

C. Written Statement

C.1 Project Description

The City and County of Honolulu (CCH), Department of Design and Construction (DDC) and Department of Environmental Services (ENV) plan to expand the Honouliuli Wastewater Treatment Plant (WWTP) into 48.4 acres of CCH-owned land identified by Tax Map Key (TMK) parcel (1) 9-1-69: 003 abutting the north and east boundaries of the existing WWTP facility to accommodate construction of secondary treatment and support facilities that are required to comply with the 2010 Consent Decree, now referred to as the First Amended Consent Decree (FACD), between the CCH, the State of Hawai'i Department of Health (DOH) and the Environmental Protection Agency (EPA). The key compliance deadlines are:

- January 1, 2019 – CCH shall issue notice-to-proceed for construction of all secondary treatment facilities necessary to comply with secondary treatment standards for all wastewater discharges from the Honouliuli WWTP.
- June 1, 2024 – CCH shall complete construction of facilities necessary to comply with secondary treatment standards for wastewater discharges from the Honouliuli WWTP.

The existing WWTP facilities and the proposed expansion property is shown in **Figure E.1, General Site Plan – Existing, Figure E.2, General Phasing Plan – Phase 1B, and Figure E.3, General Phasing Plan- Phasing Plan**, provided in **Section E**.

Approximately 25.1 acres of the 48.4-acre parcel 003 expansion property are located within the State Land Use (SLU) Agricultural District. In addition, a 2.702-acre parcel identified by TMK (1) 9-1-69: 004 that contains the WWTP influent pump station and related facilities, is also located within the SLU Agricultural District. WWTP facilities are not a permissible use within the SLU Agricultural District; therefore a SLU District Boundary Amendment or Special Use Permit is required for the planned WWTP facility expansion. To meet the January 1, 2019 EPA Consent Decree deadline, the CCH must obtain the required land use entitlements by early 2018 to allow time for final construction plan review and approval and for the bid and contract award process.

To obtain the land use entitlements required for construction of the secondary treatment facilities in the shortest amount of time in order to meet the EPA Consent Decree deadline, the DDC and ENV are pursuing a short-term and long-term entitlement strategy:

In the short-term, the DDC and ENV are processing the following land use applications:

1. Special Use Permit (SUP) Application with the CCH Department of Planning and Permitting (DPP), the CCH Planning Commission and the State Land Use Commission (LUC) to allow construction and operation of WWTP facilities on 25.1 acres of parcel 003 and 2.702 acres of parcel 004, located within use in the SLU Agricultural District.
2. Conditional Use Permit-Minor (CUP-Minor)/Joint Development Agreement (JDA) Application with DPP to combine the parcels that comprise the existing WWTP (TMK parcel 9-1-13: 007 and parcel 9-1-69: 004) and planned expansion area (TMK parcels 9-1-69: 003) into a single zoning lot for development purposes.
3. Zoning Waiver Application with DPP for building heights and building area to ensure compliance with the CCH Land Use Ordinance (LUO), Revised Ordinances of Honolulu (ROH) Chapter 21. See discussion in **Section C.4 Compliance with the Land Use Ordinance, ROH Chapter 21**.

The short-term entitlement process is estimated to take 9 months and is capable of meeting the DDC's and ENV's project schedule to ensure compliance with the EPA Consent Decree.

In the long-term, the DDC and ENV plan to process the following land use applications:

1. SLU District Boundary Amendment Application with the LUC to change the 25.1-acre expansion area on parcel 003 and the 2.702-acre parcel 004 from the SLU Agricultural to the SLU Urban District. This action will replace the SUP and result in a SLU District designation that is in consonance with CCH land use plans and policies for the 'Ewa region and with the use of the site for the Honouliuli WWTP secondary treatment and support facilities.
2. Zone Change Application with DPP to change the parcel 003 expansion area and parcel 004 from the AG-1 to the I-2 zoning district. This action will similarly result in a more appropriate zoning district designation that conforms to CCH land use plans and use of the site for the Honouliuli WWTP secondary treatment and support facilities. As part of the zone change request, the DDC and ENV plan to request modifications to an existing Unilateral Agreement (UA) that affects the I-2 area within parcel 003, to eliminate provisions that are not applicable to the WWTP use.
3. Subdivision Application with DPP to consolidate and re-subdivide the three parcels that contain the WWTP facilities to create a single lot. As part of this action, a segment of Geiger Road that current lies within the WWTP property will be subdivided to create a separate road lot.

The long-term entitlement process is estimated to take 15 to 18 months and would therefore put at risk the CCH's ability to meet the project schedule and comply with the January 1, 2019 EPA Consent Decree deadline. In the long term, this process will result in SLU District and zoning district designations appropriate for ongoing operations and future improvements at the Honouliuli WWTP. The DDC and ENV plan to undertake the long-term entitlement process within the next five years.

This application is for a Special Use Permit to allow the use of the 25.1-acre portion of parcel 003 and the 2.702-acre parcel 004 located within the SLU Agricultural District to be used for the proposed development and operation of the Honolulu WWTP Secondary Treatment and Support Facilities.

C.1.a Existing and Proposed Uses

The Honouliuli WWTP is operated by the ENV to provide primary treatment and limited secondary treatment for wastewater collected from the Honouliuli sewer basin. The Honouliuli sewer basin includes the communities of Moanalua/Red Hill, Hālawā, 'Aiea, Waimalu, Pearl City, Pacific Palisades, Waiawa, Waipahu, Mililiani, Waipi'o, Village Park, Crestview, Waikele, Kunia, West Loch, 'Ewa Beach, 'Ewa Villages, Kapolei, Makakilo, Ko Olina and Campbell Industrial Park, and serves a population of over 300,000 people. It is the second largest sewer service area on Oahu. Wastewater flows received by the WWTP include flows generated by residential, industrial and commercial uses in the service area and water that enters the system through infiltration. The facility has an average daily flow (ADF) design capacity of 38 million gallons per day (MGD) with one unit on standby and 51 MGD with all units in service.

The WWTP provides primary treatment to all flows received. In 2013, the ADF was approximately 26.1 MGD. The existing secondary treatment system treats approximately 13 MGD (or about 50 percent) of the ADF. The Honouliuli Water Recycling Facility (HWRF), owned by the CCH Board of Water Supply (BWS) and operated by Veolia, is located at the existing WWTP facility property and produces reclaimed water from the secondary treated wastewater effluent. The HWRF has a capacity of 12 MGD and produces two grades or recycled water: approximately 10 MGD of R1 water used for irrigation and approximately 2 MGD of reverse osmosis (RO) water for industrial purposes.

The EPA Consent Decree requires the CCH to upgrade the Honouliuli WWTP to a full secondary treatment facility by 2024. The basis of design for the secondary treatment and support facilities project is to accommodate increases in ADF to year 2035, which is projected to be 37 MGD. The 48.4-acre expansion property (parcel 004), including the 25.1 acres located in the SLU Agricultural District, provides the space required to comply with the Consent Decree mandates, as well as to accommodate the future relocation of non-process facilities, including laboratory, administrative support and maintenance facilities that are currently located at Sand Island WWTP, and other decentralized facilities that support island-wide wastewater system functions.

Existing Facility Operations

Current operations at the existing Honouliuli WWTP property consist of the following:

- Primary and secondary wastewater treatment operations;
- Truck hauling of solids produced by WWTP processes for disposal at the landfill or H-Power;
- Septage and liquid sludge disposal by permitted private haulers and CCH ENV haulers;
- BWS HWRF operations; and
- Convenience Center refuse collection station, which is located on the WWTP property, but operates independently outside of WWTP fence line with its own access driveway and hours of operation.
- Receive thickened primary and secondary sludge from Wahiawa and Pa'ala'a Kai WWTPs

Existing Hours of Operation

- Normal day-time operations at the WWTP are from 6:00 a.m. to 4:00 p.m., 7 days per week. Daytime operations include WWTP management and maintenance, and solids hauling. Gates are open during these hours and are otherwise closed for business.
- WWTP treatment processes are operated 24 hours per day 7 days per week. There are three work shifts in one 24-hour period:
 - Daytime shift is from 6:45 a.m. to 3:15 p.m.
 - Evening shift is from 3:00 p.m. to 11:00 p.m.
 - Night shift is from 11 p.m. to 7:00 a.m.
- Septage receiving hours are from 6:00 a.m. to 5:45 p.m. 7 days per week. The septage receiving area is located at the south-east corner of the existing WWTP within a separate fenced area.
- The BWS HWRF hours of operation are 7:00 a.m. to 4:00 p.m. Monday through Friday, and 7:00 a.m. to 11:00 a.m. Saturday and Sunday.
- The 'Ewa Convenience Center is open to the public for refuse and recycling drop-off from 7:00 a.m. to 6:00 p.m. Monday through Saturday and is closed Sunday.

Existing Number of Persons (clients and staff)

- Up to 81 total staff are required to operate the WWTP within one 24-hour period. These include:
 - Daytime shift, Monday through Friday: 68 total staff, including 2 plant supervisors, 1 District supervisor, 10 plant operators, 39 maintenance workers, 6 groundskeepers, 4 heavy truck drivers, 1 sanitary chemist, 3 SCADA support staff and 2 storeroom staff.
 - Daytime shift, Saturday and Sunday: 5 total staff, including 1 plant supervisor and 4 plant operators.
 - Evening and night shift: 4 total staff, including 3 plant operators and 1 supervisor for each shift.
- WWTP clients, consisting of delivery vehicles, septage and solids haulers, miscellaneous maintenance and trades vehicles, construction vehicles and HWRF operators (Veolia) generate approximately 40 to 50 truck trips in and out of the WWTP facility each day. All deliveries and materials handling occur during normal daytime work hours.
- A total of 10 staff are required to operate the BWS HWRF daily.

Existing Structures

The existing WWTP facility has 54 structures on parcels 004 and 007, with a total area of 51.335 acres and combined building footprint of approximately 246,697 square feet. The HWRF has an additional 9 structures on parcel 007, with a combined building footprint of approximately 64,545 sf. Currently, there are no WWTP or HWRF structures located on parcel 003, the expansion property.

ENV is currently undertaking the *Honouliuli WWTP Secondary Treatment Phase 1A* project to upgrade the secondary solids and grit facilities located on parcel 007. Construction is scheduled to start in September 2018 and be completed in October 2021. The project will demolish 8 existing structures related to solids handling and replace them with 9 new structures that will support solids handling, dewatering and drying processes.

An inventory of the existing structures by parcel and SLU District, including building footprint, and building height, is provided in **Table E.6.1** and shown in **Figure E.1, General Site Plan – Existing**, provided in **Section E** of this application. The proposed Phase 1A improvements are listed on **Table E.6.2** and shown in **Figure E.3, General Phasing Plan – Phasing Plan**, provided in **Section E**. A detailed description of the existing WWTP facilities and treatment processes is provided in the project FEIS that is included with this application.

Proposed Facility Operations

Proposed Honouliuli WWTP secondary treatment and support facility improvements and related operations are being undertaken in phases to meet the compliance deadlines stipulated in the EPA Consent Decree. The implementation of full secondary treatment is planned in two-phases:

- Phase 1, to be completed by 2023, involves upgrading the existing secondary treatment facilities to remain in operation through the end of their design life (+/- 2035) and constructing additional new secondary facilities to provide full secondary treatment for 2035 design flows of 37 MGD ADF and 107 MGD peak capacity.

- Phase 2, to be completed by 2035, involves constructing additional new secondary treatment facilities to replace the existing facilities, to provide full secondary treatment for 2056 design flows of 45 ADF and 126 MGD. The older secondary treatment facilities, built in the 1990's, may be removed from service with Phase 2.

The CCH is currently undertaking planning and design for Phase 1 based on the following sub-phases:

- Phase 1A –Secondary Solids and Grit: Upgrades and replacement of existing solids handling and related facilities on parcel 007. This work is scheduled to be completed by October 2021.
- Phase 1B – Secondary Treatment Increment 1 Compliance - Construction of additional new secondary treatment facilities on parcels 007 and 003 to accommodate 2035 design flows. Completion of this work is required to comply with the July 1, 2024 EPA Consent Decree deadline for achieving secondary treatment standards for wastewater discharges from the Honouliuli WWTP.
- Phase 1 C – Secondary Treatment Increment 2 compliance –Future expansion and upgrades of existing facilities on parcel 004 and 007. This work involves additional upgrades to the secondary treatment facilities.

Preliminary facility design information is currently available for Phase 1A and 1B only. The Phase 1B improvements are shown in **Figure E.2, General Site Plan – Phase 1B**, provided in **Section E**. The project phasing plan is **Figure E.3, General Phasing Plan – Phasing Plan**, provided in **Section E**.

With the completion of Phase 1B, the WWTP facility operations will be generally the same as existing, but will be expanded to handle the increase in liquids and solids production generated by additional in-flows and secondary treatment processing. Proposed operations will include the following:

- Primary and secondary wastewater treatment and solids treatment operations;
- Production of pellets from secondary solids for reuse as fertilizer or disposal at the landfill or H-Power;
- Truck hauling of solids produced by WWTP processes for disposal at the landfill or H-Power;
- Septage and liquid sludge disposal by permitted private haulers and CCH ENV haulers;
- BWS HWRF operations; and
- Convenience Center refuse collection station, which is expected to continue to operate as at present.
- Receive sludge from Wahiawa, Pa'ala'a Kai, Waianae, Kailua, Waimanalo, and Laie WWTPs.

The current focus of the Honouliuli WWTP expansion is on the secondary treatment process improvements that are needed to comply with the EPA Consent Decree. The ENV also proposes to locate non-process facilities within the Honouliuli WWTP expansion property to accommodate current needs that are not adequately met, future needs that will arise from upgrading Honouliuli and Sand Island WWTPs to secondary treatment and other treatment and collection system facilities that support island-wide wastewater system functions but that are currently decentralized. Non-process uses planned for the site include new Administration Building, Operations Building, SCADA Facility, Central Laboratory, Ocean Team Facilities, Central Shop Building, Regional Maintenance Building, and Central Warehouse Building. The preliminary site layout for these facilities is shown in **Figure E.3, General Phasing Plan**, provided in **Section E**.

