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CITY AND COUNTY OF HONOLULU

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WW PDE 11-041

March 8, 2011

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

Dear Director Hooser:

Subject: Draft Environmental Assessment for
Wet Sludge Storage Tank Addition
Sand Island Wastewater Treatment Plan
Honolulu, Island of Oahu

The City and County of Honolulu, Department of Design and Construction has reviewed the Draft Environmental Assessment for the subject project, and anticipates a Finding of No Significant Impact. Please publish notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and one (1) copy of the document in pdf format on a CD; and one (1) hardcopy of the Draft EA. If you have any questions, please contact Mr. Jim Niermann of R.M. Towill Corporation at 842-1133 or by email at jimn@rmtowill.com.

Sincerely,

A handwritten signature in cursive script, appearing to read "Collins D. Lam".

Collins D. Lam, P.E.,
Director

Enclosure

DRAFT ENVIRONMENTAL ASSESSMENT

Prepared and Submitted in Accordance with Chapters 205A and 343, HRS

WET SLUDGE STORAGE TANK ADDITION Sand Island Wastewater Treatment Plant Modifications and Expansion Honolulu, Island of O'ahu, Hawai'i

March 2011

APPLICANT



Department of Design and Construction
City and County of Honolulu
650 South Beretania Street
Honolulu, HI 96813

PREPARED BY



R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaii 96819-3494
(RMITC Ref: 1-19933-80)

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Appendix A Correspondence

Project Summary

Project:	WET SLUDGE STORAGE TANK ADDITION Sand Island Wastewater Treatment Plant Modifications and Expansion
Applicant:	Department of Design and Construction (DDC) City and County of Honolulu (CCH)
Accepting Agency:	DDC, CCH
Agent:	R.M. Towill Corporation James Niermann, AICP, LEED AP, Senior Planner 2024 North King Street, Suite 200 Honolulu, Hawai'i 96819 (808) 842-1133
Location:	Honolulu, Island of O'ahu
Tax Map Key:	(1) 1-5-041: 005
Proposed Action:	The DDC plans to construct a new, fifth wet sludge storage tank to add to the existing four wet sludge storage tanks at the Sand Island Wastewater Treatment Plant (WWTP) solids handling building. The existing Solids Handling Building will be modified to provide access to the roof of the new WSST. The pump of the mixing system and piping will be located in the Solids Handling Building. The modified structure will have a footprint of approximately 30 feet by 30 feet, and will be approximately 40 feet in height, consistent with the existing storage tank facilities. The proposed new tank is required to add redundant capacity to accommodate WWTP design flows while allowing at least one tank to be taken off-line for maintenance or repair. The new, additional tank is part of the programmed Sand Island WWTP Primary Expansion work.
Land Area:	Construction of the new tank will require approximately 10,000 sf of land area for site work and construction staging. Following construction, the new tank and related solids handling building expansion will occupy approximately 900 sf of land area at the center of the Sand Island WWTP.

Project Summary

Present Use:	The project site presently includes of unused, vacant space adjacent to the existing Solids Handling Building, and an area that is partially occupied by decommissioned equipment previously used for thermal sludge conditioning.
State Land Use District:	Urban
PUC Development Plan Land Use Designation:	Industrial (Map A.5 Land Use Map, PUC – Central)
County Zoning District:	I-3, Waterfront Industrial
Special Management Area:	Yes
FEMA/FIRM Designation	X (Outside the 0.2 percent annual chance floodplain.)
Permits Required:	<p><i>Clearances and permits needed from the various Federal, State and City and County of Honolulu agencies include but are not limited to the following.</i></p> <p><u>City and County of Honolulu (CCH)</u></p> <p>DDC</p> <ul style="list-style-type: none"> - Finding of No Significant Impact <p>Department of Planning and Permitting (DPP)</p> <ul style="list-style-type: none"> - Special Management Area Permit - Construction plan review and approval - Building Permit - Grading, Grubbing, and Stockpiling Permit <p><u>State of Hawai’i</u></p> <p>Department of Health (DOH)</p> <ul style="list-style-type: none"> - Construction plan review and approval

SECTION 1

Introduction

1.1 PROJECT OVERVIEW

The City and County of Honolulu (CCH), Department of Design and Construction (DDC) plans to construct a new, fifth wet sludge storage tank (WSST) to add to the existing four WSSTs at the Sand Island Wastewater Treatment Plant (WWTP) Solids Handling Building. The Sand Island WWTP is located on Sand Island on land owned by the State of Hawai'i and identified by Tax Map Key (TMK) parcel (1) 1-5-041: 005. The CCH Department of Environmental Services (ENV) owns and operates the Sand Island WWTP facility, see **Figure 1 – Project Location**.

The WSSTs are used for mixing and storage of primary scum and sludge, providing a homogeneous sludge at a constant feed rate throughout the solids stream treatment process. The proposed new tank is required to add redundant capacity to accommodate WWTP solids loadings while allowing at least one tank to be taken off-line for maintenance or repair. The new, additional tank is part of the programmed Sand Island WWTP Primary Expansion work.

An environmental assessment (EA) was prepared for the Primary Expansion work and a Finding of No Significant Impact (FONSI) was issued in April 2001 (DDC, 2001). The 2001 EA addresses the need for refurbishment and improvements to the sludge holding and mixing systems, including improvements to the existing wet sludge storage tanks. It was subsequently determined that a new, fifth wet sludge storage tank is required in addition to the refurbishment of the existing WSSTs in order to handle the solids loading and facilitate the maintenance and repair work. This EA assesses environmental effects from the construction of the new wet sludge storage tank that is required.

The new WSST will be located adjacent to the four existing tanks adjacent to the existing Solids Handling Building, situated at the center of the SIWWTP facility. The new tank and structure will occupy approximately 30 feet by 30 feet of area and will not exceed 60 feet in height, consistent with the existing storage tank facilities.

1.2 PROJECT PURPOSE AND NEED

The Sand Island WWTP currently has four WSSTs that provide storage and proper mixing of thickened primary sludge from the Gravity Thickeners and scum from the Primary Clarifiers. After mixing in the WSSTs, sludge is pumped to a mesophilic Anaerobic Digester for stabilization. The additional, fifth WSST is required at this time for the following reasons:



- All four tanks were built in 1970s. The tanks are old and require major structural rehabilitation with mechanical equipment replacement. Since all four tanks are needed for daily operation, the rehabilitation of the tanks is impeded until a new, redundant tank can be constructed. An additional tank will allow operators to shut down one tank at a time to perform the rehabilitation measures.
- Under normal operating conditions, the plant utilizes all four tanks. The addition of a fifth WSST tank would make available a standby tank in the event any of the four tanks are required to be shut down for maintenance or repair.
- The privately operated anaerobic digester downstream from the WSSTs has exceeded the design solids loading rate and is susceptible to overloading during peak flow conditions. The additional tank would provide additional storage capacity to assist in regulating and equalizing the loading rates to the digesters.

1.3 BASIS FOR THE ENVIRONMENTAL ASSESSMENT

In accordance with Chapter 343, Section 5, Hawai'i Revised Statutes (HRS), this project involves the following action that requires the preparation of an environmental assessment:

- (1) *Propose the use of state or county lands or the use of state or county funds;*

In addition, the project is located within the Special Management Area (SMA), therefore the proposed activity is subject to the preparation of an environmental assessment per the requirements of Chapter 25, Revised Ordinances of Honolulu, (ROH), and Chapter 205A HRS.

Pursuant to the requirements of Chapter 343 HRS, and Chapter 11-200, Hawai'i Administrative Rules (HAR), the proposing agency, the DDC, has determined that the proposed project is not expected to have significant environmental effects. Based on analysis and review of environmental conditions, project effects, and proposed mitigation measures, it is anticipated that a Finding of No Significant Impact (FONSI) will be issued for this project.

1.4 PROPOSING AGENCY AND ACCEPTING AUTHORITY

In accordance with HRS Chapter 343, Section 5, the proposing agency and accepting authority for this EA is the CCH DDC.

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SECTION 2

Project Description and Alternatives Considered

2.1 BACKGROUND INFORMATION

2.1.1 PROJECT LOCATION

The project site is located on Sand Island at the center of the Sand Island WWTP, adjacent to the existing Solids Handling Building. The entrance to the Sand Island WWTP is located on Sand Island Parkway, approximately 0.5 miles southeast from the Kalihi Channel bridge. Within the WWTP facility, the project site is located on the south side of utility road 'N', see **Figure 2-1: Sand Island WWTP Site Plan**,

2.1.2 OWNER INFORMATION

The Sand Island WWTP is located on land owned by the State of Hawai'i and managed by the CCH ENV in accordance with Executive Order No. 3939. The property is identified by TMK parcel (1) 1-5-041: 005.

2.1.3 SAND ISLAND WWTP OPERATIONS

The Sand Island WWTP began operations in 1978 as an advanced primary treatment wastewater treatment plant. The facility treats all of the wastewater flows generated in the Sand Island Sewer Basin service area, which extends from Niu Valley in the east, to Salt Lake / Aliamanu in the west.

The Sand Island WWTP has undergone a number of major modifications in the past decade in accordance with programmed Sand Island WWTP Primary Expansion work (DDC, 2001). As a result of these projects, the facility capacity was expanded to average daily flow of 90 million gallons per day (mgd) and its hydraulic capacity to 271 mgd. The current design data for the existing facility is presented in **Table 2-1**. A site plan of the existing Sand Island WWTP is shown in **Figure 2-1**. The facility treatment process is described below in terms of liquid waste streams and solid waste streams.

Table 2-1.
Sand Island WWTP – Current (2009) Design
Information

Flows	
Design Average Flow	90 mgd
Intraday Elevated Flow	113 mgd
Design Peak Wet Weather Flow	271 mgd
Design Storm	2 year 6 hour

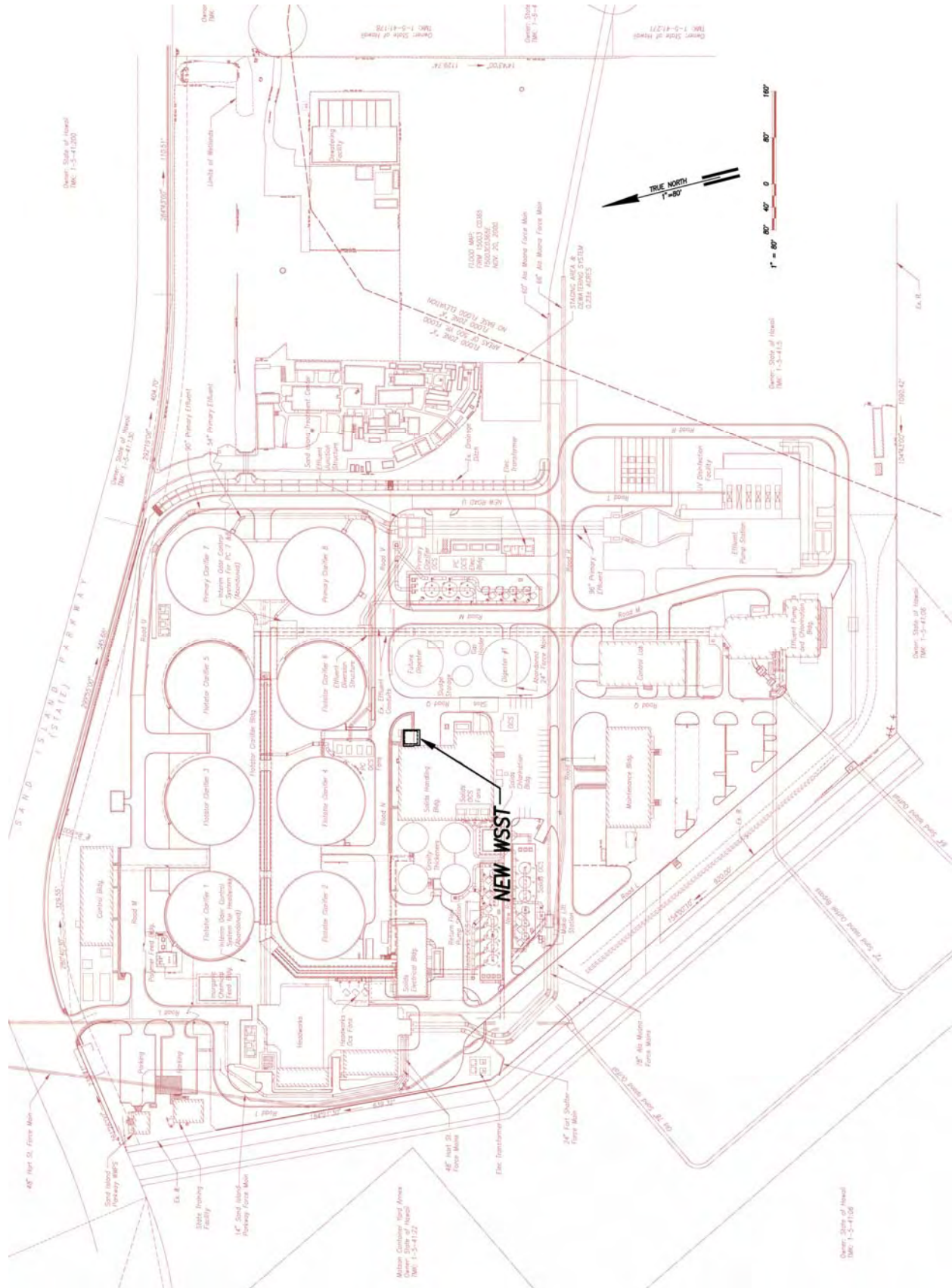


Figure 2-1. Sand Island WWTP Site Plan

Liquid Waste Stream Processes

The process flow diagram of the Sand Island WWTP is shown in **Figure 2-2**. The following is a description of the major liquid stream units:

New Headworks: This facility was placed in operation in 2005 and replaced the original Screenings Building. An influent receiving area receives flows from the Ala Moana Pump Station (PS), Hart Street PS, Sand Island Parkway PS, and the Fort Shafter PS. The Headworks facility consists of six bar screens with associated screenings washers and compactors for screenings removal, six Parshall flumes for flow measurement and four aerated grit chambers for grit removal. Screenings and grit are conveyed and discharged into a dump truck for disposal at the Waimānalo Gulch landfill.

