Utility Natural Hazard Mitigation Report

for Turtle Bay Wastewater Treatment, LLC's Wastewater Utility System

The purpose of this report is to document ongoing efforts and future mitigation plan to address natural hazards as they relate to Turtle Bay Wastewater Treatment, LLC utility service, capital expenditures, operations, and finances.

This report is filed is reference to Public Utilities Commission

non-docketed case number 2023-04661, Order #40396.

Prepared by:

AQUA ENGINEERS
AN EMPLOYEE OWNED COMPANY

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List of Acronyms:

AE	Aqua Engineers, Inc.
DLNR	Department of Lan & Natural Resources
HEMA	Hawaii Emergency Management Agency
Report	Natural Hazard Mitigation Report
O&M	Operation & Maintenance
PUC	Public Utilities Commission
TBR	Turtle Bay Resort
TBWT	Turtle Bay Wastewater Treatment, LLC

I. Executive Summary

This Utility Natural Hazard Mitigation Report ("Report") details the ongoing efforts and future plans of Turtle Bay Wastewater Treatment, LLC (TBWT) to address natural hazards and their potential impact on service provision, finances, and operations of their wastewater system.

The Report is prepared in compliance with the Hawaii Public Utilities Commission ("PUC") Order No. 40396, issued on November 21, 2023. This report outlines TBWT's comprehensive plan to mitigate the potential impacts of natural hazards on its wastewater utility system. As mandated by the Hawaii Public Utilities Commission, the report details TBWT's current practices, future strategies, and financial implications for ensuring the continued operation of the wastewater infrastructure.

Key findings include the identification of flooding, power outages, and fires as primary threats to the system caused by any natural disaster. To address these hazards, TBWT has implemented various mitigation measures such as regular equipment maintenance, backup power generators, and emergency response protocols. While TBWT has no documented history of significant natural hazard impacts, the report emphasizes the importance of ongoing preparedness and continuous improvement.

Additionally, the Report mentions planned improvements to the wastewater treatment plant's drainage. Cost recovery associated with mitigation efforts will be through expenditures provided by the TBWT.

The Report demonstrates TBWT's commitment to continuous improvement and proactive planning to ensure the resilience of its wastewater utility system and continued service provision in the face of natural hazards.

