**DEPARTMENT OF PLANNING**
**KA'ĀINA HULL,** DIRECTOR
**JODI A. HIGUCHI SAYEGUSA,** DEPUTY DIRECTOR

**DEREK S.K. KAWAKAMI,** MAYOR
**REIKO MATSUYAMA,** MANAGING DIRECTOR

October 10, 2024

Mary Alice Evans, Interim Director
Environmental Review Program
Office of Planning and Sustainable Development
State of Hawaii, Department of Business, Economic
Development And Tourism,
235 South Beretania Street, Room 702
Honolulu, Hawai'i 96813

Subject: **DEA and AFONSI**
**Hanalei Colony Resort Waste Water Treatment Plant**
**Kaua'i Tax Map Key Nos. (4) 5-8-011:027**
**Hanalei, Kaua'i, Hawai'i**

Dear Ms. Evans,

The County of Kaua'i Department of Planning hereby transmit the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) for the subject property located as Kaua'i Tax Map Key Nos. (4) 5-8-011:027 on the Island of Kaua'i. As set forth in the DEA-AFONSI, the Applicant proposes to replace the existing wastewater treatment with a new wastewater treatment plant and using the existing effluent system within the limits of the existing system and hereby request publication in the Environmental Notice.

Based on the significance criteria outlined in Hawai'i Administrative Rule Chapter 200.1, our department anticipates a finding of no significant impacts, and the reasons supporting the DEA-AFONSI determination area as follows:

1. The Project is not expected to irrevocably commit any natural, cultural, or historic resource.

2. The Project will not permanently curtail the beneficial uses of the environment.

3. The Project will be in conformance with the State's environmental policies and goals established by law.

4. The Project is not anticipated to have any adverse effects on the economic and social welfare or cultural practices of the community or state.

5. The Project is not anticipated to have any adverse effects on the economic and social welfare or cultural practices of the community or state.

6. The Project is not anticipated to result in adverse secondary impacts.

7. The Project is not anticipated to degrade environmental quality; it is anticipated to protect environmental quality by providing upgraded wastewater treatment.

8. The Project is not anticipated to result in a significant cumulative negative impact on the environment.

9. The Project is not anticipated to adversely affect any rare, threatened, or endangered species or habitat.

10. The Project is not anticipated to adversely affect long term air quality, water quality, or ambient noise levels.

11. The Project is located within the SMA and appropriate permits will be obtained for the SMA.

12. The proposed WWTP will be installed behind existing buildings in a publicly inaccessible pool maintenance area and the dimensions of the proposed WWTP are approximately 7 feet wide by 21 feet long, and 7 feet high.

13. The Project will not require substantial energy consumption.

We understand the Applicant has uploaded the DEA-AFONSI to the Environmental Review Program filing portal. Please publish the DEA-AFONSI on the next available publication of The Environmental Notice.

If there are any questions, please contact the Applicant's representative Mr. Brian Carroll of Laulea Engineering LLC at (808) 389-8367.

Me Ke Aloha Pumehana,

KA'AINA S. HULL
Director of Planning

**From:** webmaster@hawaii.gov
**To:** DBEDT OPSD Environmental Review Program
**Subject:** New online submission for The Environmental Notice
**Date:** Tuesday, October 15, 2024 1:28:30 PM

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**Action Name**

Hanalei Colony Resort Wastewater Treatment Plant Upgrade Project

**Type of Document/Determination**

Draft environmental assessment and anticipated finding of no significant impact (DEA-AFNSI)

**HRS §343-5(a) Trigger(s)**

- (9)(A) Propose any wastewater treatment unit, except an individual wastewater system or a wastewater treatment unit serving fewer than fifty single-family dwellings or the equivalent