Flotator Clarifiers and Primary Clarifiers: The plant consists of six flotator clarifiers and two primary clarifiers. The original Sand Island WWTP had only six flotator clarifiers to provide advanced primary treatment. The flotator clarifiers were originally designed to utilize dissolved air flotation to “float” the solids to the surface where surface skimmers remove the solids. Currently, the flotator clarifiers are typically utilized in gravity mode as traditional primary clarifiers.

Primary Clarifiers 7 and 8 were added to increase the capacity of the clarification system to an average daily flow of 90 mgd. These primary clarifiers were designed as gravity-type primary clarifiers. In recent years, the six flotator clarifiers and the primary clarifiers have all been operated in gravity mode.

Inorganic Chemical Feed Building (ICFB): The ICFB allows the injection of chemicals used for chemically enhanced primary treatment (CEPT). Currently iron chloride (FeCl_3 , ferric chloride) is being utilized for advanced primary treatment and odor control.

Ultraviolet (UV) Disinfection Facility: This facility consists of three effluent screens, six UV disinfection channels and an effluent WWPS. Five of the six UV disinfection channels are currently populated with UV lamps. The UV system has room for expansion from the current six UV disinfection channels to ten. During high flow conditions, the effluent pump station is used to provide additional pumping head to discharge the treated primary effluent through the 84-inch diameter ocean outfall pipeline. At low flow conditions effluent can be discharged through the 84-inch ocean outfall pipeline by gravity.

Ocean Outfall: Effluent is discharged through an 84-inch diameter ocean outfall extending nearly two miles offshore to a depth of over 220 feet. The total length of the outfall is approximately 14,000 linear feet (lf). The wastewater is diffused through the final approximately 3,400 lf of the outfall pipe.

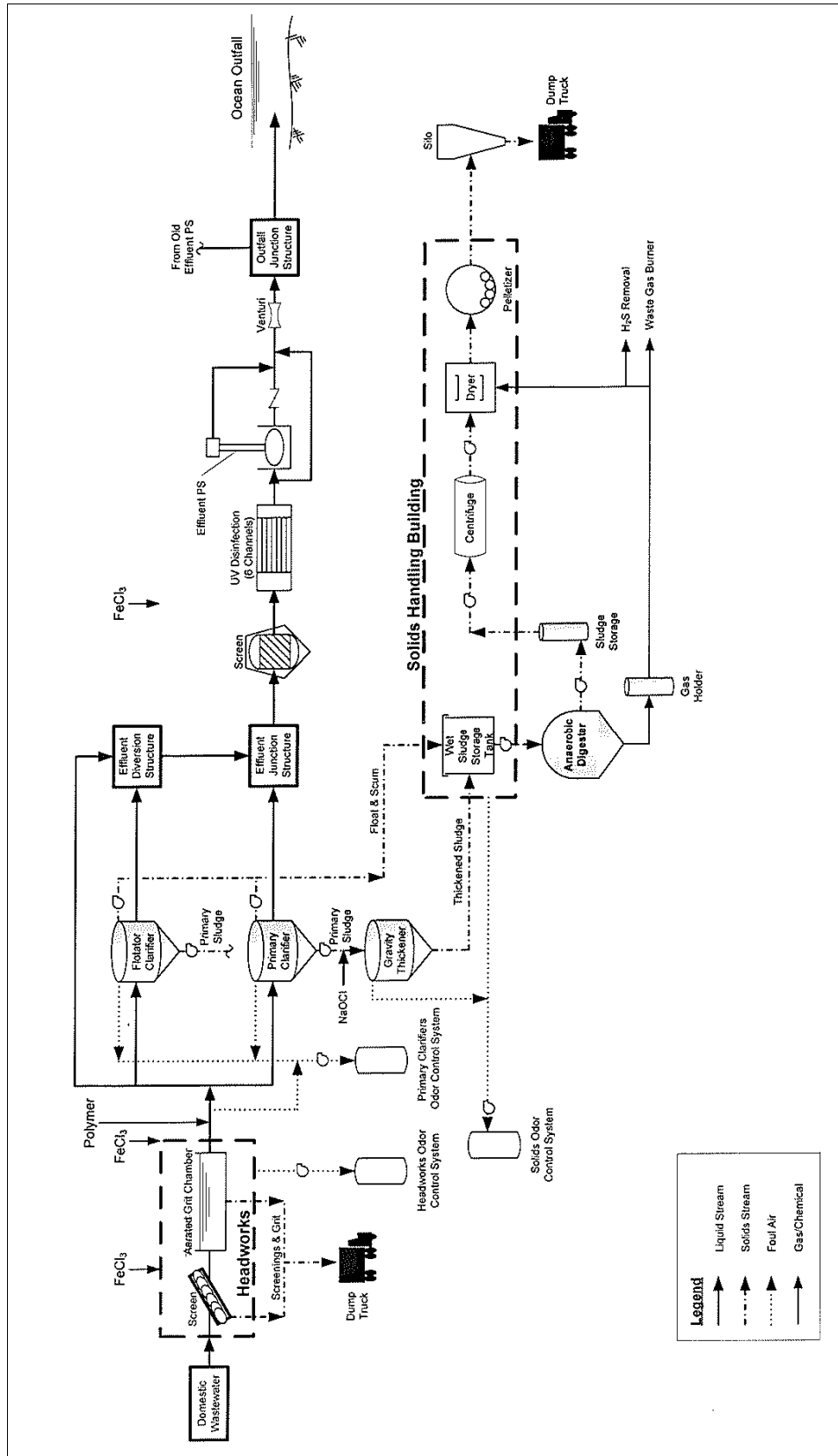


Figure 2-2. Sand Island WWTP Process Schematic (Existing)

Solid Waste Stream Processes

The major solid waste stream processes are as follows:

Gravity Thickeners (GT): Primary sludge from the flotator clarifiers and primary clarifiers is pumped to four gravity thickeners where chlorine is added to control odors and assist in thickening.

Wet Sludge Storage Tanks (WSST): Thickened sludge from the GTs is pumped to the four existing WSSTs. The WSSTs were originally designed to serve as sludge equalization tanks for the original solids handling processes, which formerly included a thermal conditioning system, centrifuges and sludge incinerators. These systems have been replaced with a turn-key sludge drying and pelletizing system now in operation.

Sludge Drying and Pelletizing System: The sludge drying and reuse system consists of digestion containment, centrifuges and final drying and pelletizing. Pelletized sludge is available for use as fertilizer. The system is a turn-key design-build-operate system by Synagro Technologies Incorporated (STI).

Odor Control System

Foul air emissions for the Sand Island WWTP are governed by Non-covered Source Permit (NSP) No. 0216-05-N Application for Renewal No. 0216-13, issued on August 13, 2009. The permit is scheduled to expire on August 12, 2014. The permit governs systems as of the date of issuance, a transition period, and the final configuration after scheduled construction is completed. Four electric / diesel engine effluent pumps are covered by the same non-covered source permit governing the foul air systems. Limits on operational hours and emission opacity are included in the permit.

The existing odor control systems (OCS) at the Sand Island WWTP include the following:

1. Lo-Cat OCS – Treats foul air from the Primary Flotator Clarifiers Influent Channels, Effluent Launderers and Sludge Thickener Tanks.
2. Clarifier OCS – Treats foul air from the Influent Channels and Primary Clarifiers 7 and 8. This system is also referred to as the “Interim Odor Control System”.
3. Headworks OCS – Treats foul air from various areas of the New Headworks Facility.

OCS facilities currently under construction include the following:

1. Primary Clarifier OCS (new)
2. Solids OCS (new)
3. Headworks OCS (upgrade)

When the Primary OCS and Solids OCS are completed, the Lo-Cat OCS and Clarifier OCS will be permanently shut down.

Electrical Power

The Solids Handling Building, in which the existing four WSSTs are located, is served by a City-owned 11.5 kV distribution system within the Sand Island WWTP. The system is serviced by two HECO 11.5 kV feeder lines (Sand Island 1 and 2) that connect to a Primary Switching Station Building along Sand Island Parkway. See **Section 3.3.5 Electrical Systems** for further description. In the event of a utility power outage, a system of backup generators located throughout the plant automatically start and provide power to the pumps and essential equipment.

Water

Water is provided to the Sand Island WWTP through a 12-inch water main which is connected to a Board of Water Supply (BWS) 16-inch water main located along Sand Island Parkway.

2.2 PROJECT DESCRIPTION

Planned project improvements are described below. A site plan and elevation drawings are included as **Figure 2-3, New WSST Project Site, Figure 2-4, New WSST Elevation – View West, and Figure 2-5, New WSST Elevation – View North.**

- Existing, decommissioned thermal treatment equipment, consisting of metal piping, scaffolding, and appurtenances, located on the project site will be demolished and cleared from the site.
- A new, fifth WSST will be constructed adjacent to the existing four WSSTs. The new tank will be constructed above grade using cast-in-place, reinforced concrete and will have a footprint of approximately 22 feet by 22 feet, and a height of 29 feet and 8 inches. Tank wall thickness will be approximately 2 feet. To facilitate sludge processing, the bottom of the tank will be sloped from at-grade elevation up to an approximate internal height of 10 feet. Construction of the tank foundation will require minor excavation and fill.
- A new mixing system and piping will be installed with the tank, including two 20 horse power (hp) pumps each with 1,400 gallons per minute (gpm) capacity.
- The existing Solids Handling Building will be modified to provide access to the roof of the new WSST. The pump of the mixing system and piping will be located in the Solids Handling Building. Reinforced concrete wall panels, consistent with the existing building, will be used to construct the WSST housing and tie into the existing structure. The modified structure will have a footprint of approximately 30 feet by 30 feet, and will be approximately 40 feet in height to match the height of the existing tank.
- The new WSST and equipment will not require additional water source for wet sludge processing. Hose bibs will be provided for general utility purposes.

