires

compliance with the National Environmental Policy Act (NEPA), Section 106 of the NHPA, and other applicable federal regulations. These processes are time consuming, costly, and uncertain.

Finally, Hawai‘i Gas considered a possible northern pipeline route which would avoid the OR&L ROW with a northeastern orientation across Coral Creek Golf Course. However, such a potential route would either require trenching directly through the northern playing green (thus disrupting golf course operations), or skirt the green and in so doing, lose any potential advantage it might have in terms of total pipeline length.

Because any alternative pipeline route to the north would either pose costly, time-consuming, and uncertain regulatory hurdles, or incur significant impacts to adjacent residential and recreational land uses, Hawai‘i Gas concluded that it was not a valid option and eliminated it from further consideration.

2.4 PROJECT SCHEDULE

The major project-related tasks, and their schedule for completion, are presented in Table 2.3 below.

Table 2.3 Preliminary Project Schedule

Task	*Estimated Start Date*	*Estimated Completion Date*
PUC and Land Use Permitting Requirements	6/2017	5/2018
Equipment Acquisition	9/2017	7/2018
Plant Construction	1/2018	6/2018
Mechanical Work	3/2018	4/2018
Construction Permitting	11/2017	1/2018
Pipeline Design and Construction	9/2017	7/2018
Commence Operations	8/2018	n/a
Source: Hawai‘i Gas (2017)		

2.5 PROJECT COSTS

Hawai‘i Gas estimated that the total cost for the project, including: (*i*) equipment purchases; (*ii*) HRS, Chapter 343 planning and review; (*iii*) balance of plant construction; and (*iv*) pipeline installation to be $5.016 million.

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3. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, & MITIGATION MEASURES

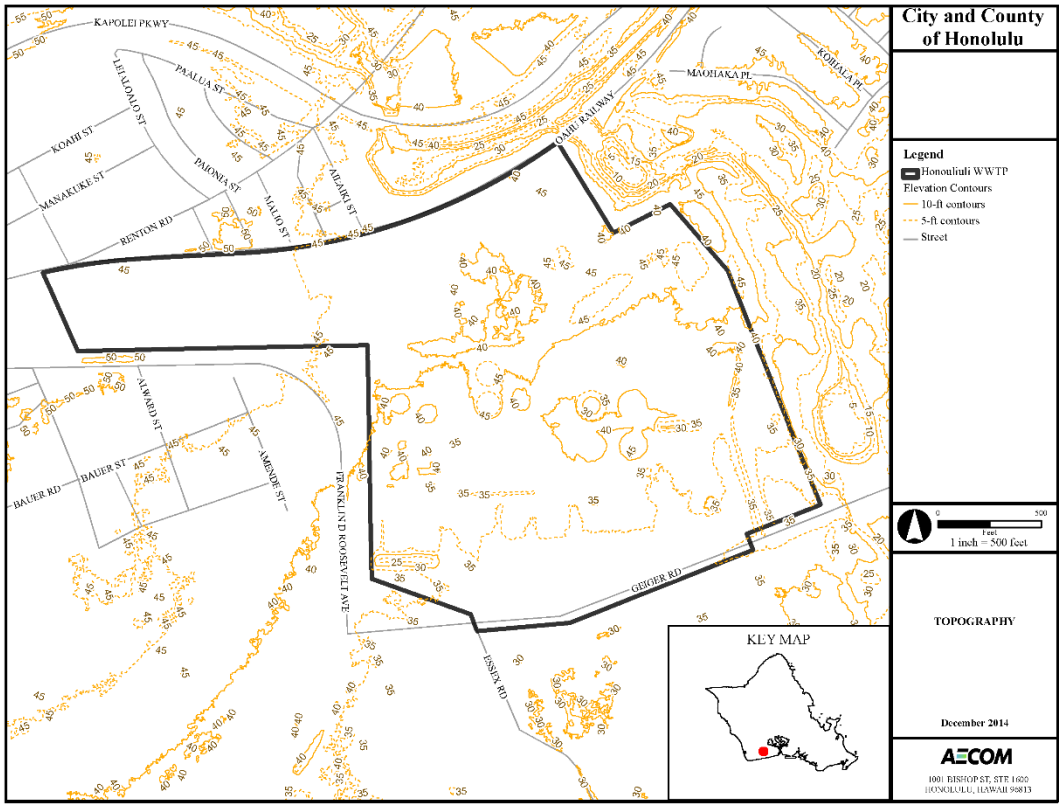
This chapter describes the potential environmental effects of the proposed actions. It is organized by impact topic (e.g., air quality, noise, geology and soils, water quality, etc.). The discussion under each topic begins with an overview of existing conditions related to that topic. Where appropriate, this includes the larger environmental context (e.g., West O'ahu); in other cases, the focus is narrower (e.g., HWWTP). The discussion also distinguishes between short-term construction impacts and those that may result from the facilities' continuing long-term presence or operation. Where appropriate, the discussion includes the measures that Hawai'i Gas proposed to take to minimize or mitigate potential adverse effects.

3.1 TOPOGRAPHY, GEOLOGY, AND SOILS

3.1.1 EXISTING CONDITIONS: TOPOGRAPHY, GEOLOGY, AND SOILS

HWWTP and the proposed project are situated on the coastal 'Ewa Plain in the southwestern portion of the Island of O'ahu. This 'Ewa Plain, south of the Central O'ahu plateau, was created by the now inactive Wai'anae volcano. Topography in the vicinity of HWWTP and the project area is gently sloping to the south, and relatively flat. Elevation at HWWTP ranges from 25′ above mean sea level (+msl) to 45′ +msl on the northern, mauka side of the property (see Figure 3.1).

Figure 3.1 Topography at HWWTP



Source: AECOM, Inc. (2014)

Three soil suitability studies have been prepared for the Hawaiian Islands. The principal focus of these studies is to describe the physical attributes and relative productivity ratings on the different soil-types for agricultural production within the State of Hawai‘i. The three studies are:

1. U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), formerly the U.S. Soil Conservation Service, Soil Survey.
2. The University of Hawai‘i, Land Study Bureau (LSB), Detailed Land Classification.
3. State of Hawai‘i, Department of Agriculture, Agricultural Lands of Importance to the State of Hawai‘i (ALISH).

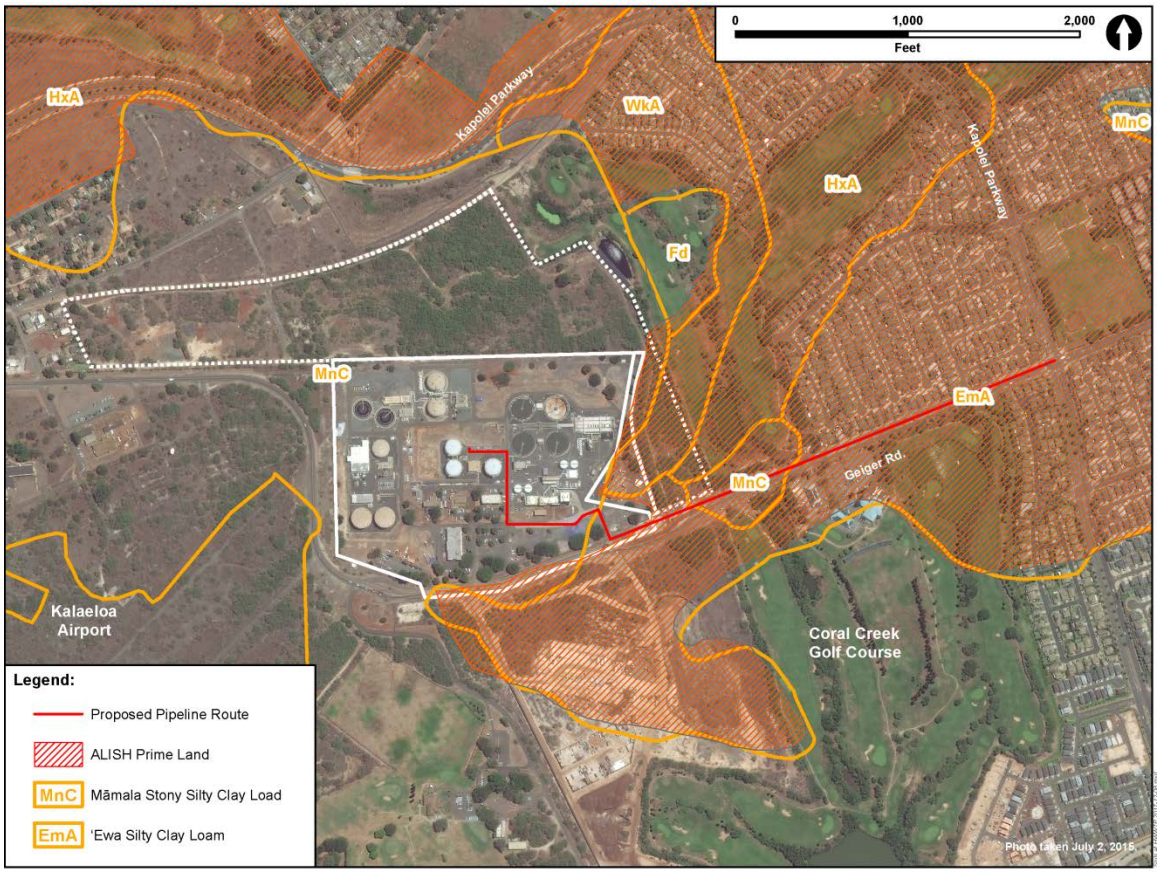
According to the USDA Soil Conservation Service's *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* (USDA SCS 1972), seven soil associations are present on the Island of O‘ahu. The soil association within HWWTP and the project area is the Lualualei-Fill Land-‘Ewa association, which is defined as, "a deep, nearly level to moderately sloping, well-drained soils that have a fine textured or moderately fine textured subsoil or underlying material and areas of fill land located on coastal plains." As shown in Figure 3.2, the soils on the project site are classified primarily as Mamala stony silty clay loam (MnC), with ‘Ewa silty clay loam (EmA) being the predominant soil-type along the proposed pipeline route.

According to the Soil Survey (USDA SCA 1972), Mamala stony silty clay loam ranges between 0 and 12 percent slope, but in most cases the slope does not exceed 6 percent. Stones, mostly coral rock fragments, are common in the surface layer and in the profile. In a representative profile the surface layer is dark reddish-brown stony silty clay loam about 8 inches thick. The subsoil is dark reddish-brown silty clay loam about 11 inches thick. The soil is underlain by coral limestone and consolidated calcareous sand at depths of 8 to 20 inches. The soil is neutral to mildly alkaline. Permeability is moderate; runoff is very slow to medium, and the erosion hazard is slight to moderate.

‘Ewa silty clay loam, moderately shallow, 0 to 2 percent slopes has a profile like that of other ‘Ewa silty clay loam, with 3 to 6 percent slopes, except that the depth to coral limestone is 20 to 50 inches. Runoff is very slow, and the erosion hazard is no more than slight.

In addition to the presence of these soil classifications in the project vicinity, the State of Hawai‘i's Department of Agriculture, has designated most of the proposed pipeline alignment as being within the ALISH "Prime Lands" zone. Prime agricultural land is defined by the NRCS as land best suited to produce food, feed, forage, and fiber crops. Although the Honouliuli area has historically been utilized for agricultural purposes, the project area (i.e., HWWTP and Geiger Road) has been in continuous use as developed, urbanized areas since the late 1970s; therefore, it would be unsuitable for agricultural purposes, both because the land value is too high for unsubsidized agriculture and it would be incompatible with surrounding land uses. There are no regulations specific to this designation; however, federally financed or permitted projects are subject to the Farmland Protection Policy Act (FPPA). According to Part 523, Subpart B, 523.10B(ii) of the FPPA manual, lands identified as Urban Areas (UA) on the U.S. Census Bureau maps are not subject to provisions of the FPPA (NRCS 2013). The HWWTP Biogas Project is located in an area designated as UA and this project is not subject to federal financial assistance or approval; therefore, this project is not subject to the provisions of the FPPA and a farmland conversion rating analysis is not required.

Figure 3.2 Soils Classifications in the Project Area



Source: Soils Survey Geographic Databased (1995)

3.1.2 PROBABLE IMPACTS ON TOPOGRAPHY, GEOLOGY, AND SOILS: CONSTRUCTION PHASE

A detailed description of construction activities associated with the project is provided in Section 2.1.2. Construction of the HWWTP Biogas Project would involve limited amounts of site clearing and earthmoving (see Table 3.1 below). Consequently, it will not have any significant impact on the overall topography of HWWTP or the surrounding area; no mass grading or large-scale vegetation management is required. All of the underlying soils that would be affected by the proposed project are suitable for construction of the biogas reclamation and upgrading facility and associated pipeline as they are designed.

Table 3.1 Estimated Earthmoving Volumes

Area	*Length of Excavation (ft.)*	*Width of Excavation (ft.)*	*Average Excavation Depth (ft.)*	*Graded Area (sf)*	*Estimated Cut (cy)*	*Estimated Imported Fill (cy)*
Biogas Reclamation and Upgrading System	Minor small excavation for equipment footings, to be determined.			2,500	<50	
Onsite Pipeline	1,400	1.5	3	2,100	233	116
Offsite Pipeline	2,800	1.5	3	4,200	466	233
Source: Hawai‘i Gas (2017)						

As noted in the descriptions of construction activity contained in Section 2.1.2 an attempt will be made to balance cut and fill on site. However, should construction activities result in any excess cut material which is not used for backfilling or other grading needs within HWWTP, it would be disposed of in accordance with county guidelines in an available landfill or used for another approved purpose. Areas subject to earthwork, both within HWWTP and in the Geiger Road ROW have been heavily disturbed by previous construction and commercial scale agriculture, and there are no significant geologic resources (i.e., gravel or sand) present.

3.1.3 PROBABLE IMPACTS ON TOPOGRAPHY, GEOLOGY, AND SOILS: OPERATIONAL PHASE

Once in operation, neither the aboveground biogas reclamation and upgrading equipment nor the below-grade pipeline will require any maintenance or other activity with the potential to affect the topography, geology, or soils in the project vicinity.

3.1.4 PROBABLE IMPACTS ON TOPOGRAPHY, GEOLOGY, AND SOILS: DECOMMISSIONING

When the decision is made to decommission the project, the work can be done without any substantial effect on the area’s topography, geology, or soils, at which point the area could be either returned to vacant space within HWWTP or put to some other use.

Decommissioning would entail manually disconnecting the biogas reclamation and upgrading unit from the anaerobic digester and the pipeline, disconnecting any ancillary equipment such as the compressor and chiller and removing it from the site. The concrete pads or other surface treatment provided for this equipment may be removed using a backhoe and dump truck, or left in place for another use to cause minimal soil disturbance. Very limited removal of any buried conduits for the electrical connections would be required. Wherever any soil disturbance would occur, immediate backfilling and resurfacing would prevent any unnecessary soil erosion and loss. The potential for erosion would be further reduced if the buried conduits were left in place, but doing so may constrain other potential future uses.

The HDPE pipeline would remain in place to avoid additional impacts to the CCH roadway.

3.2 HYDROLOGY

3.2.1 EXISTING CONDITIONS: HYDROLOGY

3.2.1.1 Existing Conditions: Ground Water

HWWTP is located within the Waipahu-Waiawa system within the DLNR's Pearl Harbor Aquifer Sector. The sustainable yield for the Waipahu-Waiawa system is approximately 16 MGD, and it is the primary source of drinking water for the area. The closest well to HWWTP is approximately 3.1 miles to the north, which is up-gradient relative to groundwater flow. HWWTP is also located within the Southern Oʻahu Basal Aquifer, which is designated as a Sole Source Aquifer by the U.S. Environmental Protection Agency (EPA). EPA review is required for federally-funded projects within a Sole Source Aquifer to determine whether the potential project poses a risk of contamination. However, as this project is not subject to federal funding or approvals, no EPA review is required.

Groundwater moves downslope in volcanic rocks until it encounters impermeable geological features and contributes to the freshwater lens or emerges as springs. On Oʻahu, the thickness of the lens typically decreases as it nears the ocean, but it can be impounded or dammed within the volcanic rocks near the coastline by sediments or limestone caprock. Most of the water supply on Oʻahu is from fresh water within these volcanic rock aquifer systems. Separate, shallow groundwater systems can occur within the caprock where it is extensive, as is the case at the project site. Such caprock aquifers typically have lower water quality and are not used as a drinking water resource. There are no public groundwater wells within a one-mile radius of HWWTP.

3.2.1.2 Existing Conditions: Surface Water

As part of ENV's *Final Environmental Impact Statement for Honouliuli Wastewater Treatment Plant Secondary Treatment and Facilities*, a natural resources survey, including a discussion of surface water in the vicinity of HWWTP was conducted in November 2014. This section of the EA draws on information contained in that document, as well as the USFWS National Wetlands Inventory (NWI).

Observations during site visits and a review of data from the State of Hawaiʻi GIS system, records from the State of Hawaiʻi's Commission on Water Resource Management, the U.S. Geological Survey 1:24,000 scale topographic map and the USFWS NWI indicate that there are no lakes or wetlands present within the working portion of HWWTP, as can be seen in Figure 3.3 below; a former drainage ditch is located in the eastern portion of the new expansion area mauka of the project parcel. This wetland is part of the abandoned irrigation system from when the area was used for agricultural purposes and no longer functions as an active irrigation ditch. Some standing water may accumulate there during significant rain events; however, surface water does not persist there throughout the year.

The only wetland in the immediate vicinity of the project is Kaloʻi Gulch which runs on a north-south orientation under Geiger Road through Coral Creek Golf Course (see Figure 3.3). Water passing down Kaloʻi Gulch is channeled through culverts as it passes beneath Geiger Road. According to *The Atlas of Hawaiian Watersheds and their Aquatic Resources* (Devick, 2008) Kaloʻi's meaning in the Hawaiian language is "the taro patch" and it is a non-perennial stream. Selected characteristics of Kaloʻi Gulch are provided in Table 3.2 below.

Table 3.2 Selected Characteristics of Kalo'i Gulch

Name	*Watershed Area*	*Maximum Elevation*	*Percent by State Land Use District*		
			Conservation	*Agricultural*	*Urban*
Kalo'i Gulch	10.9 mi.^{2}	2,572 ft.	7.4%	39.6%	53%
Source: *Atlas of Hawaiian Watersheds and their Aquatic Resources* (2008)					

Based on the latest available Flood Insurance Rate Map (FIRM) for the area, the entire project site lies in Flood Zone D. Zone D is defined as the flood insurance rate zone that corresponds to: (*i*) unstudied areas where, (*ii*) flood hazards are undetermined but possible. Because of the low probability of flooding, no base flood elevations or depths have been defined within the zone.

Figure 3.3 USFWS National Wetlands Inventory Map

Source: USFWS National Wetlands Inventory (2017); https://www.fws.gov/wetlands/data/mapper.html

3.2.2 PROBABLE IMPACTS: HYDROLOGY

3.2.2.1 Effects on Groundwater

The proposed HWWTP Biogas Project would be constructed in an area that has relatively low rainfall and high evapotranspiration rates. Because of this, very little of the precipitation that falls on the project site presently percolates to the water table and recharges groundwater. The effect of the very small increase in impermeable surfaces that the project will create will not have a significant effect on

the quantity or rate of groundwater recharge in the area. In addition, the quality of recharge water will remain unchanged. Finally, construction and operation of the proposed project does not require significant water use, and will not, therefore affect groundwater withdrawals from anyplace on O'ahu.

3.2.2.2 Effects on Surface Water

Emplacement of the biogas reclamation equipment within the existing, heavily developed HWWTP facility will not require significant earthwork. Significant ground-disturbing activities will be limited to emplacement of the gas pipeline interconnecting HWWTP to Hawai'i Gas existing gas distribution pipeline network near the intersection of Geiger Road and Kapolei Highway. Erosion and sedimentation measures would be employed where necessary during construction activities.

New standards promulgated by the City and County of Honolulu requiring low-impact development strategies went into effect in June 2013. The standards require storm water runoff from 1-inch of rainfall to be retained onsite to the maximum extent practicable, using Post-Construction Treatment Best Management Practices (BMPs). The design of the storm water retention and quality basins must take into consideration the soil type, proximity to the groundwater table, and storm water discharge permit limits.

3.2.2.3 Sanitary Wastewater Disposal

Neither the biogas upgrading equipment nor the gas pipeline interconnection will generate sanitary wastewater. For work conducted within HWWTP, workers will use the existing latrines already present on the site. During the pipeline emplacement, portable toilets will be used to meet the needs of construction workers. The waste that is collected in these facilities will be taken by a contractor to an approved sanitary wastewater treatment and disposal facility.

3.3 CLIMATE/MICRO-CLIMATE

3.3.1 EXISTING CONDITIONS: CLIMATE/MICRO-CLIMATE

The climate in the Hawaiian Islands is considered subtropical with annual temperatures in the project area ranging from 60˚F in the winter to 85˚F in summer, and mean monthly temperatures ranging from 73˚F in January and February to 81˚F in August. The mean annual rainfall in the area ranges from 50 to 76 cm (i.e., 20 to 30 inches). The project area is located within the leeward physiographic zone of the Island of O'ahu.

3.3.2 EFFECTS ON CLIMATE

Construction and operation of any of the alternatives described in Chapter 2 of this document would not result in significant impacts on the regional climate or area micro-climate. There is increasing agreement among atmospheric scientists that emissions of what have come to be known as "greenhouse gasses" are contributing to a systemic heating of the earth's atmosphere.[3] Generally referred to as climate change, a continuation of this trend has the potential to alter atmospheric circulation, ocean circulation, and climate worldwide, with a host of consequences.

One of the most potent greenhouse gasses is methane, which is a gas produced by the anaerobic digestion process described in Section 2.1. Currently, the methane produced at HWWTP is burned via an onsite flare (see Section 3.4). Once the action described in Chapter 2 is implemented, this

[3] Gases that trap heat in the atmosphere are called greenhouse gases. The primary greenhouse gases are carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), and Fluorinated gases. The first three are emitted when fossil fuels are burned to produce electricity (though there are many other sources of these gases as well).

methane would be transported offsite via pipeline and burned as an energy source. Thus, the action alternatives described in this report do not have the potential to increase methane emissions or to contribute additional atmospheric greenhouse gasses that could contribute to climate change.

Another important greenhouse gas is carbon dioxide (CO_2). Hawai‘i Gas estimates that the HWWTP Biogas Project will produce 800,000 therms of energy per year; the equivalent of 23,440 megawatt-hours (MWh), and is expected to release 6,748 tons of CO_2 annually at HWWTP. The existing HWWTP flare currently emits approximately 10,676 tons of CO_2 annually, associated with both the CO_2 in the biogas and the CO_2 generated when the methane in the biogas is burned by the flare. Thus, the proposed HWWTP Biogas Project would substantially reduce the release of this greenhouse gas from HWWTP. Because the methane will be consumed elsewhere on O‘ahu and will produce CO_2 when it is burned, when viewed at the island-wide scale, an equivalent weight of CO_2 would be produced. Finally, whether released at HWWTP or elsewhere on the island, that CO_2 is present in the carbon chain today and is being recycled. This carbon was originally in plant form, which it had absorbed from the atmosphere and which would ultimately be released back into the atmosphere upon decomposition, as opposed to the use of fossil-fuel based SNG, which introduces previously sequestered carbon into the carbon chain. To the extent that the use of reclaimed biogas offsets the use of fossil fuels, it may reduce greenhouse gas emissions.

3.3.3 EFFECTS ON MICROCLIMATE

None of the activities or work required to construct the proposed project or other action alternatives involve substantial heat or moisture emissions. Neither do they entail the erection of tall structures or grading of land that could alter wind-flow within the HWWTP vicinity or along the pipeline corridor to any measurable extent. None of the facilities are substantial structures that might serve as windbreaks or contain large masses of material that could act as heat sinks.

The relatively small biogas reclamation facilities would shade the ground under them and could affect soil moisture content in ways that would have very minor influence on near-earth humidity and soil temperature. Thus, the project alternatives considered in this report would have negligible impacts on the area microclimate.

3.4 AIR QUALITY

3.4.1 EXISTING CONDITIONS: AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), and lead (Pb). These standards establish the maximum safe concentrations of pollution considered to be acceptable, with an adequate margin of safety, to protect the public health and welfare.

The State of Hawai‘i’s Department of Health (DOH) has adopted ambient air quality standards that apply within the State of Hawai‘i, which in some cases are more stringent than national standards. At present, DOH has set standards for six of the seven criteria pollutants as well as hydrogen sulfide (H_2S); DOH has not established a separate state standard for $PM_{2.5}$. Hawai‘i Administrative Rules (HAR), Title 11, Chapter 59 *Ambient Air Quality Standards* and Chapter 60 *Air Pollution Control* establish these standards. Table 3.3 below presents the state and national ambient air quality standards for criteria pollutants.

Both state and national air quality standards consist of two parts: (*i*) an allowable concentration of a pollutant and (*ii*) an averaging time over which the concentration is measured. The allowable concentrations are based on the results of studies of the effects of the pollutants on human health,

crops, and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposure to a high concentration for a short time (one hour, for instance), or to a lower average concentration over a longer period (e.g., 8 hours, 24 hours, or a year). For some pollutants there is more than one air quality standard, reflecting both its short-term and long-term effects.

The proposed HWWTP Biogas Project is located in the City and County of Honolulu, and is under the jurisdiction of the DOH's Clean Air Branch (CAB). CAB acts as the regulatory agency for air pollution control in the state and is the state agency empowered to regulate air pollutant emissions in the state. Under the provisions of the federal Clean Air Act, the City and County of Honolulu is classified as being in attainment with regard to the NAAQS.

Air quality data collected at the Kapolei monitoring station—the monitoring station nearest the project area—during the years 2013 to 2015 are presented in Table 3.4. As shown by these data, air quality in the area never exceeded short-term or long-term state or national standards for nitrogen dioxide (NO_2), particulate matter (PM_{10}) or carbon monoxide, the pollutants that could be emitted during construction of the proposed project. The CAB annual *Air Quality Data Book* indicates that in 2013, 2014, and 2015 (the latest year for which annual reports are available), excluding exceedances on the Island of Hawai'i due to the volcano, the State of Hawai'i was in attainment of all NAAQS.[4]

[4] State of Hawai'i Air Quality Data Books for 2013, 2014, and 2015. Available online at: *http://health.hawaii.gov/cab/hawaii-air-quality-data-books/*

Table 3.3 State and National Ambient Air Quality Standards

Pollutant	*Unit*	*Averaging Period*	*NAAQS*	*SAAQS*
SO_2	ppb	1 hour	75[a]	--
	ppm	3 hours	0.5[b]	0.5
		24 hours	--	0.14
		1 year	--	0.03
CO	ppm	1 hour	35[c]	9
		8 hours	9[c]	4.4
NO_2	ppb	1 hour	100[d]	--
	ppm	1 year	0.053[c]	0.04
PM_{10}	µg/m^3	24 hours	150[e]	150
		1 year	-- [f]	50
$PM_{2.5}$	µg/m^3	24 hours (block avg.)	35[g]	--
		1 year	12.0[h]	--
		1 year	15.0[i]	--
O_3	ppm	8 hours (rolling avg.)	0.070[j]	0.08
Pb	µg/m^3	3 months (rolling avg.)	0.15[k]	0.15
H_2S	ppm	1 hour	--	0.025

Notes:
a. The three-year average of the 99th percentile of 1-hour maximum daily concentrations must not exceed the level of the standard.
b. Federal Secondary Standard.
c. Not to be exceeded more than once per year.
d. The three-year average of the 98th percentile of 1-hour maximum daily concentrations must not exceed the level of the standard.
e. Not to be exceeded more than once per year on average over three years.
f. EPA revoked the annual PM_{10} standard effective December 17, 2006, due to a lack of evidence linking health problems to long-term exposure. The State still has an annual standard.
g. 98th percentile, averaged over three years.
h. Annual mean, averaged over three years.
i. Annual mean, averaged over three years. Secondary standard.
j. The three-year average of the fourth highest daily maximum value must not exceed the level of the standard.
k. Rolling three-month average may not exceed the level of the standard.