**Judicial district**

Hanalei, Kaua‘i

**Tax Map Key(s) (TMK(s))**

(4) 5-8-011:027

**Action type**

Applicant

**Other required permits and approvals**

Special Area Management Permit

**Discretionary consent required**

Comprehensive Zoning Ordinance (CZO). Special Management Area

**Approving agency**

Kauai County Department of Planning

**Agency contact name**

Romio Idica

**Agency contact email (for info about the action)**

ridica@kauai.gov

**Email address for receiving comments**

brian@laulealLc.com

**Agency contact phone**

(808) 241-4050

**Agency address**

4444 Rice Street, Ste A473
Lihue, Hawaii 96766
United States
Map It

**Applicant**

Hanalei Colony Resort AOAO

**Applicant contact name**

Joseph Kuharic

**Applicant contact email**

joseph@hcr.com

**Applicant contact phone**

(808) 826-7222

**Applicant address**

5-7130 Kuhio Hwy.,
Hanalei, Hawaii 96714
United States
Map It

**Is there a consultant for this action?**

Yes

**Consultant**

Laulea Engineering LLC

**Consultant contact name**

Brian Carroll

**Consultant contact email**

brian@laulealLc.com

**Consultant contact phone**

(808) 389-8267

**Consultant address**

1127 11th avenue Suite #302
Honolulu, HI 96816
United States
Map It

**Action summary**

This Environmental Assessment was prepared on behalf of the Hanalei Colony Resort Association of Apartment Owners for the wastewater treatment plant replacement project, hereinafter referred to as the "Project", at the Hanalei Colony Resort. The Project is located at 5-7130 Kuhio Highway in Hanalei, Hawaii, herein after referred to as the "Property". The Property is identified as Tax Map Key No. (4) 5-8-011:027. The Project consists of replacing the existing wastewater treatment and effluent disposal system with a new advanced wastewater treatment plant. The purpose of this Environmental Assessment is to determine whether or not the Project has the potential to cause significant environmental impacts in or around the Project area. The Environmental Assessment was conducted in compliance with the requirements of the Hawaii EIS Law (HRS Chapter 343) and in accordance with the Hawaii Administrative Rules 11-200.

**Reasons supporting determination**

The Project is not anticipated to degrade environmental quality; it is anticipated to protect environmental quality by providing upgraded wastewater treatment. The Project is intended to replace the existing wastewater treatment system to reduce the risk of future wastewater spills. The Project site has been developed and used as a resort for many years and any adverse impacts related to the proposed WWTP would primarily be limited within the property boundary. Due to the rural nature of the area, other significant development projects are not anticipated. Therefore, the incremental effects of the proposed WWTP combined with the effects of other past, present, and reasonably foreseeable future actions are not cumulatively considerable. The Project does not involve a commitment to larger actions. The project will replace the Hanalei Colony Resort's existing wastewater treatment system, which will help to reduce the need for additional actions.

**Attached documents (signed agency letter & EA/EIS)**

- Letter-10.10.24_Hanalei-Colony-Resort-WWTP_EA-FONSI2.pdf
- 241014-Hanalei-Colony-Resort-WWTP-Upgrade_DEA-AFNSI1.pdf

**Action location map**

- Hanalei-Colony-Resort-Site-Map2.zip

**Authorized individual**

Brian Carroll

**Authorization**

- The above named authorized individual hereby certifies that he/she has the authority to make this submission.

# Draft
# ENVIRONMENTAL ASSESSMENT

## Hanalei Colony Resort Wastewater Treatment Plant
## 5-7130 Kuhio Hwy
## Hanalei, Hawaii 96714

## TMK: (4) 5-8-011:027

LAULEA
ENGINEERING, LLC

P.O. Box 25988
Honolulu, Hawaii 96825

environmental@laulealLC.com

# Draft
# Environmental Assessment

## Hanalei Colony Resort Wastewater Treatment Plant
## 5-7130 Kuhio Hwy
## Hanalei, Hawaii 96714

## TMK: (4) 5-8-011:027

**Prepared for:**

**Hanalei Colony Resort AOAO**
**5-7130 Kuhio Hwy**
**Hanalei, Hawaii 96714**

**Prepared by:**
**Laulea Engineering, LLC**
**P.O Box 25988**
**Honolulu, Hawaii 96825**

**October 14, 2024**

# PROJECT SUMMARY

| | |
|---|---|
| Approving Agency: | Kauai County Planning Department<br>4444 Rice Street, Suite 473<br>Lihue, Hawaii 96766 |
| Tax Map Key, Property Size: | (4) 5-8-011:027, 3.689 acres |
| State Land Use District: | Urban |
| Existing County Zoning: | (RR) Resort, (O) Open |
| County Development Plan: | Kauai General Plan |
| Special Designation: | Special Management Area (SMA) |
| Determination: | Finding of No Significant Impacts (Anticipated) |
| Pre-Consultation Agencies: | State of Hawaii,<br>County of Kauai,<br>United States Army Corps of Engineers,<br>United States Fish and Wildlife Service |