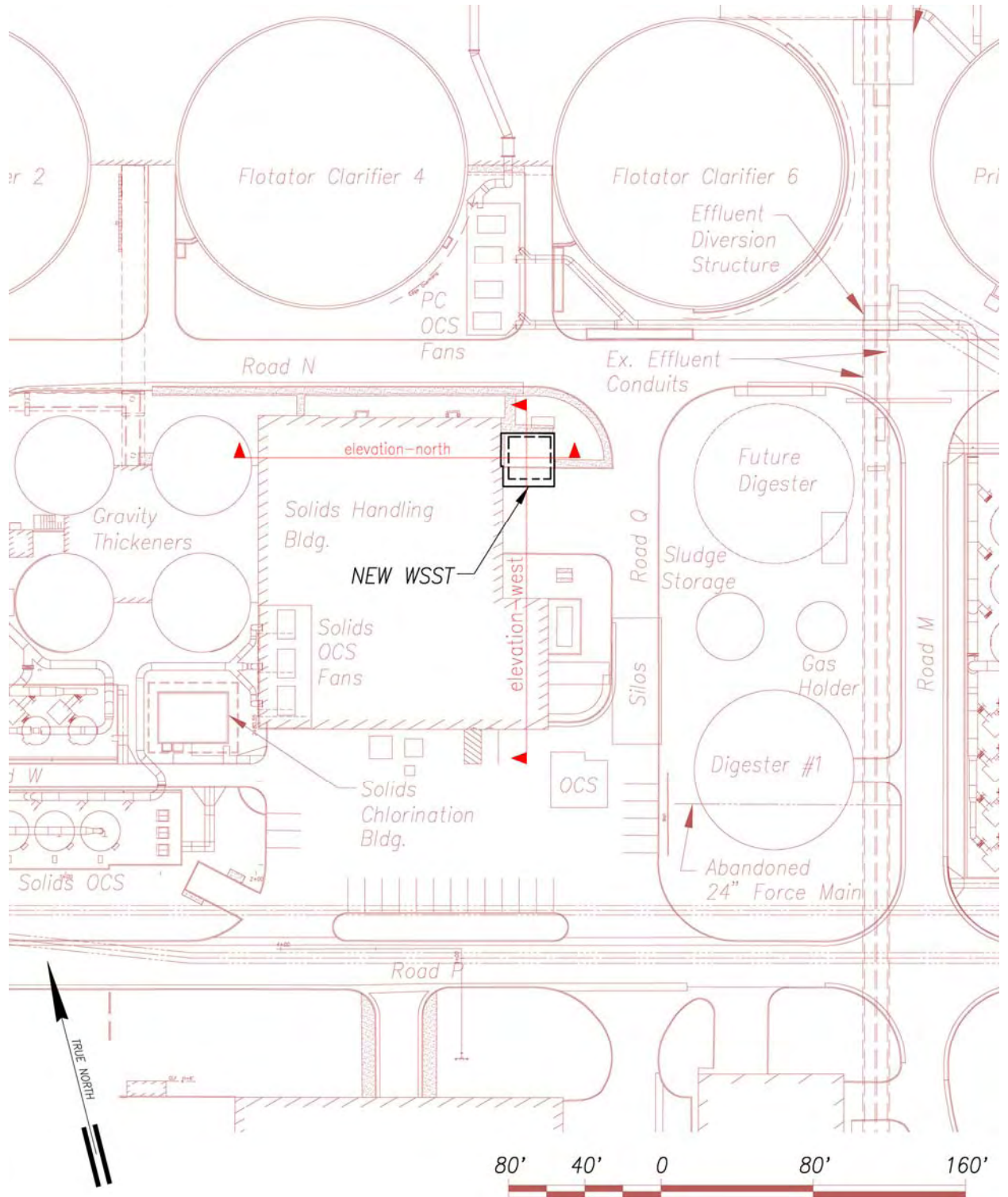


Figure 2-3, New WSST Project Site

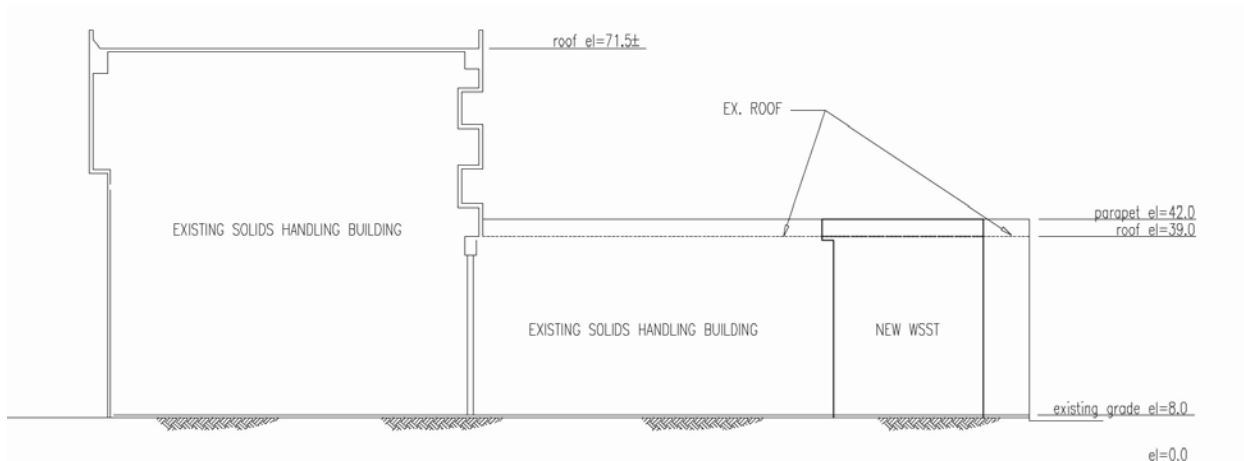


Figure 2-4, New WSST Elevation – View West

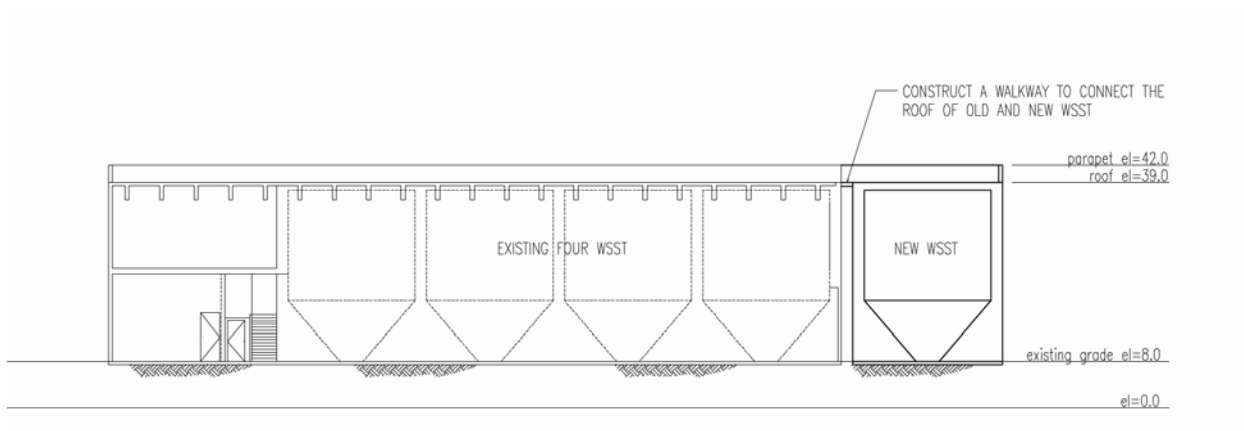


Figure 2-5, New WSST Elevation – View North

- Miscellaneous electrical work is also required to provide power to the mixing system equipment and facility lighting. Power for the electrical equipment will be provided from the HECO Mokuone substation located on the Sand Island WWTP property.
- Exterior lighting will be installed as necessary for operations and safety. Exterior lighting will be shielded and angled downward to minimize glare.
- Foul air from the new WSST will be treated using the existing odor control system (OCS) provided for the Solids Handling Building. A new OCS is not required for this project.

2.3 PROJECT SCHEDULE AND COST

2.3.1 SCHEDULE

Completion of permitting and entitlements	November 2011
Bidding and Contractor Selection	November 2011 – February 2012
Start of construction	March 2012
Completion of construction	March 2013

2.3.2 COST

The engineering estimate for the planned repair work is \$5 million.

2.4 ALTERNATIVES CONSIDERED

2.4.1 NO ACTION

State legislation requires that a “no-action” alternative be considered to serve as a baseline against which potential actions can be measured. The no-action alternative would involve no effort to construct a new, additional WSST. Under this option, environmental impacts resulting from work activities would be averted and project costs would be spared. However, the “no-action” alternative would fail to provide the redundant tank capacity that is required to facilitate necessary rehabilitation and on-going maintenance work on the four existing WSSTs. Without rehabilitation and maintenance, the existing WSST’s will eventually fail, resulting in disruption in WWTP operations and a potential wastewater spill. For these reasons, this alternative was rejected.

2.4.2 DELAYED ACTION

The delayed action alternative would postpone construction of the new tank to an unspecified future date. Under this alternative, environmental impacts resulting from work activities would be delayed, but are anticipated to be generally the same as with the proposed project schedule. Project costs would also be postponed to a later date. It is reasonable to assume that future costs for labor and materials will be greater than present day costs due to inflation. Under this alternative, necessary rehabilitation work and routine maintenance and repair activities would also be delayed indefinitely until a new WSST is budgeted and constructed. The outcome would be increased wear and deterioration of existing WSST equipment, increased repair requirements and corresponding increase in costs, and an increased risk of disruptions in operations. For these reasons, this alternative was rejected.

2.4.3 TEMPORARY TANK

As an alternative to construction of a new, permanent WSST, a temporary tank and mixing equipment could be installed to provide the system redundancy necessary to allow rehabilitation of the existing four WSSTs. Installation of a temporary tank would require clearing the site adjacent to the Solids Handling Building and modification to the existing building structure to connect to the existing sludge processing system with temporary piping. The temporary system would use a pre-fabricated tank and be housed in a temporary structure. Under this option, the duration of work activities would likely be shortened and excavation for the tank foundation would be eliminated, however environmental effects resulting from project activities would otherwise be similar to construction of the proposed, permanent WSST.

The cost to install a temporary system would likely be less than construction of the proposed permanent system, however reductions in the costs of material and labor would be offset by the additional cost of restoring the solids handling building and work site following completion of the WSST rehabilitation. In addition, the labor and material value in the temporary system would be expended upon completion of the rehabilitation work and would have no depreciable value.

Construction of a temporary WSST would meet the project objective of accommodating the necessary rehabilitation of the existing WSSTs, however it would not provide permanent system redundancy to allow for ongoing maintenance and repair work, or future rehabilitation work. Moreover, a temporary WSST would not function as additional storage to assist in regulating and equalizing downstream flows. Costs and environmental effects would be similar to the proposed permanent WSST, however the value and utility of the improvements would be short-term and would not meet all of the project objectives. For these reasons, this alternative was considered, but rejected.

SECTION 3

Description of Affected Environment

3.1 PHYSICAL ENVIRONMENT

3.1.1 CLIMATE

The project is located at Sand Island within an industrialized sector of urban Honolulu on the south shore of O'ahu. Temperatures range from mid-70° F (degrees Fahrenheit) to the upper 80's F with occasional reaches into the 90°+ F range (Atlas of Hawaii, 1998). The average annual temperature recorded at nearby Honolulu International Airport is 77.5° F. Winds are primarily northeasterly tradewinds. Occasionally, during the winter months, storms are accompanied by winds from the south. Average wind speeds for Honolulu range from approximately 10 to 15 miles per hour with occasional gusts of 40+ miles per hour. (Hawai'i State Data Book, 2009).

Rainfall for the Honolulu area ranges from approximately 4 to 5 inches monthly from November through January, to less than 1 inch during the drier summer months. Annual rainfall averages approximately 15 to 20 inches throughout the remainder of the year. Average relative humidity in Honolulu has historically ranged from a high of 77.2% during January, to a low of 64.8% which is typically reached in June. The average annual humidity level is approximately 69 to 70% (Atlas of Hawaii, 1998).

Impacts and Mitigation Measures

The proposed project will have no impacts on the existing climate of the region. Mitigation measures will not be required.

3.1.2 TOPOGRAPHY, GEOLOGY, AND SOILS

The proposed project will be constructed within the existing Sand Island WWTP on man-made terrain comprised of dredged fill material. The project site is virtually flat with ground elevation of 8 feet above mean sea level (msl). The existing grades were established during the original construction of the Sand Island WWTP.

Soils underlying the project site are identified as Fill Land, mixed (FL). Fill land, mixed soils occur mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general

material from other sources. This land type is used for urban development including airports, housing areas and industrial facilities (Soil Conservation Service, 1972). See **Figure 3-1, Soils**.

Impacts and Mitigation Measures

The proposed project will not have a significant effect on the topography or soils of the area. The new WSST facilities will be constructed at grade and will have a building footprint of less than 900 square feet. Construction activities will require minimal excavation and ground disturbing activities. Fill material will be required to support the WSST foundation. Project activities are not expected to generate excess excavated material. Any excess soils resulting from excavation activities will be disposed by storage at the Sand Island WWTP Soil Management Area.

3.1.3 SURFACE WATERS AND HYDROLOGY

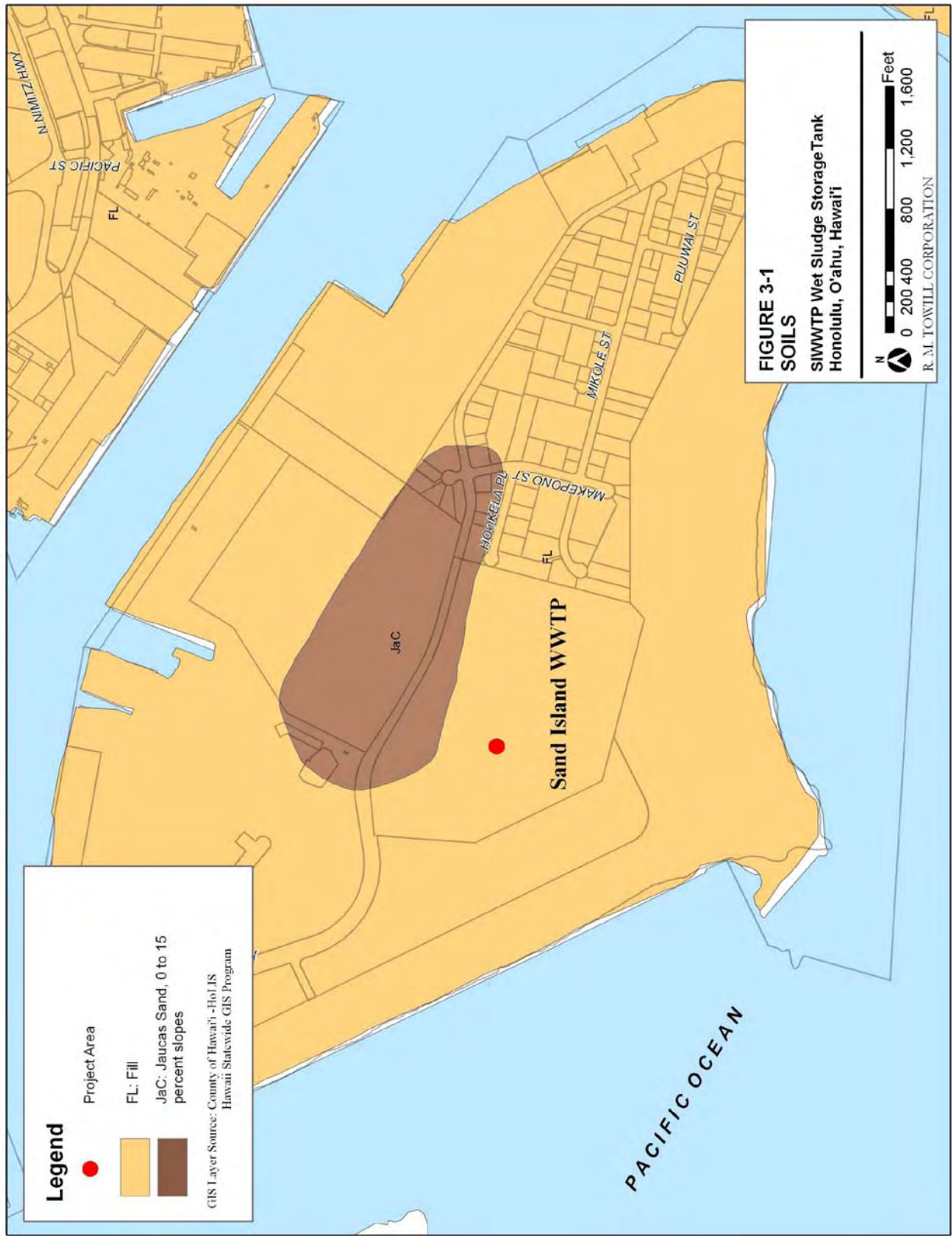
There are no standing water bodies, streams, or other surface water features in the immediate vicinity of the project site. Rainfall and stormwater runoff from the site is directed to the Sand Island WWTP's existing storm drain system consisting of catch basins and underground piping and discharges into a man-made drainage ditch located at the north side of the facility. The drainage ditch begins near the existing Flotation Clarifier Nos. 5 and 6 and extends eastward approximately 700 feet to the edge of the treatment plant property, then northward for approximately 120 feet to a 6-foot by 8-foot box culvert that passes under the Sand Island Parkway and nearby cargo container yard located north of the WWTP, and discharges to Honolulu Harbor.