Source: U.S EPA, NAAQS Table, available at *https://www.epa.gov/criteria-air-pollutants/naaqs-table*
State of Hawai'i Department of Health, *Air Quality Data Book* (2015), available at https://health.hawaii.gov/cab/files/2016/12/aqbook_2015.pdf

Table 3.4 Air Quality in the Project Area: 2013-2015

Parameter	*Statistic*	*2013*	*2014*	*2015*	*Strictest Standard*
24-hour PM_{10}	Maximum	39	32	32	150 µg/m^3
Annual PM_{10}	Annual average	14	15	16	50 µg/m^3
24-hour $PM_{2.5}$	98th percentile	12.0	10.7	13.7	35 µg/m^3
Annual $PM_{2.5}$	Annual average	2.8	3.9	4.1	12 µg/m^3
8-Hour O_3	4th highest daily value	0.051	0.046	0.049	0.075 ppm
1-Hour NO_2	98th percentile	23	25	22	100 ppb
Annual NO_2	Annual average	0.003	0.004	0.004	0.053 ppm[c]
1-Hour CO	Average of daily max. conc.	0.75	0.6	0.8	35 ppm
8-Hour CO	Average of daily max. conc.	0.70	0.5	0.7	9 ppm
1-Hour SO_2	99th percentile	9	21	13	75 ppb
3-Hour SO_2	Average of daily max. conc.	0.002	0.002	0.002	0.5 ppm
24-Hour SO_2	Maximum	0.005	0.008	0.004	0.140 ppm
Annual SO_2	Annual average	0.002	0.002	0.001	0.03 ppm
3-month Pb	Maximum	0.0016	0.001	0.003	0.15 µg/m^3

Source: Hawai‘i State Department of Health, Clean Air Branch records as reported in 2016 Annual Report on Air Emissions from Facilities at Campbell Industrial Park, October 2016. Available at https://health.hawaii.gov/cab/files/2017/01/2016-CIP-Annual-Report.pdf

3.4.2 PROBABLE AIR QUALITY IMPACTS

3.4.2.1 Construction Period

The heavy construction equipment that will be used for project implementation (e.g., bulldozers, dump trucks, excavators, etc.) will be powered by internal combustion engines that emit a variety of air pollutants.[5] Because construction activities will take place over a relatively limited period (i.e., several months), none of these equipment emissions is expected to add substantially to existing sources of these pollutants.

Trenching and other minor earthwork related to construction of the new biogas pipeline necessarily involves the use of diesel-fueled construction equipment. However, in the case of the proposed biogas project, the number of pieces of equipment operating at any one time in a single location is

[5] Construction equipment emissions result from the following sources and activities: (*i*) construction equipment engine exhaust; (*ii*) motor vehicle exhaust, brake, and tire wear; (*iii*) entrained dust from material delivery trucks; (*iv*) entrained dust from roadways; (*v*) entrained dust from construction worker vehicles; (*vi*) fugitive dust from bulldozing, grading, and scraping, and from the handling of excavated material, such as depositing material into haul trucks; and (*vii*) fugitive dust from wind erosion of disturbed areas

relatively low. As a result, combustion emissions such as NO_X and diesel particulate matter (diesel PM) from this equipment are not expected to have a significant effect on air quality.

However, the soil disturbance caused by site preparation and trenching work generates dust, which can have a more substantial, albeit temporary effect on air quality than emissions from the engines themselves.[6] The potential for adverse effects continues until the replacement ground cover has been established and bare dirt is no longer exposed. To minimize this potential, Hawai‘i Gas has planned to limit pipeline alignment trenching to 300-foot sections, so that one section is complete prior to the next section being excavated. As noted in Section 3.1, it expects to disturb only the minimum area required to install the new biogas reclamation equipment and pipeline, a total of less than one acre.

The construction activity taking place on the HWWTP property itself will be minimal. The only source of ground disturbance will be related to: (*i*) site preparation for the biogas reclamation and upgrading equipment; (*ii*) a concrete pad for the ancillary equipment; and (*iii*) the onsite portion of the biogas pipeline. Because the biogas upgrading technology is relatively small and self-contained in a 45′ shipping container, the number of truck deliveries and equipment required for onsite installation will also be minimal.

Over the long-term, changes in ground cover that lead to the emergence of bare soil can lead to an increase in aeolian soil erosion and windborne particulate matter. In areas of exposed earth resulting from construction activity will be provided with a surface treatment, whether gravel or pavement depending on area, which is intended to minimize the potential for fugitive dust.

Specific information regarding the construction equipment that will be used will not be available until a construction contractor has been selected and all plans finalized. Consequently, overall emissions cannot be estimated at this time. However, Hawai‘i Gas will require its contractor to implement the standard mitigation measures listed below, as well as whatever additional measures may be required by the construction-related permits that the contractor must obtain from the CCH.

- Maintain all construction equipment in proper tune according to manufacturer’s specifications.
- Fuel all off-road and portable diesel-powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, with motor vehicle diesel fuel.
- Maximize to the extent feasible, the use of diesel construction equipment meeting the latest certification standard for off-road heavy-duty diesel engines.
- Minimize the extent of disturbed area where possible.
- Use water trucks if needed to minimize the amount of airborne dust leaving the site.
- Cover or continuously wet dirt stockpile areas containing more than 100 cubic yards of material.
- Implement permanent dust control measures identified in the project plans as soon as possible following completion of any soil disturbing activities.
- Limit vehicle speed for all construction vehicles moving on any unpaved surface at the construction site to 15 mph or less.
- Cover all trucks hauling dirt, sand, soil, or other loose materials.

[6] The construction of the pipeline will require approximately 4,200 feet of trenching, and the trenching activity will disturb soil and generate some fugitive dust.

3.4.2.2 Operation and Maintenance Activities

The only source of air pollutant emissions at the proposed HWWTP Biogas Project is the carbon dioxide (CO_2) tail gas from the permeate stream that is removed from the biogas by the Carborex™ MS system as described in Section 2.1.1. This tail gas will also contain small amounts of methane (CH4), nitrogen, and oxygen as well as trace amounts of siloxanes and hydrogen sulfide.

The existing flare at HWWTP will continue to operate as needed during the biogas upgrading system's regular maintenance or other interruptions in service, and the HWWTP's Non-Covered Source Air Permit is not being modified as part of this project. However, because the raw material for the biogas treatment process is the waste gas from the wastewater treatment plant, any biogas that is reclaimed and purified will not need to be burned in the HWWTP flare. The result of this is that emissions of criteria and greenhouse gas pollutants from the HWWTP will be reduced as a result of the proposed project.

Table 3.5 below compares the emissions produced by burning the waste gas in the existing flare with those of the proposed treatment system. This comparison demonstrates that the operation of the biogas treatment system will result in lower emissions overall.

Table 3.5 Comparison of Potential to Emit: Existing HWWTP Waste Gas Flare and Proposed HWWTP Biogas Project

	Emissions in Tons per Year					
Unit	***NOx***	***SO_2***	***CO***	***VOC***	***$PM_{10}/PM_{2.5}$***	***CO_2e[a]***
Existing WWTP Flare	3.4	35.5	18.5	7	0.2	10,676
New Biogas Treatment System	0	0	0	0	0	6,748
Potential Net Reduction	***(3.4)***	***(35.5)***	***(18.5)***	***(7)***	***(0.2)***	***(3,928)***

Note:
a. CO_2e: CO_2 equivalent, or the total tons of all GHG (CO_2 and CH_4) weighted by their global warming potentials (GWP).

3.4.2.3 Decommissioning

The potential for adverse air quality effects as a result of decommissioning is negligible. The biogas pipeline would be capped and remain in place. Removing the biogas reclamation and upgrading structures from the foundation or piers would not require significant quantities of heavy equipment that have the potential to generate exhaust and fugitive dust, although some airborne particulate can be expected if the concrete pad were to be removed.

3.5 BIOTA

3.5.1 EXISTING CONDITIONS

3.5.1.1 Existing Flora

The vegetation within the HWWTP is typical of highly-developed and disturbed industrial areas. Much of HWWTP is paved with asphalt or given some similar surface treatment, such as gravel, to facilitate maintenance and upkeep and limit unwanted vegetation. Areas within the HWWTP fence line which do not require frequent access as part of the ongoing operations there are typically manicured with grass. Several large, well established cultivated trees are located sporadically throughout the property and along Geiger Road, along the makai boundary of the property. In

addition, open areas with extensive patches of bare ground, gravel, and asphalt exist within the area and have been disturbed by past and current land use at the plant.

During preparation of the *Final Environmental Impact Statement for the Honouliuli Wastewater Treatment Plant Secondary Treatment and Facilities* (AECOM; April 2017) a complete natural resources survey of the area was completed; this survey included both the existing HWWTP and the mauka expansion area but it is representative of the biota present in the current project area. During this survey, a total of 79 plant taxa were observed, including four species native to the Hawaiian Islands. Of these four indigenous species, only *ma'o hau hele*—the Hawaiian state flower—is a federally-listed species under the Endangered Species Act of 1973. However, this species was observed within a garden adjacent to a HWWTP facility building and was determined to be a cultivated, rather than naturally occurring, specimen. No other state- or federally-listed threatened, endangered, or candidate species of plants were observed in the area during the botanical survey.

Although the HWWTP is located within the historical range of the endangered ko'oloa'ula (*Abutilon menziesii*), the species was not observed during the natural resources survey and is not known to have recently been documented in the project vicinity. A search of the locations of known threatened and endangered plant species contained in the State of Hawai'i's GIS data did not indicate the presence of any such specimens in the project area.

The vegetation present on the undeveloped portions of the HWWTP property and the Geiger Road ROW consist principally of grassland with scattered shrubs and trees, except in areas where development has altered these conditions. The dominant grass here is Guinea grass (*Urochloa maxima*). Kiawe (*Prosopis pallida*) forms the majority of the tree cover, with Manila tamarind (*Pithecellobium dulce*) and koa haole (*Leucaena leucocephala*) also found in abundance throughout the area. Two herbaceous species, lion's ear (*Leonotis nepetifolia*) and golden crown-beard (*Verbesina encelioides*) are widely distributed through the understory. Other non-native herbaceous and shrub species scattered throughout the area or in isolated patches include khaki weed (*Alternanthera pungens*), spiny amaranth (*Amaranthus spinosus*), wild bean (*Macoptilium lathyroides*), hairy abutilon (*Abutilon grandifolium*), bracted fanpetals (*Sida ciliaris*), and Cuban jute (*Sida rhombifolia*). The non-native, parasitic western field dodder (*Cuscuta campestris*) was also found within larger trees during the survey.

3.5.1.2 Existing Fauna

The fauna within the vicinity of HWWTP is dominated by non-native birds and terrestrial mammals. During the biological resources survey conducted for the April, 2017 FEIS, nine introduced and one indigenous bird species were recorded in the vicinity of HWWTP. The common myna (*Acridotheres tristis*) was the most frequently observed, as well as the zebra dove (*Geopelia striata*) and spotted dove (*Streptopelia chinensis*). All of these species are common to the main Hawaiian Islands, and particularly concentrated in urbanized and disturbed areas (SWCA 2015). Only one native species, the migratory Pacific golden plover (*Pluvialis fulva*) was observed in the project vicinity. This species is abundant throughout the main Hawaiian Islands.

The project site, including the proposed pipeline along Geiger Road, is directly adjacent to the Coral Creek Golf Course (see Figure 1.2), which contains water features that are attractive to waterbirds. As a result, it is possible that endangered Hawaiian stilts (*Himantopus knudensi*) could be present in close proximity to the proposed project area. Hawaiian stilts, as well as Hawaiian coots (*Fulica alai*) are highly mobile and may occupy newly, and often unintentionally, created habitat for foraging and even nesting such as areas that hold standing water after heavy rainfall. However, no nesting waterbirds were observed during the natural resources survey.

Four migratory bird species protected under the terms of the Migratory Bird Treaty Act (MBTA) of 1918, as amended, were observed during the survey, including: (*i*) the cattle egret (*Bubulcus ibis*), (*ii*)

Hawaiian duck-mallard hybrids, (*iii*) Pacific golden plover, and (*iv*) house finch (*Haemorhous mexicanus*).

Other fauna observed during the survey included two species non-native invasive terrestrial mammals (*Felis catus*) and small Asian mongooses (*Herpestes javanicus*). Invertebrates observed include the globe skimmer (*Pantala flavescens*), and two butterflies, the Gulf fritillary (*Agraulis vanilla*) and the western pygmy blue butterfly (*Brephidium exilis*). The globe skimmer is a dragonfly species native to the Hawaiian Islands. No herpetofauna or amphibians were observed during the survey.

No state- or federally-listed threatened, endangered, or candidate bird, mammal, or insect species were observed during the survey of the HWWTP site and surroundings. The endangered pueo (*Asio flammeus sandwichensis*) was not observed during the survey; however, this species occurs in habitat found at the HWWTP site, including wet and dry forests, grasslands, shrublands, and urban areas. The endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or *ʻōpeʻapeʻa* as it is known locally, is the only native terrestrial mammal in Hawaiʻi, and there are no native reptiles or amphibians in Hawaiʻi. Surveys were not conducted for the endangered Hawaiian hoary bat, but this species is not likely to utilize the highly fragmented and urban area in the vicinity of HWWTP.

No aquatic fauna are present on the HWWTP property or within the Geiger Road ROW.

3.5.2 PROBABLE IMPACTS ON BIOTA

3.5.2.1 Effects on Flora

The total anticipated area of grubbing, grading, and clearing related to the action alternative considered in this report is very minor, not exceed approximately 2,500 ft^2. None of the alternatives described in this EA will involve the removal of trees, landscaping, or significant amounts of vegetation. Both the biogas extraction facility and the proposed pipeline (regardless of route) would be emplaced in areas which are heavily developed, hosting a wastewater treatment plant and roadway, respectively, and there are no significant vegetation resources in the area to be affected by construction or operation of the proposed project.

3.5.2.2 Avian and Terrestrial Fauna

The fauna which has been surveyed in and around HWWTP is dominated by non-native species of birds and terrestrial mammals. Nine introduced and one indigenous bird species were recorded during the natural resources survey; the myna bird was the most frequently observed, followed by the zebra dove and spotted dove. These species are common to the main Hawaiian Islands, particularly in urbanized or heavily disturbed areas. Only one native species, the migratory Pacific golden plover, was observed on the site; this species is abundant throughout Hawaiʻi.

All the species of introduced mammalian predators are deleterious to native ecosystems and the native faunal species dependent on them. Moreover, the minimal ground disturbance related to pipeline trenching will all occur in areas which are heavily developed; this and the other changes that will result from the proposed project do not have the potential to alter the habitat on which these species depend. No Hawaiian hoary bats were detected during the biological resource survey and, given the paucity of documented records of this species on Oʻahu and the complete lack of suitable roosting vegetation in the immediate project area, the chance that any use resources on the subject property are extremely low. Consequently, the proposed project does not have the potential to have significant adverse effect on fauna.

There are no known nesting colonies of any protected bird species on or near to the project site. The proposed project does not contain any exterior lighting that might attract or disorient fledgling nocturnal seabirds, nor will nighttime construction occur. The biogas reclamation facility is relatively low-lying (most structures are less than 20 feet above ground, the carbon silos are 17 feet high) and

the proposed pipeline would be installed underground; these facilities do not, therefore, constitute a significant avian collision hazard. This, together with the absence of substantial known seabird use of the airspace, indicates that bird strikes are not an issue with respect to the proposed project.

3.5.2.3 Critical Habitat

There is no federally delineated Critical Habitat present on the property. Thus, the development and operation of any of the action alternatives considered in this EA will result in impacts to federally designated Critical Habitat. There is no equivalent statute under state law.

3.6 NOISE

3.6.1 REGULATORY CONTEXT

Hawai'i Administrative Rules, Title 11, Chapter 46, Section 4 (HAR §11-46-4) defines the maximum permissible community sound levels in dBA. These differ according to the kind of land uses that are involved, as defined by zoning district, and time of day (i.e., daytime or nighttime). These limits are shown in Table 3.6 below. Definitions of two technical terms used in this discussion are as follows:

- *A-Weighted Sound Level (dBA).* The sound level, in decibels, read from a standard sound-level meter using the "A-weighted network". The human ear is not equally sensitive in all octave bands. The A-weighted network discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear.
- *Decibel (dB).* This is the unit that is used to measure the volume of a sound.[7] The decibel scale it logarithmic, which means that the combined sound level of 10 sources, each producing 70 dB will be 80 dB, not 700 dB. It also means that reducing the sound level from 100 dB to 97 dB requires a 50 percent reduction in the sound energy, not a 30 percent reduction. Perceptually, a source that is 10 dB louder than another source sounds about twice as loud. Most people find it difficult to perceive a change of less than 3 dB.

The maximum permissible sound levels specified in HAR §11-36-4(b) apply to any excessive noise source emanating from within the specified zoning district. They are measured at or beyond the property line of the premises from which the noise emanates. Mobile noise sources, such as construction equipment or motor vehicles are not required to meet the 70 dBA noise limit. Instead, construction noise levels above these limits are regulated using a curfew system whereby noisy construction activities are not normally permitted during nighttime periods, on Sundays, and on holidays. Construction activities which could typically exceed the limits established for fixed machinery are normally allowed during the normal daytime work hours on weekdays, and on Saturdays using a system involving the issuance of construction noise permits.

Table 3.6 Hawai'i Administrative Rules §11-46 Noise Limits

Zoning District	*Noise Limit (in dBA)*	
	Daytime (7:00 a.m. to 10:00 p.m.)	*Nighttime (10:00 p.m. to 7:00 a.m.)*
Class A: Areas equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar type.	55	45
Class B: All areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.	60	50

[7] [7] The sound pressure in decibels is equal to twenty times the logarithm to the base ten of the ration of the pressure of the sound measured to a reference pressure of 20 micropascals, or 0.0002 dynes per square centimeter.

Class C: All areas equivalent to lands zoned agriculture, country, industrial, or similar type.	70	70
Source: Hawai'i Administrative Rules §11-46 *Community Noise Control*		

All of ENV's HWWTP's existing facility is zoned I-2 Intensive Industrial, which makes it a Class C area, the least restrictive for the purposes of noise limits. Portions of the Geiger Road ROW along which the proposed pipeline would travel are variously zoned: (*i*) AG-1 Restricted Agriculture, (*ii*) P-2 General Preservation, and (*iii*) R-5 Residential (see Figure 1.4). Thus, the 70 dBA limit will apply to all portions of the project except those in the R-5 district where Class A limits would apply.

3.6.2 EXISTING SOUND LEVELS

No on-site noise measurements were made during preparation of this document. However, an acoustical study, which included an analysis of noise near the HWWTP site, was prepared by Ebisu and Associates in January, 2015 (Ebisu and Associates, 2015) during preparation of the *Final Environmental Assessment for the Honouliuli Wastewater Treatment Plant Secondary Treatment and Facilities* (ENV, 2017) and was published as Appendix E of that report. This section of the EA draws on information contained in that document.

Daytime and nighttime noise measurements were obtained in October 2014 at or near the property boundary of HWWTP to provide a basis for characterizing the existing background noise levels at noise-sensitive receptors in the project environs and to determine if the facility was in compliance with DOH noise limits as described in Table 3.6. As noted above, the existing HWWTP is located within the I-2 Intensive Industrial District, within which the current DOH noise limit at the property boundary for stationary noise sources is 70 dBA for both daytime and nighttime periods. DOH stipulates that noise levels shall not exceed the maximum permissible sound levels for more than 10 percent of the time in any 20-minute period (i.e., >2 minutes out of 20), except by noise permit or noise variance.

The 2014 acoustical study identified the major noise sources at HWWTP as: (*i*) the dewatering building centrifuge; (*ii*) influent pump station; (*iii*) blower building No. 1; (*iv*) bio-tower pump station booster fan; and (*v*) caustic scrubber odor control blower. These five major noise sources are anticipated to remain at their present general locations for the duration of the proposed project. During daytime operations at HWWTP, motor vehicle traffic and aircraft noise become the dominant noise sources along the HWWTP property lines, particularly in areas adjacent to Geiger Road. Noise measurements which were made during the 2014 acoustical study were influenced by these off-site noise sources more than sources within HWWTP. Based on the recorded measurements, the HWWTP is in full compliance with the 70 dBA noise limit established by DOW for both daytime and nighttime operations.

Also, traffic noise level measurements were performed near the HWWTP site in December 2014; Table 3.7 below summarizes the results and locations of these measurements. Table 3.8 presents the calculated hourly average, or $L_{eq}(h)$, traffic noise levels at 50, 75, and 100 feet setback distances from the roadways' centerlines during the PM peak traffic hour, which reflects the highest hourly volume of traffic on the project area roads. The State of Hawai'i, Department of Transportation considers traffic noise levels less than 66 $L_{eq}(h)$ to be acceptable for noise sensitive land use. This criterion level was exceeded at 50 feet from the centerlines of Geiger Road and Roosevelt Avenue.

The U.S. Department of Housing and Urban Development (HUD) uses the Day-Night Average Sound Level (or DNL) descriptor in evaluating acceptable noise levels at noise sensitive locations. The DNL descriptor incorporates a 24-hour average of daytime and nighttime noise levels, with the

nighttime noise levels increased by 10 dB prior to computing the 24-hour average. A noise level of 65 DNL is considered to be acceptable for noise sensitive used by HUD. Traffic noise levels in DNL may be estimated by adding 1 unit to the peak hour $L_{eq}(h)$, so a traffic noise level of 66 $L_{eq}(h)$ during the peak hour would result in a 67 DNL value, or 2 DNL units above the HUD noise standard.

Table 3.7 Traffic and Background Noise Measurement Results at HWWTP

Location (12/2/14)	*Time of Day (hrs)*	*Average Speed (mph)*	*Hourly Traffic Volume*			*Measured Leq (dB)*	*Predicted Leq (dB)*
			Auto	*M. Truck*	*H. Truck*		
K1. 50′ from Centerline of Geiger Rd.	07:20-08:20	38	707	15	38	67.1	65.5
K2. 100′ from Centerline of Geiger Rd.	07:20-08:20	38	707	15	38	58.9	60.3
K1. 50′ from Centerline of Geiger Rd.	14:40-15:40	35	750	15	30	66.7	64.4
K2. 100′ from Centerline of Geiger Rd.	14:40-15:40	35	750	15	30	57.2	59.4
L1. 50′ from Centerline of Renton Rd.	08:45-09:45	36	101	6	8	57.6	57.5
L2. 100′ from Centerline of Renton Rd.	08:45-09:45	36	101	6	8	54.3	52.8
L1. 50′ from Centerline of Renton Rd.	16:00-17:00	34	290	6	4	58.8	58.8
L2. 100′ from Centerline of Renton Rd.	16:00-17:00	34	290	6	4	54.1	53.5
M. 50′ from Centerline of Philippine Sea St.	10:46-11:46	25	118	3	12	58.1	56.7
M. 50′ from Centerline of Franklin D. Roosevelt Ave.	12:07-13:07	35	507	7	26	63.1	63.0
Note: This information originally appeared in Appendix E, Table 3 of the *Final Environmental Assessment for the Honouliuli Wastewater Treatment Plant Secondary Treatment and Facilities* (April 2017)							
Source: Y. Ebisu & Associates (2015)							

Table 3.8 Traffic Volumes and Noise Levels Along Roadways in Project Area (PM Peak Hour)

Location	*Speed (mph)*	*Total Vehicles per Hour*	*Vehicles per Hour*			*50' Leq*	*75' Leq*	*100' Leq*
			Auto	*M. Truck*	*H. Truck*			
Geiger Rd. between Kapolei Parkway and DW3	38	1,031	965	21	45	66.6	63.5	61.5
Geiger Rd. between DW3 and DW2	38	1,002	938	20	44	66.4	63.4	61.3
Geiger Rd. between DW2 and DW1	38	998	934	20	44	66.4	63.3	61.3
Geiger Rd. between DW1 and ECRC	38	985	922	20	43	66.3	63.3	61.3
Geiger Rd. between ECRC and Essex	38	985	922	20	43	66.3	63.3	61.3
Roosevelt Ave. between Essex and DW4	35	968	909	15	44	65.5	62.5	60.5
Roosevelt Ave. between DW4 and Philippine Sea	35	968	909	15	44	65.5	62.5	60.5
Roosevelt Ave. west of Philippine Sea	35	1,209	1,137	18	54	66.4	63.4	61.4
Philippine Sea north of Roosevelt Ave.	25	326	290	7	29	60.5	57.5	55.4
Philippine Sea south of Renton Rd.	25	337	299	8	30	60.6	57.6	55.6
Renton Rd. between Kapolei Parkway and DW5	34	343	317	12	14	61.1	58.1	56.0
Renton Rd. between DW5 and Philippine Sea	34	343	317	12	14	61.1	58.1	56.0
Renton Rd. west of Philippine Sea	34	13	12	0	1	46.9	44.2	42.6

Note: This information originally appeared in Appendix E, Table 4 of the *Final Environmental Assessment for the Honouliuli Wastewater Treatment Plant Secondary Treatment and Facilities* (April 2017)

Source: Y. Ebisu & Associates (2015)

3.6.3 PROBABLE NOISE IMPACTS

3.6.3.1 Construction Noise

Audible construction noise would be an unavoidable result of construction activity related to any of the action alternatives. Transport, excavation, and other activities will also entail the use of trucks with backup alarms and excavators (e.g., backhoes, which generate up to 84 dBA at a distance of 50 feet) to dig and fill the trenches used to install the gas pipeline. As depicted in Table 3.9, some of this equipment is inherently noisy. Because much of the biogas reclamation equipment is assembled offsite and containerized, the most noticeable sources of construction noise are likely to be related to installation of the gas pipeline.

Noise from the operation of construction equipment is expected to exceed the property line noise limits during installation of at least some of the pipeline which will interconnect the HWWTP Biogas Project to Hawai'i Gas' gas distribution network. Because of this, Hawai'i Gas or its contractor anticipates seeking a construction noise permit in accordance with the provisions of HAR §11-46. The implementing regulations for a DOH Construction Noise Permit stipulate that noisy construction activities do not occur during the nighttime, Sundays, and holidays. These permit procedures, which are routinely applied to noisy construction activities, are intended to minimize adverse noise impacts to residences.

The closest residential area to the proposed project is east of Coral Creek Golf Course, along Geiger Road. Those residences closest to Geiger Road would experience construction noise levels of 80 dBA (plus or minus 5 dBA).[8] Impacts associated with construction noise are not expected to affect public health or welfare, in part due to the fact that they will be temporary in nature and restricted to normally permitted hours.

Construction worker vehicles traveling to and from the project site will increase traffic volumes on Geiger Road, and potentially other area roadways. However, the addition of the relatively few construction workers required for the project will increase total traffic noise levels by no more than a few tenths of a decibel, which will be very difficult to measure. This means that HWWTP Biogas Project-related construction activities will not cause a significant change in roadway noise.

Table 3.9 Construction Equipment Noise Emissions Levels

Equipment	*Typical Noise Levels (dBA) 50 ft., U.S. Dept. of Trans. Study (1979)*	*Average Noise Level (dBA) 50 ft., CA/T Project Study (1994)*	*Typical Noise Level (dBA) 50 ft., U.S. Dept. of Trans. Study (1995)*	*Lmax Noise (dBA) 50 ft., CA/T Project Spec. 721.560*
Air Compressor	--	85	81	80
Backhoe	84	83	80	80
Chain Saw	--	--	--	85
Compactor	82	--	82	80
Compressor	82	--	82	80
Concrete Truck	--	81	--	85
Concrete Mixer	--	--	85	85
Concrete Pump	--	--	85	85
Concrete Vibrator	--	--	76	80
Crane, Derrick	86	87	88	85

[8] This would be the average noise level at 50 feet from the centerline of Geiger Road.

Crane, Mobile	--	87	83	85
Dozer	88	84	85	85
Drill Rig	--	88	--	85
Dump Truck	--	84	--	84
Excavator	--	--	--	85
Generator	84	78	81	82
Gradall	--	86	--	85
Hoe Ram	--	85	--	90
Impact Wrench	--	--	85	85
Jackhammer[1]	--	89	88	85
Loader	87	86	85	80
Paver	80	--	89	85
Pile Driver, Impact	--	101	101	95
Pile Driver, Sonic	--	--	96	95
Pump	80	--	85	77
Rock Drill	--	--	98	85
Roller	--	--	74	80
Scraper	89	--	89	85
Slurry Machine	--	91	--	82
Slurry Plant	--	--	--	78
Truck	89	85	88	84
Vacuum Excavator	--	--	--	85
Note 1: There are 82 dBA at 7 meter rated jackhammers (90 lbs. class) available. This would be equivalent to 74 dBA at 50 ft. These are silenced with molded intricate muffler tools.				
Source: http://ops.fhwa.dot.gov/wz/workshops/accessible/Schexnayder_paper.htm				

3.6.3.2 Operations and Maintenance

Once constructed, the biogas reclamation equipment, associated infrastructure, and pipeline will make little or no noise. The only noise emission from the biogas reclamation and ancillary equipment would come from the cooling and condensing apparatus, producing a low hum that will not be audible off the HWWTP site. Once constructed, the pipeline will not produce any noise during normal operations.

Motor vehicles will occasionally travel to the HWWTP for maintenance at regularly scheduled intervals of approximately 6 months each. Given the presence of Geiger Road and other high-volume roadways only a short distance away, the occasional presence of a few vehicles is not significant. The occasional regular equipment maintenance operations will not involve activities in excess of noise standards or that otherwise might interfere with onsite or adjacent land uses.