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## LIST OF ACRONYMS AND ABBREVIATIONS

| Acronym | Definition |
|---|---|
| Amsl | above mean sea level |
| AOAO | Association of Apartment Owners |
| BFE | base flood elevation |
| bgs | below ground surface |
| BOD | Biochemical Oxygen Demand |
| BMP | Best Management Practice |
| CAB | Clean Air Branch |
| CWB | Clean Water Branch |
| CZM | Coastal Zone Management |
| CZO | Comprehensive Zoning Ordinance |
| dBA | A-weighted decibel |
| DLNR | Department of Land and Natural Resources, State of Hawaii |
| HDOH | Department of Health, State of Hawaii |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| FONSI | Finding of No Significant Impact |
| GIS | Geographic Information System |
| gpd | Gallons per day |
| HAR | Hawaii Administrative Rules |
| HRS | Hawaii Revised Statutes |
| KCAP | Climate Adaptation Plan |
| KIUC | Kauai Island Utility Cooperative |
| KPD | Kauai Planning Department |
| LSB | Land Study Bureau |
| MBR | Membrane Bioreactor |
| NOAA | National Oceanic and Atmospheric Administration |
| NOVO | Notice and Finding of Violation and Order |
| NPDES | National Pollutant Discharge Elimination System |
| OEQC | Office of Environmental Quality Control |
| OPSD | Office of Planning and Sustainable Development |
| SAAQS | State Ambient Air Quality Standards |
| SDWB | Safe Drinking Water Branch |
| SHPD | State Historic Preservation Division |
| SBR | Single Batch Reactor |
| SMA | Special Management Area |
| SSI | Stamford Scientific International |
| TMK | Tax Map Key |
| UIC | Underground Injection Control |
| USFWS | U.S. Fish and Wildlife Service |
| WWTP | Wastewater Treatment Plant |

## EXECUTIVE SUMMARY

This Environmental Assessment was prepared on behalf of the Hanalei Colony Resort Association of Apartment Owners for the wastewater treatment plant replacement project, hereinafter referred to as the "Project", at the Hanalei Colony Resort. The Project is located at 5-7130 Kuhio Highway in Hanalei, Hawaii, herein after referred to as the "Property". The Property is identified as Tax Map Key No. (4) 5-8-011:027. The Project consists of replacing the existing wastewater treatment and effluent disposal system with a new advanced wastewater treatment plant. The purpose of this Environmental Assessment is to determine whether or not the Project has the potential to cause significant environmental impacts in or around the Project area. The Environmental Assessment was conducted in compliance with the requirements of the Hawaii EIS Law (HRS Chapter 343) and in accordance with the Hawaii Administrative Rules 11-200.

The applicant for construction of the wastewater treatment plant is the AOAO of Hanalei Colony Resort. The approving agency for the proposed activity is the County of Kauai Planning Department, which is responsible for administering the Comprehensive Zoning Ordinance and other regulations pertaining to land use within the County. The Environmental Assessment is necessary because the Project is located within the State of Hawaii Special Management Area and requires a Special Management Area Use Permit. In accordance with the County of Kauai Special Management Area Rules and Regulations, an Environmental Assessment and finding of no significant impact are required when applying for the Special Management Area Use Permit.

The Property has a split-zone designation as *RR-Resort* and *O-Open* and is located within an urban district in Hanalei on the north side of Kauai. The Property is developed with thirteen resort style buildings consisting of four units each, a pool and cabana area and an administrative building. The Property is along and immediately below the Underground Injection Control line and at a surface elevation of approximately 8 to 9 feet above mean sea level [amsl]. Kepuhi Point and the Pacific Ocean are approximately 20 feet to the northwest of the Property. Locally, the topographic surface gradient is relatively flat.