The drainage ditch is approximately five feet deep with steeply sloped banks and is part of the WWTP drainage system. The drainage ditch meets at least two criteria used by the U. S. Army Corps of Engineers (USACE) to identify wetlands: (1) hydrophytic vegetation (pickleweed and red mangrove) is present in all parts of the canal, and (2) standing water is present the full length of the ditch at depths ranging from a few inches to several feet. Because the ditch is constructed on old fill soils, it was not evaluated for the presence of hydric soils, the third criteria used by the USACE. The drainage ditch

Impacts and Mitigation Measures

The project is not expected to have adverse effects on surface waters or ground waters. Best management practices (BMPs) will be installed and maintained during all phases of construction activities to ensure that sediments and other contaminants are not discharged in runoff water from the site. Implementation of BMPs will serve to protect the wetland conditions in the ditch and the drainage system outfall waters of Honolulu Harbor.

SECTION 3 - Description of Affected Environment



Excavation required for the project will affect only a few feet below existing grade and is not expected to encounter ground water. Work activities and WSST operations will occur in FEMA flood zone X, thus are at very low risk for flood inundation.

3.1.4 AIR QUALITY

Hawaii lies within the Northern Hemisphere Hadley Cell, which is responsible for persistent northeast trade winds. Consequently, air quality is relatively good with the exception of occasional Kona or leeward storms that produce a low pressure system that brings southerly winds and precipitation. The Sand Island area is located within an industrial area that generally receives favorable trades.

The State Department of Health maintains an air quality monitoring station near Sand Island Access Road, near the entrance to the Sand Island State Recreation Area. The station monitors for ozone (O₃), and PM_{2.5} (particulate matter 2.5 micron size or smaller), as well as wind speed and direction. Monitoring at this station consistently shows readings well in compliance with State and Federal air quality standards for the measured parameters. The most current published summary of State air quality data, which includes measurements from the years 2006 to 2008, records no instance where measured parameters at this station exceeds air quality standards (DOH, 2008).

Impacts and Mitigation Measures

Dust and exhaust emissions will be generated from construction vehicles and equipment including backhoes, trucks, pile driving equipment, generators, fuel tanks, etc., during construction. Mitigation of fugitive dust generated during construction will be handled through the use of periodic site watering and applicable on-site Best Management Practices (BMPs). Additional measures as provided in Hawaii Administrative Rules (HAR) Chapter 11-60.1 - Air Pollution Control will also be followed and will include, but not be limited to, the following:

- The planning of project construction operations will focus on: minimizing the amount of dust-generating materials and activities; centralizing material transfer points and on-site vehicular traffic routes; and, locating potentially dusty equipment in areas of least impact;
- An adequate water source at the site will be provided prior to start-up of construction activities for dust control wet-down application;
- Disturbed soils will be stabilized as soon as possible by means of grassing,

- hydromulch, geo-fabric, or other methods of cover;
- Dust will be controlled by stabilizing ground conditions at project entrances to prevent dirt tracking onto adjacent access roads, and by covering or wetting down construction vehicles carrying dust-generating materials; and,
- Adequate dust control measures will be provided on weekends, after hours, and prior to daily start-up of construction activities.

Vehicle and construction equipment exhausts are a source of air pollution. Mitigation of potential adverse effects associated with use of construction equipment, fuel tanks, and vehicle exhausts will be handled through adherence to applicable Federal, State and County regulations. As required, all machinery and vehicles will be required to be in proper working order with appropriate use of mufflers.

3.1.5 NOISE

The project site is subject to noise generated from the existing Sand Island WWTP. Other existing sources of noise include overflights of aircraft within the 70 DNL (decibel noise level) noise contour of Honolulu International Airport; industrial activities from light industrial parcels located east of the site involving auto repair, metals recycling and recovery, and related activities; and traffic from the nearby Sand Island Parkway.

Impacts and Mitigation Measures

Short-term noise impacts associated with the proposed project will result from construction activity. Construction related noise will be generated by use of construction equipment and machinery such as bulldozers, backhoes, compressors, and pile driving equipment. Management of short term noise impacts will involve use of mufflers and related noise reduction technologies. As required, construction equipment with mufflers in poor working condition shall be replaced or repaired. Noise generated by the construction activities will be similar in character and intensity as the existing noise conditions in the surrounding industrial areas and is not expected to have an adverse effect.

Long-term noise effects are not expected to result from the operation of the new WSST following completion of construction. The new WSST equipment will be operated at levels that are consistent with existing rules and standards of the State and County, including HAR, Chapter 11-46, Community Noise Control, which provides for the prevention, abatement and control of noise pollution in the State from stationary, agricultural, and industrial activities.

Mitigative measures to address noise generated by new WSST equipment will include enclosure and muffling of noise generating equipment and use of acoustical walls. Existing use of these practices at the Sand Island WWTP has helped to reduce noise to acceptable safe workplace levels. It is expected that continued use of these practices will be sufficient for the proposed project.

3.1.6 NATURAL HAZARDS

Flood

As shown on FIRM panel 15003C0361G, dated July 22, 2009, the project site is located within flood zone X, which designates areas outside of the 0.2 percent annual chance (500 year) floodplain. See **Figure 3-2, FEMA-FIRM Map**.



Figure 3-2, Sand Island WWTP, FEMA FIRM Panel 15003C0361G (July 22, 2009)

SECTION 3 - Description of Affected Environment

Tsunami

A tsunami involves the generation of a series of destructive ocean waves that can affect all shorelines. These waves can occur at any time with limited or no warning. Persons in low lying shoreline or beach areas are advised to immediately go to higher ground.

On the Tsunami Evacuation Zone Map prepared by the Department of Emergency Management, the proposed project site is located outside of the evacuation boundary within an area considered to be safe from wave action and that would not likely be subject to inundation by a tsunami. See **Figure 3-3, Tsunami Evacuation Zone**.

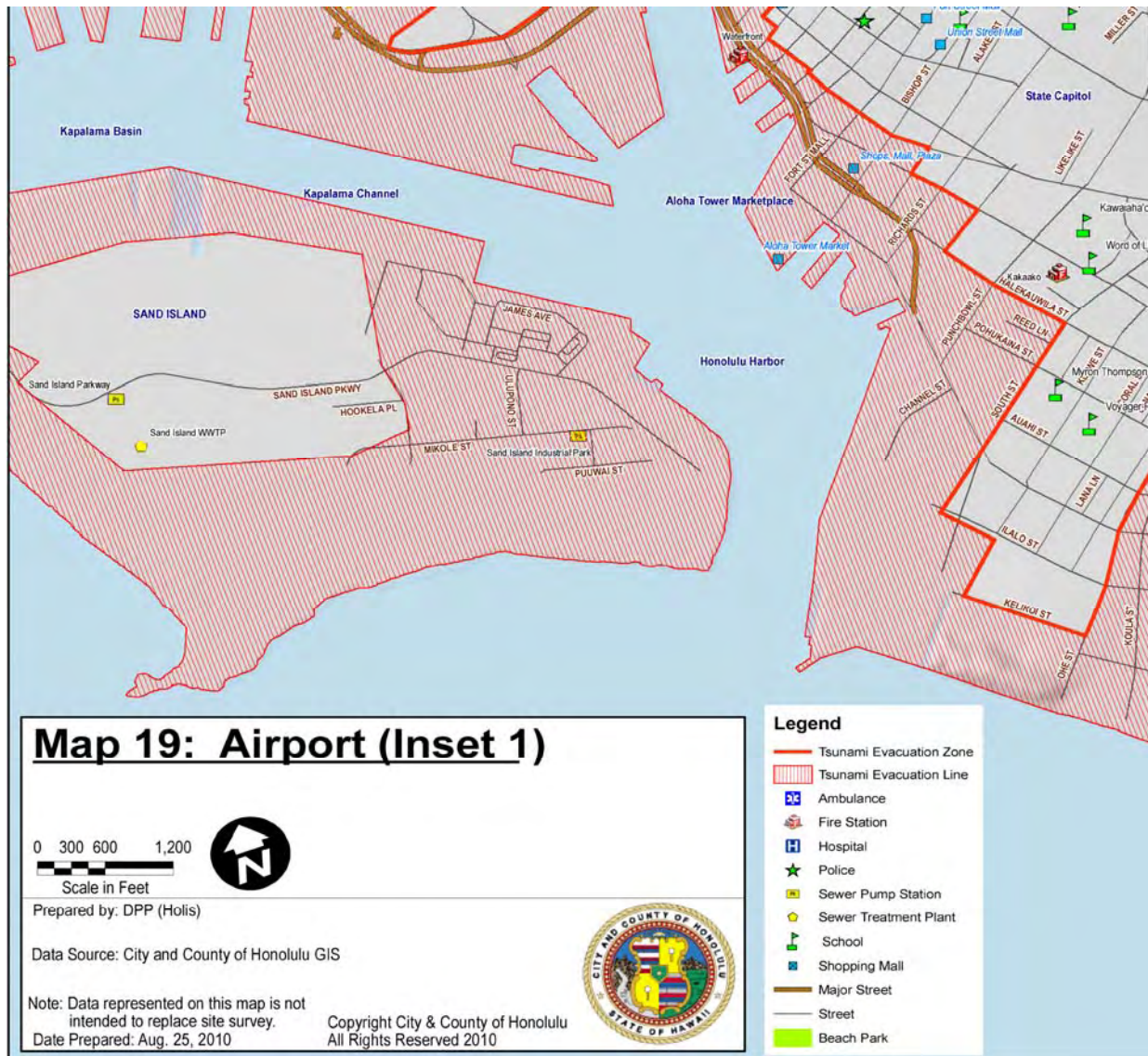


Figure 3-3, Tsunami Evacuation Zone

Seismic Hazard

The Islands of Hawaii experience thousands of earthquakes each year but most are so small that they can only be detected by instruments. Some are strong enough to be felt and a few cause minor to moderate damage. Most of Hawaii's earthquakes are directly related to volcanic activity and are caused by magma moving beneath the earth's surface.

The seismic design category as defined in the International Building Code 2003 (IBC) is a classification assigned to a structure based on its seismic use group and the severity of potential earthquake ground motion at the site. The seismic design category recognizes that building performance during a seismic event depends not only on the severity of sub-surface rock motion in a particular location, but also on the type of soil upon which a structure is founded. The seismic design category is thus a function of location (seismic zone), building occupancy (seismic use group), and soil type (site class). There are four seismic design categories: A, B, C and D with D having the highest seismic load effect on a structure and A having the lowest seismic load effect. New PS buildings have a seismic design category rating of D, the highest load effect on a structure.

The seismic use group in the IBC corresponds to the occupancy importance factor in seismic design. For new wastewater PS structures, the seismic use group III should be considered (Chapter 16, Table 1604.5 ROH). Seismic use group III structures are those having essential facilities that are required for post earthquake recovery and those containing substantial quantities of hazardous substances. The design of the proposed PS will be in accordance with all applicable CCH standards.

Hurricane and Wind

The Hawaiian Islands are seasonally affected by Pacific hurricanes from the late summer to early winter months. The State has been affected twice since 1982 by significant hurricanes, 'Iwa in 1982 and 'Iniki in 1992. During hurricanes and storm conditions, high winds cause strong uplift forces on structures, particularly on roofs. Wind-driven materials and debris can attain high velocity and cause devastating property damage and harm to life and limb. It is difficult to predict these natural occurrences, but it is reasonable to assume that future events will occur. The project area is, however, no more or less vulnerable than the rest of the island to the destructive winds and torrential rains associated with hurricanes.

Impacts and Mitigation Measures

The site is located at elevation 8 feet above msl within FEMA Flood Zone X. No adverse effects to human health or safety associated with flooding are anticipated.

Tsunami and tsunami related flooding in the project area are unlikely due to the fact that the project site is located outside of the Tsunami Inundation Zone. The project is not expected to be adversely affected and no adverse effects are expected to result from construction and operation of the new WSST. No further mitigation measures related to the potential threat of a tsunami are proposed.

The potential for hurricanes, while relatively rare, is present. The site facilities are designed to withstand hurricane force winds principally through the use of high wind resistant enclosures. To safeguard against hurricane damage, the new facility will be designed in compliance with 2003 IBC standards for wind exposure rating C, and will carry a design wind load of 105 mph (ROH Chapter 16).