3.7 ARCHAEOLOGICAL AND HISTORIC RESOURCES, AND CULTURAL IMPACT ASSESSMENT

No on-site studies were conducted during preparation of this document. However, at the request of AECOM, Cultural Surveys Hawai‘i, Inc. (CSH) prepared an Archaeological Assessment (AA) and a

Cultural Impact Assessment (CIA) during preparation of the *Final Environmental Assessment for the Honouliuli Wastewater Treatment Plant Secondary Treatment and Facilities* (AECOM, 2017) and was published as Appendix C of that report.[9] This section of the EA draws on information contained in that document and summarizes some of the findings relevant to the proposed action. The scope of work for that effort included:

1. Historical research including study of archival sources, historic maps, Land Commission Awards (LCA), and previous archaeological reports to construct a history of land use and determine if archaeological sites have been recorded on or near HWWTP.
2. A pedestrian inspection of the heavily developed HWWTP site, to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. This inspection was undertaken to identify sensitive areas that may require additional investigation or mitigation before redevelopment of HWWTP occurs.
3. Consultation with Hawaiian organizations, agencies, community members and cultural practitioners near HWWTP in order to identify individuals with cultural expertise and knowledge of the area. The organizations consulted at that time included SHPD, the Office of Hawaiian Affairs (OHA), the O'ahu Islands Burial Council, and community and cultural organizations.
4. Preparation of a report assessing the results of the historical and cultural research and the fieldwork with an assessment of archaeological work, if appropriate. Mitigation recommendations, as needed, were included.

3.7.1 EXISTING ARCHAEOLOGICAL AND HISTORIC RESOURCES

As noted above, CSH (ENV, 2017) previously prepared the *Final Archaeological Assessment for the Honouliuli Wastewater Treatment Plant (WWTP) Secondary Treatment and Facilities Project, Honouliuli Ahupua'a, 'Ewa District, O'ahu TMK: [1] 9-1-013:007*; this section summarizes the findings of that report.

HWWTP is found on the dry, inland plain known as Honouliuli, which in pre-Contact times had a thin-to-absent soil layer. Due to its distance from the ocean and Pearl Harbor, and from any adequate sources of fresh water, this inland area saw relatively little use during the pre-Contact era. The areas within and adjacent to HWWTP were not subject to any LCAs during the Kingdom of Hawai'i, indicating that during the division and redistribution of land during the Māhele in 1848 there were no verified claims to lands in this area. From the late 19th century through the late 20th century, commercial-scale sugar cultivation was enabled by: (*i*) the drilling of wells to tap groundwater; (*ii*) the diversion of existing surface water from distant stream systems, and (*iii*) the hydraulic transport of soil from mountain slopes to the 'Ewa plain. This intensive disturbance and agricultural use of the land associated with the establishment and operation of commercial-scale sugar cane plantations has probably destroyed any evidence of pre-Contact uses that might have been present in the region.

Previous archaeological studies have not reported the existence of archaeological resources within, or in areas adjacent to, HWWTP, and the archaeological sensitivity of the area is generally considered to be low. O'Hare et al. (2011) notes that the HWWTP area has been extensively disturbed by prior infrastructure development, including the existing wastewater treatment facility, and is of relatively low archaeological concern. In another study, O'Hare et al. (2007) focused on areas along the north and eastern sides of HWWTP, where expansion activities are planned, but identified no historic

[9] Available online at: http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Oahu/2010s/2016-05-08-OA-5B-DEIS-Honouliuli-Wastewater-Treatment-Plant-Secondary-Treatment-Improvements.pdf

properties. This study found evidence of extreme ground disturbance and did not find Hawaiian traditional features on the surface. O'Hare et al. (2007) concluded that it is highly unlikely that there are any subsurface Hawaiian features intact. HWWTP is not known to have been the subject of previous formal archaeological investigations; however, the property has undergone extensive land disturbance associated both with previous agriculture and construction of the facility itself in the late 1970s. Table 3.10 lists recorded historic sites within a 0.5-mile radius of HWWTP.

Table 3.10 Historic Sites within 0.5 Miles of HWWTP

State Inventory of Historic Properties (SIHP) No.	*Site Type*	*Description*	*Significance*
50-80-12-5127	Military	World War II ʻEwa Airfield	Recommended as eligible for the National Register of Historic Places
50-80-12-9708	Sugar plantation infrastructure	Waialua Agricultural Company Engine No. 6	On National Register of Historic Places
50-80-12-9714	Sugar plantation infrastructure	Oahu Railway and Land Company ROW	On National Register of Historic Places
50-80-12-9761	Sugar plantation infrastructure	Railway rolling stock	On State Register of Historic Places
50-80-12-9786	Sugar plantation infrastructure	ʻEwa Village Historic District	On National Register of Historic Places

Source: Yucha et al. (2015)

On October 24, 2014 CSH conducted a pedestrian inspection of the developed areas of HWWTP, and a reconnaissance of the proposed expansion area to the north and west. No historic properties were identified either in the HWWTP or in the expansion area, and no further cultural resource management activities were recommended.

3.7.2 EXISTING CULTURAL RESOURCES AND PRACTICES

During preparation of the *Final Environmental Assessment for the Honouliuli Wastewater Treatment Plant Secondary Treatment and Facilities* (AECOM, 2017), CSH (O'Hare, 2011) prepared a *Cultural Impact Assessment for the Honouliuli/Waipahu/Pearl City Wastewater Facilities, Hōʻaeʻae, Waikele, Waiawa, and Mānana, and Hālawa Ahupuaʻa, ʻEwa District, Oʻahu Island* to assess the potential impacts to traditional and customary native Hawaiian practices, beliefs, and resources which might result from implementation of the planned expansion project at HWWTP. This section of the EA draws on information contained in that document and summarizes some of the findings relevant to the proposed action. It also draws on a series of cultural studies, *He Moʻolelo ʻĀina: Traditions and Storied Places of Honouliuli, District of ʻEwa, Island of Oʻahu* (Maly et al., 2014), relating to all the lands of Honouliuli, including the entire HWWTP Biogas Project area. Together these resources provide a basis for assessing the potential for cultural impacts as a result of the proposed action.

3.7.2.1 Summary of Background Research

The project area is located along the western coast of the Honouliuli ahupuaʻa, the largest and westernmost ahupuaʻa in the ʻEwa moku, or district. Honouliuli translates literally as "dark water," "dark bay," or "blue harbor." It is named for the waters of Pearl Harbor, which marks the eastern

boundary of the ahupuaʻa. Honouliuli appears in many traditional stories, known as moʻolelo, ʻōlelo noʻeau (traditional sayings), ʻoli or chants, and possesses many wahi pana, or storied places. This rich oral history speaks to the importance of the Honouliuli ahupuaʻa in times past, with its abundance of natural resources and thriving Native Hawaiian population.

Many moʻolelo took place along the plains of Honouliuli, such as:

- The story of the demigod Kamapuaʻa and his grandmother;
- Pele's sister Hiʻiaka, on the plains of Kaupeʻa and Keahumoa;
- The wandering ghosts of Kaupeʻa, Puʻuokapolei, and Kanēhili;
- The demigod Maui and his stolen wife;
- The pōhaku of Pukaua;
- The hero Pikoi and his arrow-shooting skills;
- The warrior Palila and his supernatural war club; and
- The hero Nāmakaokapaoʻo.

Stories and sayings associated with the natural resources of Honouliuli include:

- The many shark stories of Puʻuloa;
- The guardian shark of Kaʻahupāhau;
- The pipi and ʻānae-hol*o* of Puʻuloa;
- The kāʻī-koʻi kalo of ʻEwa;
- The fishponds of Puʻuloa involving the gods Kane and Kū;
- Kaihupalaʻai and Ihuopalaʻai;
- The planting of the first breadfruit from Kahiki; and
- The ōlohe people who dwelled in the caves of Honouliuli.

Early historical accounts and the presence of permanent habitation sites, fishing shrines (koʻa) and subsistence-related features along the coast suggest that portions of ʻEwa were widely inhabited and home to many aliʻi (chiefs and royalty) during the pre-contact period. Successful coastal settlement was likely supported by the abundance of marine resources, particularly the lochs of Pearl Harbor. Also present were irrigated lowlands suitable for wetland taro, banana, and sugarcane cultivation seen nowhere else on Oʻahu, as well as the nearby presence of forest resources along the slopes of the Waiʻanae Range, which could serve as a source of alternative subsistence in times of famine. In contrast with this, accounts of early missionaries in 1823 and 1824 suggest that the land further inland from the ʻEwa coastline were largely uncultivated and habitation was scarce.

Honouliuli was the most populous ahupuaʻa on Oʻahu at the time of contact with European explorers, with the majority of the population focused around Pearl Harbor. The inland area of ʻEwa was likely abandoned by the mid-19th century due to the decline in population that resulted from the introduction of previously unknown diseases and consolidation of the remaining people in the towns of Honouliuli, Waipahu, and Waiawa. Today, Honouliuli is once again among the fastest growing ahupuaʻa on the island.

A heiau (altar and/or associated shrine) was once located on Puʻuokapolei, a hill in Honouliuli thought to have been named after "beloved Kapo," the sisters of the volcano goddess, Pele. By the time J.G. McAllister, author of *Archaeology of Oahu* (1933), surveyed Oʻahu in the early 1930s, *the heiau* had been destroyed and its stones used elsewhere. Puʻuokapolei was used as a site for astronomical observations and it may have been regarded as the gate of the setting sun, just as the eastern gate of Kumukahi in Puna is regarded as the gate of the rising sun.

ʻEwa was known for the many limestone caves formed in the uplifted coral called the ʻEwa Karst. Some of these caves, known as ka-lua-ōlohe, were inhabited by the ōlohe, described as hairless, fierce fighters who dwelt in Honouliuli as well as in other places in Hawaiʻi. These people were skilled in wrestling and bone-breaking and often hid along narrow passes to rob travelers. They were also reputed to be cannibals. One famous cannibal king, Kaupe, lived in Līhuʻe in upland Honouliuli, and was said to be an ōlohe.

Several historic trails traversed ʻEwa, including the lateral trail that connected Honolulu to the Waiʻanae district, and likely passed just makai side of the project site. The trail is described by native historian John Papa ʻĪʻī as dipping down, "toward the coast towards…Puʻuokapolei [and] crossed into Waiʻanae at the coast near Pili o Kahe."

The boundaries of Honouliuli were often contested with the people of Waiʻanae. However, the boundaries of those two districts are said to be marked by a stone known as Pili-o-Kahe, which translates to "clinging to flow" and refers to the female, or Waiʻanae side of the hill. Many battles took place in ʻEwa, including in Honouliuli ahupuaʻa, dating back to at least the twelfth century. Many aliʻi came from ʻEwa and chiefs from Līhuʻe, Wahiawā, and Halemano were called lōʻāliʻi (from whom a guaranteed chief might be obtained, loaʻa). Samuel M. Kamakau (1991) records that these lōʻāliʻi were regarded as being, "like gods, unseen, resembling men". The supremacy of the ʻEwa chiefs came to an end with the invasion of Oʻahu by the forces of Kamehameha I, culminating in the Battle of Nuʻuanu.

In 1795, Kamehameha I gave the Honouliuli ahupuaʻa to Kalanimōkū, an early supporter of his. It was subsequently inherited by Kalanimōkū's sister, Wahinepiʻo. During the Mahele of 1848, 96 land claims were made and 72 claims were awarded to commoners. Claims ranged in size from 0.1 to 5.5 acres and almost all of them were adjacent to Honouliuli Gulch and contained fishponds and irrigated taro patches, or *loʻi*. In 1855, the Land Commission awarded all 43,250 acres of unclaimed land in Honouliuli to Miriam Keʻahikuni Kekauʻōnohi, a granddaughter of Kamehameha I and by Kalanimōkū's heir.

The property passed through a series of heirs until 1877, when James Campbell purchased Honouliuli ahupuaʻa (except the ʻili of Puʻuloa) for $95,000 and started the Honouliuli Ranch, which was used almost exclusively for cattle. Cattle ranching continued into modern times, and Honouliuli Ranch was considered the fattening area for the other ranches in the region. Though Honouliuli Ranch was not in operation until the late 1870s, a longhorn cattle ranch was reported to exist in nearby Waiʻanae as early as 1840.

Grazing ranch animals and the logging of the sandalwood forests in the upland forests disturbed the ecosystem of the ʻEwa plain, allowing exotic vegetation to thrive, further changing the landscape. Rice cultivation began in Honouliuli around the 1880s, and by 1885, 200 acres of rice had replaced much of the former taro lands in the lowland areas surrounding Pearl Harbor. The ancient kalo loʻi—irrigated terraced patches of taro—and ʻauwai, the traditional irrigation ditches, were modified and expanded to support rice cultivation, a process which was dominated by the Chinese. By the early 20th century, rice farming declined and was succeeded by sugar. Sisal, a plant used to make fibers for rope and other material, was also experimented with between 1898 and the 1920s, mainly on the coastal plain of Honouliuli in Kanēhili.

Sugarcane became a dominant industry in Hawaiʻi during the second half of the 1800s. At first it expanded slowly, but the success in 1879 of the first artesian well drilled in ʻEwa opened great irrigation possibilities. Three sugar companies were established in the district, including the Ewa Plantation Company (EPC), which was located in Honouliuli. The EPC started in 1890 and by the 1930s, it encompassed much of the eastern half of the ahupuaʻa. EPC was once termed the "richest sugar plantation in the world". The Oahu Sugar Company took over the EPC in 1970 and continued operations until 1995. Plantation villages to house a growing immigrant labor force developed on

Honouliuli but by the 1930s and 40s, the Second World War siphoned off much of the plantation labor force.

The Oahu Railway and Land Company (OR&L) extended a rail line from Honolulu to Pearl City in 1890, and on to Waiʻanae in 1895, eventually running across the center of the ʻEwa Plain. To attract business to the new railroad system, much land in Honouliuli was subleased to the sugar plantations. The U.S. Army also used the sugarcane rail system to haul ammunition, and the Navy took over a section of the OR&L track for its own use. After the Second World War, most of the more than 150 miles of track were pried up and the locomotives were sold off to businesses on the American mainland; most of the railcars were simply scrapped.

Though Pearl Harbor is located east of the project area, military development on Pearl Harbor and the events of World War II significantly changed the history of Honouliuli and of Hawaiʻi at large, beginning with the Reciprocity Treaty of 1875. Since then, the American military has acquired much of coastal ʻEwa for its naval and air force bases, and developed the surrounding areas of ʻEwa with infrastructure to support its operation. By 1943, the military attracted more than 24,000 people who worked at Pearl Harbor and naval housing areas had grown large enough to be considered separate cities. Barracks and temporary housing for workers were built for miles between Pearl Harbor and the outskirts of Honolulu.

Following the Japanese bombing of Pearl Harbor on December 7, 1941, the Army began to develop a coastal defense battery at Kahe Point to accommodate one of the two 14″ naval gun turrets that was salvaged from the wreck of the battleship *USS Arizona*. While the guns themselves were put in place, the battery was never completed and the complex was dismantled during the years following the war.

3.7.2.2 Results of Community Consultation During Preparation of the CIA

HWWTP has been a wastewater treatment facility since the late-1970s and Geiger Road has been in continuous use as a roadway since before the Second World War. No ongoing cultural practices are present in either location, and thus, precluding the possibility of finding cultural informants with direct knowledge of traditional and customary native Hawaiian practices, beliefs, or resources present on the project site. However, as noted above, several ethnographic studies have been conducted with reference to the larger HWWTP vicinity and the Honouliuli region, and cultural informants have been interviewed as contributions to these studies.

Based on information gathered during previous community consultation efforts, as well as archaeological and archival research presented above, the evidence indicates that the proposed HWWTP Biogas Project will have little or no impact on potential burials or other cultural sites due to the limited ground disturbance and paucity of cultural activity in these areas. However, certain themes which emerged repeatedly in cultural interviews represent concerns which should be given due consideration in the planning and implementation of projects in this region. Based on interviews and other information gathered, CSH (ENV 2017) made recommendations, intended to help minimize or mitigate any potentially adverse impacts the proposed action may have on customary and traditional native Hawaiian practices, beliefs, or resources. Briefly summarized, they are:

1. Despite the previous intensive agricultural development of the area, earth-moving activities in and around HWWTP may have a direct impact on as-yet undiscovered burials located in subsurface contexts. Personnel involved in development activities should be made aware of the potential for inadvertent finds, including human remains. Should cultural or burial sites be encountered during ground disturbance, all work should immediately cease, and the appropriate agencies notified pursuant to applicable laws.
2. In the event that ʻiwi kūpuna—ancestral bone fragments—or other cultural properties are encountered during project development, recognized cultural and lineal descendants should be notified and consulted on matters of burial treatment.

3. Hydrological studies should be conducted prior to excavation or underground borings to prevent damage to aquifers or water tables in the vicinity of the project.
4. Flooding concerns should be addressed in the lower areas of the ʻEwa District to prevent sewer backups.
5. Archaeological monitoring should be conducted during ground-disturbing activities that affect layers likely to contain burials or other cultural deposits.

3.7.3 PROBABLE IMPACTS & MITIGATION MEASURES

3.7.3.1 Construction Period

The proposed HWWTP Biogas Project will require shallow subsurface work to trench, install approximately 4,200 feet of 4-inch biogas pipeline, and backfill; this work would occur within the developed portion of the HWWTP property as well as the CCH's Geiger Road ROW. While no subsurface investigations have been conducted in either location, both areas have been the subject of significant disturbance as a result of commercial-scale agriculture and urban development, and in areas which field inspections suggested a very low probability of yielding archaeological, cultural, or historic resources. However, none of the earthwork will occur in or near areas which have been previously identified historical or archeological sites listed, or eligible for listing, on the State of Hawaiʻi's Register of Historic Places or the National Register of Historic Places. In view of the forgoing, it is unlikely that any historic, cultural, or archaeological properties exist in the project area or would be impacted by project-related construction activities.

While Hawaiʻi Gas believes that the likelihood of further discoveries during project construction is very low, mitigation to address this potential for the discovery of undocumented archaeological and/or historical remains will include, but are not limited to: (*i*) compliance with all the requirements of HRS, Chapter 6E; (*ii*) the immediate cessation of work in the area of any find; and (*iii*) notification of the State Historic Preservation Division (SHPD) upon making a find to assess it.

Given the consensus that there is no ongoing use of HWWTP or the Geiger Road ROW for traditional cultural purposes, and the fact that it will not further impair or limit the ability of native Hawaiian cultural practitioners to access cultural resources in adjacent lands leads Hawaiʻi Gas to the conclusion that construction of the proposed project will not have an adverse effect on traditional and customary practices, beliefs, or resources.

3.7.3.2 Operation and Maintenance Activities

Once constructed, the proposed project will not have the potential to harm archaeological, historic, or cultural properties in any way. Neither will their operation limit or otherwise adversely affect traditional and customary practices of native Hawaiians or any other ethnic community.

3.8 NATURAL HAZARDS

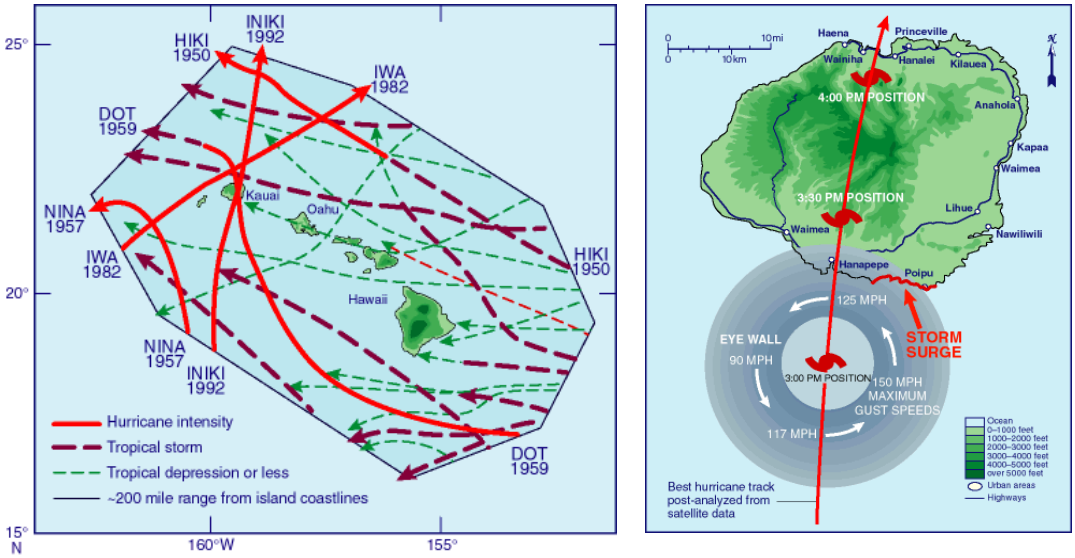
3.8.1 SUSCEPTIBILITY TO HURRICANES

Tropical storm systems that have sustained winds in excess of 73 miles per hour, forming in warm tropical waters near the equator, and striking in both the Atlantic and Eastern Pacific Oceans are known as hurricanes. Hurricane season in the Hawaiian Islands begins in June and lasts through November. During the last 70 years, many hurricanes and tropical storms have come close to the Hawaiian Islands, but only three hurricanes have had direct impact (see Figure 3.6 and Table 3.11). In all three cases, Kauaʻi was the hardest hit, although Oʻahu suffered significant damage as well.

In August of 1959, losses in Hurricane Dot were approximately $6 million. In November 1982, Hurricane ʻIwa caused over $250 million in damages. Hurricane ʻIniki, which struck in September of

1992, was by far the most destructive to strike Hawai‘i in recorded history, with widespread wind and water damage exceeding $2.2 billion. There is no record of damage to HWWTP because of any of these storms; although HWWTP was not yet constructed at the time of Hurricane Dot.

Figure 3.4 Tracks of Major Hurricanes Affecting the State of Hawai‘i (1950-2012)



Source: http://www.soest.hawaii.edu/MET/Faculty/businger/ poster/hurricane/Fig2_tracks.gif and Fig4_kauai_track.gif

Table 3.11 Major Hurricanes Affecting the State of Hawai‘i: 1950-2010

Name	*Date*	*Maximum Recorded Winds Ashore (mph)*		*Category*	*Deaths*
		Sustained	*Peak Gusts*		
Hiki	Aug. 15-17, 1950	68	NA	1	1
Nina	Dec. 1-2, 1957	NA	92	1	1
Dot	Aug. 6, 1959	81	103	2	-
‘Iwa	Nov. 23, 1982	65	117	3	1
‘Iniki	Sept. 11, 1992	92	143	4	8
*Note: Category is based on the Saffir-Simpson Hurricane Scale: Category 1 – Wind speed of 74-95 mph, minimal damage. Category 2 – Wind speed of 96-110 mph, moderate damage. Category 3 – Wind speed of 111-130 mph, extensive damage. Category 4 – Wind speed of 131-155 mph, extreme damage. Category 5 – Wind speed of >155 mph, catastrophic damage.					
Source: *State of Hawaii Data Book 2010*					

Based on recorded Hurricane activity, O‘ahu is less susceptible to hurricanes than Kaua‘i to the north. However, O‘ahu has sustained damage from wind and storm surge in both 1982 and 1992. In view of these findings, it appears likely that while an extremely powerful hurricane (i.e., one that is Category 4 or higher on the Saffir-Simpson Hurricane Scale) could damage HWWTP—including the proposed biogas reclamation equipment—it is unlikely to uproot the equipment and allow it to become

airborne. Hence, while the project is as susceptible to hurricane damage as any other structure in the area, it does not represent a measurable threat to adjacent uses.

Regardless of the alternative, neither construction nor normal operations will increase HWWTP's susceptibility to hurricanes, or to contribute the potenail for hurricane damage in the area. If, during construciton activity, a hurricane does occur a public emergency siren operated by the State of Hawai'i, Department of Defense would sound to notify all personnel of the approach of a hurricane. The nearest Department of Defense siren is located at 'Ewa Makai Middle School approximately 0.6 miles southeast of HWWTP. In the event that this alarm is not audible, information will also be broadcast via internet, radio, television, and mobile phone via text.

In the event that a hurricane is predicted, construction equipment would be secured and all applicable federal, state, and CCH requirements would be implemented to reduce the potential for damage. Emergency procedures outline in HWWTP's *Health and Safety Plan* would be followed. If evacuation of the facility is required, the nearest emergency shelter is located at 'Ewa Elementary, approximately 0.7 miles north of HWWTP. The closest open shelter can also be found by texting "shelter 96706" which is the zip code for HWWTP, to "43362" (i.e., "4-FEMA").

3.8.2 SUSCEPTIBILITY TO TSUNAMIS AND FLOODING

Tsunamis are a series of waves that are generated by seismic activity of the sea floor such as earthquakes, landslides, or volcanic eruptions. The Hawaiian Islands are always at risk for tsunamis generated by earthquakes and volcanic activity along the so-called "Ring of Fire," a nearly continuous series of oceanic trenches, volcanic arcs, and volcanic belts and/or plate movements around the Pacific Basin. The last major tsunami to affect the islands was the Hilo tsunami of 1960. To better reflect the potential hazard posed by tsunamis, the CCH's Department of Emergency Management completed revised tsunami evacuation zone maps in 2010.[10] According to the tsunami evacuation zone maps, HWWTP is not located within a tsunami evacuation zone, and it not likely to be directly adversely affected by even the most extreme tsunami event. The HWWTP is located approximately 1.5 miles from the nearest shoreline; the Federal Emergency Management Agency defined areas within one mile of the coastline as being at greatest risk of tsunami inundation.

Based on the latest available Flood Insurance Rate Map (FIRM) for the area, the entire project site lies in Flood Zone D. Zone D is defined as the flood insurance rate zone that corresponds to: (*i*) unstudied areas where, (*ii*) flood hazards are undetermined but possible. Because of the low probability of flooding, no base flood elevations or depths have been defined within the zone. The proposed biogas reclamation facility and associated infrastructure would be located at elevations ranging from 25′ to 45′ +msl. Because of their design, the proposed facilities will not be susceptible to damage from storm runoff and do not have the ability to increase the risk of flooding on adjacent areas by restricting or obstructing a floodway.

As noted in the discussion related to hurricanes, a public emergency siren operated by the State of Hawai'i, Department of Defense would sound to notify all personnel of an approaching tsunami. The nearest Department of Defense siren is located at 'Ewa Makai Middle School approximately 0.6 miles southeast of HWWTP. In the event that this alarm is not audible, information will also be broadcast via internet, radio, and television.

In the event that a tsunami is predicted, construction equipment would be secured and all applicable federal, state, and CCH requirements would be implemented to reduce the potential for damage. Emergency procedures outline in HWWTP's *Health and Safety Plan* would be followed. As in the

[10] Available on the web at: https://www.honolulu.gov/demevacuate/tsunamimaps.html

event of a hurricane, if evacuation of the facility is required, the nearest emergency shelter is located at ʻEwa Elementary, approximately 0.7 miles north of HWWTP. The closest open shelter can also be found by texting "shelter 96706" which is the zip code for HWWTP, to "43362" (i.e., "4-FEMA").

3.8.3 SUSCEPTIBILITY TO EARTHQUAKES

The International Building Code (IBC) establishes minimum design criteria for structures to address the potential for damage resulting from seismic disturbances. The scale is from Seismic Zone 0 through Seismic Zone 4, with Zone 4 having the highest level potential for seismic-induced ground movement.

Like all of Oʻahu, HWWTP is located with Seismic Zone 2a (U.S. Geological Survey, 2001). All of the proposed equipment and infrastructure considered in this report will conform to the Seismic Zone 2a Building Standards, and their construction and operation will not increase the seismic vulnerability of the area.

3.8.4 SUSCEPTIBILITY TO VOLCANIC HAZARDS

The Waiʻanae and Koʻolau volcanoes that formed the bulk of Oʻahu are extinct. Smaller vents in the Honolulu Volcanic Series are more recent and formed volcanic features such as Diamond Head, Punchbowl, Salt Lake Crater, Koko Head, and Koko Crater. In general, these features are believed to be between 70,000 and 500,000 years old, although some scientists have theorized that a few features at the far eastern end of the island (such as Koko Head) may be more recent. The consensus of volcanologists is that there is virtually no possibility of eruptions that could affect the Honouliuli plain or HWWTP.

3.8.5 SUSCEPTIBILITY TO SEA LEVEL RISE

The global community of climate scientists has concluded that sea levels are currently rising and that this trend is expected to continue for the foreseeable future. The Intergovernmental Panel on Climate Change (IPCC) recently predicted (IPCC 2013) that the average temperature in the Hawaiian Islands is likely to increase by 0.5 to 1.5 C° (0.9 F° to 1.7 F°) by 2100; rainfall is likely to decrease, at most, 10 percent. Sea level could rise between 0.26 and 0.98 m (0.85′ to 3.2′). Given this likelihood, Hawaiʻi Gas has considered the potential effects this trend could have on development at HWWTP.