For wastewater treatment, the Hanalei Colony Resort currently utilizes seven (7) separate aerobic treatment systems to service fifty-two (52) resort units and an administrative building. A single additional aerobic treatments system serviced the pool cabana restroom prior to being damaged. Each individual treatment system consists of a 500-gallon aerated primary tank and an 800-gallon secondary tank. Treated effluent is then discharged into seven (7) existing seepage pit/injection wells by gravity. The existing wastewater treatment and effluent disposal systems were installed in the late 1960's and have since been altered to incorporate forced air into the system. As the useful life of any wastewater treatment system is generally 20 to 25 years, the system is in need of an upgrade to increase the efficiency of wastewater treatment and to include newer technologies that are currently available.

The proposed wastewater treatment plant will consist of:

- A new wet well/lift station.
- A primary treatment tank/system consisting of:

  - Flow equalization from existing cavitettes and a new trash tank.
  - An integrated clarifier chamber with dimensions 4’ L x 4’ W x 6’ H.
  - A sludge holding chamber of 7’ L x 7’ W x 5.5’ H
  - Two (2) MBBR treatment chambers with dimensions 7’ L x 7’ W x 5.5’ H each.
- A new emergency generator and fuel tank using Liquefied Petroleum Gas or Diesel.
- An injection well disposal system.
  - Piping to existing injection wells.
  - Use of existing one (1) injection wells as primary injection wells.
  - Use of existing two (2) injection wells for additional overflow capacity.
  - Other injection wells to be closed out as determined by the Hawaii Department of Health Underground Injection Control Program (UIC)

The new wastewater treatment plant components will be constructed in the southwestern area of the Property next to the pool shed, this is the farthest point from the ocean. The proposed wastewater treatment plant was designed based on the calculated amount of wastewater generated by the Hanalei Colony Resort. The new wastewater treatment plant is designed to treat up to 21,000 gallons per day. The current effluent disposal system consists of 7 different injection wells, all of which were permitted to handle 16,000GPD. All of these injection wells were recently retested via the 1 hour step test method in June by licensed hydrogeologists. The three (3) best performing wells were selected to be tested using the constant rate (long term) method of testing in order for the wells to be repermitted via the UIC standards. This constant rate testing conclusively showed the existing injection wells 1, 6, and 7 will sufficiently support 42,000 GPD of treated effluent, and all other redundant wells will be decommissioned.

Impacts to the surrounding environment are expected to be less than significant and related to construction activities, such as storm water runoff, noise, dust, and construction traffic. Efforts to minimize such impacts will be taken to the extent practicable. Long-term impacts of the new wastewater treatment plant are improved environmental conditions related to a reduction in wastewater overflows.

Findings and Conclusions

Based on the analysis of information in this environmental assessment, it has been determined that the proposed wastewater treatment plant will have no significant impacts to the natural, built, or social environment. The results of this environmental assessment were compared with the significance criteria established by the State of Hawaii under HRS 343 (HAR Chapter 11-200.1 - 13). It is concluded that the construction and operation of the proposed wastewater treatment plant do not meet any of the thirteen criteria. By not meeting these criteria, it is appropriate that the proposed wastewater treatment plant be issued a Finding of No Significant Impacts and that an Environmental Impact Statement not be required.

# SECTION 1 INTRODUCTION

This report describes the Environmental Assessment [EA] performed by Laulea Engineering LLC. on behalf of the Association of Apartment Owners [AOAO] of the Hanalei Colony Resort [HCR], for the replacement of the wastewater treatment plant [WWTP] at the Hanalei Colony Resort, herein after referred to as the "Project", which is located at 5-7130 Kuhio Highway in Hanalei, Hawaii, hereinafter referred to as the "Property" (Figure 1). The Property is owned by the members of the AOAO of HCR, hereinafter referred to collectively as the "Owners". The Property is identified by the County of Kauai Real Property Assessment Division as Tax Map Key [TMK] numbers (4) 5-8-011:027. The Property is located on land with a split zoning designation and is designated as *Resort* [RR] and *Open [O].*

## 1.1 PURPOSE

This Draft EA analyzes the potential impacts to the significant criteria listed in Hawaii Administrative rules [HAR] Chapter 11-200.1-13 to determine whether or not the Project has the potential to cause significant environmental impacts and to determine if an Environmental Impact Statement [EIS] will be required or not under the Hawaii Revised Statutes [HRS] Chapter 343. This EA was conducted in accordance with Hawaii's Environmental Review process to provide a Project description, list necessary permits and approvals, identify potential environmental impacts, provide mitigation measures, and seeks agency and public comment. This Draft EA will be published in the Office of Sustainable Planning and Development's [OPSD] bi-weekly periodic bulletin, *The Environmental Notice*, which will commence a 30-day public comment period. Comments received during the comment period will be considered and addressed to the extent feasible within the project scope and evaluation. All relevant public comments received during the public comment period will be included in the preparation of the Final EA. A Finding of No Significant Impact [FONSI] is anticipated.