Earthquakes pose a threat throughout Hawai'i, but disruptive seismic events are relatively uncommon in this region. Design and construction of the proposed WSST will be in accordance IBC design category rating D and Seismic Use Group III, per CCH standards. No further mitigation measures related to seismic disturbance are proposed.

3.1.7 FLORA AND FAUNA

The proposed project is located within an existing wastewater treatment facility in a highly altered environment. Consequently, no rare, threatened or endangered flora or fauna species have been observed to exist at the project site. Species most commonly frequented at the site are typical of urbanized areas and consist of common introduced flora and fauna. Several introduced fauna including the Common Indian Mynah (*Acridotheres tristis*), House Sparrow (*Passer domesticus*), Spotted or Lace-necked Dove (*Streptopelia chinensis*), Zebra Dove (*Geopelia striata*), and Cardinal (*Cardinalis cardinalis*) have been observed at the project location. Mammals such as stray cats, rats and mice have also been observed in the vicinity. Vegetation at the project site is limited to sparse, opportunistic growth of introduced weeds and grasses, including Centipede Grass (*Eremochloa ophiuroides*) and Bermuda Grass (*Cynodon dactylon*). No other landscape plantings or natural vegetation occurs in the project vicinity.

Some migratory seabirds and native waterfowl are known to visit areas within the wider coastal region. Endangered native species such as the Hawaiian hoary bat (*Lasiurus cinereus semotus*) and Short-eared owl or Pueo (*Asio flammeus sandwichensis*) do occur on rare occasions in the lowlands of O'ahu, but due to the high level of development and human activity are highly unlikely to visit areas where project activities will occur.

Impacts and Mitigation Measures

Potential for adverse effects to flora and fauna are not anticipated. The project site is located within the Sand Island WWTP. No listed or protected plant species are known from the project area. Rare, threatened, or endangered fauna are not known to utilize the site for either habitat or for foraging purposes. Construction activities may temporarily disrupt routine behavior of common faunal species in the immediate project area, but will not result in permanent displacement, or adversely affect regional distribution of affected fauna. Once project activities are complete, faunal activity in the vicinity of the work site is expected to return to pre-existing conditions.

Although there is no evidence of migratory seabirds and native waterfowl species using the project site for breeding or habitation, some are known to visit areas within the wider project study area. Mitigation measures to prevent adverse effects to avifauna from night lighting will include the following:

- During construction activities, all nighttime lighting will be shielded and angled downward to reduce glare and disruption of bird flight.
- Following construction, permanent light sources will be shielded and angled downward to eliminate glare that could disturb or disorient animals.

No other mitigation measures are proposed.

3.2 SOCIO-ECONOMIC ENVIRONMENT

3.2.1 LAND USE

The project site occupies approximately 1,000 square feet at the center of the Sand Island WWTP. Surrounding WWTP facilities include the Solids Handling Building, Primary Clarifier Tanks, and Digester Towers. Uses on the surrounding properties include industrial harbor facilities to the north, the Sand Island Industrial Park to the east, the Sand Island State Recreation Area occupies the area south-east and immediately south of the WWTP, and the State Department of Transportation, Harbors Division container yard is located to the west. The project site is located on land zoned I-3, (industrial waterfront) by the CCH. The existing WWTP and proposed WSST are permitted “public uses” in the I-3 zoning district.

Impacts and Mitigation Measures

The proposed new WSST comprises a minor addition to the existing WWTP facilities. The new WSST will provide necessary redundant capacity for repair, maintenance, and improved flow control, and will not result in an expansion of WWTP operations. The new WSST is relatively small in scope and compatible in use with the existing WWTP

facilities. It will not result in significant changes in land use at the WTP and will not detract from or induce changes to the existing land uses on the surrounding properties. No mitigation measures are proposed.

3.2.2 HISTORIC AND ARCHAEOLOGICAL RESOURCES

The project site is situated within artificially created Fill Land, mixed (FL) which was entirely submerged by the ocean during pre- and post-contact periods. In addition, the project site was subject to extensive ground disturbance and modification during construction of the existing Sand Island WWTP. As a result, no archaeological sites are known or expected to be encountered at the project site

Impacts and Mitigation Measures

The proposed project is not expected to result in potential for negative adverse effects to archaeological resources. This is due to the artificially created, mixed fill soils found at the project site. A review of records with the Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD), also indicates that there are no known historic sites at the project location (See Appendix A: Correspondence, SHPD letter to the Department of Design and Construction, March 5, 2001). However, in the event of unexpected discovery of historic or archaeological resources, the SHPD, will be immediately notified for appropriate response and action.

3.2.3 CULTURAL RESOURCES AND PRACTICES

The project site and surrounding Sand Island WWTP facility is not used for traditional, customary, or cultural practices. The project site is located on artificially created land comprised of mixed fill soils in an area that was submerged by the ocean until modern times. The site was heavily modified during construction of the Sand Island WWTP. Plants found at the site are introduced grass species not associated with cultural gathering or use activities. The artificial creation and developed condition of the site is not conducive to the presence of wahi pana (storied place) or other sites associated with cultural practices.

Impacts and Mitigation Measures

Based on the above, the potential for adverse effects to traditional and cultural practices is not anticipated. Construction of the new WSST will not disturb traditional sacred sites or traditional cultural objects; will not result in the degradation of resources used by native Hawaiians for subsistence or traditional cultural practices; will not obstruct landforms or wayfinding features; and will not result in loss of access to the shoreline or other areas customarily used by Hawaiians or others for resource gathering or traditional cultural practices. No mitigation measures are proposed.

3.2.4 SCENIC AND VISUAL RESOURCES

The Sand Island WWTP is located in an industrial harbor area containing large commercial / industrial buildings, fuel tanks, and tall cranes used for container shipping operations. The WWTP facilities include several prominent structures, including clarifier tanks, gas tank (40 feet tall), incinerator building (80 feet tall), and anaerobic digester tower (108 feet tall), and gas tank. These facilities are visible from the ocean, from Ke'ehi Lagoon, from various vantages within urban Honolulu and the immediate surrounding properties, and from areas with elevations exceeding 100 feet above sea level, including Punchbowl, Pacific Heights, Alewa Heights, Upper Kalihi, Tantalus/Roundtop, Diamond Head, and high-rise buildings along Ala Moana Boulevard and Nimitz Highway. Within view planes from the urban coastal areas laterally down the shoreline or towards the sea, the Sand Island WWTP facilities are subordinate to the much taller cargo facility loading cranes (approximately 250 feet in height) and are consistent in appearance with other industrial harbor facilities on Sand Island.

Impacts and Mitigation Measures

The project is not expected to adversely affect scenic and visual resources in the project area. The new WSST will not obstruct or degrade lateral coastal views or mauka-makai views from Sand Island Parkway, the Sand Island State Recreation Area, or other areas in the vicinity of the Sand Island WWTP. The proposed site for the new WSST is located at the center of the Sand Island WWTP adjacent to the existing solids handling building. The new WSST facilities will be approximately 40 feet in height and will occupy a footprint less than 30 feet by 30 feet in area. The scale and massing of the new WSST tank will be smaller than the surrounding WWTP facilities, including the solids handling building, the primary clarifier tanks, and the digester tanks, and will be consistent in appearance with the industrial character of the existing facilities. The height of the new WSST structure will be below the maximum building height of 60 feet for the underlying zoning district.

3.2.5 RECREATIONAL FACILITIES

Located on Sand Island at the entrance to Honolulu Harbor, the Sand Island State Recreation Area (SRA) is an approximately 141-acre coastal recreational area managed by the DLNR, Division of State Parks (DSP). Sand Island was extensively used by the military during WWII for coastal defense with bunkers and lookout towers still present through the SRA. Sand Island was once known as Quarantine Island during the nineteenth century when it was used to quarantine ships believed to hold contagious diseases. During World War II, Sand Island was used to camp Japanese-American citizens and foreign nationals from Germany, Italy, and other countries as part of the wartime effort.

SECTION 3 - Description of Affected Environment

Approximately 97 acres of the SRA at the east end of Sand Island adjacent to the Honolulu Harbor Channel, is existing developed park area. Facilities in this area include picnic tables, BBQs, campgrounds, open lawn passive recreation areas, baseball diamonds, exercise and play apparatus, multi-use paths, covered pavilions, shade trees, and comfort stations. The park provides a wide sand beach that is over a half-mile long.

The remaining approximately 44 acres of the SRA extends along the south and south-west facing shore of Sand Island, and includes the lands makai of the Sand Island WWTP. The area is relatively undeveloped. Existing facilities include marine education and training center, boat ramp, canoe pavilion, and parking at the mouth of the Kapalama Basin Kalihi Channel. The remaining area, approximately 30 acres is currently used as an off-highway vehicle (OHV) recreation area under a pilot project managed by the DLNR Na Ala Hele program.

There are no other recreational resources in the vicinity of the project site.

Impacts and Mitigation Measures

The proposed project will not have an adverse effect on recreational resources. The project site at the center of the Sand Island WWTP may be visible from limited areas of the park, however due to distance and the small project scale, construction activities will not be generally noticeable nor have an adverse effect on recreational activities at the park. Operation of the new WSST following construction will not result in noticeable change from existing operations at the WWTP facility. Public access and use of the park and shoreline areas will remain unaffected by project activities. No mitigation measures are proposed or anticipated to be required.

3.2.6 FIRE, POLICE AND MEDICAL SERVICES

The nearest fire station is Kaka'ako Fire Station located on Queen Street approximately 1 mile from the project site. The closest Police Department is on South Beretania, roughly 2 miles from the project site. And the closest hospital is Queen's Medical Center, approximately 1.5 miles away from the project site.

Impacts and Mitigation Measures

The proposed project is not expected to have an adverse effect on or increase in for calls for fire, police or medical services. Planned improvements will not result in an increase in population. Emergency vehicle access will be maintained throughout the construction site for the duration of the project. Operation of the WSST following construction will

not result in significant or noticeable change from existing operations at the WTP facility. No mitigation measures are required or recommended.

3.2.7 SOCIO-ECONOMIC CONDITIONS

The existing Sand Island WWTP serves metropolitan Honolulu from Moanalua-Aliamano to Niu Valley-Paiko Peninsula and includes U.S. Army facilities at Fort Shafter and Tripler Army Medical Center. The facility serves a combined resident and visitor population of approximately 403,000 urban residents. From 2000 to 2008, the service area experienced only a 0.8 percent growth in population, the smallest growth among all counties in Hawai'i. The rest of O'ahu gained 5.1 percent in population during the same time period, and statewide population growth was 6.3 percent. The median age among residents in the service area in 2010 is 43 years, three years older than the county-wide median age among residents.

Households in the service area somewhat smaller than households islandwide (2.5 versus 2.9 persons per household, respectively). This finding is consistent with the older population, and therefore fewer children present in households. The number of housing units in the service area has remained fairly consistent over the past several years, increasing by less than one percent between 2005 and 2008. Countywide, the number of housing units has increased at double the rate during the same time period. A large proportion of the residents of the service area live in high-rise accommodations, with 44 percent of all the housing units in structures with 20 or more units. These units also tend to be older, with fully half of them constructed more than 30 years ago.

The Sand Island WWTP service area contains the central business district, Waikiki and numerous other tourist attractions, industrial areas at Sand Island, Kaka'ako, and Mapunapuna, and is home to approximately three-quarters of jobs statewide. Waikiki alone accounts for an estimated eight percent of Hawai'i's Gross State Product. This region also contains Honolulu Harbor and the Honolulu International Airport, which have relatively small work forces and total revenues, but together facilitate nearly all of the commercial activity in the State. While the number of jobs in the Honolulu area is expected to remain generally consistent for the foreseeable future, the composition of job types in the SISB Phase I Area will likely change as more commercial and government growth occurs in west and central O'ahu.

Impacts and Mitigation Measures

The project will not have an adverse effect on area demographics of economic conditions. The new WSST will provide redundant capacity for solids handling processes at the Sand Island WWTP for purposes of facility rehabilitation, maintenance,

and improved operations, but will not increase overall treatment capacity. The proposed improvements to the treatment plant will not accommodate or induce an increase or change in population. Construction of the new WSST will result in temporary, positive economic activity in the form of construction jobs and material procurements. These effects will be temporary however, and will cease upon project completion. Facility operations following construction will remain generally unchanged from existing conditions. No mitigation measures are recommended or required.

3.3 INFRASTRUCTURE AND UTILITIES

3.3.1 TRAFFIC AND TRANSPORTATION SYSTEMS

Existing Traffic Conditions

Sand Island Parkway Road (State Highway 64) is the major thoroughfare serving Sand Island. It is the continuation of Sand Island Access Road, which extends from Nimitz Highway to and across Bascule Bridge, which crosses the Kalihi Channel between Sand Island and Kalihi Kai. The majority of the traffic near the project site is generated by surrounding activities, including the transportation of shipping containers from Honolulu Harbor to other locations; the U.S. Coast Guard Station Honolulu; the Sand Island State Recreational Area; and a number of small businesses and industries located in the area.

Impacts and Mitigation Measures

No significant increase in traffic associated with the proposed WSST project is expected. On a short-term basis, construction-related traffic may be temporarily noticeable on Sand Island Access Road. However due to the limited scope of the project, construction-related traffic will not significantly alter the total volume of traffic on Sand Island Access Road. The contractor will be required to keep all construction vehicles in proper operating condition and ensure that material loads are properly secured to prevent dust, debris, leakage, or other adverse conditions from affecting public roadways. No other mitigation measures are required or recommended.