Proposed Hours of Operation

With the completion of the Phase 1 secondary treatment improvements, proposed hours of operation will remain the same as existing:

- Normal day-time operations at the WWTP will be from 6:00 a.m. to 4:00 p.m., 7 days per week. Daytime operations will include WWTP management and maintenance and solids hauling.
- WWTP treatment processes will continue to be operated 24 hours per day 7 days per week, based on three work shifts in one 24-hour period:
 - Daytime shift from 6:45 a.m. to 3:15 p.m.
 - Evening shift from 3:00 p.m. to 11:00 p.m.
 - Night shift from 11 p.m. to 7:00 a.m.
- Septage receiving hours will continue to be from 6:00 a.m. to 5:45 p.m. 7 days per week.
- The BWS HWRF hours of operation will continue to be 7:00 a.m. to 4:00 p.m. Monday through Friday, and 7:00 a.m. to 11:00 a.m. Saturday and Sunday.
- The 'Ewa Convenience Center is expected to remain open to the public for refuse and recycling drop-off from 7:00 a.m. to 6:00 p.m. Monday through Saturday and close Sunday.

Proposed hours for non-process operations (administration, regional and island-wide wastewater systems support facilities) are to be determined, but are expected to be similar to the existing hours of operation. The majority of activity will occur during normal daytime work hours, Monday through Friday. Round-the-clock work shifts may be required for some functions, and are expected to generally follow the existing 24-hour, three-shift schedule.

Proposed Number of Persons (clients and staff)

- With the completion of the Phase 1B Secondary Treatment improvements, the number of employees required to operate the expanded WWTP facility for a 24-hour 3-shift work period is projected to increase from 81 to approximately 120 employees.
- WWTP Clients, consisting of septage and solids haulers, pellet haulers and miscellaneous maintenance and trades vehicles and HWRF operators, are expected to generate a total of 60 to 80 truck trips in and out of the WWTP facility each day during normal daytime work hours.
- With the completion of the non-process facilities at Honouliuli WWTP, approximately 370 additional employees are estimated to be employed at the facility in non-process positions, including approximately 120 existing employees relocated from the Sand Island WWTP, and an estimated 250 new employees who would fill new or expanded functions at ENV's centralized non-process support facilities. Specific staff positions and numbers of employees at the non-process facilities have not been determined. A general estimate is provided in **Table 4-6** of the FEIS that is included in **Section F** of this application.
- Construction activities are expected to be intermittent, but generally continuous from 2019 through 2027. Peak periods of construction would involve up to 185 construction workers per day and an estimated 40 construction truck trips per day coming to and from the WWTP facility. See the project FEIS, Traffic Impact Assessment Report, Appendix E – A Technical Memorandum, enclosed with this application.

- The BWS HWRF staff is expected to remain at 10 following completion of the secondary improvements.

Proposed Structures

An inventory of the proposed structures by parcel number and SLU District, including building footprint, and building height, is provided in the following building data tables: **Table E.6.2 – Phase 1A** and **Table E.6.3 – Phase 1B and Future**, and shown on **Figure E.2, General Site Plan – Phase 1B** and **Figure E.3, General Phasing Plan**, in **Section E** of this application. A detailed description of the existing and proposed WWTP facilities and treatment processes is provided in Section 3 and 4 of the project FEIS that is included with this application.

With the completion of Phase 1B secondary treatment improvements, the Honouliuli WWTP will have a total of 73 structures, as well as appurtenant pipelines, utilities and subsurface facilities, developed on parcels 003, 004 and 007 for wastewater treatment operations and processes. The combined building footprint will be approximately 470,000 sf. See **Table E.6.3**. Of these, there will be 9 new structures and appurtenant pipelines, utilities and subsurface features developed within the 25.1-acre SLU Agricultural District on parcel 003 as part of the secondary treatment process. The combined building footprint of these structures will be approximately 118,700 sf.

Based on preliminary concept planning, proposed non-process support facilities will include the development of 8 new structures on parcel 003, including 7 within the SLU Agricultural District. The combined estimated building footprint of these structures is 137,900 sf, of which approximately 97,000 sf will be located in the SLU Agricultural District. Building plans have not been developed for these structures.

The BWS is planning to expand the HWRF process facilities on parcel 007 in the future to process increases in effluent from the expansion of secondary treatment at the WWTP. In the near term, R1 water production will be increased from 10 MGD to 12 MGD by modifying the internal filter system: no facility expansion is required. RO water production will remain at 2 MGD. In the future, the facility design capacity will be increased to 16 MGD after the completion of the Honouliuli WWTP secondary treatment improvements. No plans for the future HWRF expansion are currently available. None of the future HWRF facilities will occur on parcel 003 or within the SLU Agricultural District.

C.1.b Site Plan

Existing facilities are shown on **Figure E.1, General Site Plan – Existing**, proposed Secondary Treatment improvements that are required to comply with EPA Consent Decree are shown on **Figure E.2, General Site Plan – Phase 1B**, and the proposed phasing plan, including future secondary treatment improvements non-process support facilities, are shown on **Figure E.3, General Phasing Plan**, in **Section E** of this application.

C.1.c Landscape Plan

Existing Landscape

The existing WWTP facility is entirely enclosed within a 6-foot high chain link fence topped with three strands of barbed wire. The inside of the fence line along the Geiger Road frontage is planted with various flowering shrubs, primarily hibiscus. Large-canopy monkey pod and ficus trees are also planted

behind the fence line along Geiger Road. Along the west side of the BWS HWRF, the facility fence line is setback approximately 100 feet from Geiger Road and the intervening area is sparsely landscaped with kiawe (*Prosopis Pallida*) and koa haole (*Leucaena leucocephala*). The main entrance driveway from Geiger Road into the WWTP is landscaped with an entry feature of low, flowering ornamental plants and shrubs backed by Italian Cypress.

The existing landscaping within the Honouliuli WWTP is primarily a manicured landscape with non-native grasses and herbs surrounding the facility structures. Cultivated trees occur sporadically as planted individuals across the landscape and include monkey pod (*Samanea saman*), cannonball tree (*Couroupita guianensis*) and *Ficus* sp. trees. Open ground areas consist of mowed vegetation that is characterized by various naturally occurring introduced grasses and weedy species.

The expansion property on parcel 003 contains naturalized kiawe forest that covers approximately 70 percent of the parcel, with sparse Guinea grass (*Urochloa maxima*) cover and various introduced weedy, herbaceous and non-herbaceous plants scattered sparsely or in isolated patches in the understory. Large koa haole and Manila tamarind (*Pithecellobium dulce*) trees sparsely scattered throughout the kiawe forest make up most of the remaining tree cover. In the north-west portion of the expansion property there are extensive patches of bare ground, some of which are graveled or covered in weathered asphalt. See **Photos** in **Section D**.

Proposed Landscape Plans

Landscape plans are preliminary and are not final for the WWTP Secondary and Support Facilities Improvements. The preliminary plan for the existing WWTP entrance and Geiger Road frontage is provided on **Figure E.4 Landscape Plan** in **Section E** of this application. The landscape concept is based on a “functional landscape”, designed to render the WWTP “out of sight, out of mind”.

Key concepts include:

- Integrate on-site stormwater management into the landscape using low impact development principles including use of vegetated bioretention facilities or swales to attenuate peak storm water flow leaving the property, recharge local groundwater, mitigate stormwater pollution and restore ecological function to the site. Additionally, where feasible use permeable pavement and other low impact development tools to maintain or improve hydraulic capacity (see **C.7.c Drainage and Flooding** and **Section C.3.d ‘Ewa Development Plan**).
- Design planting plan with a diversity of large canopied trees and shrubs to act as a visual buffer between the WWTP and adjacent residential neighborhoods, specifically along Geiger Road (see **Section C.3.d ‘Ewa Development Plan**). Native trees and shrubs will be used as feasible to reduce irrigation and fertilization requirements.
- Design the planting plan for the entrances of Honouliuli WWTP with ornamental landscape plants to create a prominent entryway. Native trees and shrubs will be used as feasible to reduce irrigation and fertilization requirements.
- Design a low-maintenance planting plan along the eastern boundary of the WWTP to match the existing “rough” landscape of the adjacent Coral Creek Golf Course. In the future, this area will be developed into a bicycle and pedestrian pathway along the eastern perimeter of the WWTP, which will connect Geiger Road with the proposed future bikeway along the OR&L right-of-way.

- Design the planting plan for the WWTP parking lots to incorporate the required number and type of trees, in conformance with the LUO.
- Select and replace segments of the existing perimeter fence with walls, fences or berms. All fencing options will have a minimum height of six feet. The selection of the appropriate fencing will be determined based on adjacent public or private land uses. On-site soil from excavation for new subsurface WWTP structures will be used for berms to eliminate off-site import of soil. Fencing along major public roadways will be designed to beautify the WWTP frontage and will be planted with linear landscape elements (see **FEIS Section 4.1.8 Perimeter Access, Security and Fence** in **Section F** of this application).
- Select drought-tolerant and native species of trees, shrubs and grasses, including ko'olua'ula (*Bidens spp.*), kou (*Cordia subcordata*), 'ilie'e (*Plumbago zeylanica*), and 'a'ali'i (*Dodonaea viscosa*). Integrate xeriscape principles to minimize irrigation requirements (see **FEIS Section 4.1.8 Perimeter Access, Security and Fence** in **Section F** of this application).
- Design the irrigation plan to utilize on-site reclaimed water. Include specifications in irrigation plan to utilize an efficient irrigation system, such as drip irrigation or moisture sensors to reduce irrigation requirements (see **C.3.d 'Ewa Development Plan**).
- Specify organic mulch for the planting plan to minimize evaporation from soils and reduce irrigation requirements.
- Utilize recycled biosolids as fertilizer for long-term landscape maintenance and to demonstrate the benefits of biosolids production.

For Phase 1 improvements on Parcel 003, the preliminary landscape plan will include:

- Preserve the existing Kiawe (*Prosopis pallida*) forest in undeveloped areas and along the perimeter of the Parcel 003 expansion property to visually buffer the proposed Secondary Treatment clarifier tanks and related structures. The existing Kiawe forest area will not require irrigation or maintenance.
- Design graveled surfaces around the base of proposed secondary treatment structures and other site improvements for surface stabilization.
- Replace existing perimeter chain link fence with new chain link fence with three strands of barbed wire.

Landscape plans have not been developed for future secondary treatment and non-process support facilities within the parcel 003 expansion property. Future phasing landscape plans will be consistent with the overall landscape concept for the Honouliuli WWTP.

C.1.d Description of Existing and Proposed Improvements

Existing WWTP and HWRF facilities are located on TMK parcels 9-1-13: 007 and 9-1-69: 004 and include preliminary, primary and secondary wastewater treatment and solids handling facilities, the BWS HWRF, and the CCH Convenience Center. Proposed Secondary Treatment and Support Facilities will be located on TMK parcel 9-1-69: 003. An inventory of existing and proposed structures, including building footprints and building heights, is provided in **Table E.6.1 – Existing Facilities**, **Table E.6.2 – Proposed Facilities after Phase 1A**, and **Table E.6.3 – Phase 1B and Future Process and Non-Process Facilities**. The following figures showing existing and proposed structures are provided in **Section E**:

- *General Site Plan – Existing:* Shows existing structures and property setbacks
- *General Site Plan – New:* Shows proposed structures that will be constructed as part of the Phase 1B secondary treatment improvements.
- *General Phasing Plan:* Shows proposed Phase 1 and Phase 2 secondary treatment improvements and conceptual non-process facility improvements at full, planned build-out.

Additional description of the WWTP treatment facilities and processes is provided in Sections 2, 3 and 4 of the project FEIS that is included with this application. Description of other proposed improvements is provided as follows:

Parking - Existing

- The existing WWTP facility has 144 total striped parking stalls, including 136 standard stalls and 8 handicap stalls. The majority of the parking is located around the two maintenance and control buildings near the main entrance to the WWTP. Stalls are also located near the digester control building and adjacent to Biotower No. 1. In addition, to the striped stalls, most of the individual treatment structures contain paved pull-up and turn-around areas used for temporary parking for monitoring and maintenance activities.
- The HWRP has a total of 13 parking stalls, including 12 standard stalls and 1 handicap stall.

Parking - Proposed

- The Phase 1A improvements include the construction of 4 new parking stalls, including 3 standard stalls and 1 handicap stall.
- No new parking is proposed at the WWTP and HWRP for the planned Phase 1B secondary treatment facilities.
- An estimated 510 parking stalls will be required for the future non-process support facilities within the parcel 003 expansion property, including the new Administration Building, Operations Building, SCADA Facility, Central Laboratory, Ocean Team Facilities, Central Shop Building, Regional Maintenance Building, and Central Warehouse Building. See **Table 4-6** in the project FEIS submitted with this application. Section 4 of the project FEIS includes illustrative concept plans showing future non-process support facility parking lot locations, however these are conceptual only. Parking lot plans have not been prepared for these facilities.

See additional discussion regarding LUO standards for off-street parking in **Section C.4**.

Setbacks and Buffering

Yard setbacks are shown on the **General Site Plan – Existing** and **General Site Plan – Phase 1B**, in **Section E**. All existing and new facility buildings will be setback from the adjacent property lines by at least 40 feet and in most cases more than 80 feet. Existing WWTP treatment process structures and proposed new process structures will generally be located centrally within the WWTP property. Future non-process support facilities will be located closer to the mauka property boundary, but will be setback at least 50 feet from the adjacent OR&L right-of-way. The perimeter of the WWTP will be enclosed with a combination of security fencing (chain link topped with three-strand barbed wire) and walls.

Landscaping will be provided on both sides of the fence to visually buffer the site from public views. See additional discussion about landscaping in **Section C.1.c**, and LUO setback standards in **Section C.4**.