## 1.2 GENERAL INFORMATION

The Project consists of decommissioning the secondary tanks of the existing wastewater treatment system, reutilizing existing concrete cavitettes for flow equalization, reutilizing the existing injection wells for the effluent disposal system, and constructing a new WWTP. The approving agency for the proposed activity is the County of Kauai Planning Department [KPD], which is responsible for administering the Comprehensive Zoning Ordinance [CZO] and other regulations pertaining to land use within the county. This Draft EA is necessary because the Project is located within the State of Hawaii Special Management Area [SMA] limits and requires an SMA use permit. An EA and FONSI are required when applying for the SMA Use permit.

## 1.3 PROPERTY DESCRIPTION

The HCR is a resort complex consisting of thirteen (13) two-story buildings with four (4) units each, and an administrative building. The buildings on the Property are used for short-term rental as well as long-term rental units, maintenance, and administrative activities. The resort buildings are distributed throughout the Property with four (4) of the buildings along the northwest boundary, six (6) of the buildings centrally located, three (3) buildings in the southeast corner, and the

administrative building along the southern border of the Property. The existing seven (7) wastewater treatment systems are located throughout the Property.

The Property occupies 3.689 acres of land on the north shore of Kauai and lies within the SMA limits. The Property is bordered on the north by the shoreline and a commercial restaurant; On the west by a parking lot complex; On the south by Kuhio Highway and several residential lots; and on the east by the shoreline and Pacific Ocean. A site plan depicting the layout of the Property is provided in Figures 6 and 7.

### 1.4 PROPERTY LOCATION AND SETTING

The Property is located along the shoreline and to the west of Wainiha Bay, near Kapuhi Point in the Hanalei Ahupuaa of the Halelea Moku on the north side of Kauai Island. The Property is on coastal lands that were previously primarily used as residential and open public lands.

The Property is located within an urban State Land Use District which has been developed as a low-volume Resort. The properties adjacent to the Property are zoned as O-Open and R4-Residential to the South and West. The Pacific Ocean and Kepuhi Point borders the property on the north and east (Figure 4). The Property is immediately to the northwest and below the Underground Injection Control [UIC] line (Figure 8). The elevation of the Property is approximately 8 to 9 feet amsl and the topography in the area is relatively flat (Figure 1).

The Property is in a flood hazard Zone VE (KPD, 2021) (Figure 12). The area is subject to inundation by the 1% annual chance flood event and mandatory flood insurance purchase applied in this zone. Additional information on flood hazard zones is provided in Section 4.

### 1.5 PROJECT BACKGROUND

The HCR currently utilizes a 10,500-gallon capacity wastewater system which was installed in the late 1960s. Although the majority of the original system remains, aeration of the primary treatment tank was added to help with odor control. The system is in need of an upgrade due to the advanced age of the system, the availability of newer technologies which will increase the efficiency of wastewater treatment, and to limit any liability that can arise from future deterioration of the wastewater system. The Project will improve the existing system to meet State of Hawaii Department of Health [HDOH] Wastewater Branch effluent requirements for onsite wastewater treatment works and will additionally include UV treatment. While UV treatment is not required by HDOH for effluent disposal, it will ensure the treated effluent is high quality. The AOAO of HCR has initiated this Project to evaluate various alternatives to upgrade and replace the existing system. The recommendation is to replace the existing system with an increased capacity and WWTP, and to utilize three (3) of the seven (7) existing injection wells for wastewater disposal.