3.3.2 DRAINAGE SYSTEM

Rainfall and stormwater runoff from the site is directed to the Sand Island WWTP's existing storm drain system consisting of catch basins and underground piping and discharges into a man-made drainage ditch located at the north side of the facility. The drainage ditch begins near the existing Flotation Clarifier Nos. 7 and 8 and extends eastward approximately 700 feet to the edge of the treatment plant property, then northward for approximately 120 feet to a 6-foot by 8-

foot box culvert. The box culvert passes under the Sand Island Parkway and nearby cargo container yard located north of the WWTP, and discharges to Honolulu Harbor.

Impacts and Mitigation Measures

No adverse effects to the drainage system or receiving waters are expected to result from the project. The project does not involve any modifications to the existing drainage system and will not result in an increase in impervious area. The project contractor will employ construction stormwater Best Management Practices (BMPs) to prevent sediment or other pollutants from discharging in stormwater runoff from the site. The construction site and staging area will be smaller than one acre, therefore a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit is not required.

3.3.3 WATER SYSTEM

Water is provided to the Sand Island WWTP through an existing 12-inch water main which is connected to a Board of Water Supply (BWS) 16-inch water main located along Sand Island Parkway.

Impacts and Mitigation Measures

Construction and use of the proposed project will not disrupt or otherwise adversely affect the water system. Construction activities will require use of water for dust control, vehicle wash down, concrete mixing, general housekeeping activities, and for pipe pressure testing. These uses will be intermittent and of short duration and will cease upon project completion. Quantities of water required for these uses are relatively minor. The existing water system has sufficient capacity to accommodate the temporary demands from construction activities. Following construction, operation of the new WSST will require water use for tank wash down as part of periodic maintenance, however additional water use is not required for normal operation of the tank. No additional mitigation measures are required or recommended.

3.3.4 WASTEWATER SYSTEM

Wastewater generated by personnel and maintenance activities at the Sand Island WWTP is conveyed to the Makai Lift Station located within the Sand Island WWTP property. Influent is then pumped through a 8-inch force main directly to the Sand Island WWTP headworks. The facility provides primary wastewater treatment. The treatment process is described in **Section 2.1.3**. Treated effluent is disposed through a deep ocean outfall. The solids handling building, where project activities will occur, contains toilet and wash basin for use by facility personnel.

Impacts and Mitigation Measures

Construction and use of the proposed project will not disrupt or otherwise adversely affect wastewater systems. The new WSST will benefit the Sand Island WWTP by providing redundant tank capacity that is required to accommodate necessary rehabilitation work and on-going maintenance on the four existing WSSTs. The new tank will also benefit normal plant operations by providing additional capacity to assist in regulating and equalizing peak flow loading rates to downstream treatment processes.

Construction activities will not generate a significant quantity of wastewater. Construction personnel will have access to existing restroom facilities or be provided with Port-a-Johns. No other mitigation measures are recommended or required.

3.3.5 ELECTRICAL SYSTEMS

Electrical service for customers on Sand Island is provided by HECO. Sand Island is served by two HECO 46 kV transmission lines, Iwilei 1 and 2. These two 46 kV circuits are run overhead through Kalihi Kai, cross Kalihi Channel as submarine cables, and continue underground to the HECO Sand Island Substation located near the east end of Bascule Bridge, adjacent to Kalihi Channel. The Sand Island Substation steps the 46 kV transmission voltage down to 11.5 kV for distribution on Sand Island. The 11.5 kV distribution feeders are designated Sand Island 1 and 2. The feeder lines are overhead lines supported on utility poles.

The two 46 kV lines have also recently been extended from the Sand Island Substation to the Mokuone Substation to support the increasing loads at the Sand Island WWTP. Mokuone Substation steps the 46 kV transmission voltage down to 11.5 kV for distribution on Sand Island. The two 11.5 kV distribution feeders from the Mokuone Substation are designated as Mokuone 1 and 2.

On-site electrical power distribution systems at the Sand Island WWTP consist of a combination of underground HECO and City-owned 11.5 kV, 3-phase systems serviced by the Mokuone 1, and Sand Island 1 and 2 feeder lines. The Solids Handling Building in which the existing four WSSTs are located, is served by the City-owned 11.5 kV distribution system. The system is serviced by the Sand Island 1 and 2 11.5 kV feeders which connect to primary switch gear located in the Primary Switching Station Building along Sand Island Parkway. The main switchgear then feeds City-owned and maintained 11.5 kV feeders, transformers, and primary

distribution equipment within the Sand Island WWTP. A single HECO meter located within the primary switchgear is used to meter use.

In the event of a utility power outage, a system of backup generators located throughout the plant automatically start and provide power to the pumps and essential equipment.

Impacts and Mitigation Measures

Construction of the new WSST will not adversely affect the provision of electrical power at the facility. The existing HECO system has adequate capacity to meet the power requirements during construction activities. Following construction, electrical power will be required for the new WSST mixing system equipment and facility lighting. Power demand for the new WSST will be relatively low and intermittent in nature. Under typical operating conditions, power use at the new WSST will be offset by power savings at tanks being shut down for maintenance purposes. No mitigation measures are required or recommended.

3.3.6 SOLID WASTE DISPOSAL

Solid waste collection, transport and disposal operations are the responsibility of the CCH ENV Refuse Division. Solid waste is collected and disposed of at either the Waimanalo Gulch Landfill in the Ewa district, or the H-Power facility at Campbell Industrial Park. PVT Land Company operates a privately owned and operated, licensed solid waste facility for recovery of recyclable materials and disposal of construction and demolition materials. The PVT Landfill accepts waste on a pre-arranged basis from registered contractors. Waste loads are screened to remove recyclable materials and the remaining wastes are landfilled.

Impacts and Mitigation Measures

Construction activities will result in the generation of small amounts of construction and demolition debris. Construction and demolition debris will be disposed of at the PVT Landfill in accordance with CCH and State DOH regulations and provisions of the PVT facility license. Non-construction solid waste generated by project activities may be collected and disposed at the Waimānalo Gulch Landfill or H-Power. Project activities are not expected to generate excess excavated material. Any excess soils resulting from excavation activities will be disposed by storage at the Sand Island WWTP Soil Management Area.

SECTION 4

Relationship to Land Use Plans and Policies

4.1 THE HAWAII STATE PLAN

The Hawai'i State Plan, adopted in 1978, and promulgated in HRS, Chapter 226, consists of three major parts:

Part I, describes the overall theme including Hawaii's desired future and quality of life as expressed in goals, objectives, and policies.

Part II, Planning Coordination and Implementation, describing a statewide planning system designed to coordinate and guide all major state and county activities and to implement the goals, objectives, policies, and priority guidelines of the Hawai'i State Plan.

Part III, Priority Guidelines, which express the pursuit of desirable courses of action in major areas of statewide concern.

The proposed project is consistent with the objectives and policies of the Hawai'i State Plan. Specifically, the proposed action will provide a new Wet Sludge Storage Tank (WSST) to facilitate as a standby tank in case any one tank is required to shut down for maintenance or repair. Described below are sections of the Hawai'i State Plan's goals, objectives, and policies that are relevant to the proposed action.

§226-15 Objectives and policies for facility systems--solid and liquid wastes. (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 re-use 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. [L 1978, c 100, pt of §2; am L 1986, c 276,

§14]

The proposed project supports the State Plan objectives and policies related to the adequate development of sewerage facilities. The project will provide a new, fifth WSST to supplement the existing four WSSTs. Four tanks are required for normal operations. The existing tanks are in need of rehabilitation. An additional tank will provide system redundancy so that any one tank may be shut down for necessary rehabilitation work, and on-going maintenance and repair. In addition, the new tank will improve treatment system operations by providing additional capacity that can be used to regulate flows to downstream processes under peak-flow conditions.

4.2 STATE LAND USE LAW

The State Land Use Commission classifies all lands in the State of Hawai'i into one of four land use designations: Urban, Rural, Agricultural and Conservation. The project site is located in the State Land Use Urban District. Wastewater treatment facilities are an approved public use within this District. Land uses within the Urban District are regulated through the City and County of Honolulu (CCH) Land Use Ordinance, Chapter 21, Revised Ordinances of Honolulu (ROH). No action from the State Land Use Commission is required to implement the proposed project (see **Figure 4-1, State Land Use District**).

4.3 CITY AND COUNTY OF HONOLULU (CCH) GENERAL PLAN

The General Plan, a requirement of the CCH Charter, is a written commitment by CCH to a future for the Island of O'ahu. The current plan, approved in 2006, is a statement of the long-range social, economic, environmental, and design objectives and a statement of broad policies which facilitate the attainment of the objectives of the plan.

Wastewater facilities are considered utilities. Therefore, the most relevant section of the General Plan is Section V, entitled "Transportation and Utilities".

Section V, Transportation and Utilities

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

Policy 3 - Encourage the development of new technology which will reduce the cost of providing water and the cost of waste disposal.

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



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

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

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

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

Objective D: *To maintain transportation and utility systems which will help O'ahu continue to be a desirable place to live and visit.*

Policy 1- Give primary emphasis in the capital-improvement program to the maintenance and improvement of existing roads and utilities.

Policy 2 - Use the transportation and utility systems as a means of guiding growth and the pattern of land use on O'ahu.

Policy 4 - Evaluate the social, economic, and environmental impact of additions to the transportation and utility systems before they are constructed.

Policy 5 - Require the installation of underground utility lines wherever feasible.

The proposed project is consistent with Section V, *Objective B*, concerning environmentally-sound utility systems. Implementation of the project will extend the equipment life and improve solids handling operations that are an essential component of the existing Sand Island WWTP. *Objective C* is aimed at maintaining a high level of service for all utilities under the jurisdiction of CCH, including wastewater collection and treatment. The new WSST will provide missing system redundancy that will improve system reliability and operations, and assist in maintain a high level of utility service. With regard to *Objective D*, maintaining utility systems, the planned improvements are intended not only to maintain, but to improve, wastewater treatment process

4.4 CCH ZONING AND LAND USE ORDINANCE

The project site is located in the CCH I-3 (Waterfront Industrial) zoning district, as defined in Chapter 21, ROH, the "Land Use Ordinance" (LUO):

"Sec. 21-3.130 Industrial districts--Purpose and intent.

(f) The intent of the I-3 waterfront industrial district is to set apart and protect areas considered vital to the performance of port functions and to their efficient operation. It is the intent to permit a full range of facilities necessary for successful and efficient performance of port functions. It is intended to exclude uses which are not only inappropriate but which could locate elsewhere.

(Added by Ord. 99-12)"

According to LUO Table 21-3, *Master Use Table*, the Sand Island WWTP facilities, including the proposed WSST addition, are defined as “Public uses and structures” and are permitted in the I-3 zoning district. The project is thus consistent with the purpose and uses of the land’s associated zoning district classifications under the CCH LUO. See **Figure 4-2, Zoning**.

4.5 PRIMARY URBAN CENTER (PUC) DEVELOPMENT PLAN

The PUC Development Plan, most recently updated in 2004, implements the objectives and policies of the General Plan for the PUC, which is described as the “cultural, governmental and economic center of both O’ahu and the State.” The PUC Development Plan is incorporated into Ordinance 04-14 by reference. The proposed project is consistent with the policies described in the PUC Development Plan, Chapter 4.2, Wastewater:

Section 4.2.2 Policies

- *Implement adequate and timely upgrades/expansion of wastewater treatment facilities to meet the growth demands of the PUC.*

The proposed new, fifth WSST is not required to address increased service demands at the Sand Island WWTP, however it is a required upgrade to ensure continued, reliable operations and maintenance of the existing treatment processes. The project site is located within land identified for “Industrial” use on the PUC DP Map A.5: Land Use Map PUC – Central. Wastewater treatment facilities are an approved use within this land use designation.

4.6 SPECIAL MANAGEMENT AREA (SMA) RULES AND REGULATIONS

The City and County of Honolulu has designated the shoreline and certain inland areas of O’ahu as being within the Special Management Area (SMA). SMA areas are designated sensitive environments that should be protected in accordance with the State’s Coastal Zone Management policies, as set forth in Revised Ordinances of Honolulu (ROH), Section 25, Shoreline Management, and Hawaii Revised Statutes (HRS), Section 205A, Coastal Zone Management.

The Sand Island WWTP, including the proposed project site, is located within the SMA. See **Figure 4-3, Special Management Area**.

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4.6.1 SHORELINE MANAGEMENT, ROH SECTION 25

The potential effects of the proposed project are evaluated based on the review guidelines in the Revised Ordinances of Honolulu (ROH) Section 25-3.2. The following is a discussion of the applicability of the guidelines to the planned construction of a new wet sludge storage tank.

(a) All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that:

(1) Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas and natural reserves is provided to the extent consistent with sound conservation principles;

The project site is located within the Sand Island WWTP facility. Access to beaches, recreation areas, and natural reserves will not be affected by project activities or operation of the WSST following construction.

(2) Adequate and properly located public recreation areas and wildlife preserves are reserved;

The project consists of improvements within an existing, established WWTP facility. Public recreation areas and wildlife preserves will not be affected by project activities or operation of the WSST following construction.

(3) Provisions are made for solid and liquid waste treatment, disposition and management which will minimize adverse effects upon special management area resources; and,

Construction activities will not generate a significant quantity of wastewater. Construction personnel will have access to existing restroom facilities at the solids handling building or be provided with Port-a-Johns. No other mitigation measures are recommended or required. Construction and use of the proposed project will not disrupt or otherwise adversely affect wastewater systems. The new WSST will benefit the Sand Island WWTP by providing redundant tank capacity that is required to accommodate necessary rehabilitation work and on-going maintenance on the four existing WSSTs. The new tank will also benefit normal plant operations by providing additional capacity to assist in regulating and equalizing peak flow loading rates to downstream treatment processes.