II. Introduction

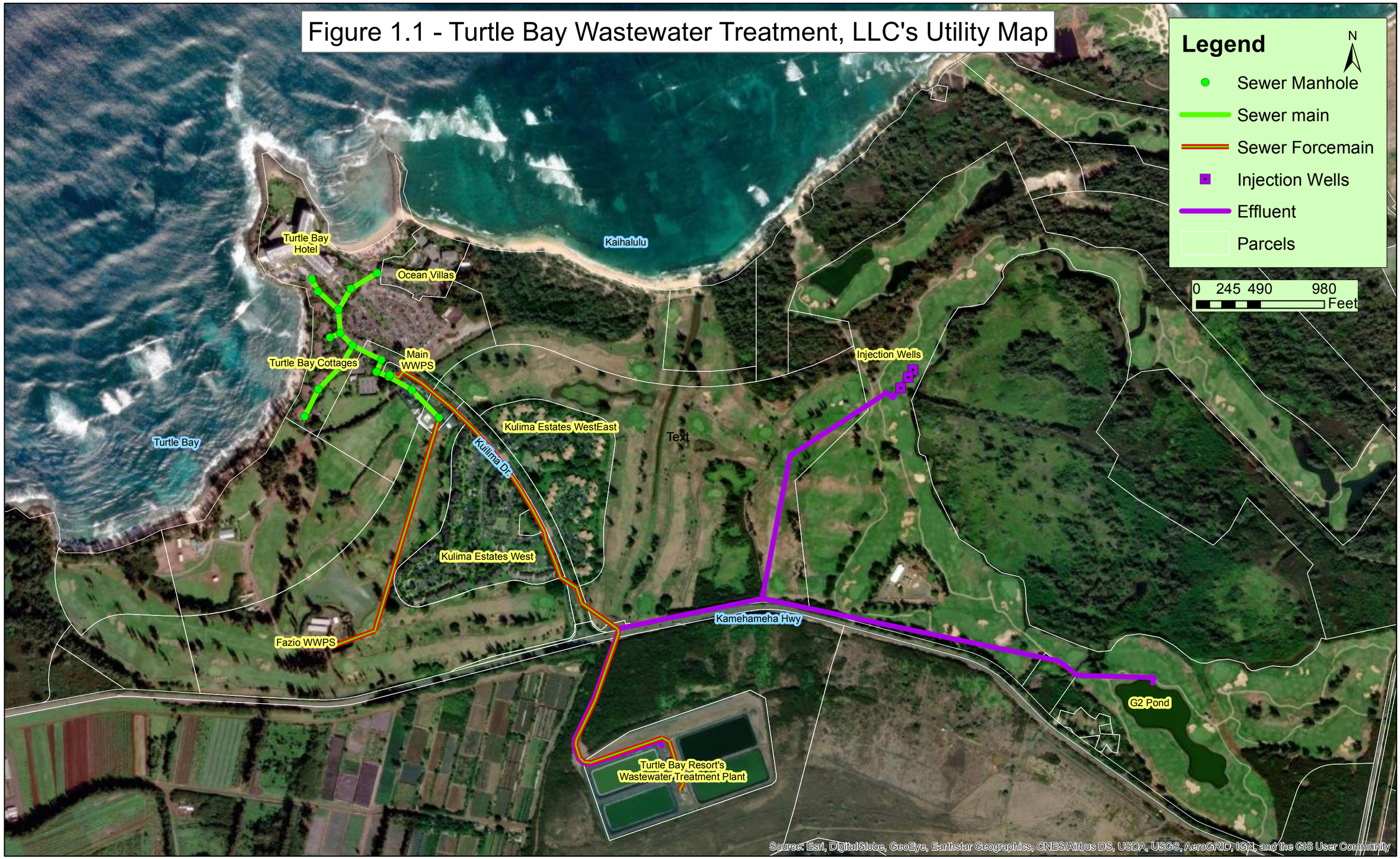
Turtle Bay Wastewater Treatment, LLC (TBWT)submits this Utility Natural Hazard Mitigation Report ("Report") as required by the Hawaii Public Utilities Commission ("PUC") pursuant to Non-Docketed Case Number 2023-04661, Order No. 40396. This Report details TBWT's ongoing efforts and future mitigation plans to address natural hazards as they relate to their provision of the wastewater utility service, capital expenditures, operations, and/or finances.

TBWT owns the wastewater utility system, which consists of the wastewater collection system and treatment plant, that services Turtle Bay Resort's (TBR) property (located on the island of Oahu at 57-091 Kamehameha Hwy, Kahuku, HI 96731), which is an oceanfront luxury resort hotel with privately owned condos, restaurants, bars, future development sites, and many amenities, like pools, spas, golf courses, and beach activities. In addition, TBWT receives and treats wastewater from Kuilima Estates East, Kuilima Estates West and Ocean Villas, which are privately owned gated communities consisting of residential and short-term rental units. These three later developments has its own wastewater collection system that ties into the TBWT's wastewater collection system. This Report does not address the wastewater collection system for Kuilima Estates East & West and Ocean Villas. Figure 1.1-Turtle Bay Wastewater Treatment, LLC's Utility Map shows the wastewater utility system that TBWT owns and is responsible for. The map does not show the wastewater utility system owned by others. The treatment plant is located across the highway from TBR at 57-082 Kamehameha Hwy, Kahuku, HI 96731.

TBWT's wastewater collection system consists of sewer manholes, sewer mains, two (2) wastewater pump stations, and a force main. TBWT's wastewater treatment plant consists of headworks, influent flow meter, 4 aeration ponds, 2 DAFTs (Dissolved Air Flotation Thickener), a chlorine contact chamber, and a backup generator with an automatic transfer switch. The wastewater treatment plant produces reclaimed water that discharges primarily to TBR's holding pond at Palmer's Golf Course, called G2 Pond, that will ultimately be used to irrigate the golf course. Three (3) injection wells, also located within the golf course, serve as backup to accept recycled water in the event the holding pond is at capacity or out of service.