### 1.6 DESCRIPTION OF EXISTING FACILITIES

According to the HDOH Wastewater Branch records, the HCR generates a fluctuating average daily flow of wastewater due to seasonal travel in the resort from the thirteen resort buildings and

single administration building on the Property, this value is estimated to be a maximum of 16,000 GPD.

The wastewater is collected by an existing preloader and septic treatment system. Effluent is then discharged by gravity into seven seepage pit/injection wells, which serve 1-2 buildings each.

There are seven existing injection wells that are permitted through the HDOH Safe Drinking Water Branch [SDWB] UIC program under permit number UK-1388 (HDOH, 2019c). Effluent data from the seven existing aerobic wastewater treatment systems indicate that most of the systems occasionally fail to comply with UIC permit standards (< 60 milligrams per liter [mg/L] for biochemical oxygen demand [BOD] and < 60 mg/L for total suspended solids). The existing WWTP has received a reported Notice and Finding of Violation and Order [NOVO] and is in need of an upgrade in order to return to compliance with HDOH Wastewater Branch requirements.

## 1.7 PARTIES CONSULTED DURING EA PROCESS

### 1.7.1 PRE-ASSESSMENT CONSULTATION

During preparation of the Draft EA, pre-consultation letters were mailed to the following agencies in August 2023 to request initial comments on the proposed WWTP:

**Hanalei Community Organizations**

Hanalei Hui

Hanalei Initiative

**County of Kauai**

Kauai Planning Department

Kauai Department of Water*

Kauai District Health Office

Kauai Fire Department

Kauai Police Department

**State of Hawaii**

Department of Health

- Safe Drinking Water Branch
- Underground Injection Control Program
- Clean Water Branch*
- Wastewater Branch
- Clean Air Branch
- Office of Planning and Sustainable Development

Department of Land and Natural Resources [DLNR]

- Commission on Water Resource Management
- Engineering Division
- Office of Conservation and Coastal Lands
- Land Division
- State Historic Preservation Division [SHPD]*
- Division of Aquatic Resources
- Division of Forestry and Wildlife

Department of Transportation, Highways Division

Office of Hawaiian Affairs

Office of Planning and Sustainable Development*

**Federal Agencies**

United States Army Corps of Engineers [USACE]

United States Fish and Wildlife Service [USFWS]*

The agencies marked with an asterisk (*) provided comments (or responded with no comments). Copies of the comments received from the agencies and the follow-up responses are included in Appendix B. Comments received from the agencies were addressed during preparation of the Draft EA.

### 1.7.2 DRAFT EA REVIEW

Copies of the Draft EA will be distributed all agencies that were sent pre-consultation letters and the following agencies to provide an opportunity for their review and comment:

**State of Hawaii**

Hawaii State Library

**Community Organizations**

Hanalei Watershed Hui

Comments received from agencies will be incorporated into the Final EA, as appropriate.

## SECTION 2 PROPOSED PROJECT DESCRIPTION

The proposed SSI EEVolved MBBR WWTP replacement will consist of the following:

- Installation of a new wet well/lift station.
- Installation of a new screen and headworks
- An integrated 2,010-gallon aerated Sludge Holding Tank.
- Two (2) Treatment tanks with dimensions of 7' L x 7' W x 5.5' H and a total capacity of 2,020-gallon volume each.
- A clarifier chamber with a dimensions 4' L x 4' W x 6' H.
- Installation of a new emergency generator and fuel tank utilizing either liquefied petroleum gas or diesel fuel.
- Installation of a new ultraviolet (UV) treatment system
- Modification of the existing injection well disposal system including the following changes:
    - Piping to injection wells.
    - Utilization of one (1) injection wells as primary injection wells.
    - Utilization of two (2) injection wells as backup injection wells for overflow capacity.
    - Decommissioning of the remaining four (4) injection wells

The new WWTP components will be constructed by the pool area in the primarily in the western area of the Property with three injection wells being utilized in the southeast area of the Property (Figure 7). The system was designed based on the total calculated amount of wastewater generated by the HCR's tenants, staff, guests and customers and according to HDOH standards. The system will be designed to accommodate a design maximum daily flow rate of 21,000 gpd and an aerated sludge holding tank of 2,010 gallons with a 5-day retention time and a sludge generation rate of approximately 630 gallons per day. The wastewater computations are provided in a Basis of Design and Engineering Report included in Appendix B.