Using information prepared by the National Oceanic and Atmospheric Agency's Coastal Services Center, Hawaiʻi Gas has compared its project plans to areas that would be affected by a 1-meter sea level rise, which is slightly more than the upper end of the range predicted to occur by the year 2100. None of the areas that would be subject to inundation due to 1-meter sea level rise are with 1.5 miles of the proposed HWWTP Biogas Project. Thus, sea level rise of 1 meter will not directly affect the proposed action.

3.9 SCENIC & AESTHETIC RESOURCES

3.9.1 EXISTING CONDITIONS

Visually, the project consists of two distinct subzones: (*i*) HWWTP itself, and (*ii*) Geiger Road. The HWWTP facility itself is highly developed, with large buildings and tank with an industrial character. The buildings and equipment present at HWWTP are visual landmarks familiar to all who pass them as they travel along Geiger Road in either direction. A belt of landscaping (e.g., red hibiscus, monkey pod, fan palm, etc.) along Geiger Road makai of the facility partially screens, but does not obscure views of the wastewater treatment equipment and structures. In addition to views from Geiger Road, the HWWTP is at least partially visible from the adjacent: (*i*) Honouliuli Water Recycling Facility; (*ii*) Coral Creek Golf Course to the east of the plant, and (*iii*) Barbers Point Golf Course to the south.

As with points along Geiger Road, views of HWWTP from the golf course are screened by the existing tree canopy on both the HWWTP site and on the respective golf courses. A view of HWWTP from its entrance along Geiger Road is provided in Figure 3.5.

Figure 3.5 View of HWWTP from Entrance on Geiger Road

Source: Planning Solutions, Inc. (2017). Photo dated November 28, 2017.

Outside of HWWTP, along Geiger Road, a very different visual environment is present, as shown in Figure 3.6 below.

Figure 3.6 Existing Views Along Geiger Road

View east along Geiger Road approaching the entrance of HWWTP from the west

View east along Geiger Road at the eastern edge of HWWTP property.

View east along Geiger Road at the crossing of Kalo'i Gulch.

View east along Geiger Road at the entrance to Coral Creek Golf Course.

View east along Geiger Road approaching the intersection of Kapolei Parkway. Note adjacent residential area behind wall.

View east along Geiger Road of the intersection of Geiger Road and Kapolei Parkway.

Source: Planning Solutions, Inc. (2017). Photos dated November 28, 2017.

As shown in Figure 3.6, the views along Geiger Road consist of the relatively broad and flat 'Ewa Plain, with low-lying invasive grasses, shrubs, and trees including palms, monkey pod, and kiawe. The shoulder on the mauka side is unpaved and vegetation there is generally thin. As Geiger Road passes the residential areas closer to the intersection with Kapolei Parkway, the mauka side of the road consists of an earthen embankment with sparse grass and a low wall, partially obscuring views of the homes beyond it. Some landscaping and signage is present near the entrances to the Coral Creek Golf Course and Barbers Point Golf Course.

Section 2.2.9 of the *ʻEwa Development Plan* (DPP, 2013) lists a variety of significant views and vistas which it designates for preservation; they include:

- *Distant vistas of the shoreline from the H-1 Freeway above the ʻEwa Plain;*
- *Views of the ocean from Farrington Highway between Kahe Point and the boundary of the Waiʻanae Development Plan Area;*
- *Views of the Waiʻanae Range from H-1 Freeway between Kunia Road and Kaloʻi Gulch and from Kunia Road;*
- *Views of nā puʻu at Kapolei, Pālailai, and Makakilo;*
- *Mauka and makai views; and*
- *Views of central Honolulu and Diamond Head, particularly from Puʻu O Kapolei and Puʻu Makakilo.*

3.9.2 PROBABLE IMPACTS

No portion of the proposed action would affect the views or vistas identified in the *ʻEwa Development Plan*. Impacts to scenic and aesthetic resources associated with the proposed action, which are discussed in detail below, would be minor and less than significant.

3.9.2.1 Construction Period

During construction of the proposed project, regardless of alternative, some temporary impacts would occur to user groups viewing HWWTP from Geiger Road, Coral Creek Golf Course, and other adjacent areas. These impacts would consist of viewing some construction equipment, vehicles, and workers as they transport and install the biogas reclamation equipment within the developed area at HWWTP. Because the area selected for this equipment is in an area with many significant structures and equipment, most of this activity would be at least partially obscured, and would be limited to a brief period during installation.

More significant impacts would be related to construction of the pipeline connecting the biogas reclamation facility to Hawaiʻi Gas' gas pipeline network. During construction of the pipeline, visual impacts to user groups traveling along Geiger Road will include: construction equipment, vehicles, and workers conducting the trenching, pipeline emplacement, filling, and repaving of the roadway. Because the work will necessitate a lane closure, signage, cones, construction fencing, stockpiling of material and other visual presences will be affect existing views along Geiger Road. Any construction impacts related to scenic resources will be short-term and will be limited to the construction period.

3.9.2.2 Operations and Maintenance Period

Once constructed, some portions of the project-related biogas infrastructure may be visible for brief moments from vehicles passing along Geiger Road. However, these views would be partial and screened by layers of intervening vegetation and existing structures already present within HWWTP. After installation, the proposed gas pipeline in the CCH ROW will be completely underground and will not be visible.

3.10 IMPACTS ON UTILITIES AND PUBLIC INFRASTRUCTURE/SERVICES

3.10.1 PUBLIC INFRASTRUCTURE

3.10.1.1 Existing Conditions

Electric Power. HWWTP is served by Hawaiian Electric's existing electrical grid. Power lines running along Geiger Road enter the facility along the southwest corner of the facility and travel up

its eastern boundary to a dedicated substation in the northeast corner of the facility. From there it is distributed throughout the wastewater plant.

Telecommunications. Telephone and internet communications in the project area are provided by Hawaiian Telcom and Spectrum. Spectrum also provides cable television service in the area. These services are transmitted through a combination of aerial lines and underground conduits. There are two cell phone towers located on HWWTP property, one in the southeast corner of the property and one in the northwest corner of the property.

Water Supply. The potable and emergency fire water supply for the Island of O'ahu is provided by the CCH's Board of Water Supply (BWS), which is a semi-autonomous agency that constructs, operates, and maintains the wells, pumping stations, and distribution network. The BWS relies solely on groundwater to supply potable water to the community. HWWTP site is located within the Waipahu-Waiawa System, which is the primary source of drinking water for the 'Ewa-Honouliuli area. The closest well to HWWTP is approximately 3.1 miles north of the project area. For industrial and irrigation purposes, the BWS utilizes recycled water from Honouliuli Water Recycling Facility (HWRF), which operates under contract by Veolia Water North America, and located on the western side of the HWWTP, which recycles wastewater for non-potable uses such as fire suppression and irrigation. Access to HWRF is via the main gate at HWWTP, along Geiger Road. The HWRF provides tertiary treatment to approximately 13 MGD of secondary effluent from HWWTP.

Sanitary Wastewater. Wastewater in the project area is collected, primarily by gravity, to 16 pump stations distributed throughout the Honouliuli Watershed. Wastewater is then pumped through force mains to the interceptor sewers leading to HWWTP, where it is treated (see Section 1.4) and discharged through the Barbers Point Deep Ocean Outfall, located approximately 1.7 miles offshore at a depth of 200 feet.

3.10.1.2 Probable Impacts

The proposed action will not disturb any existing public electrical, wastewater, water, or other utility lines, nor require that any new ones be installed. It would not require any additional permanent operational or maintenance personnel, and would not, therefore, increase water use or place any additional burden on the existing supply of electrical power, water, or wastewater disposal facilities.

3.10.2 PUBLIC SERVICES

3.10.2.1 Existing Conditions

Police. Honolulu Police Department District 8 encompasses the Wai'anae Coast, Makakilo, 'Ewa, and the City of Kapolei. The district headquarters is in Kapolei. A substation is located in Wai'anae, providing a base of operations for officers patrolling the Wai'anae Coast.

Fire Protection. Leeward O'ahu is served by the Honolulu Fire Department's Fourth Battalion, which is headquartered at Station 40, the Kapolei Fire Station. The Nānākuli Fire Station (Station 28) and Wai'anae Fire Station (Station 26), each have an engine and a tanker. The Makakilo Fire Station (Station 35) has a single engine, as does the 'Ewa Beach Fire Station (Station 24).

Health Services. Leeward O'ahu is served by: (*i*) Queen's Medical Center – West O'ahu, (*ii*) Pali Momi Medical Center in Pearl City, (*iii*) the Wai'anae Coast Comprehensive Health Clinic between Nānākuli and Wai'anae, and (*iv*) clinics in Kapolei maintained by other health care providers. Emergency Medical Services (EMS) Division staff and trucks are located at the Wai'anae Fire Station and at Pali Momi in Pearl City. A quick response unit—with a paramedic and a truck—but without the ability to transport patients, is located at the Navy medical clinic in Barbers Point. The Honolulu Fire Department co-responds to calls for emergency services.

Solid Waste Management. The ʻEwa Convenience Center, located at 91-1000 Geiger Road, is on the southwest corner of the HWWTP site, and accepts residential municipal solid waste only. Multiple roll-off dumpsters are used onsite for the separate collection of different types of materials. Combustibles are processed at the Honolulu Program of Waste Energy Recovery (H-POWER), a waste-to-energy facility located at the Campbell Industrial Park in Kapolei. Non-combustibles are taken to the Waimanalo Gulch Landfill near Kahe Valley. Green waste is hauled to mulching and composting sites, while large objects, tires, and automobile batteries are taken to recycling facilities. There are plans to close the Waimanalo Gulch Landfill or to limit the amount of solids that are disposed there. Solid waste, as a component of sanitary wastewater, is transported to HWWTP from interceptor sewers and trucked there from the Wahiawa and Paʻalaʻa Kai WWTPs for additional treatment and disposal. Construction debris is transported to the PVT Land Company's Nānākuli facility by private haulers.

Educational Services. The schools and childcare facilities near the proposed project, and their approximate distance from HWWTP, are provided in Table 3.12. Some schools or childcare facilities may be closer or further away from the proposed pipeline route.

Table 3.12 Schools and Childcare Facilities Near HWWTP

Name	*Approximate Distance from HWWTP*
ʻEwa Makai Middle School	0.6 mi.
ʻEwa Elementary School	0.7 mi.
Kapolei Middle School	0.8 mi.
Keoneʻula Elementary School	1.0 mi.
Holomua Elementary School	1.0 mi.
Seagull Schools (2 Locations)	1.3 and 1.7 mi.
Planet Preschool	1.4 mi.
Kamaʻaina Kids	1.9 mi.
ʻEwa Plains Enrichment Program	2.0 mi.
Source: Compiled by Planning Solutions, Inc. (2017)	

3.10.2.2 Probable Impacts

Police, Health, and Educational Services. The proposed action and alternatives would not measurably increase the burden on existing police and health services or facilities; neither will it result in any changes that would measurably change the level of police protection that is needed at HWWTP. All the aboveground facilities will be entirely surrounded by a security fence, and ENV monitors its facility with its own security systems and personnel. Because the facilities will not require a substantial increase in staffing, its operation and maintenance will have no effect on the number of people present on the property that might require medical attention. The absence of any significant long-term increase in on-site employment means that there is not a potential to place additional demands on education or healthcare services.

Fire Protection. Hawaiʻi Gas has worked with ENV and its contractors to make the provision of adequate fire protection a fundamental aspect of the design of the proposed biogas reclamation facility and associated pipeline. All facilities would comply with the National Fire Protection

Association's (NFPA) recommendations, local codes, and other applicable fire protection regulations. This includes compliance with applicable provisions of the National Fire Protection Association's *Uniform Fire Code Handbook* (NFPA, 2012) which provides fire prevention guidance and standards. In the event of any malfunction, gas detectors located in and around the gas upgrading equipment will automatically shut off the equipment and divert the biogas to the flare in the event of a malfunction, with no disruption to any other processes at HWWTP. Additional measures include maintaining a cleared area 10-feet around the biogas reclamation equipment, and a non-combustible base installed under and around it. While methane is inherently flammable, the biogas reclamation equipment and other ancillary facilities are largely non-flammable, but some other flammable materials may be present in small quantities. A copy of this EA will be provided to HFD with a request for review and comment; any comment (and Hawai'i Gas' response) will be included in full in the final EA.

Solid Waste. The kind of construction that is required to install the biogas reclamation equipment and pipeline produces relatively little solid waste. The containerized biogas equipment, piping, and other materials would be shipped to Hawai'i and transported to the project site in reusable 45-foot shipping containers. Packing materials will generally be recycled at an appropriate, offsite location. What little construction waste and scrap is generated will either be sold to a dealer for recycling or disposed of at an approved offsite location.

3.11 HAZARDOUS MATERIALS

3.11.1 EXISTING CONDITIONS

Hawai'i Gas does not store and has not disposed of any hazardous materials in the vicinity of the planned construction activities. The company's review, in partnership with ENV, of the facility's history confirms that the project site has been in continuous use as part of the HWWTP since its construction in the late 1970s. Prior to that, the site was used for commercial sugar cane agriculture, and Geiger Road has been in continuous use as a roadway for military and agricultural use since prior to the Second World War. Because the actual project area has no history of previous development or industrial usage, and has been part of HWWTP and the roadway for decades, no Phase 1 Site Assessment was conducted as part of the planning process. Hawai'i Gas believes that the likelihood of hazardous materials being present within the area is low, and the need for remedial action sufficiently unlikely, that no such assessment is necessary.[11] As might be expected in an area such as this, various types of solid waste may be found throughout the project area, particularly those areas within the Geiger Road ROW. This waste may include stone and metal debris, car parts, glass and plastic bottles, and other containers. Because of the previous agricultural use of the area for sugar cane, some residual fertilizers, pesticides, and herbicides may be present in very minute quantities.

3.11.2 PROBABLE IMPACTS

3.11.2.1 Installation, Operation, and Maintenance

The proposed HWWTP Biogas Project's biogas reclamation and upgrading system uses dry, solid-state equipment that does not require or produce hazardous materials or waste. The sole hazardous materials which will be present as part of the project are: (*i*) the methane which is purified and piped from the site; and (*ii*) the diesel fuel and other petroleum-based substances utilized during similar construction projects (e.g., pipe glue and road marking paint).

[11] Phase 1 Site Assessments do not include any sampling activities or analysis of suspect soil or other materials.

Physical damage to a piece of equipment could result in the release of diesel fuel or hydraulic oil. The storage, maintenance, and fueling of vehicles and equipment will follow all applicable regulations and best management practices, which includes maintaining a spill response kit.

Similarly, only physical damage to the pipeline or pump would result in the release of methane. However, the biogas upgrading unit incorporates continuous, 24-hour monitoring system which will automatically shut the system down in the event of a process error such as a leak. In addition, the odorizing unit attached to the biogas stream is intended to help create an easily detectable odor to the methane gas, so that any leak can be rapidly identified and addressed.

3.12 ROADWAYS & TRAFFIC

3.12.1 EXISTING CONDITIONS

During preparation of the *Final Environmental Assessment for the Honouliuli Wastewater Treatment Plant Secondary Treatment and Facilities* (AECOM, 2017), a Traffic Impact Analysis Report (TIAR), which included a characterization of the existing roadways and traffic levels in the vicinity of HWWTP, was prepared by Austin Tsutsumi & Associates, Inc. in November 2014 (ATA, 2014). This section relies on information developed for that TIAR, as well as information gathered by the State of Hawai‘i Department of Transportation (DOT).

The State of Hawai‘i DOT, Highways Division, Highways Planning Survey Section does not conduct regular traffic counts for the portion of Geiger Road directly adjacent to HWWTP. However, it does conduct regular traffic counts for the portion of Geiger Road between Kapolei Parkway and Launahele Street; this station has a Site ID No. B72714000079. This traffic count station is directly adjacent to the portion of the project area where the proposed gas pipeline would interconnect with Hawai‘i Gas existing as main on Kapolei Parkway. The most recent count was conducted on November 17 and 18, 2015. The 24-hour traffic volumes were similar on both days: 11,080 on November 17 and 11,280 on November 18. The peak-hour volumes on the two days were also similar: 802 on November 17 and 731 on November 18. To be conservative, the following discussion is based on the data from November 18, when total volumes were marginally higher. The difference between the two counts was not significant and would not have altered conclusions. Table 3.13 below summarizes the traffic volume data for Geiger Road.

Table 3.13. Existing Traffic Volumes on Geiger Road Between Kapolei Parkway and Launahele Street

Volume	***West-Bound[1]***	***TownEast-Bound[2]***	***Total***
24-Hour Volume	6,185	5,065	11,250
Morning Peak-Hour (7:00-8:00 a.m.)	437	346	783
Afternoon Peak-Hour (3:15-4:15 p.m.)	483	476	959
Note: 1. West-bound on Geiger Road traveling towards Kapolei Parkway. 2. East-bound on Geiger Road traveling towards Launahele Street.			
Source: Site ID No. B72714000079 Geiger Road between Kapolei Parkway and Launahele Street.			

Primary road access to HWWTP is through the main entrance on Geiger Road, west of Coral Creek Golf Course and on the south side of the HWWTP property (see Figure 1.3). The Septage Receiving Station is accessed through a separate entrance along Geiger Road east of the main entrance. The planned expansion area can currently be accessed from the north from Malio Street via Renton Road and from Geiger Road, east of the Septage Receiving Station entrance. The adjacent ‘Ewa

Convenience Center (see Section 3.10.2.1) is accessed from Geiger Road west of the main entrance to HWWTP. The speed limit in the segment of Geiger Road fronting the HWWTP is 30 miles per hour.

The speed limit in the segment of Geiger Road fronting the HWWTP is 30 miles per hour. Access to the HWWTP property and adjacent areas can be summarized as follows:

- Primary road access to HWWTP is through the main entrance on Geiger Road, west of Coral Creek Golf Course and on the south side of the property (sees Figure 1.2).
- The Septage Receiving Station is accessed through a separate entrance along Geiger Road, east of the main entrance in the southeast corner of the HWWTP property.
- In addition, the planned HWWTP expansion area can currently be accessed from the north via Malio Street via Renton Road and from Geiger Road, east of the Septage Receiving Station.
- The adjacent ʻEwa Convenience Center refuse transfer station is accessed from Geiger Road west of the main entrance to HWWTP.

For security and other reasons, ENV and Hawaiʻi Gas have collectively determined that all construction vehicles will access the HWWTP via the main gate. The entrance to HWWTP is not continuously monitored, and no vehicle-count data are kept for ingress or egress from HWWTP. The only means of construction access for the work related to the pipeline will be via Geiger Road.

3.12.2 PROBABLE IMPACTS: CONSTRUCTION PERIOD

Activities required to construct the HWWTP Biogas Project would generate vehicle-trips on area roadways. As construction would occur while the existing operations at HWWTP continue in their present form, and during normal traffic flow along Geiger Road, construction activities would lead to a short-term increase in the number of vehicles traveling along area roadways and entering and leaving the wastewater treatment plant. While the great majority of vehicle-trips that would be generated by the proposed project would be by worker cars and light-trucks, some material deliveries would be by medium (WB-40 class) trucks and a few large (WB-50 class) trucks.

Hawaiʻi Gas' estimates of the number of construction workers are provided in Table 3.14 below. This was done using construction employment numbers provided by Hawaiʻi Gas and its contractor. Since the site preparation and biogas reclamation equipment would be essentially complete before the pipeline work commences, there would be very little overlap between these activities, such that the total number of vehicle trips generated by project-related workers, as compared with traffic volumes shown in Table 3.13, would not impact traffic measurably.

Table 3.14 Estimated Construction Period Workforce

Construction Component	*Typical Peak-Period Employment*	*Expected Duration (in mos.)*	
		Peak Period	*Start-to-Finish*
Site Preparation	4	1	To be determined.
Biogas Reclamation and Upgrading System Installation	4	2	To be determined.
Onsite Pipeline Construction	4	2	3
Offsite Pipeline Construction	5	2	3
Source: Hawaiʻi Gas (2017)			

The proposed project involves work both within HWWTP and outside the facility in the Geiger Road ROW. It will require a Street Usage Permit for a temporary lane closure and will briefly affect the roadways' capacity to accommodate traffic. These effects will be the result of construction worker vehicles and material deliveries as well as work on the roadway itself. The construction along Geiger Road, which will be the primary source of traffic related impacts, is expected to take place over several months. Hawai'i Gas and its contractors would comply with restrictions on lane closures required by the City and County of Honolulu as part of the Street Usage Permit. It is likely that this will include limiting the hours of lane closure so as to avoid peak periods so that a lane is only closed during off-peak periods when the remaining lanes of Geiger Road and Kapolei Parkway provide ample capacity.

The limited number of vehicles traveling to and from the project site during peak hours and compliance with Street Usage Permit requirements, including development of a Traffic Control Plan for each phase of work on the roadway, would result in a less than significant impact on roadways and traffic. Hawai'i Gas will coordinate with the No. 23 'Ewa Neighborhood Board, emergency services, O'ahu Transit Services (operators of TheHandi-Van), and area businesses to keep them apprised of the relevant details of the proposed project and any potential impacts construction may have on area roadways.

3.12.3 PROBABLE IMPACTS: OPERATIONAL PERIOD

Normal operations and regular maintenance (e.g., changing the activated carbon filters) of the proposed HWWTP Biogas Project does not require on-site staffing, would not increase the number of regular personnel at HWWTP, or significantly affect transportation infrastructure. Occasional maintenance trucks would access the site, but this would represent no more than one or two vehicle-trips per week during typical business hours. Thus, none of the operational activities associated with the proposed project are anticipated to generate significant additional trip volumes on public roads.

3.12.4 AIR AND OCEAN TRANSPORTATION FACILITIES

3.12.4.1 Existing Facilities Airport and Harbor

Airports. The project site is approximately 5.3 miles west from the end of the nearest runway at Honolulu International Airport (HIA), the principal commercial aviation airport serving the Island of O'ahu. A vehicle trip between the project site and HIA takes approximately 25 minutes.[12] HIA is owned and operated by the State of Hawai'i, Department of Transportation. In 2012, the airport handled 19,291,412 passengers, 278,145 aircraft movements, and processed 412,270 metric tons of cargo. For the 12-month period ending January 30, 2014, the airport handled 286,897 aircraft operations, an average of 786 per day. In terms of passengers, it is one of the top 25 busiest airports in the world. There are 217 aircraft based at HIA.

The Airports Division also owns and operates Kalaeloa Airport. Once a Naval airfield, the facility now accommodates general aviation, Hawai'i National Guard, and Coast Guard aircraft. The end of the nearest runway at Kalaeloa Airport is approximately 1.6 miles southwest of the project site. During the 12-month period ending December 31, 2015, 29 aircraft of all types were based there and there were 128,558 operations of all types (see http://www.aopa.org/airports/PHJR).

Harbors. The nearest commercial harbor is the State of Hawai'i's Department of Transportation, Harbors Division owned Kalaeloa Harbor, which is located approximately 4.6 miles west of the project site. This harbor handles most of the bulk cargo (e.g., coal, cement, etc.) that arrives on

[12] This estimate was generated using Google Maps (2017) and may vary depending on day, time, mode of transport and other factors.

O'ahu. Honolulu Harbor, which like Kalaeloa Harbor, is operated by the Harbor Division, is located approximately 8.5 miles east of the project site. With more than 200 acres of container yards and over 30 major berths, Honolulu Harbor is by far the largest port facility in the Hawaiian Islands and most of the products that enter and leave the State of Hawai'i will pass through it.

3.12.4.2 Probable Impacts on Air and Ocean Transportation Facilities

The proposed action would not directly affect air or ocean transportation facilities. However, most of the construction materials and equipment, such as the containerized biogas reclamation equipment, would be imported by sea, increasing the volume of cargo passing through the State's facilities. The volume of material which would pass through these transportation facilities amounts to a very small fraction of their capacity and is well within their existing capability. All of the proposed structures are far below the height that would require notification of the Federal Aviation Administration. Hence the HWWTP Biogas Project does not have the potential to adversely affect air and sea transportation.

3.13 PROBABLE LAND USE AND SOCIO-ECONOMIC IMPACTS

The HWWTP Biogas Project is consistent with the property's I-2 "Intensive Industrial" zoning. The intent of the I-2 intensive industrial district is to set aside areas for the full range of industrial uses necessary to support the city of Honolulu. It is intended for areas with necessary supporting public infrastructure, near major transportation systems and with other locational characteristics necessary to support industrial centers. In addition, to the maximum extent practicable, I-2 must be situated in areas away from residential communities. The HWWTP project site conforms to these characteristics, allowing Hawai'i Gas to partner with ENV to develop a renewable energy source close to its existing gas distribution network while remaining separated from residential areas.

While the HWWTP Biogas Project would create a marginal increase in the level of activity within the plant, the area has long been identified as appropriate for intensive industrial activities and is already in use as such. Thus, while itself a new development, it would not drastically alter the overall intensity of development in the area, and would simply represent a minor intensification of existing activity. Further, the proposed HWWTP Biogas Project will not increase the number of full-time staff at the plant, nor will it generate secondary growth or development which would lead to other land use changes in adjoining areas. For these reasons, Hawai'i Gas believes that the proposed project is compatible with, and in the interest of, the planned for and intended use of the area.

While substantial, the construction expenditures related to project development are small relative to the overall level of construction activity on the island, which is estimated at $2.4 billion in new construction authorizations in 2016. [13] Hence, the project does not have the potential to have a major impact on the local economy or to cause demand for construction workers that cannot be met by the existing local labor force. Moreover, the proposed changes will not create a significant new revenue stream or create substantial ongoing costs that would have a considerable effect on the island's economy. At most, the project's construction will provide short-term employment. Apart from some few individuals who may be intermittently tasked with maintenance of the biogas reclamation facility—at least some of whom are already working for Hawai'i Gas—the project would not increase the number of employees at the power plant or attract new residents to the area. No persons would be displaced by the proposed project.

[13] Estimate based on State of Hawai'i Department of Business and Economic Development, State of Hawai'i Data Book 2015, *Table 21.01 Number and Value of Building Permits, by County: 2006 to 2015*, retrieved on the web at: http://files.hawaii.gov/dbedt/economic/databook/2015-individual/21/210115.pdf

3.14 IMPACTS ON RECREATION & SHORELINE ACCESS

3.14.1 EXISTING CONDITIONS

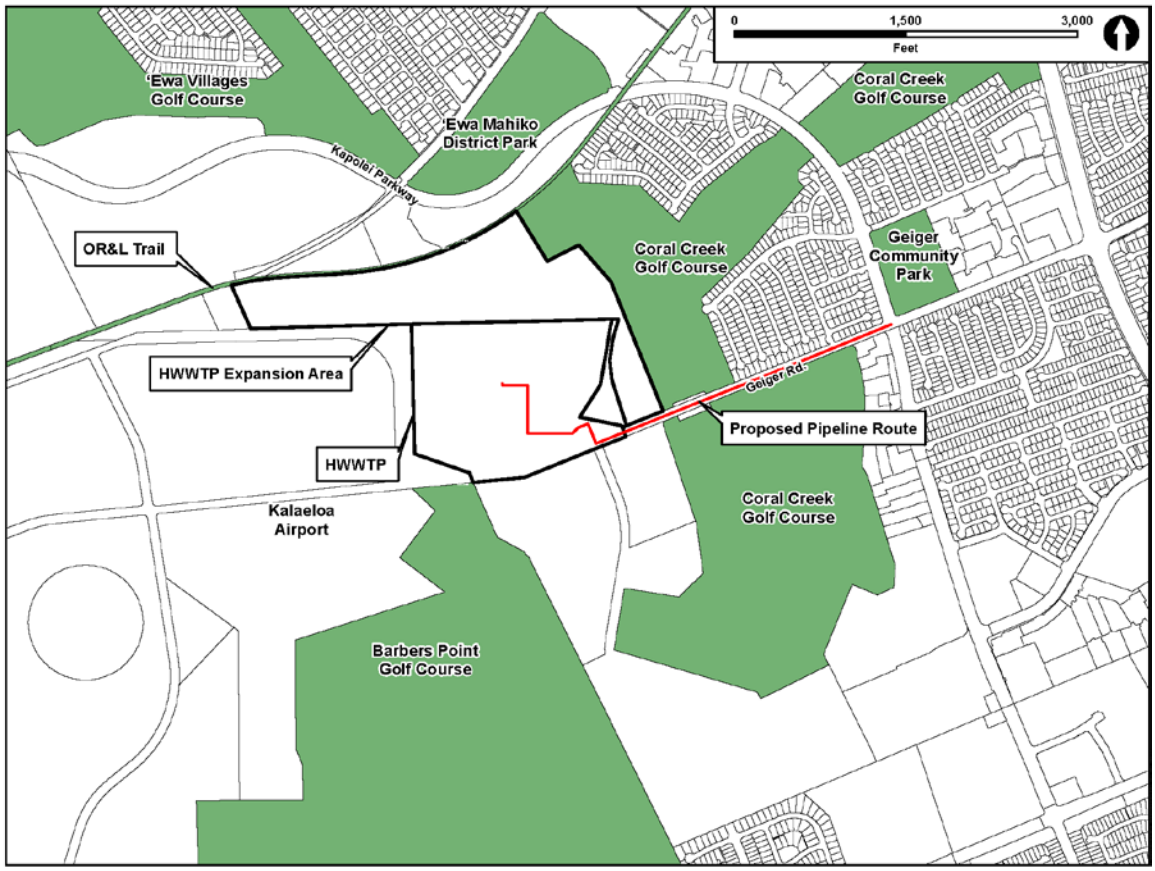
HWWTP is in the CCH Department of Parks and Recreation's District III, which encompasses 23 parks on the leeward side of O'ahu. These include parks in each of the major residential zones and numerous beach parks along the Wai'anae Coast, at Barbers Point and Campbell Industrial Park, and 'Ewa Beach. There are several recreational areas, both public and private, within a 1-mile radius of HWWTP, including golf courses, parks, and a bike trail; they are:

- Coral Creek Golf Course;
- Barbers Point Golf Course;
- 'Ewa Villages Golf Course;
- Geiger Community Park;
- 'Ewa Mahiko District Park; and
- OR&L Rail Trail and Bike Path.