Construction activities will result in the generation of small amounts of construction and demolition debris. Construction and demolition debris will be disposed of at the PVT Landfill in accordance with CCH and State DOH regulations and provisions of the PVT facility license. Non-construction solid waste generated by project activities may be collected and disposed at

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the Waimānalo Gulch Landfill or H-Power. Project activities are not expected to generate excess excavated material. Any excess soils resulting from excavation activities would be disposed by storage at the Sand Island WWTP Soil Management Area.

(4) Alterations to existing land forms and vegetation; except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation or failure in the event of earthquake.

The new WSST and housing is being constructed in a vacant area adjacent to the existing solids handling building located at the center of the Sand Island WWTP. The project site is flat with an existing elevation of approximately 8 feet above mean sea level (msl), and is not susceptible to landslides or erosion. There are no surface waters in the immediate vicinity. Best management practices will be undertaken during construction activities to ensure that silt and dust will not escape the project site during ground disturbing activities. The site is located in FEMA flood Zone X, which designates areas with 0.2 percent annual chance of flooding, thus is exposed to minimal risk from flooding. The site is located outside of the tsunami evacuation zone. All structures will be constructed to meet International Building Code 2003 standards for seismic design category rating 'D', which designates the highest load effect on a structure; and seismic use group III (Chapter 16, Table 1604.5 ROH), which designates essential facilities that are required for post earthquake recovery and those containing substantial quantities of hazardous substances.

The existing Solids Handling Building will be modified to provide access to the roof of the new WSST. The pump of the mixing system and piping will be located in the Solids Handling Building. Reinforced concrete wall panels, consistent with the existing building, will be used to construct the WSST housing and tie into the existing structure. The modified structure will have a footprint of approximately 30 feet by 30 feet, and will be approximately 40 feet in height to match the height of the existing tank. The expansion height and massing is consistent with the existing building height and is below the maximum building height of 60 feet for the underlying zoning district. The project site is surrounded by existing large structures and tanks, some of which exceed 60 feet in height, that are part of the Sand Island WWTP facilities. The surrounding area is primarily used as an industrial harbor and contains large commercial / industrial buildings, fuel tanks, and tall cranes (approximately 250 feet in height) used for shipping operations. Within view planes from the urban coastline towards the sea, the Sand Island WWTP facilities are subordinate to the much taller cargo facility loading cranes and are consistent in appearance with other industrial harbor facilities on Sand Island. The proposed WSST and

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housing will not occupy views from recreational areas toward the ocean or toward scenic view planes or landmarks.

- (b) *No development shall be approved unless the council has first found that:*
- (1) *The development will not have any substantial, adverse environmental or ecological effect except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interest. Such adverse effect shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect and the elimination of planning options;*

The proposed project is not anticipated to involve a substantial degradation of environmental quality. The site has long been developed and in use as the City of Honolulu’s primary wastewater treatment facility. The planned construction and operation of the new WSST and housing will not substantially alter environmental conditions at the project site. Planning and design for the project includes mitigation measures to prevent or minimize potential adverse environmental effects. The project will not result in cumulative impacts, will not involve a commitment to larger actions, and will not result in the elimination of planning options.

The minor environmental effects from construction activities should be considered in light of the project’s benefit to wastewater treatment operations which include facilitating the rehabilitation of the existing WSSTs, providing a standby tank for redundancy in the event an existing tank needs to be shut down for maintenance or repair, and providing additional capacity to help equalize peak flows through the treatment system.

- (2) *The development is consistent with the objectives and policies set forth in Section 25-3.1 and area guidelines contained in HRS Section 205A-26;*

The project is in compliance with the objectives and policies set forth in HRS 205A-2, and SMA guidelines contained in HRS 205-A26. This document is prepared to summarize the project effects in relation to the SMA guidelines in HRS Section 205A-26 and ROH Section 25. See Section 4.6.2 for discussion of the project’s compliance with the State’s objectives and policies for the Coastal Zone.

- (3) *The development is consistent with the county general plan, development plans and zoning. Such a finding of consistency does not preclude concurrent processing where a development plan amendment or zone change may also be required.*

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The project is in conformance with the General Plan objectives for *Transportation and Utilities*, as described in **Section 4.3**. The County zoning designation for the project site is I-3, Waterfront Industrial. According to Table 21-3, *Master Use Table*, of the LUO, the planned WSST is considered a “public use and structure” and is a permitted use in the I-3 zoning district, as described in **Section 4.4**. The project site is designated as “Industrial” in the Development Plan for the Primary Urban Core. The planned WSST is in compliance with this designation, as described in **Section 4.5**.

(c) *The council shall seek to minimize, where reasonable:*

(1) *Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon;*

The project does not involve filling or otherwise altering any water body.

(2) *Any development which would reduce the size of any beach or other area usable for public recreation;*

The project site is located within the existing Sand Island WWTP and does not affect any beach or other area usable for public recreation.

(3) *Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach;*

The project is not located where it would reduce or impose restrictions upon public access to any shoreline areas or surface waters.

(4) *Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast; and*

The new WSST and appurtenant equipment will not be visible from Sand Island Parkway, and will not interfere with or detract from line of sight toward the sea from the roadway. Waterfront industrial structures in the area, including facilities at Sand Island WWTP, are visible from the ocean, from Keehi Lagoon, from various vantages within urban Honolulu and the immediate surrounding properties, and from areas with elevations exceeding 100 feet above sea level, including Punchbowl, Pacific Heights, Alewa Heights, Upper Kalihi, Tantalus/Roundtop, Diamond Head, and high-rise buildings along Ala Moana Boulevard and Nimitz Highway. Within view planes from the urban coastline towards the sea, the Sand Island WWTP facilities are subordinate

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to the much taller cargo facility loading cranes and are consistent in appearance with other industrial harbor facilities on Sand Island.

(5) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.

The project site is located within an existing, developed industrial facility at the Sand Island WWTP. The new WSST will result in improved operations and wastewater treatment system reliability at the plant. The project will not adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land

4.6.2 COASTAL ZONE MANAGEMENT, HRS 205(A)

The State of Hawaii designates the Coastal Zone Management Program (CZMP) to manage the intent, purpose and provisions of Chapter 205(A)-2 of the Hawaii Revised Statutes (HRS), as amended, for the areas from the shoreline to the seaward limit of the State's jurisdiction, and any other area which a lead agency may designate for the purpose of administering the Coastal Zone Management program. The following is an assessment of the project with respect to the CZMP objectives and policies set forth in Section 205(A)-2.

1. Recreational resources

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

Policies:

A) Improve coordination and funding of coastal recreational planning and management; and

B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) 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;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

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(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) 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;

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

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) 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 will not have an adverse effect on the adjacent Sand Island State Recreation Area or other recreational resources. The project site at the center of the Sand Island WWTP may be visible from limited areas of the park, however due to distance and the small project scale, construction activities will not be generally noticeable nor have an adverse effect on recreational activities at the park. Operation of the new WSST following construction will not result in noticeable change from existing operations at the WWTP facility. Public access and use of the park and shoreline areas will remain unaffected by project activities.

Water quality will be protected during construction through the application of construction stormwater BMPs to prevent sediment or other pollutants from discharging in stormwater runoff from the site. The construction site and staging area will be smaller than one acre, therefore a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit is not required. Planned improvements will not alter existing drainage patterns. Following construction, landscaping will be used to stabilize soils and prevent sediment discharge in storm water runoff.

Operation of the new WSST following construction will not result in a change in the quality or quantity of treated effluent discharge from the Sand Island WWTP.

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:

- (A) Identify and analyze significant archaeological resources;*
- (B) Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (C) Support state goals for protection, restoration, interpretation, and display of historic resources.*

Discussion:

The project site is situated within artificially created Fill Land, mixed (FL) which was entirely submerged by the ocean during pre- and post-contact periods. In addition, the project site was subject to extensive ground disturbance and modification during construction of the existing Sand Island WWTP. As a result, no archaeological sites are known or expected to be encountered at the project site

The proposed project is not expected to result in potential for negative adverse effects to archaeological resources. This is due to the artificially created, mixed fill soils found at the project site. A review of records with the Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD), also indicates that there are no known historic sites at the project location (SHPD letter to DDC, March 5, 2001). However, in the event of unexpected discovery of historic or archaeological resources, the SHPD will be immediately notified for appropriate response and action.

The project site and surrounding Sand Island WWTP facility is not used for traditional, customary, or cultural practices. The project site is located on artificially created land comprised of mixed fill soils in an area that was submerged by the ocean until modern times. The site was heavily modified during construction of the Sand Island WWTP. Plants found at the site are introduced grass species not associated with cultural gathering or use activities. The artificial creation and developed condition of the site is not conducive to the presence of wahi pana (storied place) or other sites associated with cultural practices.

Based on the above, the potential for adverse effects to traditional and cultural practices is not anticipated. Construction of the new WSST will not disturb traditional sacred sites or traditional cultural objects; will not result in the degradation of resources used by native Hawaiians for

subsistence or traditional cultural practices; will not obstruct landforms or wayfinding features; and will not result in loss of access to the shoreline or other areas customarily used by Hawaiians or others for resource gathering or traditional cultural practices. No mitigation measures are proposed.

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:

(A) Identify valued scenic resources in the coastal zone management area;

(B) 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;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments that are not coastal dependent to locate in inland areas.

Discussion:

The Sand Island WWTP is located in an industrial harbor area containing large commercial / industrial buildings, fuel tanks, and tall cranes used for container shipping operations. The WWTP facilities include several prominent structures, including clarifier tanks, gas tank (40 feet tall), incinerator building (80 feet tall), anaerobic digester tower (108 feet tall), and gas tank. These facilities are visible from the ocean, from Ke'ehi Lagoon, from various vantages within urban Honolulu and the immediate surrounding properties, and from areas with elevations exceeding 100 feet above sea level, including Punchbowl, Pacific Heights, Alewa Heights, Upper Kalihi, Tantalus/Roundtop, Diamond Head, and high-rise buildings along Ala Moana Boulevard and Nimitz Highway. Within view planes from the urban coastal areas laterally down the shoreline or towards the sea, the Sand Island WWTP facilities are subordinate to the much taller cargo facility loading cranes (approximately 250 feet in height) and are consistent in appearance with other industrial harbor facilities on Sand Island.

The proposed site for the new WSST is located at the center of the Sand Island WWTP adjacent to the existing solids handling building. The new WSST facilities will be approximately 40 feet in height and will occupy a footprint less than 30 feet by 30 feet in area. The scale and massing of the new WSST tank will be smaller than the surrounding WWTP facilities, including the solids

handling building, the primary clarifier tanks, and the digester tanks, and will be consistent in appearance with the industrial character of the existing facilities. The height of the new WSST structure will be below the maximum building height of 60 feet for the underlying zoning district.

Due to the relatively small scale, location at the center of the existing Sand Island WWTP, and industrial context of the surrounding area, the project is not expected to adversely affect scenic and visual resources in the shoreline area. The new WSST will not obstruct or degrade lateral coastal views or mauka-makai views from the shoreline, Sand Island Parkway, or the Sand Island State Recreation Area.

4. Coastal ecosystems

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

Policies:

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Improve the technical basis for natural resource management;

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(D) 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

(E) 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 project is not expected have any adverse affects on marine resources. Project activities do not involve work in the coastal waters or alterations to stream channels or other water bodies or water sources. Following project completion there will be no noticeable change in wastewater treatment operations, or in discharge effluent quantity or quality over existing conditions.

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During construction, construction stormwater BMPs will be employed to prevent pollutant discharge in storm water runoff. Discharge pollution prevention measures will be installed for each project action as required by project activities. Measures to prevent sediment discharge in storm water runoff during construction will be in place and functional before project activities begin and will be maintained throughout the construction period. Planned improvements will not alter existing drainage patterns or involve modifications to existing drainage systems.

5. Economic uses

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

Policies:

(A) Concentrate coastal dependent development in appropriate areas;

(B) 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

(C) 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:

(i) Use of presently designated locations is not feasible;

(ii) Adverse environmental effects are minimized; and

(iii) The development is important to the State's economy.

Discussion:

The proposed project is located at the center of the existing Sand Island WWTP and involves a relatively minor upgrade to the existing facilities. The new, fifth WSST is required to facilitate necessary rehabilitation and on-going maintenance and repair work to the existing sludge processing facilities at the WWTP, and to generally ensure the continued reliable operation of wastewater treatment processes.

The project has been assessed for social, visual, and environmental impacts in accordance with Chapter 343, HRS. With the implementation of mitigation measures outlined in this document, no adverse impacts are expected to result from this project.

6. Coastal hazards

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

Policies:

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;

(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

(D) Prevent coastal flooding from inland projects.

Discussion:

The project will be undertaken in a manner that will reduce potential harm to life and property from coastal hazards.