Two new 4-foot diameter wet well/lift station, one per each lot, will convey the wastewater via two (2) Grinder pumps and a newly constructed 4-inch diameter force main sewage line to a 1,600-gallon capacity flow equalization chamber. From the equalization chamber, the effluent will be pumped to the new primary treatment plant consisting of partitioned tanks for the functions of flow equalization, aeration, clarification, and waste solids holding. Effluent from the treatment system will flow through a new UV Disinfection system and on to the injection well disposal system.

## 2.1 ELECTRICAL SUPPLY

The electrical components of the new WWTP will be connected to the existing onsite generator which will be serviced by Kauai Island Utility Cooperative [KIUC], through a branch circuit from the Property's building circuit.

A generator utilizing diesel fuel or liquified propane gas will provide emergency power from a separate fuel tank to the WWTP blowers and well/lift station.

## 2.2 WASTEWATER DISPOSAL AND SAMPLING

Three (3) of the seven (7) existing injection wells will be utilized for treated effluent disposal. One (1) of the existing injection wells will be utilized as primary injection wells and two (2) injection wells will be used for overflow capacity (required by HDOH for 100% backup effluent disposal). Treated effluent flow from the new WWTP will flow into the first injection well, and overflow into the other two wells via control valves. The WWTP operator can also take treated effluent samples from the effluent box feeding the effluent pumps.

Per HAR Chapter 11-62 requirement (HDOH, 2016a), each existing injection well should be designed and permitted to handle peak flow. A peaking factor of 1.5 will be applied to the design daily flow of 21,000 gpd to obtain the rounded peak flow of 30,000 gpd; therefore, each injection well field must accommodate a peak flow of 30,000 gpd. The primary injection well is designed to accommodate the peak flow, and the secondary wells are also designed to accommodate peak flow.

## 2.3 ESTIMATED COST AND TIMING PHASE OF CONSTRUCTION

The estimated cost for the WWTP is approximately $3,000,000 including professional services. The source of funding for the Project will be exclusively provided by the AOAO of HCR. The proposed WWTP will take approximately 6 to 12 months after the completion of the Final EA and receipt of the SMA Use permit and all agency approvals.

## 2.4 ALTERNATIVES TO THE PROPOSED PROJECT

### 2.4.1 NO ACTION

The "no action" alternative would consist of leaving the existing WWTP as is. The existing system as described in Section 1.6 has been given an "unacceptable" operation and maintenance rating and given a NOVO No. 17-WW-EO-04. Deterioration is evident on the system and additional deterioration could eventually lead to a risk of wastewater spills. Impacts may include further violations, citations, and potentially fines imposed by the HDOH. Due to the advanced age of the existing WWTP, DOH has inquired about a replacement of the WWTP and as such the no action alternative to the proposed project is not a viable option.

### 2.4.2 POSTPONED ACTION

The "postponed action" would consist of leaving the existing WWTP as is and replacing the existing WWTP at a future date. As with the "no action" alternative, the existing WWTP has been given an "unacceptable" operation and maintenance rating and given a NOVO No. 17-WW-EO-04. Deterioration is evident on the system and additional deterioration could eventually lead to a risk of wastewater spills. To reduce this risk and return to HDOH Wastewater Branch compliance the Owners have decided to upgrade the system. Since HDOH has inquired about a potential replacement of the WWTP, the postponed action alternative to the proposed project is not a viable option.

### 2.4.3 ALTERNATIVE WASTEWATER TREATMENT SYSTEMS

The following two alternative, available wastewater treatment systems were evaluated, and a comparative analysis was performed prior to the selection of the proposed WWTP. For comparison purposes, the estimated cost for the proposed SSI EEVolved MBBR Series packaged WWTP including freight is $660,000.

1. Cloacina LLC's Membrane Bioreactor [MBR] Forward Activated Sludge and membrane clarification wastewater treatment system. The MBR system consists of primary treatment, forward activated sludge to provide motive force, and membrane clarification as a final stage. Cost of the system is estimated at $787,782. Treatment with the SSI MBBR system was considered to be better and at a cheaper cost. Therefore, this system was not selected.