Figure 3.7 shows the parks and recreational areas in the project vicinity. Of the recreational areas listed above, Coral Creek Golf Course and Barbers Point Golf Course are the recreational resources located closest to the project. These golf courses are adjacent to, and accessed off of, Geiger Road.

The proposed project is well away from the shoreline and will not pass through or near any point of shoreline access.

Figure 3.7 Parks and Recreational Areas near HWWTP



Source: Compiled by Planning Solutions, Inc. (2017)

3.14.2 PROBABLE IMPACTS ON RECREATION & SHORELINE ACCESS

Due to a combination of its: (*i*) distance from the proposed biogas facility; (*ii*) intervening roadways; (*iii*) existing and planned structures; and (*iv*) intervening vegetation, the HWWTP Biogas Project will have no effect on use of, or views from, ʻEwa Villages Golf Course, ʻEwa Mahiko District Park, or the OR&L Trail and Bike Path. In addition, the proposed pipeline construction along Geiger Road is unlikely to affect user groups attempting to access these recreational resources, as other roadways such as Kapolei Parkway offer a more direct route of access.

During the construction phase, elements of the proposed action are likely to be visible from, and temporarily affect access of, Barbers Point Golf Course, Coral Creek Golf Course, and Geiger Community Park. Because the pipeline installation will extend from HWWTP along the Geiger Road, a temporary lane closure may be required as discussed in Section 3.12.2, impacting the ease of access to these recreational resources, but not preventing or restricting access to them. In addition, some construction noise, dust, vehicles, and workers will be visible from these areas during construction.

Once construction of the proposed biogas reclamation facility and associated pipeline is complete, it will not be visible from these recreational resources as all of the above-ground components will be screened by intervening vegetation and structures. In addition, normal operation and maintenance of the proposed biogas project will not generate traffic, noise, air emissions, or otherwise have the potential to degrade the recreational value of adjacent areas. Consequently, no long-term recreational impacts are anticipated.

3.15 SUMMARY OF MITIGATION MEASURES

Table 3.15 summarizes the mitigation measures introduced in this chapter.

Table 3.15 Summary of Mitigation Measures

Section	*Committed Mitigation Measures*
3.1 – Topography, Geology & Soils	Use best management practices to minimize soil erosion.
3.2 – Hydrology	Maintain existing drainage patterns and avoid increase in storm water runoff. Implement Best Management Practices (BMP) to prevent impacts to storm water runoff during construction.
3.3 – Climate/Micro-Climate	None
3.4 – Air Quality	Implement construction minimization measures (dust control) as called for in Section 3.4.2.
3.5 – Biota	None
3.6 – Noise	Adhere to HAR §11-46
3.7 – Archaeological, Historical, & Cultural Resources	If undocumented cultural properties are encountered, Hawaiʻi Gas will, at a minimum: (*i*) immediately cease all work in the area; and (*ii*) notify the State Historic preservation Division. As appropriate, further mitigation measures would be proposed and coordinated with SHPD.
3.8 – Natural Hazards	Design to appropriate standards as discussed in Section 3.8.
3.9 – Scenic & Aesthetic Resources	None
3.10 – Public Infrastructure	Install water and telecommunications connections as proposed.
3.11 – Hazardous Materials	None
3.12 – Transportation Facilities	Delivery of equipment and materials during off-peak traffic hours, street usage permit requirements and continued public notification.
3.13 – Socioeconomic	None
3.14 – Recreation & Shoreline Access	None
Source: Planning Solutions, Inc. (2017)	

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4. CONSISTENCY WITH EXISTING POLICIES, CONTROLS, AND LAND USE PLANS

In accordance with the requirements of HAR §11-220-17(h), this chapter discusses the relationship of the proposed action to land use plans, policies, and controls for the area. Hawai‘i Gas has evaluated the proposed HWWTP Biogas Project for consistency with these regulations. It has also identified the extent to which the proposed action would conform or conflict with objects and specific terms of approved or proposed land use plans, policies, and controls. The discussion is organized first by jurisdiction (i.e., county, state, or federal) and then by specific ordinance, regulation, or law. This is followed by a listing of the required permits and approvals.

4.1 CITY & COUNTY OF HONOLULU

4.1.1 O‘AHU GENERAL PLAN

The *O‘ahu General Plan* for the City and County of Honolulu is a comprehensive statement of objectives and policies which purports to set forth the long-range aspirations of O‘ahu’s residents and the strategies of actions to achieve them. It is intended to serve as the focal point of a comprehensive planning process that addresses physical, social, economic and environmental concerns which affects the City and County of Honolulu. This planning process serves as the coordinating mechanism whereby the City and County government provides for the future growth of the metropolitan areas of Honolulu.

The *O‘ahu General Plan* is intended to serve as a guide for all levels of government, private enterprise, neighborhood and citizen groups, organizations, and individual citizens across eleven interrelated domains: (*i*) population; (*ii*) economic activity; (*iii*) the natural environment; (*iv*) housing; (*v*) transportation and utilities; (*vi*) energy; (*vii*) physical development and urban design; (*viii*) public safety; (*ix*) health and education; (*x*) culture and recreation; and (*xi*) government operations and fiscal management.

While not all aspects of the *O‘ahu General Plan* are directly applicable to the current project, it does incorporate several objectives and policies which are relevant to the proposed action; those are:

- The Natural Environment;
- Transportation and Utilities; and
- Energy.

Each of these areas is discussed in greater detail in the following subsections.

4.1.1.1 The Natural Environment

The *O‘ahu General Plan* acknowledges that the natural environment is one of our state’s greatest assets. The mild climate, the beauty of the mountains and shoreline, and the relatively pristine nature of our air and water are critical resources that improve the quality of life of residents and visitors alike, and which must be carefully considered and safeguarded when planning development effectively. It is the policy of the City and County of Honolulu to protect and enhance the natural environment whenever possible by increasing awareness and appreciation of the fragile nature of these resources and by mitigating the degradation of these assets.

Section III of the *O‘ahu General Plan* provides several broad objectives, supported by specific policies, related to protection of the natural environment. Objective A states, in part, the following:

- *Objective A. To protect and preserve the natural environment.*

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

Once constructed, the only source of air pollutant emissions resulting from the HWWTP Biogas Project will be the tail gas from the permeate stream that is removed from the biogas by the Carborex™ MS system. In addition to carbon dioxide (its principal component), this tail gas will contain very small amounts of methane, nitrogen, and oxygen as well as trace amounts of siloxanes and hydrogen sulfide.

As shown in Section 3.4.2.2, due to the fact that the amount of waste gas sent to the wastewater treatment plant flare will be reduced or eliminated as a result of the proposed project, there will be lower emissions at HWWTP, and the project is not anticipated to have any adverse impact on the area's, or broader region's, air quality. On the contrary, since the proposed project is likely to result in lower emissions it will also result in lower ambient concentrations of these pollutants. Thus, by reducing airborne emissions and consequently lowering pollutant concentrations, Hawai'i Gas has concluded that the proposed project will uphold this objective and policy of the *O'ahu General Plan*.

4.1.1.2 Transportation and Utilities

The *O'ahu General Plan* poses several objectives regarding utilities. In Section V, Transportation and Utilities, Objective C states: "To maintain a high level of service for all utilities." The proposed HWWTP Biogas Project are consistent with and support this objective by allowing Hawai'i Gas—the publicly-regulated gas utility for the State of Hawai'i—to provide safe, reliable, and renewable natural gas to its customers while providing a stream of revenue to the City's Department of Environmental Services. By adding the proposed HWWTP Biogas Project to its existing facilities, Hawai'i Gas will be able to diversify its fuel sources and reduce its dependence on imported fuel, thereby increasing the reliability and flexibility of its system.

4.1.1.3 Energy

The *O'ahu General Plan* recognizes that the maintenance of an adequate, dependable, and affordable supply of energy is essential to the City and County of Honolulu. In doing so, it identifies objectives and policies which address the development, usage, and conservation of energy and emphasize the need to reduce dependence on imported sources of energy.

Section VI of the *O'ahu General Plan* poses several objectives and policies related to energy, and several of these relate to the proposed renewable energy (i.e., biogas) facility which Hawai'i Gas is proposing. They include the following:

- *Objective A. To maintain an adequate, dependable, and economical supply of energy for Oahu residents.*
  - *Policy 1. Develop and maintain a comprehensive plan to guide and coordinate energy conservation and alternative energy development and utilization programs on Oahu.*
  - *Policy 2. Establish economic incentives and regulatory measures which will reduce Oahu's dependence on petroleum as its primary source of energy.*
  - *Policy 3. Support programs and projects which contribute to the attainment of energy self-sufficiency on Oahu.*
- *Objective C. To fully utilize proven alternative sources of energy.*
  - *Policy 2. Support the increased use of operational solid waste energy recovery and other biomass energy conversion systems.*

- *Objective D. To develop and apply new, locally available energy resources.*
  - *Policy 1. Support and participate in research, development, demonstration, and commercialization programs aimed at producing new, economical, and environmentally sound energy supplies from:*
    a. solar insolation;
    b. biomass energy conversion;
    c. wind energy conversion;
    d. geothermal energy; and
    e. ocean thermal energy conversion.

To the extent that the proposed biogas reclamation facility will produce renewable natural gas locally, it will offset the need for Hawai'i Gas to meet its fuel-supply needs using fossil-fuel based synthetic natural gas. This, in turn, will help Hawai'i Gas carry through with its renewable energy commitments required by state law, supporting the objectives of the *O'ahu General Plan* by creating a new, economical, and renewable energy source.

4.1.2 'EWA DEVELOPMENT PLAN

The Island of O'ahu is divided into eight Development/Sustainable Communities Plan areas. Each plan implements the objectives and policies of the *O'ahu General Plan* and serves as a guide for public policy, investment, and decision-making within its respective region. The project site is located within the region addressed by the *'Ewa Development Plan* (EDP).

The EDP was adopted by Ordinance 97-49 in 1997, and most recently revised in mid-2013, when Ordinance 13-26 was signed into law. Section 3.12 of the updated plan recognizes Honouliuli as one of 'Ewa's major industrial centers. Among its general policies for the Honouliuli Industrial Area, which includes HWWTP, is a call to develop a power generation facility at the wastewater treatment plant. More specifically, it states:

> *Allow a power generation facility to be included if it is dependent on wastewater treatment operations and can be designed so that it is not generally visible from nearby major public rights-of-way, residential areas, and commercial areas.*

Finally, the implementation matrix (Table 5.1) in the EDP states:

> *Develop Honouliuli as a smaller industrial area, used for wastewater treatment and for light industrial and industrial-commercial mixed uses to serve the surrounding communities. Expand the Honouliuli Wastewater Treatment Plant to accommodate additional growth in the region as well as to provide additional facilities for higher levels of wastewater treatment.*

The proposed project is fully consistent with these provisions of the EDP. It will:

- Allow for the renewable production of energy at HWWTP which is fully dependent on wastewater treatment operations.
- Once constructed, remain generally invisible from nearby major public ROW, residential areas, and commercial areas.
- Contribute to the development of the Honouliuli Industrial Center.

Finally, the proposed HWWTP Biogas Project will provide the ENV with an additional stream of revenue to support the development and expansion of services in this growing community.

4.1.3 CITY AND COUNTY OF HONOLULU LAND USE ORDINANCE

The purpose of the CCH's Land Use Ordinance (LUO) is to regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies. It does this by establishing zoning districts and specifying the kinds of development and development standards that must be adhered to within each zoning district.

HWWTP is in the I-2, or "Intensive Industrial" zoning district. The proposed biogas reclamation facility is consistent with the applicable height limitations, setback requirements, and other design standards of this zoning district (see LUO §21-3.130). As discussed in Chapter 5, construction, operation, and maintenance of this facility is not expected to significantly impact the surrounding properties with more sensitive zoning and land uses.

4.2 STATE OF HAWAI'I

4.2.1 HAWAI'I STATE PLAN

The *Hawai'i State Plan* is intended to guide the long-range development of the State of Hawai'i by:

- Identifying goals, objectives, and policies for the State and its residents;
- Establishing a basis for determining priorities and allocating resources; and
- Providing a unified vision enabling coordination between the various counties' plans, programs, policies, projects and regulatory activities to assist them in developing their county plans, program, and projects and the State's long-range development objectives.

The *Hawai'i State Plan* is a wide ranging and visionary policy document, which lays out a wide variety of objectives and policies for the planned and managed development of a range of human and natural resources. Hawai'i Gas, in partnership with ENV, has concluded that many of the *State Plan*'s provisions, such as those related to the visitor industry, federal expenditures, housing, and education are not directly applicable to the proposed project and that therefore, the proposed project is not in conflict with these goals, objectives, and policies.

The proposed HWWTP Biogas Project is, in essence, a waste-to-energy project. Thus, the sections of the *Hawai'i State Plan* which are most relevant to the proposed project are HRS Section 226-15, relating to solid and liquid waste management facilities and systems, and HRS Section 226-18, which establishes objectives and policies for energy facility systems. These sections are reproduced in italics below, and the proposed action's consistency with them is discussed.

§226-15 (a) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:

(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes;

(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas

(b) To achieve solid and liquid waste objectives it shall be the policy of this State to:

(1) Encourage the adequate development of sewerage facilities that complement planned growth.

(2) Promote reuse and recycling to reduce solid and liquid wastes and employ a conservation ethic.

(3) Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.

Discussion: The proposed project would uphold all of the above policies and objectives by providing ENV with a revenue stream, through the sale of renewable biogas, which would contribute to the maintenance of basic public health and sanitation standards relating to the treatment and disposal of wastewater. In addition, by recovering and upgrading the methane produced by the ongoing treatment operations at HWWTP, the project would promote the recovery and use as an energy source of a product which is currently discarded. Finally, this project is intended to serve as a platform for conducting rigorous, transparent, and replicable testing of an emerging waste-to-energy technology that may be incorporated at other facilities in the county or state, promoting more efficient and economical treatment and disposal of wastewater. Thus, Hawai'i Gas has concluded that the project is consistent with the applicable provisions of the *Hawai'i State Plan*.

§226-18 (a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:

(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;

(2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;

(3) Greater energy security and diversification in the face of threats to Hawaii's energy supplies and systems;

Discussion: The proposed project would contribute to all of the above objectives and policies by providing a reliable, locally produced, and renewable source of energy which is not dependent upon imported fuel sources. While the project would not reduce the emission of carbon, as the methane would still be consumed locally resulting in the release of carbon dioxide, it would be carbon-neutral (i.e., would not increase emissions of greenhouse gasses over current levels). However, burning natural gas produces far less carbon than other available energy sources such as oil or coal. Thus, Hawai'i Gas has concluded that the project is consistent with the applicable provisions of the *Hawai'i State Plan*.

4.2.2 CHAPTER §226-108, HAWAI'I REVISED STATUTES – SUSTAINABILITY

[§226-108] Sustainability. *Priority guidelines and principles to promote sustainability shall include.*

(1) Encouraging balanced economic, social, community, and environmental priorities;

(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;

(3) Promoting a diversified and dynamic economy;

(4) Encouraging respect for the host culture;

(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations.

(6) Considering the principles of the ahupuaa system; and

(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government has the responsibility for achieving a sustainable Hawaii.

Discussion: Hawai'i Gas shares in and embraces the task of achieving a sustainable future for the State of Hawai'i. By working with ENV to recover, upgrade, and reuse a byproduct of the ongoing

wastewater treatment operations at HWWTP, Hawai‘i Gas believes that the proposed project will promote living within the natural resources and limits of the State by developing an existing, but currently unused, source of sustainable, renewable energy. In addition, this project represents a diversification in the local economy, by producing a product locally which otherwise would need to be imported and would not otherwise be renewably sourced. In sum, this project represents a happy instance where, through collaboration between the public and private sectors, power is generated, waste is curtailed, public revenue is created, and the natural environment is unharmed. Thus, this project will serve the public interest without jeopardizing the needs of future generations.

4.2.3 CHAPTER 205, HAWAI‘I REVISED STATUTES – LAND USE LAW

Hawai‘i Revised Statutes (HRS), Chapter 205, establishes the State Land Use Commission (SLUC) and gives this body the authority to designate all lands in the State as Urban, Rural, Agricultural, or Conservation District lands. The counties make all land use decisions within the Urban Districts in accordance with their respective county general plans, development plans, and zoning ordinances. The counties also regulate land use in the state Rural and Agricultural Districts, but within the limits allowed by Chapter 205.

The HWWTP is in the state Urban District. Hawai‘i Administrative Rules §15-15-18 characterizes the Urban District as exhibiting “city-like” concentrations of people, structures, and streets with an urban level of services and other related land uses. It also stresses the importance of ensuring availability of basic services and utilities in urban areas. The HWWTP Biogas Project is consistent with, and contributes to, the land uses envisioned for the State Urban District. The proposed project will contribute to that use and will not alter the wastewater facility’s overall character; therefore, it is an appropriate land use in the Urban District.

The total land area that would be disturbed by the proposed HWWTP Biogas Project evaluated in this report will not exceed one acre. Consequently, this project will not require coverage under the State of Hawai‘i’s National Pollutant Discharge Elimination System (NPDES) General Permit System (HAR §11-55, Appendix C).

4.2.4 COASTAL ZONE MANAGEMENT PROGRAM (CZM)

The objectives of the Hawai‘i Coastal Zone Management (CZM) Program are set forth in Hawai‘i Revised Statutes, Chapter 205A. The program is intended to promote the protection and maintenance of valuable coastal resources. All lands in Hawai‘i are classified as valuable coastal resources. The State Office of Planning administers Hawai‘i’s CZM program. A general discussion of the project’s consistency with the objectives and policies of Hawai‘i’s CZM program follows.

4.2.4.1 Recreational Resources

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

Policies:

1. *Improve coordination and funding of coastal recreational planning and management; and*
2. *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
    a. *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
    b. *Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable*

monetary compensation to the State for recreation when replacement is not feasible or desirable;

c. Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

d. Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

e. Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

f. Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

g. Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

h. Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.

Discussion: The proposed project would have no effect on coastal recreational resources. While some portion of the new biogas facility may be visible from adjacent recreational areas, these views would be partial at most and screened by intervening structures, landscaping, and the lower elevation of some adjacent areas such as Coral Creek Golf Course. The construction and operation of the HWWTP Biogas Project would not disrupt ongoing use of these recreational resources, area parks, or access to the shoreline.

4.2.4.2 Historic Resources

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

Policies:

1. *Identify and analyze significant archaeological resources;*
2. *Maximize information retention through preservation of remains and artifacts or salvage operations; and*
3. *Support state goals for protection, restoration, interpretation, and display of historic resources.*

Discussion: The proposed work will occur in areas that have already been extensively disturbed. Section 3.7 describes the known locations of historic and pre-contact resources and discusses the steps that Hawai‘i Gas would take to preserve any resources inadvertently discovered during construction. SHPD will be sent a copy of this EA for review and their comments, if any, will be produced in the *Final Environmental Assessment*.

4.2.4.3 Scenic and Open Space Resources

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

Policies:

1. *Identify valued scenic resources in the coastal zone management area;*
2. *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
3. *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
4. *Encourage those developments that are not coastal dependent to locate in inland areas.*

Discussion: Coastal open space and scenic resources will not be affected by the proposed action. While the proposed facilities may be briefly visible, particularly during construction, from certain public vantage points, the biogas reclamation equipment is relatively low-profile and softened by distance and the intervening structures and landscaping. In addition, it will be limited to an area which is already heavily developed with a distinctly industrial character. The proposed action would require trenching and filling, but no lasting alteration of landforms and is located well away from public views of the shoreline.

4.2.4.4 Coastal Ecosystems

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

Policies:

1. *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
2. *Improve the technical basis for natural resource management;*
3. *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*
4. *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
5. *Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.*

Discussion: The proposed action will not affect coastal ecosystems or any other water body, as described in Section 3.2.2.

4.2.4.5 Economic Uses

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

Policies:

1. *Concentrate coastal dependent development in appropriate areas;*
2. *Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*

3. *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
    a. *Use of presently designated locations is not feasible;*
    b. *Adverse environmental effects are minimized; and*
    c. *The development is important to the State's economy.*

Discussion: The proposed project would not lead to any changes in the concentration or location of coastal development. The work would be constructed entirely within an area designated for industrial use and a public ROW, and would not change the normal use of HWWTP or the roadway ROW.

4.2.4.6 Coastal Hazards

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

Policies:

1. *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
2. *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;*
3. *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*
4. *Prevent coastal flooding from inland projects.*

Discussion: Section 3.8.2 confirms that the project is outside a designated Special Flood Hazard Area and it not within the City and County of Honolulu's Tsunami Evacuation Zone.

4.2.4.7 Managing Development

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

Policies:

1. *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
2. *Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and*
3. *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Discussion: Hawai‘i Gas has initiated contact and continues to work cooperatively with all government agencies with oversight responsibilities to facilitate efficient processing of permits and informed decision-making by the responsible parties.

4.2.4.8 Public Participation

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

Policies:

1. *Promote public involvement in coastal zone management processes;*
2. *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and*
3. *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Discussion: The public will have an opportunity to review and comment on this EA, pursuant to the requirements of Hawai'i Administrative Rules §11-200.

4.2.4.9 Beach Protection

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

Policies:

1. *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;*
2. *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*
3. *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

Discussion: The project poses no risk to beaches. No structures are planned seaward of the shoreline, and no interactions with littoral processes would be involved in the HWWTP Biogas Project.

4.2.4.10 Marine Resources

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

Policies:

1. *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
2. *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*
3. *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*
4. *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
5. *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Discussion: The proposed project does not have the potential to affect marine resources.

4.3 FEDERAL ACTS & LEGISLATION

Certain federal regulations are not triggered by the proposed project because no Federal nexus, such as federal funding, grants, or permits, exists. Therefore, acts such as the National Historic Preservation Act and Endangered Species Act are not discussed.

4.3.1 CLEAN AIR ACT (42 U.S.C. § 7506(C))

As discussed in Section 3.4.2, any emissions of fugitive dust during construction of the proposed project are expected to be temporary and relatively minor. The contractors will employ Best Management Practices (BMPs) to control fugitive dust emissions during the construction phase. A Non-covered Source Permit will be obtained from the State of Hawai'i Department of Heath Clean Air Branch (CAB) prior to commencing normal operation of the proposed biogas reclamation facility. The project would reduce air emissions from the HWWTP relative to current conditions, will not alter air flow in the area, and will have no other measurable effect on the area's micro-climate.

4.3.2 CLEAN WATER ACT

The Clean Water Act (Federal Water Pollution Control Act, 33 USC 1251, et seq.) is the principal law governing pollution control and the water quality of the nation's waterways. Because construction will not disturb more than an acre of land an NPDES Construction permit (NPDES-NOI-C) is not required. Nevertheless, Hawai'i Gas will employ BMPs to ensure storm water quality is not adversely affected or lead to an exceedance of applicable water quality standards.

4.3.3 COASTAL ZONE MANAGEMENT ACT (16 U.S.C. § 1456(C) (1))

Enacted as Chapter 205A, HRS, the Hawai'i Coastal Zone Management (CZM) Program was promulgated in 1977 in response to the Federal Coastal Zone Management Act of 1972. The CZM area encompasses the entire state, including all marine waters seaward to the extent of the state's police power and management authority, as well as the 12-mile U.S. territorial sea and all archipelagic waters. Even though compliance with this act is not triggered by the proposed action, Section 4.2.4 discusses the consistence of the project with the CZM Program's ten policy objectives.

4.3.4 FLOOD PLAIN MANAGEMENT (42 U.S.C. § 4321, EX. ORDER NO. 11988)

As described in Section 3.8.2, the HWWTP lies within Flood Zone D, signifying an area with an undetermined risk of flooding. The proposed improvements comply with the standards of the National Flood Insurance Program. The proposed new biogas facility would not exacerbate existing flood hazards in the area.

4.4 REQUIRED PERMITS AND APPROVALS

The permits and approvals that may be required for the proposed project are described in Table 4.1 below.

Table 4.1 Required Permits and Approvals

Permit Name	*Issued By*
Non-Covered Source Air Permit	DOH, Clean Air Branch
Grubbing, Grading, and Stockpiling Permit	Department of Planning and Permitting, CCH
Building Permits	Department of Planning and Permitting, CCH
Noise Permit and/or Noise Variance (HAR §11-46)	DOH, Indoor and Radiological Health Branch
Street Usage Permit	Department of Transportation Services, CCH
Source: Planning Solutions, Inc. (2017)	

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5. DETERMINATION

5.1 SIGNIFICANCE CRITERIA

Hawai‘i Administrative Rules (HAR) §11-200-11.2 establishes procedures for determining if an Environmental Impact Statement (EIS) should be prepared or if a Finding of No Significant Impact (FONSI) is warranted. HAR §11-200-11.2(1) provides that applicants should issue an Environmental Impact Statement Preparation Notice (EISPN) for actions that it determines may have significant effect on the environment. HAR §11-200-12 lists the following criteria to be used in making that determination:

In most instances, an action shall be determined to have a significant effect on the environment if it:

1. *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;*
2. *Curtails the range of beneficial uses of the environment;*
3. *Conflicts with the State's long-term environmental policies or goals as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;*
4. *Substantially affects the economic or social welfare of the community or State;*
5. *Substantially affects public health;*
6. *Involves substantial secondary impacts, such as population changes or effects on public facilities;*
7. *Involves a substantial degradation of environmental quality;*
8. *Is individually limited but cumulatively has considerable effect on the environment or involves a commitment for larger actions;*
9. *Substantially affects a rare, threatened, or endangered species, or its habitat;*
10. *Detrimentally affects air or water quality or ambient noise levels;*
11. *Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;*
12. *Substantially affects scenic vistas and view planes identified in county or state plans or studies; or,*
13. *Requires substantial energy consumption.*

5.2 FINDINGS

The potential effects of the proposed project described in Chapter 2 of this document were evaluated using these significance criteria. The findings with respect to each criterion are summarized below.

5.2.1 IRREVOCABLE LOSS OR DESTRUCTION OF VALUABLE RESOURCE

The proposed biogas project would be constructed on CCH property adjacent to the existing wastewater treatment operations at HWWTP. It would be interconnected to Hawai‘i Gas' gas distribution network via an underground pipeline. It does not involve the loss of any significant cultural or natural resources.

5.2.2 CURTAILS BENEFICIAL USES

Construction and operation of the proposed new biogas facility and pipeline would support and enhance the existing use of the site for wastewater treatment, in that it would convert a byproduct of wastewater treatment which is currently discarded into a source of renewable energy for Hawai‘i Gas and a stream of revenue for the ENV. It not would curtail any beneficial use of the site, and it would not substantially modify any of the existing uses of HWWTP.

5.2.3 CONFLICTS WITH LONG-TERM ENVIRONMENTAL POLICIES OR GOALS

The proposed project is consistent with the *O‘ahu General Pla*n (see Section 4.1.1) and with the State’s long-term environmental policies and goals as expressed in HRS, Chapter 344 and elsewhere in state law.

5.2.4 SUBSTANTIALLY AFFECTS ECONOMIC OR SOCIAL WELFARE

The proposed action will not have substantial effects on the economic or social welfare, except insofar as it will allow Hawai‘i Gas to source natural gas in a renewable, economical, and efficient manner while maintaining environmental quality. The project will also provide a new revenue source for the ENV. The PUC, which in part advocates for public welfare, approved the project.

5.2.5 PUBLIC HEALTH EFFECTS

As discussed in Section 3.4, the proposed project will not adversely affect air quality or any other sources used for drinking or recreation. Neither will it generate large amounts of solid waste or produce other emissions that will have a significant adverse effect on public health.