Grading and Excavation

Grading, trenching and excavation will be required for construction of the proposed Secondary Treatment and Support Facilities within the parcel 003 expansion property. In general, site design for all new improvements will seek to minimize changes to existing grades. The proposed additional new secondary treatment clarifier tanks, aeration basins, pump station, distribution box and conveyance channels and pipes will be constructed mostly below existing grade and are expected to generate substantial amount of excess excavated material. Preliminary grading plans and cut and fill quantities for the proposed improvements have not been completed. Excavated material that cannot be re-used on-site for backfill or for other site improvements, such as creation of landscape berms, will be disposed off-site in accordance with county and state regulations.

Lighting

Existing lighting includes building/wall mounted light fixtures, pole-mounted light fixtures, and stanchion mounted fixtures secured to structures. Many existing pole mounted light fixtures are full-cutoff type. However, remaining pole-mounted, building mounted, and stanchion mounted light fixtures are not full-cutoff type. All new pole mounted and building mounted light fixtures will be full-cutoff type, dark sky compliant fixtures. Pole mounted lighting will include step dimming with occupancy sensors to minimize light pollution. Lighting at the plant will be utilized for maintenance and repair work critical to treatment plant processes. Lighting controls including dimming will be overrides as needed to accommodate for critical tasks.

Solar Farm

A 1.6-acre solar farm is being considered for development within the parcel 003 expansion property as part of the non-process facilities. In concept, the solar farm is sized to provide 10 percent of the annual electrical power demand from the support facilities. Plans have not been developed for the specific solar farm location and layout.

Bike Path/Pedestrian Walkways

A perimeter bike path/pedestrian walkway is proposed along the east boundary of the WWTP facility outside of the fence line. The path will be a public recreational resource that will connect residential areas on Geiger Road to the future multi-use path proposed to be developed by others within the OR&L right-of-way. A separate entrance and parking area will be provided for path users. The path will be designed to include provisions for safe pedestrian bicycle and vehicle crossings at all project driveways. The path location is shown on **Figure E.3, General Phasing Plan in Section E**. The path will be constructed in a future development phase. Plans and designs for path construction have not yet been prepared.

C.2 Land Use Commission Guidelines

The proposed use will meet the following State Land Use Commission “guidelines” for granting an SUP:

1. *Such use shall not be contrary to the objectives sought to be accomplished by the (State) Land Use Law and Regulations*

Discussion

This Special Use Permit application is being processed to meet the EPA Consent Decree deadline for construction of the Honouliuli WWTP Secondary Treatment facilities within the SLU Agricultural District. In the long-term, the CCH will apply to the LUC for a SLU District Boundary Amendment to bring the entire WWTP into the SLU Urban District, in conformance with the ‘Ewa Development Plan (EDP) and HRS 205. The EDP identifies the project site as within the appropriate region to develop agricultural lands for urban use in order to protect agricultural lands and open space in the rural areas of O’ahu (see **Section C.3.d ‘Ewa Development Plan**).

2. *That the desired use would not adversely affect surrounding property.*

Discussion

The Honouliuli WWTP Secondary Treatment and Support Facilities upgrade and expansion will not adversely affect surrounding properties. All work activities will be conducted in compliance with federal, state, and county environmental rules and regulations. An Environmental Impact Statement (EIS) document was prepared in accordance with Chapter 343, Hawai‘i Revised Statutes (HRS) to identify and, where necessary, propose mitigation measures to address effects anticipated from the construction and operation of the Honouliuli WWTP Secondary Treatment and Support Facilities. The EIS was published on May 8, 2016 for public review and comment. A copy of the Final EIS is included with this application under separate cover (see **Section F**). To mitigate impacts to surrounding properties, planned improvements will utilize generous building setbacks for WWTP process structures, restricted building heights and landscaping to buffer views and public perception of the facility. Additional description of planned mitigation measures is provided in **Section C.8** and in the FEIS submitted with this application.

3. *Such use would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage and school improvements, and police and fire protection.*

Discussion

The Honouliuli WWTP secondary treatment and support facilities upgrade and expansion will not unreasonable burden public agencies. The proposed project is consistent with the EDP, which identifies the necessity to improve and expand essential public infrastructure to accommodate future development of ‘Ewa as the Secondary Urban Center. The proposed project is a priority capital improvement project in consonance with state and county plans for adequate development of sewerage facilities that complement planned growth and urbanization within the Honouliuli sewer basin. The project will enable the CCH to maintain basic health and sanitation standards relating to wastewater

treatment in one of O’ahu’s largest wastewater service areas. The proposed facility will be designed within existing road and street networks. The proposed WWTP improvements will manage on-site drainage by implementing permanent BMP strategies to retain stormwater on-site through a series of shallow stormwater infiltration basins. The proposed project will accommodate wastewater generated by future school improvements and police and fire facilities, but will not in itself generate new demand for those public services.

4. *Unusual conditions, trends and needs have arisen since the district boundaries and regulations were established.*

Discussion

Since the SLU district boundaries and regulations for the area were established, the CCH has established through the City General Plan and EDP that population growth on O’ahu will be directed towards the development of a Secondary Urban center in the ‘Ewa region. The EDP Section 3.12.1 General Policies (Honouliuli Industrial Area) identifies the WWTP expansion area within the SLU Agricultural District as appropriate land for the expansion of the existing WWTP to provide higher levels of wastewater treatment and accommodate projected growth in ‘Ewa (see **Section C.3.d ‘Ewa Development Plan**). The EDP identifies the project site as within the appropriate region to develop agricultural lands for urban use in order to protect agricultural lands and open space in the rural areas of O’ahu (see **Section C.3.d ‘Ewa Development Plan**). In addition, the unusual condition and necessity for this Special Use Permit application is to meet the June 1, 2024 EPA Consent Decree deadline for construction of the Honouliuli WWTP Secondary Treatment facilities within the SLU Agricultural District. In the long-term, the CCH will apply to the LUC for a SLU District Boundary Amendment to bring the entire WWTP into the SLU Urban District, in conformance with the EDP.

5. *That the land upon which the proposed use is sought is unsuited for the uses permitted within the District.*

Discussion

The proposed WWTP expansion property on parcel 003 and existing facilities on parcel 004 are unsuited for inclusion in the SLU Agricultural District and for agricultural use in general as they have been identified in the EDP as appropriate agricultural lands for the necessary improvement and expansion of public wastewater infrastructure to accommodate projected growth of ‘Ewa as the Secondary Urban Center. The site is not irrigated and does not have a history of use for crop cultivation. Soils on the site have Land-Capability Classifications which indicate severe soil and root-zone limitations. Limited areas of parcel 003 and 004 are designated as Prime land by the Agricultural Lands of Importance to the State of Hawai’i (ALISH) classification system, however parcel 004 is already developed as part of the WWTP and the Prime area on parcel 003 has been subject to compaction and ground disturbance from historic land uses. The western portion of parcel 003 is designated by the Land Study Bureau (LSB) as E, the lowest agricultural productivity rating. Parcel 004 is designated as A and B, the highest agricultural productivity rating. The LSB designation for parcel 004 does not accurately reflect its current development as part of the existing Honouliuli WWTP. Use of the land for crop production, green house, nursery use or livestock would require substantial investment and would be inconsistent with the CCH plans and polices and surrounding land uses. Additionally, the proposed WWTP expansion area has not been

recommended for designation as Important Agricultural Land (IAL) (see **Section C.5** and **Figure E.5.5 IAL Map**), in accordance with the EDP's land use and public facilities plan (see **Figure E.5.1. 'Ewa Development Plan – Land Use Map** and **Figure E.5.2 'Ewa Development Plan – Public Facilities Map**), which designate the proposed project site as Industrial and Urban, respectively.

C.3 Consistency with State and County Plans and Programs

C.3.a Coastal Zone Management Policies and Objectives, HRS Chapter 205A

The purpose of the Hawaii Coastal Zone Management (CZM) Program is to “provide for the effective management, beneficial use, protection, and development of the coastal zone”. Hawaii's CZM is established through Chapter 205A, HRS, and is administered by the State of Hawai'i, Office of Planning. HRS Chapter 205A requires compliance with CZM objectives and policies outlined in Section 205A-2(b). The FEIS examined the objectives and policies listed in HRS Section 205A-2 and found the project to be consistent with the objectives and policies. 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;*
 - (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 Honouliuli WWTP is located approximately 1.7 miles inland from the shoreline. The planned WWTP expansion and development of secondary treatment and support facilities will not impact access to the shoreline and will not have an adverse effect on coastal recreational resources. The purpose of the WWTP improvements is to provide a higher level of wastewater treatment and improve the quality of effluent discharged to Mamala Bay. The proposed expansion will increase the capacity of the WWTP and HWRP to provide secondary and tertiary treatment, reduce the concentration of water quality parameters in the secondary effluent discharged to Mamala Bay, and increase the quantity of reclaimed water for non-potable uses. As a result, the proposed project will have a net environmental benefit to coastal waters in the 'Ewa region, including Mamala Bay, which is used for a variety of water recreation activities.

(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.*
- (C) Support state goals for protection, restoration, interpretation, and display of historic resources.*

Discussion:

The proposed project is not anticipated to impact historic or archaeological resources within the coastal zone. The Archaeological Inventory Survey (AIS) prepared for the project did not identify any historic properties within the Honouliuli WWTP property including the planned expansion area. Pre-contact land use in the area was extremely limited due to the absence of water sources and thin soils. No traditional trails are known to have traversed the site and there are no Land Commission Awards in the area. The AIS concluded that the likelihood of encountering archaeological, cultural or historic resources is very low. The potential for adverse effects to traditional and cultural practices is therefore not anticipated. Use of the existing WWTP facility and proposed expansion area 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. A copy of the AIS is provided in the Final EIS that is included with this application under separate cover (See **Section F**).

(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:

Due to the distance from the shoreline, the planned expansion of the Honouliuli WWTP and development of secondary treatment and support facilities will not adversely affect coastal scenic and open space resources. Planned new WWTP facility improvements within the expansion area, including in the SLU Agricultural District, will replace the existing, vacant open space with new industrial development which will be visible from surrounding public roadways, including Renton Road, Geiger Road and Roosevelt Road, from the adjacent residential neighborhoods, and from the Coral Creek Golf Course.

The EDP identifies distant vistas of the shoreline from the H-1 Freeway above the 'Ewa Plain, and views of central O'ahu and Diamond Head from Pu'u O Kapolei and Pu'u Makakilo as significant public views and vistas that warrant preservation (see **Section C.3.d 'Ewa Development Plan**). The existing WWTP and planned new facilities within the expansion area will be visible, but will not be apparent or intrude on these view planes. The EDP also identifies the OR&L Historic Railway and Railway Stock as significant visual landmarks and establishes guidelines for preserving a 50-foot open space setback along the railway alignment with landscaping and a shared pedestrian path and bikeway.

To mitigate visual impacts to public scenic and open space resources, WWTP structures will be designed as much as possible to remain below the 60-foot building height limit in the I-2 zoning district and will be setback at least 50 feet from the perimeter property line. Public street frontages along Geiger Road and Roosevelt Road will be landscaped with canopy trees to screen views. Landscaping along the eastern edge of the facility will be allowed to grow naturally to match the naturalized "rough" landscape along the shared edge of the golf course. A combination of walls, fences or berms with linear landscape elements will be installed around the perimeter of the WWTP to provide an aesthetically pleasing view to replace the current open, industrial appearance.

Although the expansion of the WWTP will alter the visual character of the immediate area, the project is located within the EDP Community Growth Boundary which designates land that is appropriate for urban development in order to accommodate projected growth in 'Ewa. The planned secondary treatment and support facilities are appropriately located adjacent to the existing WWTP and include design treatments that are compatible with the existing visual environment.

(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 purpose of the proposed expansion and upgrade of the Honouliuli WWTP is to provide higher level wastewater treatment and improve the quality of effluent that is discharged to Mamala Bay. The proposed expansion will increase the WWTP and HWRF capacity to provide secondary and tertiary treatment, reduce the concentration of water quality parameters in the secondary effluent discharged into Mamala Bay and increase the quantity of reclaimed water for non-potable uses. Project activities do not involve development in the coastal waters or alterations to stream channels. Ecosystems will continue to receive WWTP secondary effluent discharge, but the proposed project is intended to provide higher levels of water quality treatment and protection to West O'ahu's coastal ecosystems. The project may result in a future increase in effluent discharged to Mamala Bay via Barbers Point deep ocean outfall, however the project will result in 100% of the discharge being treated to secondary standards.

(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 WWTP is not a coastal dependent development. The Honouliuli WWTP is sited approximately 1.7 miles mauka from the shoreline in a suitable location to serve the Honouliuli sewer basin. The development and expansion of the WWTP is identified in the EDP Section 2.2.1 as essential public infrastructure necessary to support the economic development of 'Ewa as O'ahu's Secondary Urban Center (see **Section C.3.d 'Ewa Development Plan**). The project has been assessed for social, visual, and environmental impacts in accordance with Chapter 343, HRS.

(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 WWTP is not located near the shoreline and is not susceptible to coastal hazards. The project will be undertaken in a manner that will reduce potential harm to life and property from natural hazards.