Aqua Engineers, Inc. serves as operation and maintenance (O&M) service provider for the TBWT's wastewater treatment plant and both wastewater pump stations.

Figure 1.1 - Turtle Bay Wastewater Treatment, LLC's Utility Map



III. Mitigation/adaptation plans

This section details the specific mitigation and adaptation strategies developed to protect the wastewater utility system from the potential impacts of natural hazards. Building upon the comprehensive hazard assessment and risk analysis, these strategies are implemented to safeguard the wastewater infrastructure, prevent service disruptions, and minimize environmental contamination.

a. Objective:

Natural hazard mitigation plan objectives are first protect human life, followed by protecting the environment, property, and maintenance of essential wastewater systems operations.

b. Cultural Values:

TBWT is dedicated to support TBR's cultural value in providing exceptional hospitality experiences for its guests. As a cornerstone of this commitment, maintaining a reliable and efficient wastewater system is paramount. Recognizing the interconnectedness of the hotel and wastewater utility operations, TBWT views the sewer system as a critical component of its overall business strategy and a fundamental aspect of ensuring a pristine and comfortable environment for TBR's guests. The company is dedicated to the upkeep of its existing sewer system through routine maintenance and inspections, as well as preparedness for potential sewer emergencies. Ensuring emergency preparedness, our O&M service provider, Aqua Engineers Inc., have planned and are trained in emergency procedures and recovery actions and know where to find information when needed. Information is consolidated into one package that include emergency management checklists and contacts to key personnel. The extent of actions required is dictated by the type and severity of the natural disaster event.

c. Lessons Learned:

There are no documented records of past natural hazards that has impacted the TBWT's wastewater utility system.

d. Risk Assessment

The types of impacts caused by natural disaster events (i.e. hurricanes, thunderstorms, tsunamis, wildfires, etc.) that have been determined to pose a threat to TBWT's wastewater utility system are: Flooding/Inundation by storm runoff or ocean waves, power outages, and fires.

Per flood hazard maps as depicted by the State of Hawaii, Department of Land and Natural Resources, Figure 1.2, most of TBWT's gravity collection system and Fazio Wastewater Pump Station are located within areas that are subject to inundation (Zones VE and AE). A small portion of the remaining gravity system and the Main Wastewater Pump Station along Kuilima Drive, and most of the forcemain is within an area of minimal to moderate flooding (Zone X). The wastewater treatment plant is split between areas of minimal and possible flooding (Zones X and D). The main concern with flooding is Inflow & Infiltration (I&I) of the wastewater collection system and stormwater runoff that can potentially overwhelm manholes and the ponds at the treatment plant.

Per Tsunami Evacuation Zone map as depicted by the State of Hawaii, Emergency Management Agency, Figure 1.3, all of TBR is within the Tsunami Evacuation Zone and the wastewater treatment plant is within the Extreme Tsunami Evacuation Zone. Depending on the magnitude of a tsunami, the operation of the wastewater utility system may be affected by flooding and power outages.

Hurricanes will produce 75-150+ mph winds that may cause limited structural damages to the two pump stations and the treatment plant. Operation of the wastewater system may be affected by flooding from heavy rainfall that usually accompanies a hurricane and power outages.

Fires can range from small isolated to fast moving structural infernos. Potential damages to the wastewater collection system and treatment plant will be minimal in an event of a fire. Operation of the wastewater system may be affected by power outages.