5.2.6 PRODUCE SUBSTANTIAL SECONDARY IMPACTS

The proposed project will not produce substantial secondary impacts. It is not designed to foster population growth or to promote economic development. Instead, it is intended to support Hawai‘i Gas current activities as the publicly-regulated gas utility for the State of Hawai‘i.

5.2.7 SUBSTANTIALLY DEGRADE ENVIRONMENTAL QUALITY

The proposed project will not have substantial long-term environmental effects. The work will temporarily elevate noise levels and generate airborne dust during construction, but these impacts will be localized and of limited duration. So long as adequate measures are taken to control the intensity of construction noise and the release of fugitive dust, effects will be minimal.

5.2.8 CUMULATIVE EFFECTS OR COMMITMENT TO A LARGER ACTION

The proposed biogas facility does not represent a commitment to a larger action and is not intended to facilitate substantial population growth. It is intended to help Hawai‘i Gas meet the growing need for renewable natural gas on O‘ahu in an economical, efficient, and environmentally sound way.

5.2.9 EFFECTS ON RARE, THREATENED, OR ENDANGERED SPECIES

No rare, threatened, or endangered species are known to utilize the project area. The project will not utilize a resource needed for the protection of rare, threatened, or endangered species.

5.2.10 AFFECTS AIR OR WATER QUALITY OR AMBIENT NOISE LEVELS

Once constructed, the proposed project will not have a measurable effect on air quality or water quality (see Section 3.2 and 3.4, respectively). Noise levels and airborne emissions will temporarily increase during construction of the biogas facility but are not anticipated to affect any noise-sensitive uses, as discussed in Section 3.6.

5.2.11 ENVIRONMENTALLY SENSITIVE AREAS

There are no environmentally sensitive areas or resources in or near the proposed project. The project area is outside defined flood and tsunami hazard zones. The structures built as part of the project will all be constructed to be consistent with the Hawai‘i Uniform Building Code for Earthquake Zone 2a.

5.2.12 AFFECTS SCENIC VISTAS AND VIEW PLANES

The proposed project is not within a designated scenic area, nor will it impact scenic vistas or important views across the project site (see Section 3.9).

5.2.13 REQUIRES SUBSTANTIAL ENERGY CONSUMPTION

Construction of the proposed project will use some energy, however once in operation the facility will produce, rather than consume, energy and will require only infrequent maintenance.

5.3 DETERMINATION

In view of the foregoing, Hawai‘i Gas and ENV have concluded that the proposed project will not have a significant adverse impact on the environment. Consequently, ENV issued a Finding of No Significant Impact (FONSI) for the proposed action.

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6. REFERENCES

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7. CONSULTATION & DISTRIBUTION

7.1 PARTIES CONSULTED IN PREPARATION OF THE DRAFT EA

Hawai‘i Gas sent scoping letters to the parties listed in Table 7.1 in the course of preparing this Draft Environmental Assessment.

Table 7.1 Parties Consulted During Preparation of the Draft EA

Organization or Agency
Army Corps of Engineers, Regulatory Branch, Honolulu District
Coral Creek Golf Course
Department of Design and Construction
Department of Facility Maintenance
Department of Hawaiian Home Lands
Department of Planning and Permitting
Department of Transportation Services
Federal Aviation Administration
Hawai‘i Community Development Corporation
Hawai‘i Department of Transportation (HDOT), Airports Division
HDOT, Harbors Division
HDOT, Highways Division
HDOT, Statewide Planning Office
State Historic Preservation Division
U.S. Coast Guard, 14th Coast Guard District
Source: Compiled by Planning Solutions, Inc. (2017)

Responses to the scoping letters were received from the agencies identified in Table 7.2 below. The complete text of the scoping letter and the responses received are reproduced at the end of this chapter.

Table 7.2 Agencies Responding to Scoping Letter

Organization or Agency
Department of Design and Construction
Department of Facility Maintenance
Department of Planning and Permitting
Department of Transportation Services
HDOT, Harbors Division
HDOT, Highways Division
HDOT, Statewide Planning Office
Source: Compiled by Planning Solutions, Inc. (2017)

7.2 DISTRIBUTION OF THE DRAFT EA

The Department of Environmental Services and Hawai‘i Gas distributed copies of this Draft Environmental Assessment to the parties listed in Table 7.3.

Table 7.3 Draft EA Distribution List

State Agencies	**City and County of Honolulu**
Office of Environmental Quality Control (1 HC, 1 CD)	Department of Planning & Permitting (5 copies)
Department of Agriculture	Board of Water Supply
Department of Accounting and General Services	Department of Community Services
Department of Business, Economic Development, and Tourism (DBEDT)	Department of Design & Construction
DBEDT – Hawai‘i State Energy Office	Department of Environmental Services
DBEDT – Office of Planning	Department of Facility Maintenance
Department of Defense	Department of Parks & Recreation
Department of Education	Department of Transportation Services
Department of Hawaiian Home Lands	Honolulu Fire Department
Environmental Planning Office, Department of Health	Honolulu Police Department – City of Kapolei
Clean Air Branch, Department of Health	
Clean Water Branch, Department of Health	**Elected Officials**
Wastewater Branch, Department of Health	U.S. Senator Brian Schatz
Department of Human Services	U.S. Senator Colleen Hanabusa
Department of Labor and Industrial Relations	US Representative Mazie Hirono
Department of Land and Natural Resources (5 copies)	US Representative Tulsi Gabbard
DLNR Historic Preservation Division (1 HC)	State Senator Will Espero
Department of Transportation	State Senator Mike Gabbard
Hawaii Housing Finance and Development Corp.	State Representative Matthew S. LoPresti
Office of Hawaiian Affairs	State Representative Andria P.L. Tupola
UH Environmental Center	City Councilmember Kymberly Pine (District 1)
	‘Ewa Neighborhood Board No. 23, Chair, Mitchell Tynanes
Federal Agencies	**Libraries and Depositories**
US Department of the Army, Regulatory Branch	Hawai‘i State Library Hawai‘i Documents Center
US Fish and Wildlife Service	‘Ewa Beach Public Library
	Kapolei Public Library
Utility Companies	**News Media**
Hawaiian Telcom	Honolulu Star Advertiser
Hawaiian Electric	
Source: Compiled by Planning Solutions, Inc. (2017)	

7.3 DISTRIBUTION OF THE FINAL ENVIRONMENTAL ASSESSMENT

The notice of availability of the *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* was published by the Office of Environmental Quality Control in the January 23, 2018 edition of The Environmental Notice. The 30-day comment period for the DEA ended February 22, 2018. Table 7.4 lists the parties that have submitted written comments on the project. Hawaiian Electric is providing a copy of the Final Environmental Assessment to each of the organizations and individuals listed below. Copies of all comments received, and the responses provided, are reproduced at the end of this chapter.

Table 7.4 Comments on the Draft Environmental Assessment

No.	*Commenter*	*Organization*
1	Rouen Q.W. Liu, Permits Engineer	Hawaiian Electric Co., Inc.
2	Laura Leialoha Phillips McIntyre, Manager	Environmental Planning Office
3	Socrates D. Bratakos, Assistant Chief	Honolulu Fire Department
4	Pamela A. Witty-Oakland, Director	Department of Community Services
5	Scott Nakasone, Assistant Division Admin.	Department of Human Services
6	Mark Tsuyemura, Management Analyst VI	Honolulu Police Department
7	Ross S. Sasamura, Director	Department of Facility Maintenance
8	Kenneth G. Madsen, Public Works Manager	Department of Education
9	Alec Wong, Chief	DOH – Clean Water Branch
10	Robert J. Kroning, Director	Department of Design and Construction
11	Michele K. Nekota, Director	Department of Parks and Recreation
12a	Russel Y. Tsuji, Land Administrator	DLNR – Land Division
12b	Carty S. Chang, Chief Engineer	DLNR – Engineering Division
13	Aaron Nadig, Island Team Manager	U.S. Fish and Wildlife Service
14	Bennett Romeo, Lawrence Grant Arnold Jr., Jim Turley, Adrian Torres, Brittany Tominez, Kristen Feato, Antonio Bonnetty, Virgille Factor, Katlyn Alvarez, Dominic Shimasaki, Tamara Musselman, Emma Yanosko	Kaba Grant
15	Leo R. Asuncion, Director	State Office of Planning
16	Jade T. Butay, Interim Director	Department of Transportation
17	Kathy K. Sokugawa, Acting Director	Department of Planning and Permitting
18	Ernie Y.W. Lau, Manager	Board of Water Supply
19	Wes Frysztacki, Director	Department of Transportation Services

Source: Compiled by Planning Solutions, Inc. (2018)

Comment No. 1

Makena White

From: Liu, Rouen <rouen.liu@hawaiianelectric.com>
Sent: Friday, February 02, 2018 10:08 AM
To: Makena White
Cc: Kuwaye, Kristen
Subject: Honouliuli Wastewater Treatment Plant Biogas Project - DEA

Mr. Makena White
Planning Solutions, Inc.
711 Kapiolani Blvd. Suite 950
Honolulu, Hawaii 96813

Dear Mr. White,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objection to the project. Should Hawaiian Electric have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities. We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed Honouliuli Wastewater Treatment Plant Biogas project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 1-808-543-7245.

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

PLANNING SOLUTIONS

April 10, 2018

Rouen Q.W. Liu, Permits Engineer
Hawaiian Electric Co., Inc.
P.O. Box 2750
Honolulu, Hawai'i 96840-0001

Subject: Draft Environmental Assessment (DEA) for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Rouen:

Thank you for your February 2, 2018 email concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Hawai'i Gas will continue to work with Hawaiian Electric to ensure that any of its existing easements and facilities in the project area are continuously accessible for maintenance activities. In addition, a copy of the Final Environmental Assessment for the project will be provided to you when it becomes available.

If you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 2

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:
EPO 18-017

February 12, 2018

Mr. Neil Sheehan
Sheehan Group Pacific, LLC
133 Kuukama Street
Kailua, Hawaii 96734
Email: nsheehan@sheehangrouppacific.com

Dear Mr. Sheehan:

SUBJECT: Draft Environmental Assessment (DEA) for Honouliuli WWTP Biogas Project
TMK: (1) 9-1-013:007 (por)

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:
http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-01-23-OA-DEA-Honouliuli-WWTP-Biogas-Project.pdf

We understand from the OEQC publication form project summary that *"The City and County of Honolulu, Department of Environmental Services (DES) operates Honouliuli Waste Water Treatment Plant (HWWTP). The secondary stage of treatment at HWWTP produces raw biogas, which is currently discarded by burning it off in an on-site flare. Hawaii Gas, in partnership with DES, is now proposing to purchase, construct, and operate biogas purification equipment on approximately 2,500 ft.2 at HWWTP. It will use this installation to purify the raw biogas produced at HWWTP into utility-grade renewable natural gas, which will be compressed and injected into its pipeline system for distribution to Hawaii Gas customers. It will also construct an approximately 1-mile length of new underground pipeline to connect the biogas purification equipment to the nearby Hawaii Gas pipeline along Kapolei Parkway."*

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

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

If you haven't already, EPO recommends that you review the new Healthy Communities Policy Guide: https://planning-org-uploaded-media.s3.amazonaws.com/document/Healthy-Communities-Policy-Guide.pdf, Plan4health website: http://plan4health.us and the free, on-demand, six part Plan4Health webinar series available on the American Planning Association website.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

Please note that all wastewater plans must conform to applicable provisions (HAR, Chapter 11-62, "Wastewater Systems"). We reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please review online guidance at: http://health.hawaii.gov/wastewater and contact the Planning and Design Section of the Wastewater Branch (WWB) at (808) 586-4294.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the Minimizing Construction & Demolition Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb. For specific questions call (808) 586-4226.

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

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

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

We hope this information is helpful. If you have any questions please contact us at DOH.epo@doh.hawaii.gov or call us at (808) 586-4337. Thank you for the opportunity to comment.

Mahalo nui loa,

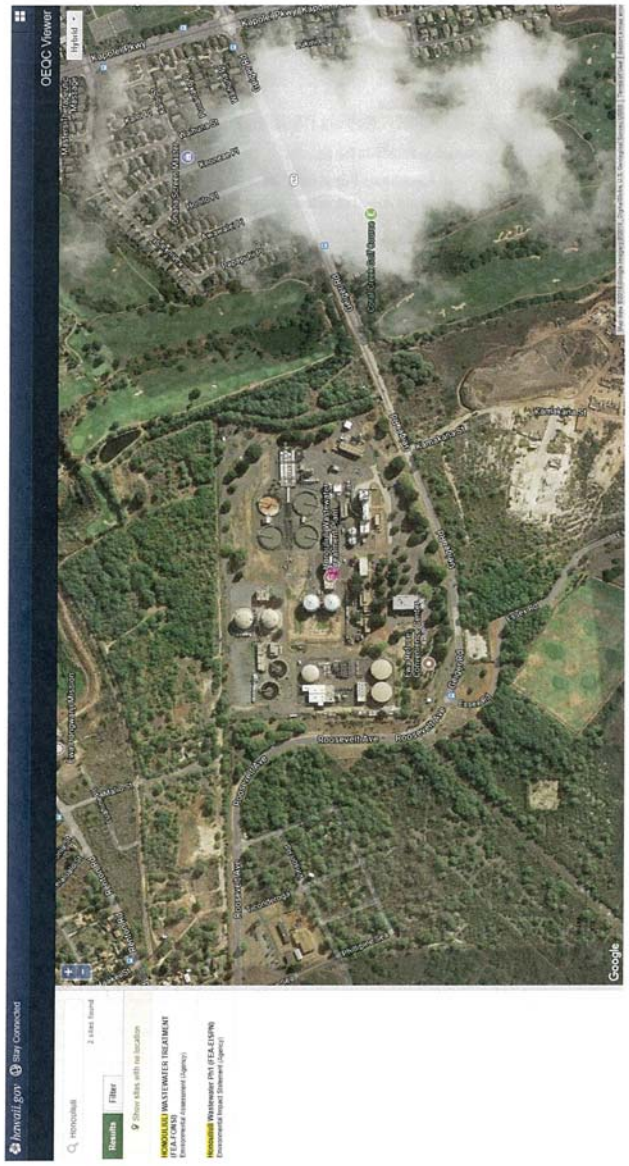
Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office

LM:nn

c: Richard DeGarmo, The Gas Company (via email: rdegarmo@hawaiigas.com)
Cyril Hamada, C&C Dept. of Env. Services (via email: chamada@honolulu.gov)
DOH: DDEH, WWB, CAB, IRHB {via email only}

Attachment 1: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)
Attachment 2: U.S. EPA EJSCREEN Report for Project Area

Attachment 1: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)



Attachment 2: U.S. EPA EJSCREEN Report for Project Area

EPA United States Environmental Protection Agency

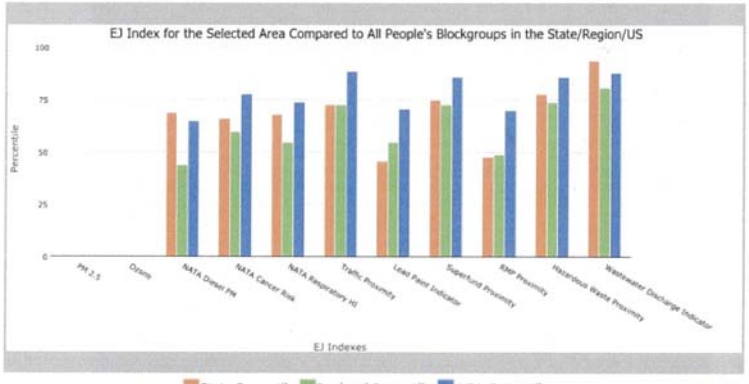
EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.330431,-158.038275, HAWAII, EPA Region 9

Approximate Population: 14,463

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	69	44	65
EJ Index for NATA* Air Toxics Cancer Risk	66	60	78
EJ Index for NATA* Respiratory Hazard Index	68	55	74
EJ Index for Traffic Proximity and Volume	73	73	89
EJ Index for Lead Paint Indicator	46	55	71
EJ Index for Superfund Proximity	75	73	86
EJ Index for RMP Proximity	48	49	70
EJ Index for Hazardous Waste Proximity	78	74	86
EJ Index for Wastewater Discharge Indicator	94	81	88



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

1 mile Ring Centered at 21.330431,-158.038275, HAWAII, EPA Region 9

Approximate Population: 14,463

Input Area (sq. miles): 3.14

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

1 mile Ring Centered at 21.330431,-158.038275, HAWAII, EPA Region 9

Approximate Population: 14,463

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.9	N/A	9.14	N/A
Ozone (ppb)	N/A	N/A	N/A	41.8	N/A	38.4	N/A
NATA* Diesel PM (µg/m³)	0.146	0.149	70	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	38	34	78	43	<50th	40	<50th
NATA* Respiratory Hazard Index	1.2	1	75	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	490	1000	66	1100	59	590	77
Lead Paint Indicator (% Pre-1960 Housing)	0.044	0.16	34	0.24	34	0.29	25
Superfund Proximity (site count/km distance)	0.13	0.1	76	0.15	72	0.13	74
RMP Proximity (facility count/km distance)	0.14	0.39	41	0.98	17	0.73	26
Hazardous Waste Proximity (facility count/km distance)	0.12	0.1	78	0.12	72	0.093	79
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0024	0.04	92	13	73	30	73
Demographic Indicators							
Demographic Index	50%	51%	43	47%	55	36%	73
Minority Population	86%	77%	60	59%	77	38%	88
Low Income Population	13%	26%	25	36%	16	34%	17
Linguistically Isolated Population	3%	6%	48	9%	34	5%	61
Population With Less Than High School Education	9%	9%	63	17%	39	13%	45
Population Under 5 years of age	8%	6%	72	7%	66	6%	69
Population over 64 years of age	9%	16%	22	13%	42	14%	32

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

PLANNING SOLUTIONS

April 10, 2018

Laura Leialoha Phillips McIntyre, Program Manager
Environmental Planning Office
Department of Health
State of Hawai'i
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

Subject: Draft Environmental Assessment (DEA) for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Ms. Phillips McIntyre:

Thank you for your February 12, 2018 letter (reference EPO 18-017) concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We are grateful for the information you provided concerning state and federal environmental regulations and sustainable design. Hawai'i Gas attempts to employ sustainable, environmentally sound design strategies wherever practicable in its projects, including those described in the sources you provide. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

If you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 3

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

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

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

February 6, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
Pacific Park Plaza
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment
Honouliuli Wastewater Treatment Plant Biogas Project
91-1000 Geiger Road
Ewa Beach, Hawaii 96706
Tax Map Key: 9-1-013: 007

In response to your letter dated January 22, 2018, regarding the abovementioned subject, the Honolulu Fire Department (HFD) requires that the following be complied with:

1. Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1; Uniform Fire Code [UFC]™, 2012 Edition, Sections 18.2.3.2.2 and 18.2.3.2.2.1.)

   A fire department access road shall extend to within 50 feet of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. (NFPA 1; UFC™, 2012 Edition, Section 18.2.3.2.1.)

2. A water supply approved by the county, capable of supplying the required fire flow for fire protection, shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ [Authority Having Jurisdiction]. (NFPA 1; UFC™, 2012 Edition, Section 18.3.1, as amended.)

3. The unobstructed width and unobstructed vertical clearance of a fire apparatus access road shall meet county requirements. (NFPA 1; UFC™, 2012 Edition, Sections 18.2.3.4.1.1 and 18.2.3.4.1.2, as amended.)

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

Should you have questions, please contact Battalion Chief Wayne Masuda of our Fire Prevention Bureau at 723-7151 or wmasuda@honolulu.gov.

Sincerely,

Socrates D. Bratakos

SOCRATES D. BRATAKOS
Assistant Chief

SDB/TC:bh

PLANNING SOLUTIONS

April 10, 2018

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

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Chief Neves:

Thank you for your February 6, 2018 letter concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Also, thank you for summarizing the applicable design requirements for fire access roads, water supply, and vertical clearance. Hawai'i Gas will continue to coordinate with your Department, and will provide more detailed civil drawings to you as they are developed. In addition, a copy of the Final Environmental Assessment will be provided to you when it becomes available.

If you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 4

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
925 DILLINGHAM BOULEVARD, SUITE 200 • HONOLULU, HAWAII 96817
PHONE: (808) 768-7762 • FAX: (808) 768-7792
www.honolulu.gov/dcs

KIRK CALDWELL
MAYOR

PAMELA A. WITTY-OAKLAND
DIRECTOR

SUSAN L. FERNANDEZ
DEPUTY DIRECTOR

February 9, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

SUBJECT: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project, 'Ewa, O'ahu, Hawai'i

Thank you for the opportunity to review the request regarding Planning Solutions, Inc., Draft Environmental Analysis of the Proposed Honouliuli Wastewater Treatment Plant Biogas Project.

Our review of the provided document indicates that the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time.

Thank you for providing us with the opportunity to comment on this project.

Sincerely,

Pamela A. Witty-Oakland
Director

PWO:ta

PLANNING SOLUTIONS

April 10, 2018

Pamela A. Witty-Oakland, Director
Department of Community Services
City and County of Honolulu
925 Dillingham Boulevard, Suite 200
Honolulu, Hawai'i 96817

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Witty-Oakland:

Thank you for your February 9, 2018 letter concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that the proposed Honouliuli Wastewater Treatment Plant Biogas Project will have no adverse impact on any of your Department's activities or projects. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

If you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 5

DAVID Y. IGE
GOVERNOR

PANKAJ BHANOT
DIRECTOR

CATHY BETTS
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment and Support Services Division
1010 Richards Street, Suite 512
Honolulu, Hawai'i 96813

February 8, 2018

Re: 18-0058

Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813
Attn: Makena White, AICP

Dear Mr. White:

SUBJECT: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project, Ewa, Oahu, Hawaii

This is in response to your letter dated January 22, 2018 requesting the Department of Human Services (DHS) review and comment on the above named project.

The DHS has reviewed the map of the proposed area for the Honouliuli Biogas Project. A check on DHS' internal data system and Google Maps found several DHS licensed group child care facilities and a couple of DHS registered family child care homes in the vicinity that may be affected during the construction phase. Some of the Group Child Care Centers have already been listed in the draft environmental assessment page 3-36.

If you should have any question regarding this matter, please contact Ms. Lisa Galino, Child Care Program Specialist at (808) 586-5712.

Sincerely,

Scott Nakasone
Assistant Division Administrator

c: Pankaj Bhanot, Director

AN EQUAL OPPORTUNITY AGENCY

PLANNING SOLUTIONS

April 10, 2018

Pankaj Bhanot, Director
Department of Human Services
State of Hawai'i
1010 Richards Street, Suite 512
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Bhanot:

Thank you for your February 8, 2018 letter (your reference Re:18-0058) concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for the information you have provided regarding group child care and registered family child care homes in the vicinity of the project. Hawai'i Gas is coordinating with all relevant agencies to minimize construction-related impacts to area residents.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 6

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

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

KIRK CALDWELL
MAYOR

SUSAN BALLARD
CHIEF

JOHN D. McCARTHY
JONATHON GREMS
DEPUTY CHIEFS

OUR REFERENCE MT-AL

February 9, 2018

Mr. Makena White
Planning Solutions
Pacific Park Plaza, Suite 950
711 Kapiolani Boulevard
Honolulu, Hawaii 96813

Dear Mr. White:

This is in response to your letter of January 22, 2018, requesting comments on a Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project at Ewa, Oahu.

The Honolulu Police Department has reviewed this project and has concerns regarding the safe flow of traffic at the project site.

We recommend that the developer evaluate the outcome of the traffic flow affected by the construction vehicles commuting to the project site. The developer should consider the effects to the community caused by vehicles moving in and out of the area during the construction phase of the project, particularly during peak traffic hours. We also recommend that the developer provide a traffic mitigation plan to implement traffic controls and management (e.g., flag persons, clear signage and cones, special duty officers, etc.) for construction vehicles driving to and from the work site. These recommendations will ensure a safe means of ingress/egress for construction vehicles, motorists, and pedestrians in the vicinity.

Additionally, the contractor should obtain the necessary street usage permits from the City and County of Honolulu Department of Transportation Services for the purposes of parking and transporting any construction equipment around the vicinity of the project area.

If there are any questions, please call Major Andrew Lum of District 8 (Kapolei) at 723-8403.

Thank you for the opportunity to review this project.

Sincerely,

MARK TSUYEMURA
Management Analyst VI
Office of the Chief

Serving and Protecting With Aloha

PLANNING SOLUTIONS

April 10, 2018

Susan Ballard, Chief
Honolulu Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Chief Ballard:

Thank you for your February 9, 2018 letter (your reference MT-AL) concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for the information you have provided regarding the proposed project's need for a Street Usage Permit for work in and under the City and County of Honolulu's right-of-way. As noted in Section 3.12.2 on the DEA, Hawai'i Gas will obtain a *Street Usage Permit* from the Department of Transportation Services (DTS) prior to implementation of the proposed project. As part of that process, it will prepare a *Traffic Control Plan* with measures intended to control and manage potential impacts to traffic flow in the construction area, as required by DTS.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 7

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

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

KIRK CALDWELL
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

EDUARDO P. MANGLALLAN
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 18-63

February 10, 2018

Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813
Attention: Mr. Makena White, AICP

Dear Mr. White:

Subject: Draft Environmental Assessment for the Honolulu Wastewater Treatment Plant Biogas Project, Ewa, Oahu, Hawaii

Thank you for allowing the Department of Facility Maintenance to review the subject project.

Our comments are as follows:

- Once construction phase commences, install approved Best Management Practices (BMP) fronting all drainage facilities on Geiger Road.
- During construction and upon completion of project; any damages/deficiencies to Geiger road right-of-way shall be corrected to City Standards and accepted by the City at contractor's expense.
- Any new utility lines shall be installed at least 3 feet below finished surface per Department of Planning and Permitting requirements.
- Trench work shall comply with city's "Trenching Permits and Repaving of Street" memo dated 9/30/2004. (See attachment)

If you have any questions, please call Mr. Kyle Oyasato of the Division of Road Maintenance at 768-3697.

Sincerely,

Ross S. Sasamura, P. E.
Director and Chief Engineer

Attachment

PLANNING SOLUTIONS

April 10, 2018

Ross S. Sasamura, Director and Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Ulu'ōhi'a Street, Suite 215
Kapolei, Hawai'i 96707

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Sasamura:

Thank you for your February 10, 2018 letter concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Hawai'i Gas and its contractors will work together, in compliance with your Department's directives, to ensure that all construction work complies with the City and County of Honolulu's design standards, as described in your comments. In addition, a copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 8

DAVID Y. IGE
GOVERNOR

DR. CHRISTINA M. KISHIMOTO
SUPERINTENDENT

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

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

January 13, 2018

Mr. Makena White,AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Re: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project
Ewa, Oahu, Hawaii, TMK: 9-1-013: por. 007

Dear Mr. White:

The Hawaii State Department of Education (HIDOE) has the following comments for the Draft Environmental Assessment (DEA) for the proposed Honoluiuli Wastewater Treatment Plant Biogas Project (Project). According to the DEA, the proposed Project is to install an onsite biogas purification equipment and a pipeline within the adjacent existing Geiger Road Right-of Way to Kapolei Parkway on lands located at Waipahu, Island of Oahu, TMK: 9-3-002: por. 034.

The proposed Project will not impact existing HIDOE schools and facilities.

Thank you for the opportunity to comment. Should you have any questions, please contact Robyn Loudermilk of the Planning Section, Facilities Development Branch at 784-5093.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Cyril Hamada, City & County of Honolulu Department of Environmental Services

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

PLANNING SOLUTIONS

April 10, 2018

Dr. Christina M. Kishimoto, Superintendent
Department of Education
State of Hawai'i
P.O. Box 2360
Kapolei, Hawai'i 96804

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Superintendent Kishimoto:

Thank you for your January 13, 2018 letter concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that the proposed project will not impact any of your Department's schools or other facilities. In addition, a copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 9

DAVID Y. IGE
GOVERNOR OF HAWAII

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

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/CWB

02033PMHK.18

February 16, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

SUBJECT: Comments on the Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project
TMK: (1) 9-1-013:007 (portion)
Ewa, Island of Oahu, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated January 22, 2018, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. The Gas Company, LLC dba Hawaii Gas (Applicant) may be responsible for fulfilling additional requirements related to our program. We recommend that they also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf.

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

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

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

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

2. The Applicant may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, your Applicant must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. They will be asked to do a one-time registration to obtain your login and password. After they register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your Applicant's project involves work in, over, or under waters of the United States, it is highly recommended that they contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and HAR, Chapter 11-54.

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

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources.