- The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) identifies the project site within flood zone D (parcel 007, 004, and portions of 003) and X (the northern portion of parcel 003). The project will not exacerbate conditions that would contribute to coastal flooding. Storm water runoff from the WWTP expansion on undeveloped lands in the SLU Agricultural District will be mitigated through construction of a series of shallow stormwater infiltration basins.
- The proposed project would modify existing drainage patterns by expanding the WWTP on undeveloped land. The reduced surface area for rainwater percolation on undeveloped land will be mitigated through construction of a series of shallow storm water infiltration basins and vegetated swales integrated with landscape areas to control runoff and promote infiltration.
- On the Tsunami Evacuation Zone Map prepared by the Department of Emergency Management, the proposed project site is located approximately 1.5 miles outside of the tsunami evacuation boundary within an area considered to be safe from wave action and that is low-risk for inundation by a tsunami.
- The potential for hurricanes, while relatively rare, is present. Although it is difficult to predict these natural occurrences, it is reasonable to assume that future events will occur. The project area and facility sites are, however, no more or less vulnerable than the rest of the island to the destructive winds and torrential rains associated with hurricanes. Project facilities will be designed to comply with IBC and CCH building codes and structural design standards for wind load as required.
- Earthquakes pose a threat throughout Hawai'i, but disruptive seismic events are relatively uncommon in this region. Project improvements will be designed and constructed in accordance with IBC seismic design standards, CCH building codes and geotechnical engineering recommendations to minimize the risks to the Honouliuli WWTP personnel and operations.

(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:

The proposed project does not involve development within the coastal zone. However, the WWTP does discharge secondary effluent into coastal waters in Mamala Bay. The purpose of the WWTP expansion and upgrade is to provide higher level wastewater treatment of the Honouliuli WWTP discharge effluent. The proposed WWTP expansion will increase the WWTP and HWRF capacity to provide secondary and tertiary treatment, reclaiming water for non-potable uses and reducing the concentration of water quality parameters in the secondary effluent discharged into Mamala Bay.

Public participation in the planning and review process was facilitated through the Chapter 343 HRS Environmental Review Process. All work activities will be conducted in compliance with federal, state, and county environmental rules and regulations. The EIS document was prepared to identify and, where necessary, propose mitigation measures to address effects anticipated from the construction and operation of the Honouliuli WWTP secondary treatment and support facilities. The EIS was published on May 8, 2016 for public review and comment in compliance with procedures set forth in Chapter 343, HRS. A copy of the FEIS is included with this application under separate cover (see **Section F**).

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

Discussion:

Public participation in the project was accommodated through the HRS, Chapter 343 and Title 11-200 HAR environmental review process, which included meetings with elected officials, agencies, and stakeholders and public informational meetings. As part of the environmental review process, the public had an opportunity to review and comment on the project during the 45-day public consultation period for the Draft EIS, published on May 8, 2016. Copies of the comments and CCH response letters for the DEIS are in the Final EIS Appendix H, which is included with this application under separate cover.

(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 1.7 miles inland from the shoreline. The WWTP discharges secondary effluent into coastal waters in Mamala Bay. The project does not involve modifications to the WWTP outfall or any other construction within the beaches or shoreline area, and will not interfere with coastal open space or natural shoreline processes. The WWTP expansion and secondary treatment upgrade is to provide high level wastewater treatment of the Honouliuli WWTP effluent that is discharged to Mamala Bay.

(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 development of marine and coastal resources or any construction activities within a sensitive marine environment. The intent of the WWTP expansion and upgrade is to provide higher level water treatment of the Honouliuli WWTP effluent that is discharged to Mamala Bay. There will be no modifications to the WWTP outfall.

No adverse impacts to coastal marine resources will result from the proposed project. No State or Federally-listed threatened, endangered, or candidate bird, mammal, or insect species were observed during the survey of the Honouliuli WWTP site. To prevent potential adverse effects to marine birds that might fly over the site at night, light fixtures will be shielded and angled downward to reduce glare and disruption of bird flight.

C.3.b Hawai'i State Plan, HRS Chapter 226

An analysis of the project's ability to meet the objectives, policies, and priority guidelines of the Hawai'i State Plan are provided in **Table C.3.1** below.

Table C.3.1	
Hawai'i State Plan Applicability to the Proposed Project	
Hawai'i State Plan Objectives, Policies, and Priority Guidelines	Applicability to the Proposed Project
Objectives and Policies	
§226-5 Objective and policies for population	Not Applicable
§226-6 Objectives and policies for the economy--in general	Not Applicable
§226-7 Objectives and policies for the economy-- agriculture	Not Applicable
§226-8 Objective and policies for the economy--visitor industry	Not Applicable
§226-9 Objective and policies for the economy--federal expenditures.	Not Applicable
§226-10 Objective and policies for the economy--potential growth activities	Not Applicable
§226-10.5 Objectives and policies for the economy--information industry	Not Applicable
§226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources.	Not Applicable
§226-12 Objective and policies for the physical environment--scenic, natural beauty, and historic resources.	Not Applicable
§226-13 Objectives and policies for the physical environment--land, air, and water quality	Not Applicable
§226-14 Objective and policies for facility systems--in general	Applicable
§226-15 Objectives and policies for facility systems--solid and liquid wastes	Applicable
§226-16 Objective and policies for facility systems--water	Applicable
§226-17 Objectives and policies for facility systems--transportation	Not Applicable
§226-18 Objectives and policies for facility systems--energy	Not Applicable
§226-18.5 Objectives and policies for facility systems--telecommunications	Not Applicable
§226-19 Objectives and policies for socio-cultural advancement--housing	Not Applicable
§226-20 Objectives and policies for socio-cultural advancement--health	Applicable
§226-21 Objective and policies for socio-cultural advancement--education	Not Applicable
§226-22 Objective and policies for socio-cultural advancement--social services	Not Applicable
§226-23 Objective and policies for socio-cultural advancement--leisure	Not Applicable
§226-24 Objective and policies for socio-cultural advancement--individual	Not Applicable

rights and personal well-being	
§226-25 Objective and policies for socio-cultural advancement--culture	Not Applicable
§226-26 Objectives and policies for socio-cultural advancement--public safety	Not Applicable
§226-27 Objectives and policies for socio-cultural advancement--government	Not Applicable
Priority Guidelines	
§226-103 Economic priority guidelines	Not Applicable
§226-104 Population growth and land resources priority guidelines	Not Applicable
§226-105 Crime and criminal justice	Not Applicable
§226-106 Affordable housing	Not Applicable
§226-107 Quality education	Not Applicable

Described below are sections of the Hawai'i State Plan's goals, objectives, and policies that are relevant to the proposed action.

§ 226-14 Objective and policies for facility systems – in general.

(A) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.

(B) To achieve the general facility systems objective, it shall be the policy of this State to:

- (1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.*
- (2) Encourage flexibility in design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.*
- (3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.*

§ 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 sewage 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.*

§ 226-16 Objectives and policies for facility systems – water.

(B) To achieve the facility systems water objective, it shall be the policy of this State to:

- (3) Reclaim and encourage the productive use of runoff water and waste water discharges.*

§ 226-20 Objectives and policies for socio-cultural advancement -health.

(A) Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives:

(2) Maintenance of sanitary and environmentally healthful conditions in Hawaii's communities.

Discussion:

The proposed project is consistent with the Hawaii State Plan objectives and policies for facility systems listed above. The planned Honouliuli WWTP expansion for secondary treatment and support facilities is a priority capital improvement project in consonance with state and county plans for adequate development of sewerage facilities that complement planned growth and urbanization in the western part of the Primary Urban Center (PUC), Central O'ahu and the 'Ewa district. The project will enable the CCH to maintain basic health and sanitation standards relating to wastewater treatment in one of O'ahu's largest wastewater service areas. The proposed project will upgrade and expand the Honouliuli WWTP's infrastructure to provide secondary treatment and accommodate projected wastewater flows. The facility improvements will provide redundancy and flexibility to address current and future public demands and priorities. Existing and proposed WWTP facility improvements are integrated with the HWRF to recycle and productively reuse wastewater for non-potable purposes.

C.3.c General Plan of the City and County of Honolulu

The General Plan (GP), a requirement of the CCH Charter, is a written commitment by CCH to a desired future for the Island of O'ahu. The current plan, approved in 2002, 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. The plan is currently being updated.

The sections of the approved General Plan most relevant to this project include:

Section V, "Transportation & Utilities"

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

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

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 Oahu 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 Oahu.

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.

Discussion:

The proposed project is consistent with the objectives and policies for Transportation and Utilities, listed above. The Honouliuli WWTP is an essential infrastructure system designed to meet the waste disposal needs of current and projected population within the Honouliuli sewer basin. The project will provide environmentally sound methods of sewage disposal by providing a WWTP capable of treating 100 percent of wastewater influent from the Honouliuli sewer basin to secondary standards. The combined WWTP secondary treatment improvements and HWRP will provide additional environmental benefits by increasing the supply of non-potable water for irrigation and industrial uses thereby reducing the demand on potable fresh water. The proposed project is a priority capital improvement project required by the EPA Consent Decree to improve the existing wastewater infrastructure. The planned improvements have been evaluated for social, economic and environmental impacts through the publication of an EIS in accordance with HRS Chapter 343. The planned WWTP improvements will provide necessary public sanitation infrastructure that will enable O’ahu to continue to be a desirable place to live and visit.

C.3.d ‘Ewa Development Plan

The ‘Ewa Development Plan (EDP) is prescribed by the City Charter to implement the broad objectives and policies contained in the CCH’s General Plan. The EDP serves as a policy guide for public actions in support of regional community goals and visions. The most recently approved EDP is contained in ROH, Chapter 24, Article 3, effective July 2013. Objectives, policies and guidelines from the current EDP are provided as follows.

It is the intent of the plan to:

“...provide a guide for orderly and coordinated public and private sector development in a manner that is consistent with applicable general plan provisions, including the designation of ‘Ewa as the secondary urban center for O’ahu and the ‘Ewa urban fringe area as one of the principle areas for residential development.”

Discussion:

The ‘Ewa Development Plan (2013) identifies the expansion of the Honouliuli WWTP as essential infrastructure necessary to meet the projected demands of ‘Ewa as a Secondary Urban Center. The expansion will increase and improve the facility’s ability to treat sewage to secondary standards and reclaim wastewater effluent for non-potable water for use. The project area is within the EDP Community Growth Boundary, which designates the land as appropriate for development. See **Figure E.5.1, ‘Ewa Development Plan – Land Use Map** and **Figure E.5.2, ‘Ewa Development Plan – Public Facilities Map**.

The proposed project is consistent with the following vision, policies, and goals defined by the EDP.

- *Chapter 1: ‘Ewa’s Role in O’ahu’s Development Pattern.* “This chapter defines ‘Ewa’s role and identity within the overall framework of island wide planning and development.”

Discussion:

The proposed project is consistent with the principles established in Chapter 1, which identify 'Ewa as the Secondary Urban Center. The proposed project will upgrade and expand the Honouliuli WWTP to support current and future population growth in 'Ewa.

- *Chapter 2: The Vision for 'Ewa's Future.* "This chapter summarizes the community-based vision for 'Ewa's future and discusses key elements of that vision."

Discussion:

The proposed project is consistent with the principles established in Chapter 2. The project site is shown within the EDP Community Growth Boundary, as established by EDP Section 2.2.1, which delineates areas appropriate for development. The project site located a region that is identified by the EDP as appropriate to develop agricultural lands for urban use in order to protect agricultural lands and open space in the rural areas of O'ahu. The proposed project will allow the improvement and expansion of essential public infrastructure necessary to accommodate future development of 'Ewa as the Secondary Urban Center. This SUP application is being processed to meet the EPA Consent Decree deadline for construction of the Honouliuli WWTP Secondary Treatment facilities within the SLU Agricultural District. In the long-term, the CCH will apply to the LUC for a SLU District Boundary Amendment to bring the entire WWTP into the SLU Urban District, in conformance with the EDP.

The proposed project is also consistent with EDP, Section 2.2.8 *Conservation of Natural Resources*, which identifies conservation goals of developing a dual water distribution system for potable and non-potable water. The proposed upgrades and expansion to the WWTP and HWRF support development of a dual water source and distribution system for non-potable water by expanding the treatment of WWTP effluent for water reclamation and reuse. In addition, the EDP identifies the conservation goal of designing regional wastewater treatment systems to minimize non-point source pollution of the ocean. The proposed WWTP improvements will implement permanent BMP strategies to retain stormwater on-site through a series of shallow stormwater infiltration basins. Surface flow conveyance will be used to the greatest extent possible, including vegetated swales incorporated into the landscaped areas. These measures will promote stormwater treatment and infiltration to minimize non-point source pollution from stormwater runoff.

- *Chapter 3: Land Use Policies, and Guidelines.* "This chapter provides the land use policies needed to implement the vision for 'Ewa."

Discussion:

The proposed project is consistent with EDP, Section 3.12.1 *General Policies (Honouliuli Industrial Area)*, which identify the area adjacent to the existing WWTP within the SLU Agricultural District as appropriate land for the expansion of the Honouliuli WWTP to accommodate future growth and higher levels of wastewater treatment. The proposed project is also consistent with EDP, Section 3.12.2 *Guidelines (Honouliuli Industrial Area)*, which specifies building height limits, roadway setbacks for wastewater treatment structures, and the planting of landscape screens to minimize the visibility of industrial operations. The proposed project will be designed in general accordance with the EDP's General Policies and Guidelines for the Honouliuli Industrial Area.

- *Chapter 4: Public Facilities and Infrastructure Policies and Guidelines.* “This chapter provides the infrastructure policies needed to implement the vision for ‘Ewa.”

Discussion:

The proposed project is consistent with EDP, Section 4.2 *Water Allocation and System Development*, which documents the City’s agreement through a Consent Decree with the U.S. Environmental Protection Agency and the State Department of Health to upgrade the Honouliuli WWTP to meet secondary treatment standards for all effluent and to improve water reclamation. Honouliuli WWTP currently has the capacity to provide 13 MGD of non-disinfected secondary treated reclaimed water (R-3 quality). The Honouliuli WRF provides tertiary treatment to the WWTP secondary effluent and has the capacity to produce 12 MGD (10 MGD of R-1 for irrigation and 2 MGD of Reverse Osmosis demineralized water for industrial uses) for distribution through separate reclaimed water lines. The proposed project is both compliant with the Consent Decree and will address long-term water demands by increasing the supply of non-potable water for use in ‘Ewa.