- The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel 15003C0361G, dated July 22, 2009, identifies the project site within flood zone X, which designates areas outside of the 0.2 percent annual chance (500 year) floodplain. The project will not exacerbate conditions that would contribute to coastal flooding. No special provisions for flood risk mitigation are recommended.
- The project will not result in changes to existing drainage patterns. Rainfall and stormwater runoff from the site is directed to the Sand Island WWTP's existing storm drain system consisting of catch basins and underground piping and discharges into a man-made drainage ditch located at the north side of the facility. The drainage ditch connects to a 6-foot by 8-foot box culvert that passes under the Sand Island Parkway and nearby cargo container yard located north of the WWTP, and discharges to Honolulu Harbor. No modifications to the drainage system are proposed.
- On the Tsunami Evacuation Zone Map prepared by the Department of Emergency Management, the proposed project site is located outside of the evacuation boundary within an area considered to be safe from wave action and that would not likely be subject to inundation by a tsunami.
- The potential for hurricanes, while relatively rare, is present. To safeguard against hurricane damage, the new facility will be designed in compliance with 2003 IBC standards for wind exposure rating C, and will carry a design wind load of 105 mph (ROH Chapter 16).

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- Earthquakes pose a threat throughout Hawai‘i, but disruptive seismic events are relatively uncommon in this region. Design and construction of the proposed facility will be in accordance IBC design category rating D and Seismic Use Group III, per CCH standards.

7. Managing development

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

Policies:

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

(C) 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:

All work activities will be conducted in compliance with federal, state, and county environmental rules and regulations. This environmental assessment document is prepared to identify and, where necessary, propose mitigation measures to address impacts anticipated from the construction and operation of proposed improvements. This document will be published for public review and comment in compliance with procedures set forth in HRS Chapter 343.

8. Public participation;

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

Policies:

(A) Promote public involvement in coastal zone management processes;

(B) 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

SECTION 4 – Relationship to Land Use Plans and Policies

(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Discussion:

Public participation in the project will be accommodated during the Draft Environmental Assessment (EA) publication period, and during public hearings that will be conducted as part of the SMA permit application process. Public notice of the proposed action will be provided through publication of the EA and SMA permit application in the OEQC Bulletin. As part of the environmental review process, the public will have an opportunity to review and comment on the project during the 30-day public review period. All public comments will be addressed in writing. Mitigation measures will be developed where appropriate to address issues and conflicts raised during public review of the project.

9. Beach protection;

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

Policies:

(A) 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;

(B) 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

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Discussion:

The project site is located approximately ¼ mile inland from the shoreline and will not interfere with coastal open space or natural shoreline processes. The project site is situated on flat topography within a developed, industrial wastewater treatment facility. The site is not susceptible to erosion.

10. Marine resources

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

Policies:

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

(C) 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;

(D) 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

(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Discussion:

The proposed project does not involve construction activities within a sensitive marine environment. The project site is located approximately ¼ mile from the shoreline within the Sand Island WWTP. The new, fifth WSST is required to ensure the continued reliable operation of wastewater treatment processes at the facility for the protection of public health and safety and for the protection of the natural environment and water resources. Following project completion there will be no noticeable change in wastewater treatment operations, or in discharge effluent quantity or quality over existing conditions.

No listed or protected plant species are known from the area surrounding the project site. Rare, threatened, or endangered fauna are not known to utilize the site for either habitat or for foraging purposes. Although there is no evidence of migratory seabirds and native waterfowl species using the project site for breeding or habitation, some are known to visit areas within the wider project study area. Mitigation measures to prevent adverse effects to avifauna from night lighting will include the following:

- During construction activities, all nighttime lighting will be shielded and angled downward to reduce glare and disruption of bird flight.
- Following construction, permanent light sources will be shielded and angled downward to eliminate glare that could disturb or disorient animals.

No other mitigation measures are proposed.

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SECTION 5

Necessary Permits and Approvals

5.1 CITY AND COUNTY OF HONOLULU

Department of Design and Construction

- Finding of No Significant Impact

Department of Planning and Permitting

- Special Management Area Use Permit
- Construction Plan Review and Approval (including Grading and Erosion Control Plan Review as appropriate with concurrent review by Department of Design and Construction)
- Building Permit
- Grading, Grubbing and Stockpiling Permit

5.2 STATE OF HAWAII

Department of Health

- Construction Plan Review and Approval

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SECTION 6

Organizations and Agencies Consulted During the Preparation of the DEA

6.1 City and County of Honolulu

- Department Environmental Service
- Department of Planning and Permitting
- Department of Design and Construction

6.2 State of Hawaii

- Office of Environmental Quality Control

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SECTION 7

Organizations and Agencies Consulted During the 30 Day DEA Review Period

7.1 City and County of Honolulu

Department of Design and Construction

Department of Facilities Maintenance

Department of Parks and Recreation

Department of Planning and Permitting

Department of Transportation Services

Honolulu Board of Water Supply

Honolulu Fire Department

Honolulu Police Department

7.2 State of Hawaii

Department of Accounting and General Services

Department of Business, Economic Development and Tourism

Department of Health

Department of Land and Natural Resources

Department of Transportation

Disability and Communication Access Board

Office of Environmental Quality Control

Office of Hawaiian Affairs

State Historic Preservation Division, DLNR

University of Hawai'i Environmental Center

7.3 Federal Agencies

U. S. Army Corps of Engineers

U. S. Environmental Protection Agency – Pacific Islands Office

U. S. Fish & Wildlife Service
National Marine Fisheries Service

7.4 Elected Officials and Boards

City and County of Honolulu

Mayor Peter Carlisle

Councilmember Tom Berg, District 1

Councilmember Ernest Martin, District 2

Councilmember Ikaika Anderson, District 3

Councilmember Stanley Chang, District 4

Councilmember Ann Kobayashi, District 5

Councilmember Tulsi Gabbard Tamayo, District 6

Councilmember Romy Cachola, District 7

Councilmember Breene Harimoto, District 8

Councilmember Nestor Garcia, District 9

Neighborhood Board

Kalihi Palama Neighborhood Board No. 15

State of Hawaii

Senator Suzanne Chun Oakland, Senate District 13

Representative Joey Manahan, House District 29

7.5 Utility Companies

Hawaiian Electric Company, Inc.

SECTION 8

Determination

In accordance with the content requirements of Chapter 343, Hawaii Revised Statutes, and the significance criteria in Section 11-200-12 of Title 11, Chapter 200, it is anticipated that this project will have no significant adverse impact to water quality, air quality, existing utilities, noise, archaeological sites, or wildlife habitat. All anticipated impacts will be temporary and will not adversely impact the environmental quality of the area. According to the significance criteria:

1. Irrevocable commitment to loss or destruction of natural or cultural resources

The proposed project is not expected to adversely impact any natural or cultural resources. The proposed activity will involve use of fill land on Sand Island. This area contains the existing wastewater treatment plant which has already been subject to extensive grading and land disturbance.

2. Curtailment of the range of beneficial uses of the environment

The proposed project will involve use of disturbed areas of land within the existing SIWWTP site. No curtailment of the range of beneficial uses that may be exercised at the site are therefore expected. With or without the project, the SIWWTP will continue to handle a major part of the wastewater processing needs of the City and County of Honolulu.

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

The proposed project is consistent with the environmental policies, goals and guidelines expressed in Chapter 343, HRS. Potential sources of adverse impacts have been identified and appropriate measures have been developed to either mitigate or minimize potential impacts to negligible levels.

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

The proposed project is expected to enhance the future long term stability of the City and State through the provision of basic public works infrastructure necessary to the health and welfare, of the community and region.

5. Substantially affects public health

The proposed project will be constructed in accordance with Federal, State, and City and County of Honolulu, rules and regulations governing public safety and health. Concerns involving air, water, noise, and waste impacts have been addressed in this EA document by use of appropriate mitigation measures as described. Upon completion, the proposed modifications will benefit public health by improving the reliability of wastewater treatment processes at the Sand Island WWTP.

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

The proposed project will involve the construction of modifications necessary for improved operations of a wastewater treatment facility which is consistent with the General Plan, Population, Objectives and Policies. The proposed project will create short-term employment opportunities, but will not be an inducement to changes in population size or distribution. Public infrastructure requirements, including power and water services, which will be utilized by the project have been evaluated and no negative adverse effects to the public utilities are anticipated. The project will not influence use by the public of the Sand Island State Recreation Area and related shoreline areas. Following project completion there will be no noticeable change in wastewater treatment operations, or in discharge effluent quantity or quality over existing conditions.

7. Involves substantial degradation of environmental quality.

The proposed project will be developed in accordance with the environmental polices of Chapter 343, HRS, and the National Environmental Policy Act. The project will also utilize an existing, industrial wastewater facility site with minimal development requirements. No degradation of environmental quality is, therefore, anticipated or expected.

8. Is individually limited but cumulatively has considerable effects on the environment, or involves a commitment for larger actions.

Based on the description of the proposed action and mitigation measures identified in this document, potential for considerable adverse environmental effects and a commitment for larger actions, are neither anticipated nor expected.

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

There are no endangered flora or fauna species within the project site.

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

As required, any potential impacts to air, water quality, or noise levels will be addressed through the implementation of appropriate mitigation measures described in this document.

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

The proposed activity will be undertaken within an existing industrial area which is home to Sand Island WWTP. The site contains no especially sensitive environmental characteristics which would detract from continued use for this activity.

12. Substantially affects scenic vistas and view planes identified in county or state plans or studies.

The proposed project is not expected to adversely affect the public's enjoyment of scenic vistas or mauka-makai and lateral shoreline views planes from urban Honolulu, Sand Island Parkway, the Sand Island State Recreation Area, or other areas in the vicinity of the Sand Island WWTP. The project site at the center of the Sand Island WWTP may be visible from limited areas of the State Recreation Area, however due to distance and the small project scale, construction activities will not be generally noticeable nor have an adverse effect on recreational activities at the park. The project is consistent with the industrial zoning designation of the site which allows for a wastewater treatment facility. The proposed project will also be consistent with the building height restriction of 60 feet.

13. Requires substantial energy consumption.

The facilities identified in this project will utilize the same or less energy than the existing facilities. Construction activities will result in a short-term increase in power demand, but the increase will be of short-duration and will cease upon project completion.

Based on the above evaluation and the information contained in this Environmental Assessment it is anticipated that an Environmental Impact Statement (EIS) will not be required and that a recommended Finding of No Significant Impact (FONS!) be published for this project.

SECTION 9

References

- (DDC, 2001) Sand Island Wastewater Treatment Plant Modifications and Expansion, Honolulu, O’ahu, Hawai’i. R. M. Towill Corporation, prepared for the City and County of Honolulu, Department of Planning and Permitting. Honolulu, HI. April, 2001.
- (DOH, 1988) Water Quality Standards Map of the Island of O’ahu, to be used in Conjunction with Hawai’i Department of Health, Chapter 54, Water Quality Standards. State of Hawai’i, Department of Health. 1988.
- (DOH, 2010) Island of O’ahu, Daily Air Quality Data. State of Hawai’i, Department of Health. June 10, 2010. <http://www.state.hi.us/doh/air-quality/main.html>
- (DPP, 2004). Primary Urban Center Development Plan (ROH, Ch. 24, Article 2). Department of Planning and Permitting, City and County of Honolulu. Honolulu, HI. June 2004.
- (FEMA, 2009) Federal Insurance Rate Map (FIRM), City and County of Honolulu. Map No. 15003C0361G, dated July 22, 2009. Federal Emergency Management Agency.
- (HoLIS, 2009) Honolulu Land Information System, Geographic Information System. City and County of Honolulu, Department of Planning and Permitting. 2009.
- (UH, 1998) University of Hawaii, Department of Geography, Atlas of Hawai’i, University of Hawai’i Press, Honolulu, HI.
- (Stearns and Vaksviks, 1935) Geology and Groundwater Resources of the Island of O’ahu, Hawai’i. Division of Hydrography, Volume 1. H. T. Stearns and K. N. Vaksviks. Honolulu, HI. 1935.
- (USDA, 1972) Soil Survey of Islands of Kaua’i, O’ahu, Maui, Moloka’i and Lāna’i, State of Hawai’i. Published by the United States Department of Agriculture (USDA), Soil Conservation Service, in Cooperation with The University of Hawai’i Agricultural Experiment Station. Honolulu, HI. August 1972.
- (USGS, 2000) Ground Water in Hawai’i. U. S. Geological Survey. Honolulu, HI. 2000

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APPENDIX A
CORRESPONDENCE

BENJAMIN J. CAYetano
GOVERNOR OF HAWAII
OFFICE OF DESIGN & CONSTRUCTION
1505 KALANOAUE BLVD



GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JANET E. KAWELD
UNNEL NISHIOKA

01 MAR 15 PM 1:16

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 566
601 Kamohiwa Boulevard
Kapolei, Hawaii 98707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

March 5, 2001

Rae M. Loui, Acting Director
Department of Design and Construction
City & County of Honolulu
650 South King Street, 11th floor
Honolulu, Hawaii 96813

LOG NO: 27043
DOC NO: 0102E115

Dear Ms Loui:

SUBJECT: Chapter 6E-8 Historic Preservation Review - Draft Environmental
Assessment for the Sand Island Wastewater Treatment Plant,
Modifications and Expansion
Honolulu, Kona, O'ahu
TMK:1-5-041:005

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DIV. OF ACQUISITION
BY: S. SUKVER

Thank you for the opportunity to comment on the DEA for the Sand Island Wastewater Treatment Plant Modifications and Expansion. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas.

The DEA is correct in stating that the project site is comprised of fill lands and mixed fill lands. A review of our records shows that there are no known historic sites at the project location. This area of Sand Island has been in-filled to enlarge the shoreline. Since modifications are proposed for the existing Sand Island WWTP, and the plant is built upon fill soils, we believe that this project will have "no effect" on historic sites.

If you have any questions please call Elaine Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