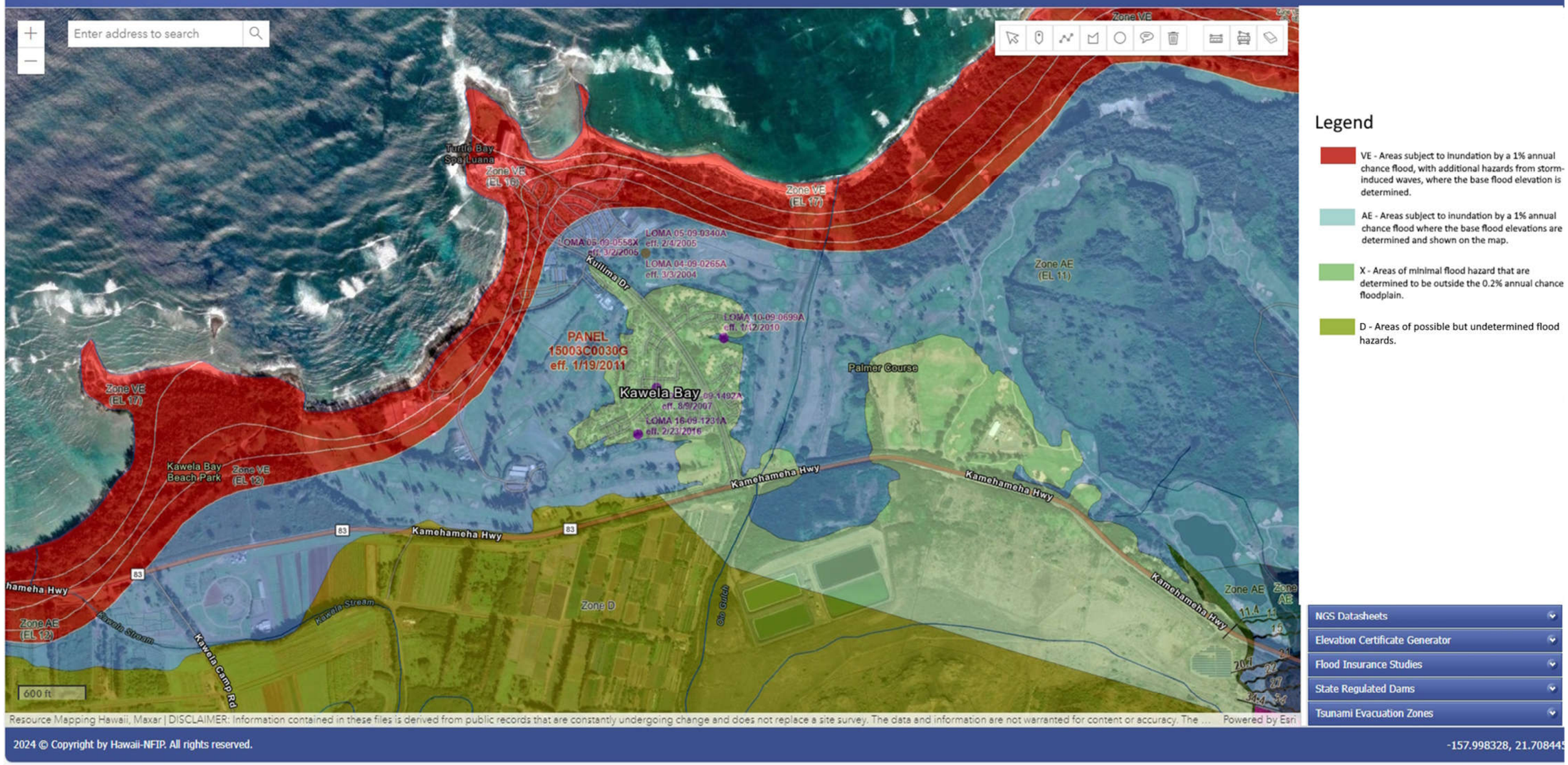


Figure 1.2: DLNR Flood Map

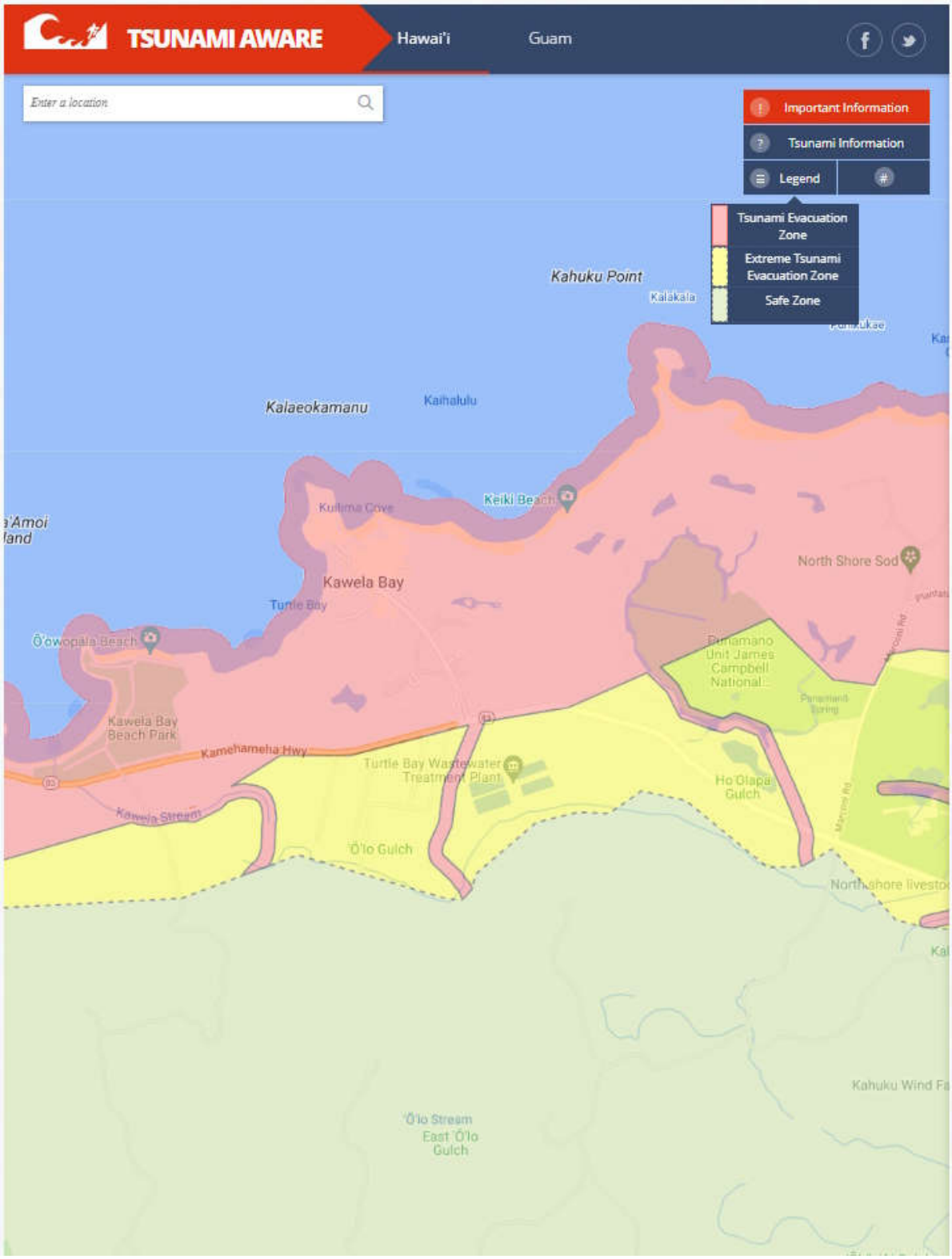


Figure 1.3: Hawaii Emergency Management Agency Tsunami Evacuation Zone Map

e. Natural Hazard Mitigation Strategy & Measures:

Our mitigation strategy for natural hazards is to always be prepared before a natural disaster happens and ensure that we and our service consultants be trained to take immediate action to minimize injuries, facility damage and disruptions of service during a natural disaster.

The common impacts from natural disasters that may affect the wastewater system are flooding, power outages and fires.

Mitigation Strategy for Flooding:

- Currently ensuring proper maintenance of the wastewater collection system is always clear and unobstructed.
- Proactively assess and maintain equipment through regular repairs and replacements to avoid breakdowns and inflow & infiltration (I&I) that may overwhelm the wastewater collection system and treatment plant.
- Ensure we and our O&M service provider, Aqua Engineers Inc., are trained to respond before, during and after a natural hazard that may cause flooding by having, for example, checklists, communication protocols and key contact information immediately available. A sample checklist can be found in Appendix B.
- Currently planning to improve the drainage system at the wastewater treatment plant to prevent stormwater runoff from entering the ponds. The anticipated start of construction is by end of 2024.