The proposed project is consistent with EDP, Section 4.3 *Wastewater Treatment*, which notes the need to increase the Honouliuli WWTP capacity for primary treatment to accommodate projected population and economic growth in ‘Ewa and Central Oahu. The proposed project will be designed in accordance with EDP, Section 4.3.1 *Wastewater Treatment – General Policies*. The WWTP is located in areas shown as planned for industrial use on the EDP Urban Land Use Map.

- *Chapter 5: Implementation.* This chapter provides guidance for implementing the ‘Ewa Development Plan.

Discussion:

The proposed project is consistent with the general guidelines which call for locating urban development within the Community Growth Boundary to support the vision for protection of agricultural lands and open space in ‘Ewa. EDP, Section 5.1.2 *Public Facility Investment Priorities*, which requires cooperation of public agencies in planning, financing and constructing infrastructure and identifies the development of new non-potable water sources and expanded wastewater treatment plant capacity and recycling of non-potable water reclaimed from wastewater effluent at the Honouliuli WWTP as high priority capital improvement projects. The CCH is taking an active role in planning and coordinating the planning and construction of the expansion of Honouliuli WWTP in accordance with the EDP polices for Phasing Development.

C.4 Compliance with the Land Use Ordinance, ROH Chapter 21

C.4.a Zoning

Land uses within the CCH are regulated under ROH Chapter 21, the Land Use Ordinance (LUO). The purpose of the LUO, as stated in section 21.1.20 of the LUO, is to “*regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the O’ahu general plan and development plans, and to promote and protect the public health, safety and welfare.*”

The existing WWTP is located on TMK parcels (1) 9-1-13: 007 and 9-1-69: 004. As established by the LUO, ROH Chapter 21, Article 3. TMK parcel 007 (48.633 acres) is located within the I-2 (Industrial

Intensive) zoning district, and TMK parcel 004 (2.702 acres) is located within the AG-1 (Agricultural Restricted) zoning district.

The planned WWTP expansion area is located on TMK parcel 9-1-69:003 (48.395 acres). Approximately 25.1 acres of the parcel is located within the AG-1 zoning district: the remaining approximately 23.3 acres is located within the I-2 zoning district.

The CCH AG-1 zoning district corresponds with the SLU Agricultural District. The I-2 zoning district corresponds with the SLU Urban District. See **Figure E.5.3, State Land Use District Map**, and **Figure E.5.4, CCH Zoning Map**.

The existing and proposed WWTP facility improvements are defined in ROH Section 21-10.1 as “Public uses and structures”:

“...means uses conducted by or structures owned or managed by the federal government, the State of Hawai‘i or the City to fulfill a governmental function, activity or service for public benefit and in accordance with public policy.”

Discussion

According to ROH, Chapter 21, Article 3, Table 21-3, “Public uses and structures” are a permitted use in all CCH zoning districts.

C.4.b LUO Development Standards

Development standards for the AG-1 and I-2 zoning districts are set forth in ROH Section 21.3 and summarized in the following table.

Development Standard		District	
		Ag-1	I-2
Minimum Lot Area – Ag-1 (ac) / I-2 (sf)		5	7,500
Minimum Lot width and depth (ft)		150	60
Yards (ft)	Front	15	5
	Side and Rear	10	0 ⁴
Maximum building area (percent of zoning lot)		10 ¹	80
Maximum Density (FAR)		n/a	2.5
Maximum Height (ft.)		15-25 ²	60 ⁵
Height setbacks		21-3.50-4(c) ³	21-3.130-1(c) ⁶
Reference: ROH Table 21-3.1 and Table 21-3.5.			
¹ For non-agricultural Structures.			
² Up to 25 feet if height setbacks are provided.			
³ Any portion of a structure exceeding 15 feet shall be set back from every side and rear buildable area boundary line one foot for each two feet of additional height above 15 feet.			
⁴ If adjoining a residential, apartment, apartment mixed-use, or resort zoning district, then yard setback is based on the adjoining zoning district.			
⁵ Per zoning map.			
⁶ In the I-2 district, on zoning lots adjacent to a street, no portion of a structure shall exceed a height equal to twice the distance from the structure to the vertical projection of the center line of the street			

Existing and planned structures in the WWTP facility are listed in **Table E.6.1, Table E.6.2 and Table E.6.3** and shown on **Figure E.1, General Site Plan – Existing, Figure E.2, General Site Plan – Phase 1B and Figure E.3, General Phasing Plan, in Section E.**

LUO Development Standards - Existing Facilities

Existing WWTP and HWRF facilities are located on TMK parcels (1) 9-1-13: 007 and 9-1-69: 004. All of the existing facilities are in compliance with the LUO, with the exception of the existing Incinerator Building which exceeds the maximum allowable building height.

Minimum Lot Area, Width and Depth

Parcels 007 and 003 conform to minimum standards for lot area, width and depth. Parcel 004 is 2.702 acres in areas and irregularly shaped such that it does not meet the minimum standards for lot area (5 acres), width and depth for the underlying Ag-1 zoning district.

A request for a waiver from the minimum lot area, width and depth standards for parcel 004 will be included in the zoning waiver application that will be processed for the WWTP Secondary Treatment and Support Facilities Project.

For the current Phase 1B Secondary Treatment Project, the ENV will process a CUP-Minor/JDA application with DPP to combine the parcels that comprise the existing WWTP (004 and 007) and the planned expansion area (003) into a single zoning lot for development purposes. In the long-term, the ENV proposes to process a subdivision application with DPP to consolidate and re-subdivide the three parcels that contain the WWTP facilities to create a single lot. See **Section C.1** for additional discussion.

Building Area / Maximum Density

There are no existing buildings on the parcel 003 expansion property. The existing facilities on parcels 004 and 007 conform to LUO requirements for maximum density in the I-2 zoning district and for maximum building area in the I-2 and Ag-1 zoning districts, as shown in Table C.4.2.

Table C.4.2 Building Area / Maximum Density Analysis

Development Data	Parcel 007	Parcel 004	Parcel 003		Total
SLU District / Zoning	U / I-2	A / Ag-1	U / I-2	A / Ag-1	I-2/Ag-1
Area (acres)	48.633	2.702	23.265	25.13	99.73
Area (sf)	2,118,453	117,699	1,013,423	1,094,662	4,344,237
Max. Allowable Density (sf) ¹	5,296,133	n/a	2,533,558	n/a	7,829,691
Max. Allowable Building Area (sf) ²	1,694,762	11,699	810,738	109,466	2,626,665
Existing WWTP and HWRF Facilities					
Existing Density ³ (sf)	331,572	n/a	0	n/a	331,572 ⁵
Existing Building Area ⁴ (sf)	311,242	11,691	0	0	322,933
WWTP and HWRF after Phase 1B Secondary Treatment Improvements					
Phase 1B Density ³ (sf)	379,708	n/a	68,121	n/a	447,829 ⁵
Phase 1B Building Area ⁴ (sf)	335,870	10,431	68,121	118,661	533,082

WWTP and HWRF After Future Secondary Non-Process Support Facilities					
Future Estimated Density ³ (sf)	452,690	n/a	110,827	n/a	563,517 ⁵
Future Estimated Building Area ⁴ (sf)	390,122	10,431	131,327	266,848	798,728
¹ Maximum density in I-2 is Floor Area Ratio of 2.5 x the total lot area. There is no density standard for Ag-1. ² Maximum building area in I-2 is 80% of lot area and in Ag-1 is 10% of lot area. ³ Floor Area is based on building footprint multiplied by the number of stories, as shown in Table E.6.1. and E.6.3. ⁴ Building Area is based on building footprint, as shown in Table E.6.1. and E.6.3 ⁵ Calculation does not include structures within Ag-1 zoning district.					

Building Height

Existing building heights on parcels 004 and 007 are listed in **Table E.6.1** in **Section E**.

All of the existing structures on parcel 007 are below the maximum building height limit of 60 feet above existing grade, with the exception of the existing Incinerator Building, which is 70 feet tall. The Incinerator Building is located more than 80 feet from the boundary of parcel 004 and more than 300 feet from Geiger Road and thus does not encroach into the transitional height setback. The Incinerator Building is proposed for demolition as part of the proposed Phase 1A improvements, which are scheduled to start in September 2018 and be completed in October 2021.

All of the existing structures on parcel 004 are below the maximum building height limit of 25 feet above existing grade.

A request for a waiver from the LUO maximum height standard for the existing Incinerator Building on parcel 007 will be included in the zoning waiver application that will be processed for the WWTP Secondary Treatment and Support Facilities Project.

Setbacks

Front, side and rear yard setbacks are illustrated on **Figure E.1, General Site Plan – Existing** in **Section E**. All of the existing structures conform to the front, side and rear yard setback standards and the transitional height setback standards of the underlying I-2 and Ag-1 zoning districts. All existing structures on parcel 007 are setback more than 50 feet from the property boundary. On parcel 004, all existing structures are setback more than 30 feet from the property boundary. There are no buildings on parcel 003.

Facility improvements that cross the side yard property boundary between parcels 007 and 004 consist of subsurface utilities and structures, driveways, and landscaped areas, which are allowed within yard setbacks.

Parking

Off-street parking standards for public uses and structures are determined by the Director of DPP. The existing off-street parking exceeds the existing facility parking demands based on the number of employees.

The existing WWTP facility has 144 total striped parking stalls, including 136 standard stalls and 8 handicap stalls located on parcel 007. There are approximately twice as many parking stalls as required to accommodate 68 employees, which is the maximum number of employees at the WWTP during the peak daytime shift. See **Section C.1.a** for existing and proposed number of persons (clients and staff).

The HWRF has a total of 13 parking stalls, including 12 standard stalls and 1 handicap stall. The existing off-street parking stalls accommodate the 10 employees that operate the facility during the Monday through Friday daytime shift.

Parking Lot Landscaping

At the time of development, off-street parking lots on the WWTP property were planted with 1 canopy tree per six parking stalls in conformance with the LUO. In some locations the parking lot landscaping may no longer meet this requirement. As part of the Phase 1B improvements, all parking areas will be shaded with trees as required by the ROH Section 21-4.70.

LUO Development Standards – Phase 1A and 1B Facility Improvements

Proposed Phase 1A and 1B Secondary Treatment facilities will be developed within the Ag-1 zoning district on the parcel 003 expansion property, and will include improvements within the existing WWTP facilities on parcels 004 and 007.

Building Area / Maximum Density - Proposed

Building area / maximum density analysis for proposed Secondary Treatment and Support Facilities is provided in **Table C.4.2**.

Phase 1B Secondary Treatment facilities proposed to be developed within the 25.1-acre Ag-1 zoning district expansion property on parcel 003 exceed the LUO standard for maximum building area of 10 percent of the zoning lot for non-agricultural structures. The maximum allowable building area in the Ag-1 zoning lot on parcel 003 is 109,466 sf and the proposed building area for Phase 1B Secondary Treatment facilities is 118,661 sf.

Proposed future secondary and non-process support facility improvements within the parcel 003 Ag-1 zoning district also exceed the maximum building area. The estimated building area for these future improvements is 266,848 sf.

A request for a waiver from the maximum building area limit for proposed Phase 1B Secondary Treatment improvements and future secondary treatment and non-process support facilities within the parcel 003 Ag-1 district will be included in the zoning waiver application that will be processed for the WWTP Secondary Treatment and Support Facilities Project.

All other proposed Secondary Treatment and Support Facility improvements within parcels 004 and 007, and within the I-2 zoning district on parcel 003 comply with the LUO standards for building area/maximum density.

Building Height - Proposed

Proposed building heights on parcels 003, 004 and 007 are listed in **Table E.6.3** in **Section E**.

All Phase 1B Secondary Treatment facilities proposed to be developed within the parcel 003 expansion property are designed with to comply with the maximum height limit of 25 feet above grade, which conforms to LUO standards for maximum building heights of 25 feet in the Ag-1 zoning district and 60 feet in the I-2 zoning district. Upon the demolition of the 70-foot tall Incinerator Building in Phase 1A, all existing WWTP and HWRF structures and proposed Phase 1B improvements on parcel 007 will also comply with LUO standards for maximum building height.

Proposed future secondary treatment and non-process support facility improvements located within the parcel 003 Ag-1 zoning district may include buildings that exceed the maximum building height of 25

feet. Building plans for these facilities have not yet been prepared. If any of these facilities require building heights in excess of 25 feet to meet ENV program and building performance requirements, then the ENV will either apply for a zoning waiver from the maximum building height standard in the Ag-1 zoning district, or will first process the SLU District Boundary Amendment to change from the Agricultural to the Urban District and a zone change application to change from the Ag-1 to the I-2 zoning district with a maximum building height of 60 feet. The decision to apply for a zoning waiver or a SLU Boundary Amendment/zone change will depend on the development schedule for these facilities.

All other proposed Secondary Treatment and Support Facility improvements within parcels 003, 004 and 007 will be designed to comply with the LUO standards for maximum building heights of the respective Ag-1 and I-2 zoning districts.

Setbacks - Proposed

Front, side and rear yard setbacks are illustrated on **Figure E.2, General Site Plan – Phase 1B** and **Figure E.3, General Phasing Plan** in **Section E**. All of the proposed new and rehabilitated structures will conform to the front, side and rear yard setback standards and transitional height setback standards of the underlying I-2 and Ag-1 zoning districts.

All proposed structures will be setback a minimum of 40 feet from the property line. Within the parcel 003 expansion property, new facility improvements that will cross the shared property line with parcels 007 and 004 include subsurface utilities and structures, driveways and landscaped areas, which are allowed improvements within the yard setbacks. With the exception of 6-foot high fencing and landscaping, which are also allowed in yard setbacks, no other surface structures above 30-inches in height will be constructed within the setback areas.

For the current secondary treatment project, the ENV will process a CUP-Minor/JDA application with DPP to combine the parcels that comprise the existing WWTP (004 and 007) and planned expansion area (003) into a single zoning lot for development purposes. This action will eliminate the interior yard setbacks of the combined parcels. In the long-term, the ENV proposes to process a subdivision application with DPP to consolidate and re-subdivide the three parcels that contain the WWTP facilities to create a single lot.