What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g., minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

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

Sincerely,

Alec Wong

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

MHK

c: Mr. Makena White, Planning Solutions, Inc. [via e-mail makena@psi-hi.com]
Mr. Cyril Hamada, CCH-ENV [via e-mail chamada@honolulu.gov only]
Mr. Richard DeGarmo, The Gas Company, LLC
[via e-mail rdegarmo@hawaiigas.com]
Mr. Neil Sheehan, Sheehan Group Pacific, LLC
[via e-mail nsheehan@sheehangrouppacific.com only]
DOH-EPO [via e-mail Noella.Narimatsu@doh.hawaii.gov only]

PLANNING SOLUTIONS

April 10, 2018

Alec Wong, Chief
Clean Water Branch
Department of Health
State of Hawai'i
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Chief Wong:

Thank you for your February 16, 2018 letter (your reference 02033PMHK.18) concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

The information you provided regarding the water quality criteria that must be met confirms Hawai'i Gas' understanding of the requirements stemming from Hawai'i Administrative Rules, Title 11, Chapter 54. Hawai'i Gas believes that the nature of its project is such that it will not adversely affect the quality of state waters. As indicated in Table 4.1, Hawai'i Gas does not believe that a Department of the Army permit is a required permit for the proposed HWWTP Biogas Project, and a copy of the DEA has been provided to the Army Corps of Engineers with a request for comment. Any outcome from their review will be included in the Final Environmental Assessment (FEA).

At the present time, Hawai'i Gas does not anticipate seeking a permit to discharge wastewater as a result of any of the activities described in the DEA. However, the Hawai'i Gas will work with your Branch to ensure that it complies with all applicable regulations, and that any discharges related to construction and operation of the proposed biogas project will comply with all State of Hawai'i water quality standards. Hawai'i Gas also acknowledges that, should the total ground disturbance exceed one acre, a National Pollutant Discharge Elimination System, Notice of Intent – Construction permit would be required.

We will provide a copy of the Final Environmental Assessment to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 10

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

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

February 14, 2018

Planning Solutions
ATTN: Makena White, AICP
711 Kapiolani Blvd., Suite 950
Honolulu, Hawaii 96813

Dear Ms. White,

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project, Ewa Hawaii

Thank you for the opportunity to review and comment. The Department of Design and Construction does not have any comments at this time.

Should you have any further questions please call me at 768-8480.

Sincerely,

Robert J. Kroning
Director

RJK:ms(716670)

PLANNING SOLUTIONS

April 10, 2018

Robert J. Kroning, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Kroning:

Thank you for your February 16, 2018 letter [your reference RJK:ms(716670)] concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We understand that your Department does not have any comments regarding the project at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 11

DEPARTMENT OF PARKS & RECREATION
CITY AND COUNTY OF HONOLULU
1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHELE K. NEKOTA
DIRECTOR

JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

February 16, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

SUBJECT: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project, Ewa, Oahu, Hawaii

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project.

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

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

Sincerely,

Michele K. Nekota
Director

MKN:jr
(716774)

cc: Lori M.K. Kahikina, Director Department of Environmental Services

PLANNING SOLUTIONS

April 10, 2018

Michele K. Nekota, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Ulu'ōhi'a Street, Suite 309
Kapolei, Hawai'i 96707

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Nekota:

Thank you for your February 16, 2018 letter [your reference MKN:jr(716774)] concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We understand that your Department does not have any comments regarding the project at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 12a

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
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

February 20, 2018

Planning Solutions, Inc.
Attention: Mr. Makena White, AICP
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

via email: makena@psi-hi.com

Dear Mr. White:

SUBJECT: Draft Environmental Assessment for the **Honouliuli Wastewater Treatment Plant Biogas Project**

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

At this time, enclosed are comments from the (a) Engineering Division and (b) Land Division – Oahu District on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

RECEIVED
LAND DIVISION
2018 JAN 30 AM 7:40
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 25, 2018

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
_X_Commission on Water Resource Management
___Office of Conservation & Coastal Lands
_X_Land Division – Oahu District
_X_Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for **Honouliuli Wastewater Treatment Plant Biogas Project**
LOCATION: Ewa, Island of Oahu; TMK No. (1) 9-1-013:007 (por.)
APPLICANT: __

Transmitted for your review and comment is information on the above-referenced project. Please submit any comments by **February 20, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

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

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

Signed: Darlene Bryant-Takamatsu
Print Name: Darlene Bryant-Takamatsu
Date: 1/29/18

Attachments
cc: Central Files

PLANNING SOLUTIONS

April 10, 2018

Russell Y. Tsuji, Land Administrator
Land Division
Department of Land and Natural Resources
State of Hawai'i
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Administrator Tsuji:

Thank you for your February 20, 2018 letter concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We understand that your Division does not have any comments regarding the project at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 12b

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
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

January 25, 2018

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator

SUBJECT: Draft Environmental Assessment (DEA) for **Honouliuli Wastewater Treatment Plant Biogas Project**

LOCATION: Ewa, Island of Oahu; TMK No. (1) 9-1-013:007 (por.)

APPLICANT: __

Transmitted for your review and comment is information on the above-referenced project. Please submit any comments by **February 20, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

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

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

Signed: _____

Print Name: Carty S. Chang, Chief Engineer

Date: 1/31/18

Attachments
cc: Central Files

2018 FEB -1 AM 10:55
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

RECEIVED
18 JAN 26 PM 12:45
ENGINEERING
LAND DIVISION

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Draft Environmental Assessment (DEA) for Honouliuli Wastewater Treatment Plant Biogas Project, Ewa, Island of Oahu; TMK No. (1) 9-1-013:007 (por.)

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high risk areas). Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zones are designated on FEMA's Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 1/31/18

PLANNING SOLUTIONS

April 10, 2018

Carty Chang, Chief Engineer
Engineering Division
Department of Land and Natural Resources
State of Hawai'i
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Chief Chang:

Thank you for your February 20, 2018 comments concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for the information you have provided regarding flood hazard areas and the National Flood Insurance Program. As noted in Section 3.8.2 of the DEA, the proposed project is located in Flood Zone D. Zone D is defined as the flood insurance rate zone that corresponds to: (*i*) unstudied areas where, (*ii*) flood hazards are undetermined but possible. Because of the low probability of flooding, no base flood elevations or depths have been defined within the zone. The proposed biogas reclamation facility and associated infrastructure would be located at elevations ranging from 25′ to 45′ +msl. Because of their design, the proposed facilities will not be susceptible to damage from storm runoff and do not have the ability to increase the risk of flooding on adjacent areas by restricting or obstructing a floodway.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 13

United States Department of the Interior

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

FEB 2 1 2018

In Reply Refer To:
01EPIF00-2018-TA-0156

Mr. Makena White
Planning Solutions, Inc.
711 Kapiolani Blvd, Suite 950
Honolulu, Hawaii 96813

Subject: Review of the Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project, Ewa, Oahu

Dear Mr. White:

The U.S. Fish and Wildlife Service (Service) received your letter on January 25, 2018, requesting our comments on the Draft Environmental Assessment (DEA) for the Honouliuli Wastewater Treatment Plant Biogas project in Ewa Beach, Oahu [TMK 9-1-013: 007]. We understand Planning Solutions, Inc. has prepared the DEA in accordance with chapter 343, Hawaii Revised Statues, on behalf of the City and County of Honolulu's Department of Environmental Services. The proposed project will consist of the construction and operation of a biogas purification system within the existing Honouliuli Wastewater Treatment Plant (HWWTP). The proposed project will include a 4-inch diameter underground pipeline connecting the biogas system with the existing Hawaii Gas natural gas distribution system along the Kapolei Parkway. The proposed biogas facility and associated equipment would occupy approximately 2,500-square feet of the parcel of land where the existing plant is located. This letter has been prepared under the authority of and in accordance with provisions of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*), the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712) (MBTA), the National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.*; 83 Stat. 401], as amended (NEPA), and other authorities mandating Service concern for environmental values. Based on these authorities, we offer the following comments for your consideration so that impacts to trust resources can be avoided.

The DEA does not describe the fauna surveys conducted on the proposed project site in sufficient detail (i.e., methods, frequency, or timing of the surveys) (page 3-15, section 3.5.1.2). The information provided on the fauna present on the proposed project site is not adequate to determine if threats to listed species will be minimized and avoided during construction and operation of the biogas facility. The Service recommends incorporating the following comments into the Final EA.

Based on the information in our database and records, including data provided by the Hawaii Biodiversity and Mapping Program, the following are threatened or endangered species that may occur or transit through the vicinity of your proposed project area: the endangered Hawaiian stilt (*Himantopus mexicanus knudseni)*, Hawaiian gallinule (*Gallinula galeata sandvicensis*), Hawaiian coot (*Fulica alai*), and Hawaiian duck (*Anas wyvilliana*) (hereafter collectively referred to as Hawaiian waterbirds); the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus)*; the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the threatened Newell's shearwater (*Puffinus auricularis newelli*), the endangered band-rumped storm-petrel (*Oceanodroma castro*), and the wedge-tailed shearwater (*Ardenna pacificus*), a seabird species federally protected under the MBTA (hereafter collectively referred to as Hawaiian seabirds).

Hawaiian waterbirds

The DEA states that no Hawaiian waterbirds were detected during the survey of the proposed project site (page 3-14, section 3.5.1.2); however the Service disagrees with this finding. Listed Hawaiian waterbirds are found in fresh and brackish-water marshes and natural or man-made ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. Threats to these species include non-native predators, habitat loss, and habitat degradation. Hawaiian ducks are also subject to threats from hybridization with introduced mallards.

To avoid and minimize potential project impacts to Hawaiian waterbirds we recommend you consider incorporating the following applicable measures into your project description:

- In areas where waterbirds are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.
- If water resources are located within or adjacent to the project site, incorporate applicable best management practices (see enclosure) regarding work in aquatic environments into the project design.
- Have a biological monitor that is familiar with the species' biology conduct Hawaiian waterbird nest surveys where appropriate habitat occurs within the vicinity of the proposed project site prior to project initiation. Repeat surveys again within three days of project initiation and after any subsequent delay of work of three or more days (during which the birds may attempt to nest).

If a nest or active brood is found:

- Contact the Service within 48 hours for further guidance.
- Establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks/ducklings have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.
- Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

Hawaiian hoary bat
The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. The DEA states that Hawaiian hoary bats were not detected during the survey on the project site and have been infrequently documented on the island of Oahu. However, recent surveys conducted using acoustic and video recording technology indicate bats are more prevalent and widespread on Oahu (Gorresen et al. 2015). If trees or shrubs 15-feet or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. On page 3-15 (section 3.5.1.2) the DEA states that no trees or vegetation will be removed as part of the proposed project. In addition to removal, disturbance or trimming of woody plants greater than 15-feet tall can pose a risk to the Hawaiian hoary bats. In addition, Hawaiian hoary bats forage for insects from as low as three feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.

To avoid and minimize impacts to the endangered Hawaiian hoary bat we recommend you consider incorporating the following applicable measure into your project description:

- Do not disturb, remove, or trim woody plants greater than 15-feet tall during the bat birthing and pup-rearing season (June 1 through September 15).
- Do not use barbed wire for fencing as part of the proposed project.

Hawaiian seabirds
Hawaiian seabirds may traverse the project area at night during the breeding season (March 1 to December 15). On page 3-15 (section 3.5.2.2) the DEA states no nighttime construction will occur and no outdoor lighting is planned for the proposed project. The Service agrees that these measures will avoid impacts to Hawaiian seabirds that may traverse the proposed project area.

If additional information becomes available, or it is determined that the proposed project may affect federally listed species, we recommend you coordinate further with our office so that we may assist you with ESA compliance. Please contact Stacey Lowe, Fish and Wildlife Biologist (phone: 808-792-9400, email: stacey_lowe@fws.gov) should you have any questions pertaining to this response or require further guidance. When referring to this project, please include this reference number: 01EPIF00-2018-TA-0156.

Sincerely,

Aaron Nadig
Island Team Manager
Oahu, Kauai, Northwestern
Hawaiian Islands and American Samoa

Enclosure: (1)

Literature Cited

Gorresen, P.M., P.M. Cryan, M.M.P. Huso, C. D. Hein, M. Schirmacher, J.H. Johnson, K. Montoya-Aiona, K.W. Brinck, and F. Bonaccorso. 2015. Behavior of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) at wind turbines and its distribution across the North Koolau Mountains, Oahu. Technical Report. University of Hawaii at Hilo. 68pp.

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

The U.S. Fish and Wildlife Service (USFWS) recommends 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.

PLANNING SOLUTIONS

April 10, 2018

Aaron Nadig, Island Team Manager
O'ahu, Kaua'i, Northwestern Hawaiian Islands and Sāmoa
Pacific Islands Fish and Wildlife Office
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai'i 96850

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Mr. Nadig:

Thank you for your February 21, 2018 letter (your reference: 01EPIF00-2018-TA-0156) concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We appreciate the information you provided regarding protected waterbirds, seabirds, and Hawaiian hoary bats which may be present in the vicinity of the proposed project. All of the project activity will occur within the industrialized areas of the Honouliuli Waste Water Treatment Plant and the Geiger Road right-of-way. However, where appropriate, Hawai'i Gas and its contractors will incorporate the conservation measures you have provided into its construction and operations activities in order to avoid impacts to protected species.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

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Phone: 808-550-4483 • www.psi-hi.com

Comment No. 14

From: kaba grant <kabagrant@yahoo.com>
Sent: Thursday, February 22, 2018 4:34:42 PM
To: rdegarmo@hawaiigas.com; chamada@honolulu.gov; Neil Sheehan
Subject: Honouliuli WWTP DEA Comments

Aloha e Cyril Hamada,

We appreciate that the Department of Environmental Services strives to ensure we have a clean and safe environment.

On its face the proposal to purify raw biogas and transform it into a renewable resource in the form of natural gas for distribution to Hawai'i Gas customers seems like a great way to use a byproduct which is currently discarded and foster a joint sense of responsibility for Hawai'i and our children.

However, we do note that air quality has been an issue in this area in the past and that previous burning practices were taken offline due to these concerns. We are unsure that the biogas upgrading process will not adversely affect air quality in the area. In fact, we note that while this system is containerized, it does permeate and off gas (page 2-4). We do understand that the operation of the biogas treatment system will result in lower emissions overall; however, given that the unit is in a new location and does tail gas, we do seek assurances that the new location does not present new issues.

We also understand and appreciate the approach towards recapturing a byproduct that is not burned and transforming it into a resource for Hawai'i Gas. However, we are unsure that distributing and marketing one of the most potent greenhouse gasses (even if it is a byproduct) will reduce greenhouse gas emissions as claimed by the applicant.

As such, we suggest that a better alignment with the States Clean Energy Initiative would be to use a portion of the funds generated by this proposal to support truly renewable and clean energy projects rather than be given to Hawai'i Gas for sale. Or perhaps the gas itself could be used to for public transportation or some other public good. We do not see the burning of methane, which has up to 30 times the potential as a heat-trapping gas, as 'upgrading'. Supporting a move away from fossil fuels and the burning of methane rather than enabling a dependency upon it is a surer way towards addressing greenhouse gasses.

We are supportive of this project in the sense of capturing a byproduct that is flared off anyway for reuse/resale. However, in consideration of the climate crisis we now face a better positioned proposal would use this action as a driver towards a change away from contributing to disaster in the form of proposing to burn more of the methane gas that the applicant openly acknowledges is causing climate change in the first place (pages 3-7 and 3-8).

In a world where the *New York* City government is *suing* the world's five largest publicly traded *oil companies*, seeking to hold them responsible for present and future damage to the city from climate change, children are suing governments for not addressing climate change and island nations are filing transnational climate lawsuits the applicant and the approving agency are put on notice for proposing to burn more of the 'bad boy' of greenhouse gases.

We also note the particular irony in the anticipated FONSI under the very law (NEPA) that found US cities and individuals to have standing under in order to sue if they demonstrate suffering economic or other damages from climate change that this proposal would contribute to rather than move away from. We appreciate that the Department of Environmental Services strives to have a clean and safe environment and we seek to ensure that this proposal will achieve this shared goal.

Mahalo,

Bennett Romeo Lawrence Grant Arnold Jr. Jim Turley

Adrian Torres Brittany Tominez Kristen Feato

Antonio Bonnetty Virgille Factor Katlyn Alvarez

Dominic Shimasaki Tamara Musselman Emma Yanosko

PLANNING SOLUTIONS

April 10, 2018

kabagrant@yahoo.com

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Kaba Grant:

Thank you for your February 22, 2018 email concerning the *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time your group spent reviewing the DEA and preparing your response. In the hope that it will be useful to you, we have reproduced your comments below in *italics*, followed by our response.

Comment 1:

On its face the proposal to purify raw biogas and transform it into a renewable resource in the form of natural gas for distribution to Hawai'i Gas customers seems like a great way to use a byproduct which is currently discarded and foster a joint sense of responsibility for Hawai'i and our children.

However, we do note that air quality has been an issue in this area in the past and that previous burning practices were taken offline due to these concerns. We are unsure that the biogas upgrading process will not adversely affect air quality in the area. In fact, we note that while this system is containerized, it does permeate and off gas (page 2-4). We do understand that the operation of the biogas treatment system will result in lower emissions overall; however, given that the unit is in a new location and does tail gas, we do seek assurances that the new location does not present new issues.

Response:

First and foremost, the results of the air quality impact analysis performed for the project and summarized in the DEA indicate that the proposed project will have a beneficial effect on air quality, both overall and in the immediate vicinity. In other words, the location does not simply trade one issue for another.

As noted in Section 3.4.1 of the DEA, air quality data collected at the Kapolei monitoring station – the monitoring station nearest the project area – during the years 2013 to 2015 show that pollutant concentrations never exceeded short-term or long-term state or national standards for nitrogen dioxide (NO_2), particulate matter (PM_{10}) or carbon monoxide, the pollutants that could be emitted during construction of the proposed project. The State Department of Health, Clean Air Branch annual *Air Quality Data Book* indicates that in 2013, 2014, and 2015 (the latest year for which annual reports are available), excluding exceedances on the Island of Hawai'i due to the volcano, the entire State of Hawai'i was in attainment of all National Ambient Air Quality Standards.

Once constructed, the only source of air pollutant emissions resulting from the HWWTP Biogas Project will be the tail gas from the permeate stream that is removed from the biogas by the Carborex™ MS system. In addition to carbon dioxide (its principal component), this tail gas will contain very small amounts of methane (CH4), nitrogen (N), and oxygen (O) as well as trace amounts of siloxanes and hydrogen sulfide. As shown in Section 3.4.2.2, due to the fact that the amount of waste gas sent to the wastewater treatment plant flare will be reduced or eliminated as a result of the proposed project, there will be lower emissions at HWWTP, and the project is not anticipated to have any adverse impact on the area's, or broader region's, air quality. On the contrary, since the proposed project is likely to result in lower emissions it will also result in lower ambient concentrations of these pollutants.

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Comment 2:

We also understand and appreciate the approach towards recapturing a byproduct that is not burned and transforming it into a resource for Hawai'i Gas. However, we are unsure that distributing and marketing one of the most potent greenhouse gasses (even if it is a byproduct) will reduce greenhouse gas emissions as claimed by the applicant.

As such, we suggest that a better alignment with the States Clean Energy Initiative would be to use a portion of the funds generated by this proposal to support truly renewable and clean energy projects rather than be given to Hawai'i Gas for sale. Or perhaps the gas itself could be used to for public transportation or some other public good. We do not see the burning of methane, which has up to 30 times the potential as a heat-trapping gas, as 'upgrading'. Supporting a move away from fossil fuels and the burning of methane rather than enabling a dependency upon it is a surer way towards addressing greenhouse gasses.

Response:

The proposed project does not involve the release of methane into the atmosphere. Just as the existing waste gas flare at the HWWTP converts the methane that is a byproduct of the wastewater treatment process into CO_2 before it is released, the biogas that the proposed recovery system will produce will result in that same amount of methane gas ultimately being burned by consumers scattered around the island. If the gas were to be used for other purposes (such as "*…public transportation or some other good…*" as you suggest), it would simply be burned for a different purpose, but the methane would still be converted to CO_2 during combustion, and greenhouse gas emissions would be the same. In fact, the income that the City will derive from selling the methane byproduct to Hawai'i Gas will provide a substantial benefit to the general public by allowing the City to use its financial resources for other public services or lowering the amount that it must charge the public for wastewater treatment and disposal purposes.

Finally, the biogas that would be produced by the project is not a fossil fuel. With specific regard to greenhouse gas emissions, the proposed HWWTP Biogas Project may be described as being carbon neutral, because the carbon in this process is already present in the carbon chain. This distinguishes it from fossil fuels, which are releasing sequestered carbon which adds to the carbon chain.

Comment 3:

We are supportive of this project in the sense of capturing a byproduct that is flared off anyway for reuse/resale. However, in consideration of the climate crisis we now face a better positioned proposal would use this action as a driver towards a change away from contributing to disaster in the form of proposing to burn more of the methane gas that the applicant openly acknowledges is causing climate change in the first place (pages 3-7 and 3-8).

In a world where the New York City government is suing the world's five largest publicly traded oil companies, seeking to hold them responsible for present and future damage to the city from climate change, children are suing governments for not addressing climate change and island nations are filing transnational climate lawsuits the applicant and the approving agency are put on notice for proposing to burn more of the 'bad boy' of greenhouse gases.

Response:

This comment exhibits an apparent misunderstanding of the proposed project. It will not release substantial amounts of methane into the atmosphere. The methane that is a byproduct of the existing wastewater treatment process will continue to be combusted, transforming nearly all of it into CO_2 prior to its release. At present, most of the combustion occurs in the existing flare, without providing any useful energy. In contrast, the biogas which the proposed project will produce, recover and upgrade for sale to Hawai'i Gas' customers will be burned in and provide useful energy for their homes and businesses. This combustion will convert methane into much less impactful CO_2 in exactly the same way, whether the combustion occurs in a flare (as it does now) or in people's homes or business. Should the project obtain the necessary permits and approvals to proceed, it would allow this methane to be used as a renewable energy source, rather than simply be discarded as is currently the case.

Comment 4:

> *We also note the particular irony in the anticipated FONSI under the very law (NEPA) that found US cities and individuals to have standing under in order to sue if they demonstrate suffering economic or other damages from climate change that this proposal would contribute to rather than move away from. We appreciate that the Department of Environmental Services strives to have a clean and safe environment and we seek to ensure that this proposal will achieve this shared goal.*

Response:

Thank you for recognizing the Department of Environmental Services' (DES) commitment to maintaining a clean and safe environment. Its staff have asked me to say that they appreciate your recognition of shared goals.

With respect to your note about NEPA, I would like to point out that because the proposed project does not involve the use of federal funds or lands and does not require any federal approval, it is not subject to NEPA. The proposed project is an applicant action requiring the approval of DES, a state agency, making it subject to Hawai'i Revised Statutes, Chapter 343 and Hawai'i Administrative Rules (HAR) §11-200-11.2.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Comment No. 15

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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

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

DTS 201802221329BE

February 22, 2018

Mr. Makena White, AICP
Project Manager
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project, Ewa, Oahu, Hawaii
TMK: (1) 9-1-013: 007 (por.)

Thank you for the opportunity to provide comments for the Draft Environmental Assessment (Draft EA) on the proposed Honouliuli Wastewater Treatment Plant (WWTP) Biogas project. The Draft EA review material was sent to our office by letter, dated January 22, 2018.

It is our understanding that this action calls for the installation of biogas purification equipment at the Honouliuli WWTP by the applicant, Hawaii Gas, LLC (Hawaii Gas). The project will also involve construction and connecting the WWTP's pipeline along Geiger Road, and tie the line into the existing distribution system of Hawaii Gas at Kapolei Parkway. The goal of this proposed action is to convert biogas, a byproduct of the wastewater treatment process, into a clean, renewable, and reliable source of alternative energy for customers of Hawaii Gas.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. OP acknowledges that the Draft EA provides a satisfactory analysis on the following issues:
   a. The Hawaii Coastal Zone Management (CZM) Program, Hawaii Revised Statutes (HRS) § 205A-2:
   Section 4.2.3, pages 4-4 to 4-8 of the Draft EA included an analysis on the project's consistency with the Hawaii CZM Program, HRS § 205A-2.

   b. Storm Water Runoff and Drainage.
   The Draft EA in Section 3.2.2.2, page 3-7 examine the impacts to water resources within the project area. The proposed project is anticipated to have a no

significant negative impact to this resource and erosion and sediment controls will be employed when necessary.

   c. Low Impact Development Measures (LID):
   Section 3.2.2.2 acknowledges the need to utilize post-construction treatment best management practices. The Draft EA declares that the design of the stormwater retention and quality basins will take into consideration the soil type, proximity to the groundwater table, and stormwater discharge.

   However, the proposed action may be subject to the City and County of Honolulu, Department of Planning and Permitting (DPP) rules on drainage and onsite stormwater management. Please consult with DPP on LID post-construction standards and storm runoff mitigation that may pertain to this project.

2. The following items will need further evaluation and discussion in the Final Environmental Assessment (Final EA).

   a. Hawaii State Planning Act, HRS Chapter 226:
   Section 4.2.1, page 4-3, provides an analysis on HRS 226-18 - objectives and policies for facility systems – Energy. The Final EA will need to include a discussion on the project's ability to meet all parts of HRS Chapter 226, examine the project's consistency with these statutes, or clarify where it is in conflict. If the Hawaii Gas deems the remaining statutes in HRS Chapter 226 are not applicable to this project, the Final EA should affirmatively state such determination followed by discussion paragraphs.

   b. Sustainability:
   This project is compatible with HRS § 226-108, the priority guideline on sustainability. Therefore, the Final EA should include an examination on the project's consistency with this statute and its compatibility with principles of sustainability.

We have no further comments at this time. If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

Sincerely,

Leo R. Asuncion
Director

PLANNING SOLUTIONS

April 10, 2018

Leo R. Asuncion, Director
Office of Planning
State of Hawai'i
P.O. Box 2359
Honolulu, Hawai'i 96804

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Asuncion:

Thank you for your February 22, 2018 letter (your reference DTS 201802221329BE) concerning Hawai'i Gas' Draft Environmental Assessment for the *Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. In order to simplify your review, we have reproduced your comments below in *italics*, followed by our response.

Comment 1:

1. *OP acknowledges that the Drat EA provides a satisfactory analysis on the following issues:*

   a. *The Hawaii Coastal Zone Management (CZM) Program, Hawaii Revised Statutes (HRS) §205A-2:*

      Section 4.2.3, pages 4-4 to 4-8 of the Draft EA included an analysis on the project's consistency with the Hawaii CZM program, HRS §205A-2.

   b. *Storm Water Runoff and Drainage:*

      The Draft EA in Section 3.2.2.2, page 3-7 examine the impacts to water resources within the project area. The proposed project is anticipated to have no significant negative impact to this resource and erosion and sediment controls will be employed when necessary.

   c. *Low Impact Development Measures (LID):*

      Section 3.2.2.2 acknowledges the need to utilize post-construction treatment best management practices. The Draft EA declares that the design of the stormwater retention and quality basins will take into consideration the soil type, proximity to the groundwater table, and stormwater discharge.

      However, the proposed action may be subject to City and County of Honolulu, Department of Planning and Permitting (DPP) rules on drainage and onsite stormwater management. Please consult with DPP on LID post-construction standards and storm runoff mitigation that may pertain to this project.

Response:

Thank you for your acknowledgement that the DEA adequately addresses these important issues. Hawai'i Gas will continue to coordinate with the Department of Planning and Permitting and other state and county agencies, as needed, throughout implementation of the project to ensure that it meets all stormwater management requirements.

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Comment 2:

2. *The following items will need further evaluation and discussion in the Final Environmental Assessment (Final EA).*

   a. *Hawaii State Planning Act, HRS Chapter 226:*

      Section 4.2.1, page 4-3, provides an analysis on HRS 226-18 – objectives and policies for facility systems - Energy. The final EA will need to include a discussion on the project's ability to meet all parts of HRS Chapter 226, examine the project's consistency with these statutes, or clarify where it is in conflict. If Hawaii Gas deems the remaining statutes in HRS Chapter 226 are not applicable to this project, the Final EA should affirmatively state such determination followed by discussion paragraphs.

   b. *Sustainability:*

      The project is compatible with HRS §226-108, the priority guideline on sustainability. Therefore, the Final EA should include an examination on the project's consistency with this statute and its compatibility with principles of sustainability.

Response:

In response to your comment, we have substantially revised *Section 4.2.1 Hawai'i State Plan*, and added a new *Section 4.2.2 Chapter 226-108, Hawai'i Revised Statutes – Sustainability*, which discusses the proposed project's conformity with the State's policies promoting sustainability. These additions will be reflected in the forthcoming Final Environmental Assessment and are reproduced at the end of this letter.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

4.2.1 HAWAI'I STATE PLAN

The *Hawai'i State Plan* is intended to guide the long-range development of the State of Hawai'i by:

Identifying goals, objectives, and policies for the State and its residents;

Establishing a basis for determining priorities and allocating resources; and

Providing a unified vision to enable coordination between the various counties' plans, programs, policies, projects and regulatory activities to assist them in developing their county plans, program, and projects and the State long-range development objects.