Mitigation Strategy for Power Outage:

- Proactively assess and maintain equipment through regular repairs and replacements to avoid breakdowns.
- The Main Wastewater Pump Station along Kuilima Drive is equipped with a backup generator and an automatic transfer switch.
- The Fazio Wastewater Pump Station has no backup generator. It services only the bathroom at the maintenance facility. The maintenance crew's mitigation strategy is not to use the bathroom at the facility until this wastewater pump station is operational.

- The wastewater treatment plant has a backup generator and an automatic transfer switch.
- The wastewater treatment plant has two ponds that will be used as storage in an event no power is available to process wastewater.
- Ensure we and our O&M service provider, Aqua Engineers Inc., are trained to respond before, during and after a natural hazard that may cause power outages by having, for example, checklists, communication protocols and key contact information immediately available. A sample checklist can be found in Appendix B.

Mitigation for Fires:

- Proactively assess and maintain equipment through regular repairs and replacements to avoid electrical fires and fuel leaks.
- Risks of wildfire spreading are minimized by providing a buffer zone free of vegetation around the facilities.
- Fire extinguishers are available at the wastewater treatment plant and the Main Wastewater Pump Station for small, isolated fires.
- Ensure we and our O&M service provider, Aqua Engineers Inc., are trained to respond before, during and after a natural hazard that may cause a fire by having, for example, checklists, communication protocols and key contact information immediately available. A sample checklist can be found in Appendix B.

f. Planned Projects:

A project to improve the drainage system at the wastewater treatment plant is currently being pursued. This drainage system will mitigate stormwater runoff from entering the ponds and prevent any untreated wastewater from overtopping the pond. Proper permits have been approved and anticipated start of construction is by end of 2024.

There are no planned projects to address power outage threats to the operation of the wastewater utility system. The existing backup power generators for the Main Wastewater Pump Station and the Wastewater Treatment Plant are deemed sufficient. The Fazio Wastewater Pump Station is not a critical facility as it services only the bathroom at the maintenance facility. In addition, the standard operating procedure of not using this bathroom until the pump station is operational is being practiced.

There are no planned projects to mitigate any fire threats to the operation of the wastewater system. The current practices of providing a buffer zone free of vegetation around the facilities, providing fire extinguishers in each facility, and proactively assessing and maintaining equipment will be continued. In addition, the Main Pump Station structure is concrete with ceramic tile roofs and all facilities at the wastewater treatment plant are concrete.

g. Proposed Utility Expenditures:

   Expenditures for storm drain improvements at the wastewater treatment plant will be from the owners.

h. Data collection and evaluation: Key performance indicators including flow quantity and quality, equipment run status, effluent quality, are continuously monitored and evaluated Data collection and evaluation purposes is to ensure proper operation of the wastewater collection system. There is no data collection and evaluation program for natural hazard mitigation.

IV. Past utility hazard response plans, Lessons learned:

There are no documented records of past natural hazards that has impacted the TBR's wastewater system.

V. Utility pre- and post-hazard mobilization and response guidelines, communications, and reporting information

a. Utility operations staff is trained in emergency procedures and know where to find information during an emergency. Emergency contact list is provided in Appendix A. An example of an action plan for emergencies caused by power failure is included in Appendix B.
b. In addition to the regularly scheduled assessment and maintenance of equipment through regular repairs and replacements, pre-hazard preparedness also includes our O&M service provider to constantly monitor any current natural hazard threat. If the possibility for natural hazard that may result in flooding or power outages is recognized, the O&M team may alter the standard operating procedure to reduce the level of the ponds at the

wastewater treatment plant days prior to the event. In addition, the O&M service provider is instructed to test all backup equipment, like generators, and confirm backup fuel is available.

c. After an emergency has reached a measure of safety for the personnel, a thorough evaluation of damages will be performed to determine if there were any reportable spills to the environment that require reporting and/or remediation.
d. If reportable spills are identified, the Operations Manager will inform the regulatory agencies and public, per regulatory requirements.
e. In case of any spills to the environment the areas will be fenced off to restrict public access and the reports will include measures that the utility will utilize to clean up and restore the areas of potential exposure.
f. After the successful hazard exposure remediation, the operation procedures developed for emergency situations will be reviewed and amended as needed.