Parking - Proposed

Off-street parking standards for public uses and structures are determined by the Director of DPP. The existing WWTP facility has 144 total striped parking stalls, including 136 standard stalls and 8 handicap stalls located on parcel 007. As part of the planned Phase 1A improvements, 4 stalls will be added to the WWTP, including 3 standard stalls and 1 handicap stall.

No additional parking stalls are proposed as part of the Phase 1B Secondary Treatment improvements. The 148 standard stalls and 9 handicap stalls that will be available at the WWTP facility upon completion of the Phase 1B Secondary Treatment improvements are expected to meet the parking demand for the projected increase in the number of employees from 81 to 120.

No increase in the number of parking stalls or employees is anticipated at the BWS HWRF. The existing parking facilities of 12 standard stalls and 1 handicap stall are expected to meet the future parking needs of that facility.

An estimated 510 parking stalls are estimated to be required for employees and visitors at the future non-process support facilities within the parcel 003 expansion property, including the new Administration Building, Operations Building, SCADA Facility, Central Laboratory, Ocean Team Facilities, Central Shop Building, Regional Maintenance Building, and Central Warehouse Building. See **Table 4-6** in

the project FEIS submitted with this application. The non-process facilities are estimated to employ 370 people at the WWTP. As building plans and parking lot plans are developed for these facilities, the ENV will consult with DPP regarding off-street parking requirements and incorporate the requirements into the site plans.

Parking Lot Landscaping - Proposed

At the time of development, off-street parking lots on the WWTP property were planted with 1 canopy tree per six parking stalls in conformance with ROH Section 21-4.70. In some locations the parking lot landscaping may no longer meet this requirement. As part of the Phase 1B improvements, all parking areas will be shaded with trees as required by the ROH Section 21-4.70. Future parking lots developed for the non-process support facilities will also be landscaped to conform to LUO landscape and screening standards.

C.4.c Unilateral Agreement, Ordinance 09-22

Parcel 003 is subject to a Unilateral Agreement (UA) (Ordinance 09-22) which establishes conditions of approval for a zone change from Ag-1 to I-2 on 23.3 acres of the parcel for the purpose of developing an industrial park. The proposed Honouliuli WWTP Secondary Treatment expansion replaces the proposed industrial park development. As a result, several of the UA conditions are no longer applicable to the project, nevertheless they create an encumbrance on the property and an obligation for the ENV. The ENV is currently evaluating the UA conditions related to the OR&L right-of-way, traffic and transportation improvements, water improvements, and disclosures concerning the WWTP expansion, and is consulting with the relevant agencies to address applicable conditions. The ENV proposes to amend or replace the UA as part of a future zone change application to change the Ag-1 areas within the WWTP to I-2.

C.5 Compliance with HRS Chapter 205, Part III

In accordance with Article XI, Section 3 of the State Constitution, and HRS 205, Part III, the CCH is mandated by the State of Hawai'i to evaluate and identify Important Agricultural Lands (IAL) in order to provide long-term protection for Hawai'i's high-quality farm land and preserve productive agricultural land from future development. The CCH, Department of Planning and Permitting (DPP) is currently conducting a public planning program to evaluate and identify land for IAL designation to the State Land Use Commission. Land designated for urban use in existing county land use plans and zoning are excluded from IAL designation. The project parcel is located within the EDP Community Growth Boundary on land designated for industrial use and development of a WWTP. The expansion property is therefore excluded from IAL designation. See **Figure E.5.5, IAL Map**.

C.6 Site Description

C.6.a Soils

Soils in this area, as classified by the U.S. Soil Conservation Service (USDA, 1972), are described below and illustrated on **Figure E.5.6, Soils Map**. Soils within the project site include the following:

- Mamala cobbly silty clay loam (MnA): Consists of shallow, well-drained soils along the coastal plains on the islands of Oahu and Kauai. These soils formed in alluvium deposited over coral

limestone and consolidated calcareous sand. Stones, mostly coral rock fragments are common in the surface layer and in the profile. This soil is neutral to mildly alkaline. The slope of the soil is 0 to 12 percent. MnA soil has moderately low to high infiltration rates (0.06 to 6.00 in/hr). The depth to water table is more than 80 inches.

- Ewa silty clay loam (EmA): Consists of well-drained soils in basins and along alluvial fans on the island of Oahu and Maui. These soils developed in alluvium derived from basic igneous rock. Elevations range from near sea level to 150 feet. The slope of the soil is 0 to 2 percent. EmA soil has moderately low to high infiltration rates (0.14 in/hr). The depth to water table is more than 80 inches.
- Waialua silty clay (WkA): Consists of moderately well drained soils on alluvial fans on the island of Oahu. These soils developed in alluvium weathered from basic igneous rock. Elevations range from 10 to 100 feet. The slope of the soil is 0 to 3 percent. WkA soil has moderately high infiltration rates (0.20 to 0.60 in/hr). The depth to water table is more than 80 inches.
- Honouliuli clay (HxA): Consists of well-drained soils on coastal plains on the island of Oahu in the Ewa area. These soils developed in alluvium derived from basic igneous material. Elevations range from 15 to 125 feet. The slope of the soil is 0 to 2 percent. HxA soil has low to moderately high infiltration rates (0.00 to 0.20 in/hr). The depth to water table is more than 80 inches.

Land Capability Classification

The land-capability classification groups soils according to:

“...their potential and limitations for sustained production of common cultivate crops that do not require specialized site conditioning or site treatment (SCS USDA 1961).”

The classification system is designed to provide broad generalizations on soil potential, limitations in use and management problems. The classification system provides categories on the soil’s capability class and subclass. Capability classes provide information on the soil’s general agricultural limitations. Capability classes are categorized from I to VIII. Capability classes I to IV indicate that well-managed soils are capable of producing common cultivated field crops and pasture plants. Classes V to VII indicate the soil is suited for native plants. Class VIII indicates that major soil reclamation is necessary to support crops, grasses or trees. Capability subclasses provide information on the soil’s specific conservation problems or limitations. Capability subclasses are: erosion and runoff (e), excess water (w), root-zone limitations (s), and climatic limitations (c).

The land-capability classifications for the site, as classified by the U.S. Soil Conservation Service (USDA, 1961), are described below and illustrated on **Figure E.5.7, Irrigated Land Capability Class Map** and **Figure E.5.8, Non-irrigated Land Capability Class Map**.

The irrigated land-capability classifications within the project site include the following:

- Class III (Majority of project site): Consists of soils with severe limitations that reduce the choice of plants or require special conservation practices, or both.
- Class II (Southeast corner of project site): Consists of soils with some limitations that reduce the choice of plants or require moderate conservation practices.
- Class I (Southeast corner of project site): Consists of soils that have few limitations that restrict their use.

- The irrigated land-capability subclass for the project site indicates root-zone limitations (s).

The non-irrigated land-capability classifications within the project site include the following:

- Class VI (Majority of project site): Consists of soils with severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.
- Class IV (Southeast corner of project site): Consists of soils with severe limitations that restrict the choice of plants, require very careful management, or both.
- Class III (Southeast corner of project site): Consists of soils with severe limitations that reduce the choice of plants or require special conservation practices, or both.
- The non-irrigated land-capability subclass for the project site indicates root-zone limitations (s) and climatic conditions (c).

The project site is not currently irrigated.

ALISH

The Agricultural Lands of Importance to the State of Hawai'i (ALISH) classification system identifies three classes of agriculturally important lands: Prime Agricultural Lands, Unique Agricultural Lands, and Other Important Lands. The classification systems was developed to assist the national effort to inventory important farmland and is identical to the criteria establish by the Natural Resources Conservation Service, U.S. Department of Agriculture (NRCS). See **Figure E.5.9, ALISH Map**.

The majority of the project site is not classified by ALISH. The southeast corner of the site, including portions of parcels 003 and 004, is classified by ALISH as Prime Agricultural Land, which is defined as land "best suited for the production of food, feed, forage and fiber crops. The land has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods."

Land Study Bureau (LSB)

During the 1960's and 1970's, the University of Hawai'i, Land Study Bureau (LSB) evaluated the quality of State land in terms of agricultural productivity. State land was appraised based on environmental conditions, physical characteristics, soil properties and statewide standards of crop yields. The overall productivity rating is expressed using letters "A" through "E", with "A" representing the highest productivity and "E" the lowest. See **Figure E.5.10, Land Study Bureau Map**.

The project site is characterized by the following LSB classification:

- A - southeast corner of project site
- B - southeast corner of project site
- E – northwest portion of project site

Discussion:

The project site is composed of three TMK parcels: 007, 004, and 003. The existing Honouliuli WWTP is located on parcel 007 and 004. The proposed expansion property is located on parcel 003. Parcel 007

and the eastern portion of parcel 003 are in the SLU Urban District. Parcel 004 and the western portion of parcel 003 are in the SLU Agricultural District. Currently, there are no agricultural uses on the project site. Historically, the agricultural uses on the site have been limited to cattle ranching.

Although parcel 003 is in the SLU Agricultural District, it has been identified in the EDP as appropriate agricultural land to develop for urban uses to accommodate projected growth in 'Ewa as the Second Urban Center (see **Section C.3.d 'Ewa Development Plan**). This SUP application is being processed to meet the EPA Consent Decree deadline for construction of the Honouliuli WWTP Secondary Treatment facilities within the SLU Agricultural District. In the long-term, the CCH will apply to the LUC for a SLU District Boundary Amendment to bring the entire WWTP into the SLU Urban District, in conformance with the EDP.

Soils

The soils on parcel 007 and 004 have mostly been disturbed and compacted by development of the Honouliuli WWTP. The soils on parcel 003 have been subject to ground disturbance from historic uses, but are currently undeveloped with a mix of non-native and native trees, shrubs and grasses. The WWTP expansion will disturb and compact the soils on parcel 003. The reduced surface area for rainwater percolation through undisturbed soils will be mitigated in the final site plan by designing a series of shallow stormwater infiltration basins and vegetated conveyance swales.

Land-Capability Classification

The project site is in the non-irrigated land-capability classification. Parcels 007, 003 and the northern portion of 004 have a land-capability classification of six. The southern portion of parcel 004 has a land-capability classification of three and four. The project site classifications indicate that a majority of the site is unsuitable for agriculture due to severe soil and root-zone limitations.

ALISH

A majority of the project site, including the portion of parcel 003 located within the SLU Agricultural District, does not have an ALISH designation. The eastern portions of parcels 004 and 003 are designated as Prime Lands. Although the southeastern portion of the site is designated as ALISH Prime Lands, parcel 004 has already been developed as part of the existing Honouliuli WWTP and the area of parcel 003 designated as prime is located within the SLU Urban District and the I-2 zoning district. Additionally, the entire project site is within the EDP Community Growth Boundary, which delineates land planned for urban development (see **Section C.3.d 'Ewa Development Plan**).

Land Study Bureau

A majority of the project site does not have a LSB designation. The western portion of parcel 003, which corresponds with the SLU Agricultural District, is designated as E, the lowest agricultural productivity rating. Parcel 004, which is also located with the SLU Agricultural District, is designated as LSB A and B, the highest agricultural productivity rating. The LSB designation for parcel 004 does not accurately reflect its current land use since parcel 004 has already been developed as part of the existing Honouliuli WWTP.

C.6.b Land Topography and Use

Topography

The WWTP project site is located on the 'Ewa Plain on the west side of O'ahu. Topography on the project site and surrounding area is relatively flat with gradual mauka-makai oriented sloping grades and localized man-made topographical features. Elevations on the existing WWTP site range from

approximately 25 feet to 50 feet above mean sea level (msl). The existing WWTP project site contains localized variations in topography as a result of WWTP facility improvements including retention basins, swales, embankments, and building pads. The proposed WWTP expansion area on parcel 003, including the areas within the SLU Agricultural District, is generally flat with gradually sloping elevations ranging from approximately 40 to 50 feet and an absence of notable topographic features. Within the overall WWTP site, the most prominent topographic feature is a dry ditch, previously part of a now-abandoned irrigation system; the ditch is approximately 6 feet deep by 20 feet wide by 960 feet long, located along the south-east side of Parcel 003 and within the SLU Urban District. In future phases of development, the ditch is proposed to be filled to construct WWTP improvements.

The regional terrain surrounding the project site is characterized by the same generally flat topography and gradual mauka-makai oriented sloping grades. Adjacent to the project site along the east side is the Kalo'i Gulch, which is integrated into the Coral Creek Golf Course and serves as the primary regional drainage way. To the west of the project site is the flat expanse of Kalaeloa Airport, the location of the decommissioned Naval Air Station Barbers Point. See **Figure E.5.11, Topography Map**.

Abutting Land Uses

The Honouliuli WWTP property is bounded by Geiger Road on the south, Roosevelt Avenue on the south and west, Kalo'i Gulch on the east, and the Oahu Railway and Land (OR&L) Right-of-Way on the north (see **Figure E.5.12, Abutting Land Uses**). The proposed 48.395-acre expansion area is an irregularly shaped parcel that wraps around the north and east sides of the existing facility, with the majority of land area, including approximately 25.1 acres within the SLU Agricultural District, located along the north side. The 2.702-acre parcel 004, which is also designated within the SLU Agricultural District, is almost completely surrounded by the existing WWTP facility and parcel 003, with a small frontage along Geiger Road. Land uses abutting the WWTP property include the following:

North

A vacant parcel immediately mauka from the OR&L right-of-way separates the WWTP property from Renton Road. The historic plantation village, Verona Village, is located on Renton Road north of the WWTP expansion area. Kapolei Parkway, a major regional collector roadway oriented generally east-west passes north of the project site through the 'Ewa Villages and 'Ewa by Gentry residential communities.

East

The Coral Creek Golf Course and Kalo'i Gulch are located adjacent to the WWTP on the east side. The Sun Terra South and Kula Lei residential neighborhoods are located along the east side of the golf course opposite from the WWTP.