The *Hawai'i State Plan* is a wide ranging and visionary policy document, which lays out a wide variety of objectives and policies for the planned and managed development of a range of human and natural resources. Hawai'i Gas, in partnership with DES, has concluded that many of the *State Plan*'s provisions, such as those related to the visitor industry, federal expenditures, housing, and education are not directly applicable to the proposed project and that therefore, the proposed project is not in conflict with these goals, objectives, and policies.

The proposed HWWTP Biogas Project is, in essence, a waste-to-energy project. Thus, the sections of the *Hawai'i State Plan* which are most relevant to the proposed project are HRS Section 226-15, relating to solid and liquid waste management facilities and systems, and HRS Section 226-18, which establishes objectives and policies for energy facility systems. These sections are reproduced in italics below, and the proposed action's consistency with them is discussed.

§226-15 (a) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:

(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes;

(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas

(b) To achieve solid and liquid waste objectives it shall be the policy of this State to:

(1) Encourage the adequate development of sewerage facilities that complement planned growth.

(2) Promote reuse and recycling to reduce solid and liquid wastes and employ a conservation ethic.

(3) Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.

Discussion: The proposed project would uphold all of the above policies and objectives by providing DES with a revenue stream, through the sale of renewable biogas, which would contribute to the maintenance of basic public health and sanitation standards relating to the treatment and disposal of wastewater. In addition, by recovering and upgrading the methane produced by the ongoing treatment operations at HWWTP, the project would promote the recovery and use as an energy source of a product which is currently discarded. Finally, this project is intended to serve as a platform for conducting rigorous, transparent, and replicable testing of an emerging waste-to-energy technology that may be incorporated at other facilities in the county or state, promoting more efficient and economical treatment and disposal of wastewater. Thus, Hawai'i Gas has concluded that the project is consistent with the applicable provisions of the *Hawai'i State Plan*.

§226-18 (a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:

(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;

(2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;

(3) Greater energy security and diversification in the face of threats to Hawaii's energy supplies and systems;

Discussion: The proposed project would contribute to all of the above objectives and policies by providing a reliable, locally produced, and renewable source of energy which is not dependent upon imported fuel sources. While the project would not reduce the emission of carbon, as the methane would still be consumed locally resulting in the release of carbon dioxide, it would be carbon-neutral (i.e., would not increase emissions of greenhouse gasses over current levels). However, burning natural gas produces far less carbon than other available energy sources such as oil or coal. Thus, Hawai'i Gas has concluded that the project is consistent with the applicable provisions of the *Hawai'i State Plan*.

4.2.2 CHAPTER §226-108, HAWAI'I REVISED STATUTES – SUSTAINABILITY

*[§226-108] **Sustainability.** Priority guidelines and principles to promote sustainability shall include.*

(1) Encouraging balanced economic, social, community, and environmental priorities;

(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;

(3) Promoting a diversified and dynamic economy;

(4) Encouraging respect for the host culture;

(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations.

(6) Considering the principles of the ahupuaa system; and

(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government has the responsibility for achieving a sustainable Hawaii.

Discussion: Hawai'i Gas shares in and embraces the task of achieving a sustainable future for the State of Hawai'i. By working with DES to recover, upgrade, and reuse a byproduct of the ongoing wastewater treatment operations at HWWTP, Hawai'i Gas believes that the proposed project will promote living within the natural resources and limits of the State by developing an existing, but currently unused, source of sustainable, renewable energy. In addition, this project represents a diversification in the local economy, by producing a product locally which otherwise would need to be imported and would not otherwise be renewably sourced. In sum, this project represents a happy instance where, through collaboration between the public and private sectors, power is generated, waste is curtailed, public revenue is created, and the natural environment is unharmed. Thus, this project will serve the public interest without jeopardizing the needs of future generations.

Comment No. 16

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
INTERIM DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
CARRELL T. YOUNG

IN REPLY REFER TO:
DIR 0109
STP 8.2339

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

February 27, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Honouliuli Wastewater Treatment Plant Biogas Reclamation Project
Draft Environmental Assessment
Ewa, Oahu, Hawaii
TMK: (1) 9-1-013:007 (por.)

The Gas Company, LLC, dba Hawaii Gas will be installing biogas purification equipment at Honouliuli Wastewater Treatment Plant and pipeline along Geiger Road to tie into Hawaii Gas' existing distribution system at Kapolei Parkway. The Department of Transportation (DOT) commented earlier in letter STP 8.2186 dated August 1, 2017 (copy attached), during the scoping request. We have no further comments at this time.

If there are any questions, please contact Mr. Blayne Nikaido of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7979.

Sincerely,

JADE T. BUTAY
Interim Director of Transportation

Attachment

PLANNING SOLUTIONS

April 10, 2018

Jade Butay, Interim Director of Transportation
Department of Transportation
State of Hawai'i
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Butay:

Thank you for your February 27, 2018 letter (your reference DIR 0109 STP 8.2339) concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We understand that your Department provided comments on this project during the scoping process in a letter dated August 1, 2017 and that you do not have any additional comments regarding the project at this time. A copy of the Final Environmental Assessment will be provided to you when it becomes available.

In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment No. 17

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

KIRK CALDWELL
MAYOR

KATHY K. SOKUGAWA
ACTING DIRECTOR

TIMOTHY F. T. HIU
DEPUTY DIRECTOR

EUGENE H. TAKAHASHI
DEPUTY DIRECTOR

2018/ELOG-193(SA)

February 28, 2018

Mr. Makena White
Planning Solutions
Ward Plaza
210 Ward Avenue, Suite 330
Honolulu, Hawaii 96814

Dear Mr. White:

SUBJECT: Biogas Reclamation Project at the
Honouliuli Wastewater Treatment Plant
Draft Environmental Assessment (EA)
91-1000 Geiger Road - Ewa
Tax Map Keys: 9-1-013: 007 and 9-1-069: 003

This is in response to your letter, received on January 26, 2017, regarding the above-referenced Project at the Honouliuli Waste Water Treatment Plant (HWWTP). Based information you have provided, our comments on the Draft EA are as follows:

- A wastewater treatment plant is a public use and structure and is permitted in all zoning districts. Because the Project includes processing a byproduct of the wastewater treatment plant for reuse, we consider it to be an accessory use to a public use and structure. Thus, based on the information available to us, we have determined additional discretionary land use permits will not be required.

- The Final EA should more fully describe how the proposed Project meets the planning principles and guidelines of the Oahu General Plan.

- The Final EA should address the potential for catastrophic disaster associated with the production, storage, and transmission of flammable gas products as it pertains to HWWTP employees, nearby residents, businesses, and members of the general public. The Draft EA discussed a variety of natural hazards, but did not specifically address the items above.

Should you have any questions, please contact Sarah Afong of our staff, at 768-8026.

Very truly yours,

FOR: Kathy K. Sokugawa
Acting Director

PLANNING SOLUTIONS

April 10, 2018

Kathy Sokugawa, Interim Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Sokugawa:

Thank you for your February 28, 2018 letter [your reference 2018/ELOG-193(SA)] concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. In order to simplify your review, we have reproduced your comments in *italics*, followed by our response.

Comment 1:

A wastewater treatment plant is a public use and structure and is permitted in all zoning districts. Because the Project includes processing a byproduct of the wastewater treatment plant for reuse, we consider it to be an accessory use to a public use and structure. Thus, based on the information available to us, we have determined additional discretionary land use permits will not be required.

Response:

Thank you for confirming that the proposed project is an accessory use within a public facility, and that no additional discretionary land use permits will be required prior to its implementation.

Comment 2:

The Final EA should more fully describe how the proposed Project meets the planning principles and guidelines of the Oahu General Plan.

Response:

In response to your comment, *Section 4.1.1 O'ahu General Plan* of the Final Environmental Assessment (FEA) has been substantially revised and expanded. It now includes a general discussion of the principles and guidelines of the *O'ahu General Plan*, as well as a detailed discussion of the proposed project's consistency with specific aspects of the Plan. The revised text will appear in the forthcoming FEA and is reproduced at the end of this letter.

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Comment 3:

The Final EA should address the potential for catastrophic disaster associated with the production, storage, and transmission of flammable gas products as it pertains to HWWTP employees, nearby residents, businesses, and members of the general public. The Draft EA discussed a variety of natural hazards, but did not specifically address the items above.

Response:

There appears to be a misunderstanding related to the potential for fire hazards in relation to the proposed project. Because any fire hazard would be addressed by the Honolulu Fire Department (HFD), the discussion related to fire hazards is contained in Section 3.10.2.2 and not in the section related to natural hazards. In that section, there is a discussion related to the project's compliance with the National Fire Protection Association's (NFPA) recommendations, local codes, and other applicable fire protection regulations. This includes compliance with applicable provisions of the *National Fire Protection Association's Uniform Fire Code Handbook* (2012 ed.) which provides fire prevention guidance and standards.

In the event of any malfunction, gas detectors located in and around the gas upgrading equipment will automatically shut off the equipment and divert the biogas to the flare in the event of a malfunction, with no disruption to any other processes at HWWTP. Additional measures include maintaining a cleared area 10-feet around the biogas reclamation equipment, and a non-combustible base installed under and around it. While methane is inherently flammable, the biogas reclamation equipment and other ancillary facilities are largely non-flammable, but some other flammable materials may be present in small quantities.

Finally, Hawai'i Gas has provided a copy of the DEA to HFD's Fire Prevention Bureau for review and responded to their comments in full to ensure that the proposed project adheres to all of its requirements.

Thank you for your comments. A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

4.1.1 O'AHU GENERAL PLAN

The *O'ahu General Plan* for the City and County of Honolulu is a comprehensive statement of objectives and policies which purports to set forth the long-range aspirations of O'ahu's residents and the strategies of actions to achieve them. It is intended to serve as the focal point of a comprehensive planning process that addresses physical, social, economic and environmental concerns affects the City and County of Honolulu. This planning process serves as the coordinating mechanism whereby the City and County government provides for the future growth of the metropolitan areas of Honolulu.

The *General Plan* is intended to serve as a guide for all levels of government, private enterprise, neighborhood and citizen groups, organizations, and individual citizens across eleven interrelated domains: (*i*) population; (*ii*) economic activity; (*iii*) the natural environment; (*iv*) housing; (*v*) transportation and utilities; (*vi*) energy; (*vii*) physical development and urban design; (*viii*) public safety; (*ix*) health and education; (*x*) culture and recreation; and (*xi*) government operations and fiscal management.

While not all aspects of the *O'ahu General Plan* are directly applicable to the current project, the Plan does incorporate several objectives and policies which are relevant to the proposed action; those are:

- The Natural Environment;
- Transportation and Utilities; and
- Energy.

Each of these areas is discussed in greater detail in the following subsections.

4.1.1.1 The Natural Environment

The *O'ahu General Plan* acknowledges that the natural environment is one of our state's greatest assets. The mild climate, the beauty of the mountains and shoreline, and the relatively pristine nature of our air and water are critical resources that improve the quality of life of residents and visitors alike, and which must be carefully considered and safeguarded when planning development effectively. It is the policy of the City and County of Honolulu to protect and enhance the natural environment whenever possible by increasing awareness and appreciation of the fragile nature of these resources and by mitigating the degradation of these assets.

Section III of the *O'ahu General Plan* provides several broad objectives, supported by specific policies, related to protection of the natural environment. Objective A states, in part, the following:

- *Objective A. To protect and preserve the natural environment.*
  - *Policy 7. Protect the natural environment from damaging levels of air, water, and noise pollution.*

Once constructed, the only source of air pollutant emissions resulting from the HWWTP Biogas Project will be the tail gas from the permeate stream that is removed from the biogas by the Carborex™ MS system. In addition to carbon dioxide (its principal component), this tail gas will contain very small amounts of methane (CH4), nitrogen (N), and oxygen (O) as well as trace amounts of siloxanes and hydrogen sulfide.

As shown in Section 3.4.2.2, due to the fact that the amount of waste gas sent to the wastewater treatment plant flare will be reduced or eliminated as a result of the proposed project, there will be lower emissions at HWWTP, and the project is not anticipated to have any adverse impact on the area's, or broader region's, air quality. On the contrary, since the proposed project is likely to result in lower emissions it will also result in lower ambient concentrations of these pollutants. Thus, by

reducing airborne emissions and consequently lowering pollutant concentrations, Hawai'i Gas has concluded that the proposed project will uphold this objective and policy of the *O'ahu General Plan*.

4.1.1.2 Transportation and Utilities

The *O'ahu General Plan* poses several objectives regarding utilities. In Section V, Transportation and Utilities, Objective C states: "To maintain a high level of service for all utilities." The proposed HWWTP Biogas Project are consistent with and support this objective by allowing Hawai'i Gas—the publicly-regulated gas utility for the State of Hawai'i—to provide safe, reliable, and renewable natural gas to its customers while providing a stream of revenue to the City's Department of Environmental Services. By adding the proposed HWWTP Biogas Project to its existing facilities, Hawai'i Gas will be able to diversify its fuel sources and reduce its dependence on imported fuel, thereby increasing the reliability and flexibility of its system.

4.1.1.3 Energy

The *O'ahu General Plan* recognizes that the maintenance of an adequate, dependable, and affordable supply of energy is essential to the City and County of Honolulu. In doing so, it identifies objectives and policies which address the development, usage, and conservation of energy and emphasize the need to reduce dependence on imported sources of energy.

Section VI of the *O'ahu General Plan* poses several objectives and policies related to energy, and several of these relate to the proposed renewable energy (i.e., biogas) facility which Hawai'i Gas is proposing. They include the following:

- *Objective A. To maintain an adequate, dependable, and economical supply of energy for Oahu residents.*
  - *Policy 1. Develop and maintain a comprehensive plan to guide and coordinate energy conservation and alternative energy development and utilization programs on Oahu.*
  - *Policy 2. Establish economic incentives and regulatory measures which will reduce Oahu's dependence on petroleum as its primary source of energy.*
  - *Policy 3. Support programs and projects which contribute to the attainment of energy self-sufficiency on Oahu.*
- *Objective C. To fully utilize proven alternative sources of energy.*
  - *Policy 2. Support the increased use of operational solid waste energy recovery and other biomass energy conversion systems.*
- *Objective D. To develop and apply new, locally available energy resources.*
  - *Policy 1. Support and participate in research, development, demonstration, and commercialization programs aimed at producing new, economical, and environmentally sound energy supplies from:*
    - *a. solar insolation;*
    - *b. biomass energy conversion;*
    - *c. wind energy conversion;*
    - *d. geothermal energy; and*
    - *e. ocean thermal energy conversion.*

To the extent that the proposed biogas reclamation facility will produce renewable natural gas locally, it will offset the need for Hawai'i Gas to meet its fuel-supply needs using fossil-fuel based synthetic natural gas. This, in turn, will help Hawai'i Gas carry through with its renewable energy commitments required by state law, supporting the objectives of the *O'ahu General Plan* by creating a new, economical, and renewable energy source.

Comment No. 18

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com

March 8, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Your Letter Dated January 22, 2018 Requesting Comments on the Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project – Tax Map Key: 9-1-013: 007

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

As of this date, we have not received a response to our previous comments on the Draft Environmental Impact Statement for the Honouliuli Treatment Plant Secondary Treatment and Support Facilities, dated July 19, 2016, "the existing potable water system does not have sufficient redundancy to provide reliable water service and fire protection for the expansion of this critical facility. Therefore, a 16" pipeline should be extended from Geiger Road and Roosevelt Road through Malio Street to the Renton Road and Kapolei Parkway intersection to create a pipeline loop system. In addition, depending on the anticipated R-1 recycled water demand, additional R-1 pipeline and/or pump improvements may be necessary."

The BWS understands that the proposed project will not increase potable water and R-1 water demands. However, the biogas project introduces flammable gas products to the facility which may require enhanced redundant off-site fire protection.

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

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

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

Very truly yours,

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

PLANNING SOLUTIONS

April 10, 2018

Ernest Y.W. Lau, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Chief Lau:

Thank you for your March 8, 2018 letter concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. In order to simplify your review, we have reproduced your comments in *italics*, followed by our response.

Comment 1:

As of this date, we have not received a response to our previous comments on the Draft Environmental Impact Statement for the Honouliuli Treatment Plant Secondary Treatment and Support Facilities, dated July 19, 2016, "the existing potable water system does not have sufficient redundancy to provide reliable water service and fire protection for the expansion of this critical facility. Therefore, a 16" pipeline should be extended from Geiger Road and Roosevelt Road through Malio Street to the Renton Road and Kapolei Parkway intersection to create a pipeline loop system. In addition, depending on the anticipated R-1 pipeline and/or pump improvements may be necessary."

Response:

A copy of the letter you refer to, sent by the Board of Water Supply dated July 19, 2016 and the Department of Environmental Services' response, dated March 23, 2018 is enclosed.

Comment 2:

The BWS understands that the proposed project will not increase potable water and R-1 water demands. However, the biogas project introduces flammable gas products to the facility which may require enhanced redundant off-site fire protection.

Response:

Thank you for your acknowledgement that the proposed project will not increase the demand for potable water or R-1 water. However, the proposed project will not introduce flammable gas products to Honouliuli Waste Water Treatment Plant (HWWTP). As noted in Section 2.1.1 of the DEA, a byproduct of the ongoing treatment operations at HWWTP is methane (CH4), which is also known as biogas or natural gas. This flammable gas is already present at the facility at the current time and no additional gas will be introduced as a result of the proposed project. Hawai'i Gas is coordinating closely with the Honolulu Fire Department's Fire Prevention Bureau to ensure that the proposed project adheres to all applicable fire protection regulations and standards.

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Phone: 808-550-4483 • www.psi-hi.com

As discussed in Section 3.10.2.2 of the DEA, in the event of any malfunction, gas detectors located in and around the gas upgrading equipment will automatically shut off the equipment and divert the biogas to the flare in the event of a malfunction, with no disruption to any other processes at HWWTP. Additional measures include maintaining a cleared area 10-feet around the biogas reclamation equipment, and a non-combustible base installed under and around it.

Comment 3:

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

Response:

Hawai'i Gas acknowledges that, should water be made available to the proposed project, it will be required to pay all applicable DWS charges.

Comment 4:

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

Response:

As noted above, Hawai'i Gas is coordinating closely with the Honolulu Fire Department's Fire Prevention Bureau to ensure that the proposed project adheres to all applicable fire protection regulations and standards.

A copy of the Final Environmental Assessment will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena

Makena White, AICP
Planner

Enclosure:
Previous correspondence between BWS and DES re: *Draft Environmental Impact Statement for the Honouliuli Treatment Plant Secondary Treatment and Support Facilities*

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)

'ATER SUPPLY
F HONOLULU
'A STREET

July 19, 2016

Mr. Matthew Stimpson
AECOM
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Stimpson:

Subject: Your Letter Dated May 8, 2016 Requesting Comments on the Draft Environmental Impact Statement for the Honouliuli Treatment Plant Secondary Treatment and Support Facilities Project – Tax Map Keys: 9-1-013: 007, 9-1-069: 003

Thank you for your letter requesting comments on the Honouliuli Treatment Plant Secondary Treatment and Support Facilities Project Draft Environmental Impact Statement (DEIS). We have the following comments:

1. The DEIS needs to provide an estimated potable and R-1 recycled water demand for the expansion of the secondary wastewater treatment facilities, landscape irrigation and domestic water use. In addition, an inventory of the existing and proposed water fixtures counts is required so that the water meters can be adequately sized.

2. The existing potable water system does not have sufficient redundancy to provide reliable water service and fire protection for the expansion of this critical facility. Therefore, a 16" pipeline should be extended from Geiger Road and Roosevelt Road through Malio Street to the Renton Road and Kapolei Parkway intersection to create a pipeline loop system. In addition, depending on the anticipated R-1 recycled water demand, additional R-1 pipeline and/or pump improvements may be necessary.

3. Because the Wastewater Treatment Plant (WWTP) is a large water user, the on-site potable and R-1 water systems should be designed to minimize large pressure surges that could result in a water main break. The Sand Island WWTP has been documented as causing large pressure surges in the potable water system.

4. Please be advised that this information is based upon current data, and therefore, the Board of Water Supply (BWS) reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval. When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

5. Water conservation measures are required for the proposed facility expansion. R-1 recycled water should be fully utilized. For your information, on June 30, 2016, the Governor signed House Bill 1749 into law requiring the utilization of reclaimed water for uses other than drinking and for potable water needs in 100 percent of state and county facilities by December 31, 2045.

6. The facility is required to meet BWS cross-connection control requirements.

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

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

Very truly yours,

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

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

KIRK CALDWELL
MAYOR

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

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO
PRO 17-026

March 23, 2017

MEMORANDUM

TO: Ernest Y.W. Lau, P.E., Manager and Chief Engineer
Board of Water Supply

FROM: Lori M. K. Kahikina, P.E.
Director

SUBJECT: Draft Environmental Impact Statement (DEIS) for the Honouliuli Wastewater Treatment Plant Facilities Plan, Honouliuli Wastewater Treatment Plant Secondary Treatment and Support Facilities, Oahu, Hawaii

Thank you for your letter dated July 19, 2016, regarding the Honouliuli Wastewater Treatment Plant Facilities Plan, Honouliuli Wastewater Treatment Plant Secondary Treatment and Support Facilities Draft Environmental Impact Statement (DEIS).

We offer the following responses to the comments in your letter:

1. The DEIS needs to provide an estimated potable and R-1 recycled water demand for the expansion of the secondary wastewater treatment facilities, landscape irrigation and domestic water use. In addition, an inventory of the existing and proposed water fixtures counts is required so that the water meters can be adequately sized.

   Response: Acknowledged and added a note to include an estimation of potable demands during the design phase.

2. The existing potable water system does not have sufficient redundancy to provide reliable water service and fire protection for the expansion of this critical facility. Therefore, a 16" pipeline should be extended from Geiger Road and Roosevelt Road through Malio Street to the Renton Road and Kapolei Parkway intersection to create a pipeline loop system. In addition, depending on the anticipated R-1 recycled water demand, additional R-1 pipeline and/or pump improvements may be necessary.

   Response: Acknowledged and noted in section 5.13.1.

3. Because the Wastewater Treatment Plant (WWTP is a large water user, the onsite potable and R-1 water systems should be designed to minimize large pressure surges that could result in a water main break. The Sand Island WWTP has been documented as causing large pressure surges in the potable water system.

   Response: Acknowledged and will be appropriately analyzed during the design phase of the project.

4. Please be advised that this information is based upon current data, and therefore, the Board of Water Supply (BWS) reserves the right to change any position or information stated herein up unit the Final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval. When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

   Response: Acknowledged.

5. Water conservation measures are required for the proposed facility expansion. R-1 recycled water should be fully utilized. For your information, on June 30, 2016, the Governor signed House Bill 1749 into law requiring the utilization of reclaimed water for uses other than drinking and for potable water needs in 100 percent of state and county facilities by December 31, 2045.

   Response: Acknowledged and discussed in Section 5.13.1.

6. The facility is required to meet BWS cross-connection control requirements.

   Response: Acknowledged and discussed in Section 5.13.1.

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

   Response: Acknowledged and discussed in Section 5.13.1. We have reviewed your memorandum dated August 22, 2016. We have no comments or objections to the subject request.

We appreciate your time and effort in reviewing the DEIS. Your letter, along with this response, will be reproduced and included in the forthcoming Final EIS.

Sincerely,

Lori M. K. Kahikina, P.E.
Director

cc: Matthew Stimpson, AECOM

Comment No. 19

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

KIRK CALDWELL
MAYOR

WES FRYSZTACKI
DIRECTOR

JON Y. NOUCHI
DEPUTY DIRECTOR

TP1/18-717127R

February 22, 2018

Mr. Makena White, AICP
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

SUBJECT: Draft Environmental Assessment for Honouliuli Wastewater Treatment Plant Biogas Project, Ewa, Oahu, Hawaii

This is in response to your letter dated January 22, 2018, requesting our review and comments on the subject project. In addition to our previous comments on the Scoping Request dated July 20, 2017, we have the following comments:

1. **Section 3.12.2 Probable Impacts: Construction Period (page 3-38).** Incorporate the following:

   a. Traffic Control Plans should be prepared for each phase of work on the roadway.

   b. Continue, throughout the project, to keep the area Neighborhood Board, as well as the area businesses, emergency personnel (fire, ambulance and police), Oahu Transit Services, Inc. (TheHandi-Van), etc., apprised of the details of the proposed project and the impacts that the project may have on the adjoining local street area network.

2. **Table 3.15 Summary of Mitigation Measures (page 3-42).** Under Transportation Facilities section, add delivery of equipment and materials during off-peak traffic hours, street usage permit requirements and continued public notification to the Committed Mitigation Measures column.

3. **Traffic Management Plan (TMP).** The TMP should include:

   a. Is jointly reviewed and accepted by the City's Department of Transportation Services and the Department of Planning and Permitting.

   b. Provides a discussion of the traffic impacts that the project may have on any surrounding City roadways and facilities, including short-term impacts during construction with corresponding measures to mitigate these impacts by applying Complete Streets principles.

   c. Construction materials and equipment should be transferred to and from the project site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any possible disruption to traffic on the local streets.

4. **Vehicle/Pedestrian Crossing.** Any existing pedestrian, bicycle and vehicle access/crossing shall be maintained with the highest safety measures during construction.

Thank you for the opportunity to review this matter. Should you have any questions, please contact Renee Yamasaki of my staff at 768-8383.

Very truly yours,

Wes Frysztacki
Director

PLANNING SOLUTIONS

April 10, 2018

Wes Frysztacki, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project

Dear Director Frysztacki:

Thank you for your February 22, 2018 letter (your reference TP1/18-717127R) concerning Hawai'i Gas' *Draft Environmental Assessment for the Honouliuli Wastewater Treatment Plant Biogas Project* (DEA). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. In order to simplify your review, we have reproduced your comments below in *italics*, followed by our response.

Comment 1:

1. ***Section 3.12.2 Probable Impacts: Construction Period (page 3-38).*** *Incorporate the following:*
    a. *Traffic Control Plans should be prepared for each phase of work on the roadway.*
    b. *Continue, throughout the project, to keep the area Neighborhood Board, as well as the area businesses, emergency personnel (fire, ambulance, and police), Oahu Transit Services, Inc. (The Handi-Van), etc. apprised of the details of the proposed project and the impacts that the project may have on the adjoining local street area network.*

Response:

Thank you for providing these recommendations. The final paragraph of Section 3.12.2 of the Final Environmental Assessment (FEA) has been modified to reflect these comments and now states:

> *The limited number of vehicles traveling to and from the project site during peak hours and compliance with Street Usage Permit requirements, including development of a Traffic Control Plan for each phase of work on the roadway, would result in a less than significant impact on roadways and traffic. Hawai'i Gas will coordinate with the No. 23 'Ewa Neighborhood Board, emergency services, O'ahu Transit Services (operators of TheHandi-Van), and area businesses to keep them apprised of the relevant details of the proposed project and any potential impacts construction may have on area roadways.*

Comment 2:

2. ***Table 3.15 Summary of Mitigation Measures (page 3-42).*** *Under Transportation Facilities section, add delivery of equipment and materials during off-peak traffic hours, street usage permit requirements and continued public notification to the Committed Mitigation Measures column.*

Pacific Park Plaza, Suite 950 • 711 Kapi'olani Boulevard • Honolulu, Hawai'i 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

Response:

In response to your comment, Table 3.15 has been modified, adding "Delivery of equipment and materials during off-peak traffic hours, street usage permit requirements and continued public notification" to the Committed Mitigation Measures column.

Comment 3:

3. ***Traffic Management Plan.*** *The TMP should include:*
    a. *Is jointly reviewed and accepted by the City's Department of Transportation Services and the Department of Planning and Permitting.*
    b. *Provides a discussion of the traffic impacts that the project may have on any surrounding City roadways and facilities, including short-term impacts during construction with corresponding measures to mitigate these impacts by applying Complete Streets principles.*
    c. *Construction materials and equipment should be transferred to and from the project site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any possible disruption to traffic on the local streets.*

Response:

As part of the process of obtaining a Street Usage Permit, Hawai'i Gas will prepare a TMP and submit it to both the Department of Transportation Services and the Department of Planning and Permitting for review and acceptance. The TMP will include the discussion of impacts, mitigation measures, and minimization measures described in your comment.

Comment 4:

4. ***Vehicle/Pedestrian Crossing.*** *Any existing pedestrian, bicycle and vehicle access/crossing shall be maintained with the highest safety measures during construction.*

Response:

As part of its TMP, Hawai'i Gas will comply with this provision.

A copy of the FEA will be provided to you when it becomes available. In the meantime, if you have any questions or concerns in the future regarding this project, please call me at (808) 550-4538.

Sincerely,

Makena White, AICP
Planner

cc: Cyril Hamada, Department of Environmental Services (via electronic mail only)
Richard DeGarmo, Hawai'i Gas (via electronic mail only)
Neil Sheehan, Sheehan Group Pacific (via electronic mail only)