VI. Damage assessment, restoration priorities, and materials management plans.

a. In case of a natural hazard, priority is always protection of human life, followed by protection of the environment, property and maintenance of essential wastewater system operations.
b. After an emergency has reached a measure of safety for the personnel, a thorough damage assessment will be performed to evaluate the extent and nature of the damages to the wastewater treatment equipment and to determine the steps needed to restore the continuity of the wastewater services and minimize impact to the customers and health and safety of the environment.
c. Alternative modes of operation may be implemented to by-pass any damaged equipment until full replacement or restauration.
d. After the successful damage remediation, the operation procedures developed for emergency situations will be reviewed and amended as needed.

VII. Business continuity plans for during or after a natural hazard event.

a. TBWT and our O&M service provider, Aqua Engineers Inc., are trained to respond before, during and after a natural hazard by having, for example, checklists, communication protocols and key contact information immediately available. An example of a checklist can be found in Appendix B. Proper trained personnel minimizes injuries, facility damages, and disruptions of service from a natural disaster.
b. Utility assets are covered by property insurance. The policy provides building property, business personal property, off premises utility service interruption and income coverage.
c. Utility assets are also covered by Pollution Condition where the actual or alleged discharge, dispersal, release, escape, migration, seepage or illicit abandonment of any solid, liquid, gaseous or thermal irritant, contaminant or pollutant, including but not limited to, smoke, vapors, soot, fumes, acids, alkalis, chemicals, toxic or hazardous substances, waste materials, including medical infectious and pathological waste, low-level radioactive waste and material into or upon land or structures thereupon, the atmosphere or any watercourse, body of water or groundwater, which results in Bodily Injury, Property Damage or Cleanup Costs to which this Insurance applies. Pollution Condition includes the presence of legionella pneumophilia and Microbial Matter on, at or within any structures at the Covered Location. Pollution Condition does not include any exposure to infected humans or animals, or contact with bodily fluids or infected humans or animals.
d. Any significant changes in the financial health of the Utility due to a natural hazard event will be reported to the PUC immediately upon occurrence of the event by way of written correspondence. If a major portion of the plant is damaged and requires a significant financial investment, the Utility will provide monthly written updates to the Commission until the Utility deems it has reached resolution and returned to normal operations with information including but not limited to physical and financial impairment of the asset(s), replacement cost, required financing for asset replacement, plans to include asset replacement in rate base through a future rate case, impact on customers and any plans to assist customers to avoid disruption in service due to the physical and financial impairment of plant.

e. The Commission will be copied on any correspondence regarding notices to other relevant government agencies regarding major effects on the Utility's operations or finances due to a natural hazard event.

VIII. Resiliency efforts and mitigation planning projects and/or programs that are currently ongoing or are planned to be constructed and/or implemented over the next five years.

TBWT is currently pursuing to improve the drainage system at the wastewater treatment plant to prevent stormwater runoff from entering the ponds. The anticipated start of construction is by end of 2024.

IX. Information regarding how utility plans to request to recover the costs for construction and/or implementation of these projects and/or programs.

Expenditures for storm drain improvements at the wastewater treatment plant will be from the owners.

X. References:

[1] State of Hawaii, Department of Land and Natural Resources (2024, Aug. 6). Flood Hazard Assessment Tool. [https://fhat.hawaii.gov]

[2] State of Hawaii, Emergency Management Agency (2024, Aug. 6). Tsunami Evacuation Zones map. [https://dod.hawaii.gocv/hiema/public-resources/tsunami-evacuation-zone/]

[3] City & County of Honolulu, Land Information System (HoLIS) Division (2024, Aug. 6). Honolulu GIS database. [https://www.honolulugis.org]

XI. Contact Information:

Security Dispatch: (808) 293-6013, Andrew.p.smith@ritzcalton.com

Brydon Burdett, Operations Manager: BBurdett@AquaEngineers.com

James Ano, Director of Operations: James@AquaEngineers.com

XII. Disclaimer:

The purpose of this report is to document ongoing efforts and future mitigation plan to address natural hazards as they relate TBWT's wastewater utility system services, capital expenditures, operations, and finances. The focus of this document is mitigation, which is action taken to reduce or eliminate long-term risk to human life, property and services from natural hazards. This document is intended to be a starting point for gathering ideas and should not be used as the only source for identifying actions.