South

The Barbers Point Golf Course is located south of the project site and is accessed via Essex Road with an intersection on Roosevelt Avenue near the south-west corner of the project site. Vacant land south of Geiger Road adjacent to the existing WWTP facility is currently being developed as the Coral Ridge and Sea Bridge residential communities by Gentry Homes.

West

Immediately to the west of the existing WWTP facility, across Roosevelt Avenue, is undeveloped land that is part of the Kalaeloa Airport property, formerly the Naval Air Station Barbers Point. Contiguous with the west end of the planned expansion area and adjacent to the OR&L line, Hawaiian Railway

Society base yard and Verona Village is the Hui o Pupu A'o 'Ewa residential neighborhood comprised of 8 single family homes. Further west and mauka of Roosevelt Avenue and the OR&L line is the Ka Makana Ali'i retail complex and residential community of Kapolei.

Land Use History

The project area was not known as a site of habitation or agricultural use in pre-contact times. There are no Land Commission Awards in the area and archaeological studies have found no evidence of pre-contact habitation. In 1886, the project site and surrounding lands were owned by James Campbell and B. F. Dillingham who attempted to attract homesteaders to settle in the 'Ewa Plain, but failed due to lack of water and the distance from Honolulu. In the late 1800s, water wells were developed on the 'Ewa plain for domestic and agricultural use, and sugar cane cultivation quickly expanded. In the early 1890s, B.F. Dillingham established the O'ahu Railway and Land Company (OR&L) to develop a railway line across the center of the 'Ewa Plain at the lower boundary of lands developed for sugar cultivation. The railway line forms the mauka boundary of the WWTP expansion area. Dillingham subsequently sublet the land surrounding the current project site to William Castle, who in turn sublet the area to the 'Ewa Plantation Company. Throughout the early 1900's, and continuing into modern times, the project site was used primarily for cattle ranching. As the 'Ewa Plantation Company continued to grow in the early 20th Century, the company developed plantation villages to house the labor force, including Verona Village, located immediately mauka from the project site. A 1919 U.S. War Department map shows the WWTP site located mainly on undeveloped sugar cane fields.

In 1932, the U.S. Government leased 206 acres adjacent and to the west of the current project site for the construction of a mooring mast for dirigible aircraft. The dirigible program was terminated before the site was used. In 1940, the mooring area was developed as the Marine Corps Air Station, 'Ewa. In 1942, the Naval Air Station Barbers Point was commissioned in the land area west of the project site.

Portions of the project site along the mauka side were developed with roads and residences associated with the plantation and ranching activities. By 1968, the buildings in the location of the existing WWTP had been removed. As late as 2005, the area proposed for the WWTP expansion, including the SLU Agricultural District area, remained sparsely developed for ranching activities, with paddocks, out-buildings and houses. The central section of the expansion area has been extensively cleared of vegetation and large rocks and is currently vacant. The surrounding 'Ewa region has been increasingly developed through the latter decades of the 20th century and up to the present day with residential, civic, commercial, retail and golf course uses, in accordance with CCH land use plans and policies.

The Honouliuli WWTP was constructed on its present site in 1978 and became operational in 1984. Upgrades to the site to provide limited secondary treatment were completed in 1996. In 2000, the BWS Honouliuli Water Recycling Facility was constructed on the site. In 2011, the CCH acquired 48.4-acres of land (the expansion area) abutting the north and east boundaries of the existing WWTP to provide sufficient space for construction of treatment facilities required to comply with the 2010 Consent Decree (Civil No. 94-00765 DAE-KSC) between CCH, DOH, and U.S. Environmental Protection Agency (EPA), now referred to as the First Amended Consent Decree (FACD). The Honouliuli WWTP site area, including the expansion area, is approximately 99.73 acres in area.

C.7 Infrastructure Requirements

C.7.a Wastewater System

The Honouliuli WWTP is located in the Honouliuli sewer basin, which serves a population of approximately 300,000 people. Wastewater is collected by gravity mains and force mains connected to 16 pump stations distributed throughout the Honouliuli sewer basin. Wastewater is then pumped through force mains to the interceptor sewers leading to the Honouliuli WWTP where it is treated and discharged through the Barbers Point Deep Ocean Outfall, located approximately 1.7 miles offshore at a depth of 200 feet. The Honouliuli WWTP provides primary treatment to all wastewater received (approximately 26 MGD) and provides secondary treatment to approximately half (13 MGD) of all flows received. In addition, treatment at the BWS HWRP reclaims and further treats approximately 12 MGD of secondary treatment effluent to produce recycled water including 10 MGD of R-1 water for irrigation and 2 MGD of RO water for industrial uses.

As mandated by the Consent Decree, the planned Honouliuli WWTP Expansion will improve the existing Honouliuli WWTP and upgrade the facilities to provide secondary treatment for all wastewater flows received from the Honouliuli sewer basin. A description of the existing Honouliuli WWTP facilities and proposed facility improvements is provided in **Section C.5, Site Description** and **C.6, Project Description** and **Figure E.1, General Site Plan - Existing** and **Figure E.2, General Phasing Plan – Phase 1B**.

Agency Consultation

The ENV consulted with the Department of Health (DOH) Wastewater Branch (WWB) and Department of Design and Construction (DDC) Wastewater Division (WWD) as part of the HRS, Chapter 343 and HAR Title 11-200 environmental review process.

- By letter dated May 20, 2016, the DOH WWB commented that all wastewater plans shall conform to applicable provisions of Hawaii Administrative Rules, Chapter 11-62, “Wastewater Systems” as amended on March 21, 2016.
- By letter dated June 22, 2016, the DDC WWD provided comments on the proposed WWTP facility improvements and operations described in the EIS.

The ENV and DDC are working together to design the Secondary Treatment and Support Facilities improvements. The ENV and DDC will continue to consult with DOH WWB and will submit construction drawings of proposed WWTP facility improvements to the DOH WWB for review.

C.7.b Water

The Honouliuli WWTP is located within the Board of Water Supply’s (BWS) Central O’ahu watershed, the Kalo’i sub-watershed and the Waipahu-Waiawa aquifer system, which is the primary source of potable drinking water for the area. The WWTP site is makai of the BWS’s No-pass zone, and thus is in an area suitable for WWTPs, as the sedimentary caprock is considered thick enough to prevent contaminants from leaching into the underlying basalt. The WWTP is mauka of the DOH’s Underground Injection Control (UIC) Line, which means that injection wells are prohibited; no injection wells are proposed as part of the project.

Potable water to the WWTP is provided from an existing 16-inch BWS water main located in Geiger Road with an existing single 1-inch by 6-inch water meter and service lateral connection to the WWTP. Potable water is distributed within the WWTP site through a network of 8-inch diameter pipes and

smaller service laterals. The WWTP also uses approximately 1.5 MGD of HWRF's reclaimed non-potable water, for industrial and irrigation purposes onsite.

The planned Honouliuli WWTP expansion will require improvements to the existing potable water infrastructure. Calculations of potable demand from the expanded facility will be prepared during the project design phase. Potable water will continue to be provided from the BWS water main on Geiger Road, however the service connection is proposed to be upgraded to use two (2) 2-inch by 8-inch water meters. Within the WWTP site, several sections of existing 8-inch diameter water pipes will be upgraded to 12 and 16-inch pipes. Additionally new 8, 12 and 16-inch diameter pipes will be installed to accommodate the increased water demand.

The WWTP Expansion will use an estimated 3 MGD of non-potable water from HWRF. Drought tolerant landscaping and an efficient irrigation system, such as drip irrigation and moisture sensors will be installed, as recommended by BWS.

Agency Consultation

The ENV and DDC are in ongoing consultation with the BWS regarding the planned WWTP expansion and related operations and infrastructure improvements, including:

- Calculations of Potable and R-1 recycled water demand for the expansion of secondary wastewater treatment facilities, landscape and domestic water use;
- Upgrades to the existing BWS 16-inch water main on Geiger Road to serve the WWTP and surrounding land uses;
- Upgrades to the R-1 pipeline and pump system;
- Fire protection; and
- Water conservation measures.

C.7.c Drainage and Flooding

The Honouliuli WWTP site is not located within a flood hazard area. According to Federal Emergency Management Agency's Flood Insurance Rate Map (FEMA-FIRM) No. 15003C0310G, updated on January 19, 2011, parcels 004 and 007 are entirely in Flood Zone D, while parcel 003 is within Flood Zone D and X. Flood Zone D denotes areas where there are possible but undetermined flood hazards; no analysis has been conducted in this zone. Flood Zone X denotes areas that are outside 500-year floodplain and outside of the 1% and 0.2% annual chance floodplains. The development of the Honouliuli WWTP will not exacerbate conditions that would contribute to flooding.

The proposed WWTP improvements will implement permanent BMP strategies to retain stormwater on-site through a series of shallow stormwater infiltration basins. Surface flow conveyance will be used to the greatest extent possible, including vegetated swales incorporated into the landscaped areas. These measures will promote stormwater treatment and infiltration to minimize non-point source pollution from stormwater runoff.

Agency Consultation

The ENV consulted with the DOH Clean Water Branch (CWB) as part of the HRS, Chapter 343 and HAR Title 11-200 environmental review process. By letter dated May 18, 2016, DOH CWB provided comments on the planned WWTP expansion, including:

1. Provided reference to state and federal water quality regulations and permit requirements pursuant to the Clean Water Act and HAR, Section 11-54 and 11-55.

2. Provided recommendations to reduce, reuse and recycle to protect, restore and sustain water quality and beneficial uses of State waters, including:
 - a. Treat all stormwater as a resource to be protected by integrating it into project planning and permitting. Use low impact development methods or ecological bio-engineering or drainage ways should be identified in the planning stages. Use for irrigation, recharging groundwater or supplying streams and estuaries with water.
 - b. Conserve water quality by minimizing potable water use for irrigation, gray water reuse options, energy conservation through smart design and improve water quality).
 - c. Use stormwater BMPs to use stormwater for irrigation or groundwater recharge.
 - d. Reduce use of potable water.
 - e. Use green building practices: pervious pavement and landscaping with native vegetation to improve water quality by reducing excess runoff and need for fertilization.
 - f. Identify opportunities for retrofitting or bio-engineering existing stormwater infrastructure to restore ecological function while maintaining or enhancing hydraulic capacity. Particularly in areas prone to flooding or there is aged infrastructure.

The ENV and DDC will continue consultation with DOH CWB during the design and plan review process.

C.7.d Streets and Transportation

The roadway system within the vicinity of the Honouliuli WWTP includes the following:

- Geiger Road is generally an east-west, two-lane, undivided two-way collector roadway in the vicinity of the project. This roadway begins in the west where Roosevelt Avenue becomes Geiger Road at the intersection with Essex Road and terminates to the east where Geiger Road becomes Iroquois Road at its intersection with Fort Weaver Road. The posted speed limit in the vicinity of the project is 30 miles per hour (mph). The primary existing access point (Driveway 1) to the WWTP and the HWRF is off of Geiger Road, west of the Coral Creek Golf Course and south of the WWTP's Control Building. A secondary existing access point (Driveway 2) into the WWTP site is also on Geiger Road, approximately 780 LF east of Driveway 1. Driveway 2 provides access to the septage receiving station and provides the closest access to the solids processing facilities for sludge pickup. The roadway of Driveway 2 is fairly narrow and is unable to accommodate the flow and movement of larger trucks; thus most trucks enter through Driveway 1. In addition to the driveway entrances to the WWTP, there is an existing driveway off of Geiger Road into the 'Ewa Convenience Center, a refuse drop-off facility operated by the CCH ENV. The Convenience Center driveway is located approximately 275 feet west of Driveway 1.
- Roosevelt Avenue replaces Geiger Road west of Essex Street, at the southwest corner of the existing WWTP, then aligns north-south to form the west boundary of the WWTP before turning toward the west to form the makai boundary of the parcel 003 expansion property. Roosevelt Avenue is a two-lane, undivided two-way collector roadway with a posted speed limit of 30 mph. Approximately 350 feet past the west end of parcel 003, a north-south aligned cross-street (variously labeled as Renton Road and Phillipine Sea Street) connects Roosevelt Avenue with Renton Road.
- Renton Road is an east-west, two-way, collector roadway that passes to the north of the WWTP as a two-lane, undivided roadway and becomes a four-lane, divided roadway east of the intersection with Kapolei Parkway. The posted speed limit along Renton Road is 25 mph. Renton Road is the primary roadway providing access to Verona Village.

- Malio Street is an old, unstriped, single-lane, semi-paved City-owned road with an intersection on Renton Road approximately 475 feet west of Kapolei Parkway. Malio Street cuts through a vacant and undeveloped parcel owned by the City, and is proposed to provide access to the mauka side of the proposed parcel 003 expansion property within the SLU Agricultural District. ENV is currently applying for a Use and Occupancy Agreement with the State DOT to allow vehicle crossing over the OR+L right-of-way at Malio Street.
- Kapolei Parkway is generally an east-west, two-way, six-lane, divided arterial roadway in the vicinity of the Project. This roadway begins in the west near the Kapolei Target Store and extends east until it crosses Renton Road and turns to the south. The posted speed limit along this roadway in the vicinity of the Project is 30 mph.

Traffic is projected to increase due to the Honouliuli WWTP Expansion and the continuing development of the Ewa-Kapolei region. The proposed Secondary Treatment and Support Facilities improvements are expected to create up to 410 new full-time positions, including 40 at the WWTP and 370 at the new non-process support facilities. Proposed roadway system and access point improvements proposed as part of the Honouliuli WWTP Secondary Treatment and Support Facilities expansion are as follows (see **Figure E.2, General Phasing Plan – Phase 1B** and **Figure E.3, General Phasing Plan – Phasing Plan**):

- Driveway 1 (existing): Driveway 1 is the main entrance driveway into the existing WWTP. Proposed improvements include widening Geiger Road to provide a left-turn storage lane with minimum storage of 50 feet.
- Driveway 2 (existing): Driveway 2 provides access to the existing septage receiving station and to the solids processing facilities. Proposed intersection improvements include widening Geiger Road to provide a left-turn storage lane with minimum storage of 50 feet.
- Driveway 3 (proposed): A new access point off of Geiger Road is proposed, approximately 600 LF east of the existing Driveway 2. Lane width will be 20 to 24 feet wide. The driveway will also connect to a new perimeter road that will provide access to the east side of the WWTP expansion area. This driveway will normally be closed to vehicles and for entrance-only (no exit) for maintenance vehicles as well as the future multi-use bike path.
- Driveway 4 (proposed): A new access point off of Malio Street via Renton Road is being considered to provide general access to the proposed expansion area and non-process support facilities, including the Administration Building, Ocean Team Building, Laboratory Building, Operations Building, Maintenance Building, Central Shops, and Warehouse. This entrance would also provide access to Kapolei Parkway via Renton Road. Highway access via Kapolei Parkway may be more desirable for some activities, which may dictate future use and need for this entrance. It is anticipated that Malio Street and Renton Road, up to the Kapolei Highway intersection, would need to be improved to accommodate truck traffic to and from the site, including development of a westbound left-turn storage lane with at least 125 feet of storage.
- Driveway 5 (proposed): A new access driveway from Roosevelt Avenue is proposed as part of the non-process support facility improvements. The new driveway would provide direct access to the proposed Administration Building, Ocean Team Building, Laboratory Building, Operations Building, Central Shops, Maintenance Building, Warehouse and other facilities within the expansion area. This entrance would also be the main receiving entrance for visitors to the treatment, operations, maintenance, or warehouse facilities. The Ocean Team would require daily access for boats and trailers. It is anticipated that Roosevelt Avenue would need to be provided with turn lanes, as well as acceleration and deceleration lanes into and out of the

property, to accommodate the day-time work shift due to the large number of office workers.

- **Bike Lane (proposed):** A new 14-foot wide bike lane (10-foot wide lane with 2-foot wide shoulder on each side) adjacent to the new Driveway 3 will provide bicycle access from Geiger Road and connect to the Leeward Bikeway system, which runs north of the project site along the OR&L right-of-way. The new bike lane will be constructed in a future phase of development.

For further discussion see the traffic impact analysis report included in the project FEIS that is submitted with this application under separate cover (see **Section F**).

Agency Consultation

As part of the environmental review process, agencies had an opportunity to review and comment on the project. DPP Traffic Review Board (TRB) and DPP Civil Engineering Branch (CEB) did not provide comments for the EIS. By letter dated July 7, 2016, the State of Hawai'i, Department of Transportation provided comments on the planned WWTP expansion, including:

1. Mitigate traffic conflicts at the proposed driveway alignments based on future operational needs;
2. Evaluate level of service conditions and propose mitigation for traffic exiting the WWTP from Geiger Road driveways;
3. Design all gated driveways to have adequate storage for vehicle queuing and a turnaround area;
4. Design proposed multi-use pedestrian and bicycle perimeter path to include safe crossings at all project driveways;
5. Provide on-site parking to accommodate all facility visitors and employees;
6. Coordinate project updates about impacts to local street area networks with the area Neighborhood Board, residents, businesses, emergency personnel, and Oahu Transit Services; and,
7. Transfer construction materials and equipment to and from the site during off-peak traffic hours.

The ENV and DDC will continue consultation with these agencies during the design and plan review process.

C.8 Mitigative Measures

C.8.a Short-Term Impacts:

The proposed improvements to the Honouliuli WWTP will result in unavoidable short-term impacts related to construction activities. A discussion of short-term, construction-related impacts and proposed mitigation measures is included in the project FEIS that is included with this application under separate cover.

C.8.b Long-Term Impacts:

The following unavoidable long-term impacts may result from operations at the WWTP following completion of the planned Secondary Treatment and Support Facilities improvements.

Soils

Although the expansion area is currently in SLU Agricultural District, the soil conditions indicate that the site may be unsuitable for agricultural uses due to various soil limitations (see **Section C.6.a Soil Types**). The WWTP improvement and expansion will disturb and compact soils. Soils where new WWTP structures are developed will be permanently rendered unsuitable for agricultural uses. Soils that are disturbed during the construction process will be stabilized through landscaping (vegetation or gravel). The reduced surface area for rainwater percolation will be mitigated in the final site plan by designing a series of shallow stormwater infiltration basins and vegetated conveyance swales.

Groundwater

The proposed WWTP expansion will increase impermeable surfaces, thereby decreasing the permeable surface area available for rainwater recharge to the local groundwater. The reduced permeable area for groundwater recharge will be mitigated through a series of shallow stormwater infiltration basins and vegetated conveyance swales intended to restore groundwater recharge rates.

Surface and Coastal Waters

The project site is adjacent to Kalo'i Gulch and nearby water features in the Coral Creek Golf Course. The long-term impacts to these surface waters will be mitigated by retaining and infiltrating stormwater on-site through a series of shallow stormwater infiltration basins and vegetated conveyance swales to minimize non-point stormwater pollution of nearby surface waters. This mitigation strategy is consistent with agency consultation with the DOH CWB, which recommends identifying opportunities for bio-engineering stormwater infrastructure to restore ecological function while maintaining hydraulic capacity. The DOH CWB comment letter, dated May 18, 2016, also encourages the use of permeable pavement and native vegetation to recharge groundwater and reduce the use of fertilizers (see **C.7.c Drainage and Flooding**).

The proposed project does not include any development in coastal waters. The project is located approximately 1.7 miles from the shoreline. However, the proposed project does discharge secondary effluent into coastal waters in Mamala Bay. The quantities of secondary effluent will likely increase since the proposed WWTP improvements and upgrades have been designed to accommodate the projected growth of 'Ewa as the Secondary Urban Center. The quality of secondary effluent will be improved since the proposed WWTP project is intended to provide higher level wastewater treatment and thereby reduce the concentration of water quality parameters in the secondary effluent that is discharged into Mamala Bay.

Wastewater

The proposed project will upgrade the Honouliuli WWTP's infrastructure to provide full secondary treatment and accommodate projected wastewater flows to comply with EPA Consent Decree conditions and deadlines. The proposed upgrades would phase out the existing trickle filter/solids contact (TS/SC) system and replace it with a Roughing Filter/Activated Sludge (RFAS) system. The proposed project is also consistent with the EDP, which prioritizes improving and expanding essential public infrastructure in order to support projected development in 'Ewa and Central O'ahu. Additionally, proposed WWTP facility improvements are integrated with the HWRF to recycle and productively reuse wastewater effluent for non-potable uses.

Visual and Aesthetic Resources

The proposed project will permanently alter the viewshed of the surrounding area by adding new WWTP structures. The proposed project will be designed to be consistent with EDP, which specifies building height limits and roadway setbacks for wastewater treatment structures, 50-foot open space setback along the OR&L railway alignment, and planting a landscape screen of trees and shrubs to minimize the visibility of industrial operations. To further mitigate impacts to the viewshed, WWTP structures will be designed as much as possible to remain below the 60-foot building height limit in the I-2 zoning district and will be setback at least 50 feet from the perimeter property line.

The proposed WWTP expansion will be developed on undeveloped land that currently acts as a visual buffer between the existing WWTP and Verona Village and the OR&L Historic Railway alignment to the north, the Coral Creek Golf Course to the east and Hui o Pupu A'o residential neighborhood to the west. To mitigate the visual impacts to the viewshed, public street frontages along Geiger Road and Roosevelt Road will be landscaped with canopy trees to screen views. Landscaping along the eastern edge of the facility will be allowed to grow naturally to match the naturalized "rough" landscape along the shared edge of the golf course. Areas in the parcel 003 expansion property that are not used for development of Phase 1B Secondary Treatment facilities will be kept in their existing natural vegetative condition to buffer views of the WWTP. Development of the non-process support facilities in the expansion property will include site landscaping designed to screen public views and enhance the appearance of the WWTP. A combination of walls and fences with linear landscape elements will be installed around the perimeter of the WWTP to provide an aesthetically pleasing view to enhance the current open, industrial appearance. Additionally, a vegetated area is contemplated for the west end of the parcel 003 expansion property to serve as a shallow storm water retention basin and provide a visual buffer between the WWTP and Hui o Pupu A'o.

Sludge

The proposed project will increase solids production and sludge volumes as a byproduct of increased secondary treatment processing to 100 percent of the WWTP influent, as required by the EPA Consent Decree. In addition, the WWTP is projected to receive higher volumes of influent flow, and as a result generate larger quantities of solids, consistent with the EDP growth projections for 'Ewa as the Secondary Urban Center. The Honouliuli WWTP currently receives sludge from Wahiawa WWTP and Pa'ala'a Kai WWTP. In the future, Honouliuli WWTP will additionally receive dewatered sludge from Waianae, Kailua, Waimanalo, and Laie WWTPs for processing at the proposed sludge drying facilities. Currently solids or sludge residues are disposed at the Waimanalo Gulch landfill or incinerated at the H-Power Facility. Sludge disposal at the Waimanalo Gulch landfill is being phased out. Options for reducing solid production have been developed by CCH ENV in their Island-wide Sludge Management Plan (2015), which recommends sludge processing technologies and a beneficial reuse strategy. Alternative sludge management options considered in the plan include composting and further reducing the volume of solids through drying. Drying can be used to produce biosolids suitable for land applications as fertilizer. There are also on-site and off-site opportunities for the processing of sludge to produce energy as a by-product. CCH will continue to refine and review options for disposal and beneficial reuse of biosolids generated at the Honouliuli WWTP.

Air Quality and Odor Control

The proposed project has potential to generate odor nuisances for the surrounding neighborhood. The proposed facility upgrade and expansion will replace the existing granulated activated carbon (GAC)

absorbers with a biological odor control system (centralized or decentralized) to mitigate potential for odor nuisances (see **FEIS Section 4.1.6 in Section F**). Additionally, the WWTP will operate in compliance with all applicable ambient air quality standards, including odor. Compliance, in terms of H₂S concentration levels, would be demonstrated 1) during the final design stage of the project when the air permit is modified for applicable criteria pollutants and 2) after the completion of construction with an ambient monitoring program for odor (FEIS 2017). The Honouliuli Wastewater Basin Odor Control Project is ongoing. The project scope addresses odor and corrosion concerns in both the WWTP and tributary collection system. Planning was completed in October 2015. Areas of concern and potential alternatives have been identified in the Preliminary Engineering Report. Pilot testing for WWTP controls was completed in 2014 and improvements to the Influent Pump Station Odor Control System is currently under design.

The proposed project will impact air quality by increasing on-site stationary and mobile source emissions due to an increase in the plant operational capacity. Additionally, an indirect impact to air quality will result from an increase in employees commuting by combustion source emissions vehicles. However, the possibility of nuisance odor from the Honouliuli WWTP would likely be reduced by upgrades to the odor control system, which would help minimize nuisance odor downwind of the Honouliuli WWTP. Operation of the plant under future proposed conditions would involve installation of new standby generators to provide expanded emergency power supply, which may cause potential short-term increase in combustion source emissions. However, given their emergency usage purposes, potential air quality impacts would be short in duration and would be unlikely to cause significant air quality impacts. Thus, mitigation measures would unlikely be necessary during the operational period. If a combined heat and power (CHP) facility is incorporated at the Honouliuli WWTP, it would need to be permitted according to State and Federal air regulations, as operation of the facility has the potential to produce additional emissions over the long term. The potential air emissions from the facility cannot be defined at this time, since the design is currently conceptual, but would be specified in air quality permit applications (FEIS 2017).

Traffic

The proposed WWTP Secondary Treatment and Support Facilities improvements are expected to result in an increase in traffic on surrounding streets due to an increase of up to 410 new full-time employees who may commute by motor vehicle to the project site. To mitigate an increase in traffic, the proposed project recommends implementation of roadway and access point improvements. To a minor extent, work shifts may be staggered throughout the day to disperse peak traffic periods (see **Section C.7.d Streets and Transportation, Traffic Impact Assessment**).

Noise

The proposed project will increase noise levels due to the addition of new WWTP equipment and vehicles traveling to and from the WWTP. In the Noise Study prepared for the EIS, it was determined that the proposed project would increase traffic noise by less than 1 dB between 2014 and 2030 (see **FEIS in Section F**). For adjacent residences to the west of the WWTP, continuous noise levels of 70 dBA (76 DNL) would not be compatible with residential or other noise sensitive uses. Additionally, the emergency generators in Building #201E, will mandatorily require sound attenuation to comply with the 70 dBA DOH limit along the mauka boundary. Peak noise levels will occur primarily during the daytime shift from 6:45 a.m. to 3:15p.m., lower noise levels will occur during the evening shift from 3:00 p.m. to 11:00 p.m. and the night shift from 11 p.m. to 7:00 a.m. During the operation of the project, compliance

with the DOH property line noise limits for fixed machinery would also be required, and it is expected that the long-term noise impacts associated with the proposed improvements would be minimized by the adherence to the DOH rules regarding noise limits for fixed machinery. Mitigation measures include soundproofing or muffling equipment noise such that noise levels remain below the maximum allowable levels. All CCH wastewater facilities must comply with the noise requirements of the DOH, pursuant to Chapter 46, Title 11, Community Noise Control, HAR.

Energy Consumption

The proposed project would increase energy demands (fuel and electricity) in order to operate Honouliuli WWTP's new pumps, blowers, vehicles and other equipment required to provide wastewater treatment. To mitigate increased energy consumption, the ENV is contemplating implementation of an energy-saving CHP system, which recovers energy by using digester biogas. Digester biogas is a byproduct of the WWTP operations and is an available on-site resource. A CHP system that uses digester biogas would be consistent with CCH's sustainability and climate protection strategy which recommends beneficial use of digester biogas as an alternative energy source. The feasibility of integrating a CHP facility with the WWTP is currently being evaluated. A CHP facility would require permits according to State and Federal air regulations.