The information contained in this Natural Hazard Mitigation Report is based on the best available data and analysis at the time of preparation. While every effort has been made to ensure the accuracy and reliability of the information presented, the report is intended for general informational purposes only and should not be construed as a definitive statement or guarantee of future conditions.

The report's findings and recommendations are subject to change as new information becomes available or conditions change.

Appendix A

Utility and O&M Service Provider (Aqua Engineers, Inc.) Communication Chart and Key Roles

Utility and O&M Service Provider (Aqua Engineers, Inc.) Communication Chart and Key Roles in case of emergency and crisis:

Position/Title	Directly informs and reports on emergency status to:	Role
AE field O&M personnel **(OPS)**	DRC	Collects data and performs impact assessment.
AE Direct Report in Charge **(DRC)**	OS	Provides guidance to OPS.
AE Operations Supervisor **(OS)**	HSC, OM and Utility GM	Establishes emergency coordination team and center. Collaborate with coordination team to determine the action and response plan and reporting needs.
AE Operations Manager **(OM)**	OD	Collaborate with coordination team to determine the action and response plan and reporting needs.
AE Health and Safety Coordinator **(HSC)**		Collaborate with coordination team to determine the action and response plan and reporting needs.
Utility General Manager **(GM)**		Collaborate with coordination team to determine the action and response plan and reporting needs.

Position/Title	Directly informs and reports on emergency status to:	Role
AE Operations Director **(OD)**	President and CMT	Provides strategic oversight and directions to emergency coordination team.
AE Corporate Management Team **(CMT)**	President and Utility GM	Coordinates and directs business continuity after the emergency and crises have passed.

Note: roles rather than names and phone numbers are used in the above chart to minimize the confusion caused by personnel changes and rotations within the company. The O&M service provider personnel are trained on communication protocols and have their current contact information updated regularly.

Reporting to government agencies (as applicable):

Agency	Contact number	Reason to contact
Department of Health (DOH)	808-586-4400	Spills to environment per DOH guidelines
Fire and Police	911	Any emergency
Oahu Emergency Management Agency	(808) 732-8960	Any natural disaster and for coordination of risk and available assets

Appendix B
Emergency Checklist Sample

Action Plan for Power Failure – Check List

In case of power failure, emergency generators at the plant and pump station (2) will provide sufficient power for emergency lighting and plant/pump station controls.

✓	Line No.	Task
	1	Notify DRC, Operations Supervisor of power outage.
	2	Activate/check status of emergency power supply.
	3	Assign someone to monitor the status of the emergency power supply during the incident and report any problems to the Operations Supervisor. If the emergency generator fails to start in automatic status, initiate operation manually only after performing the following:
		a) Verify the Generator Room storage area is open and clear of obstruction
		b) Check the fuel delivery system
		c) Check the Emergency Generator Engine for proper water and oil levels
	4	Once power has been restored, re-set and restart all affected plant equipment.
	5	Notify HECO. If applicable, request periodic status updates.
	6	Notify the Operations Supervisor.
	7	If power failure is due to local equipment failure, develop and implement recovery plan.
	8	If power failure appears to be the result of an intentional act:
	9	a) Provide support to the Police Department and other law enforcement agencies (for example preserve evidence and interview witnesses)
	10	b) Maintain documentation and forward to the Operations Supervisor at the conclusion of the emergency event.

Check box when an item was completed or, if an item was not applicable, place “N/A” in the box. The tasks listed above are general guidelines for responding to emergency. Specific response actions may vary depending upon the nature and extent of the emergency event.

The foregoing document was electronically filed with the State of Hawaii Public Utilities Commission's Case and Document Management System (CDMS).