2. Fluence Package Wastewater Treatment Plant Subsurface Tipton Series. The aerated sludge system consists of a flow equalization chamber, sludge holding tank, aeration chamber, clarifier, and disinfection chamber (UV).n anaerobic chamber where influent enters the system reducing BOD and allowing suspended solids settle. Cost of system is estimated at $459,650 without shipping. Although this system is cheaper than the proposed SSI MBBR Series wastewater treatment system, size of the system is too large to fit comfortably on the property at a maximum distance from the shoreline.

### 2.4.4 ALTERNATIVE WASTEWATER TREATMENT SYSTEM LOCATIONS

The proposed location in the western pool area is considered the optimal location as it is the farthest available space from the shoreline. The proposed location is efficient for the construction and operation of the new WWTP as it is near the road and gate, and will not block sightline to the ocean.

# SECTION 3 PLANS, PERMITS, POLICIES, AND CONTROLS

The proposed WWTP is in compliance with the required government and community plans, permits, policies, and controls. These are described below.

## 3.1 ENVIRONMENTAL POLICIES, PLANS, PERMITS, AND CONTROLS

### 3.1.1 ENVIRONMENTAL REVIEW POLICY

The requirements for performing an EA are contained within the Hawaii EIS Law, set forth in HRS 343 (HDOH, 1974a) and HAR Chapter 11-200.1 (HDOH, 2019b). According to HRS 343, the purpose of the Hawaii EIS Law is to establish a system of environmental review to ensure that environmental concerns are given appropriate consideration in the decisions made by the State of Hawaii. The Intent of the law was to implement the requirements under the federal National Environmental Policy Act.

The Hawaii EIS Law is administered and regulated by the State of Hawaii OPSD; formerly known as the Office of Environmental Quality Control [OEQC]. The OSPD oversees the implementation of these regulations in order to assess the environmental, social, and economic consequences of a proposed development project prior to allowing the construction of the project to commence. The Hawaii EIS Law ensures that the public has the right to knowledge of and participation in the planning of projects that will affect their communities. The OPSD has issued guidelines for the environmental review process (OEQC, 2012).

There are nine types of actions that trigger the environmental review process under the Hawaii EIS law. The proposed WWTP is subject to an environmental review under HRS §343-5(a)(9)(A): “Propose any wastewater treatment unit, except an individual wastewater system or wastewater treatment unit serving fewer than fifty single family dwellings or the equivalent.” Furthermore, development within the SMA is subject to the County of Kauai SMA Rules and Regulations to ensure that the project is consistent with the policies and objective of the Hawaii Coastal Zone Management [CZM] Law under HRS Chapter 205A. The controlling purpose of the CZM law is “to provide effective management, beneficial use, protection and development of the coastal zone.” The Project is a wastewater treatment unit and is within the SMA, Therefore, the Project is subject to the Hawaii EIS Law.

### 3.1.2 PROJECT CONSISTENCY WITH KPD LAND USE ORDINANCE

The following discussion includes analysis of the proposed WWTP consistency with applicable County of Kauai land use ordinances as amended in Title IV of the Kauai County Code [KCC], Chapter 8: *Comprehensive Zoning Ordinance* (KCC, 1987).

*Article 2: Designation of Districts, Method and Effect of Establishment of Districts, and Zoning Maps.*

Section 8-2.2 to 8-2.3 of the CZO established the method of establishing a district and provides the official zoning map titles for the County of Kauai. Section 8-2.4 of the CZO identifies the

requirement for a Use Permit within a zoning district as well as the permitted uses and structures within the district. Based on the zoning map ZM-WN-HN700 (Figure 4), the Property is within a split-zoned Resort and Open County Zoning Designations.

The use of the Property as a resort complex and administrative building are permitted uses within the district. The proposed construction of the WWTP will not affect the open zoning designated portion of the Property, which provides an easement for a stream. A Use permit for private utilities and for Project developments in accordance with Article 10 of the CZO are required prior to the construction of the WWTP. See Article 10.

*Article 3: General Administrative Regulations*

Section 8-3.1 and Section 8-3.2 of the CZO establishes the procedure and fees required for the application for and the approval of Zoning Permits and Use Permits, respectively. The proposed WWTP will require the Owners of the Property to comply with all procedures required for a Class IV Zoning permit (see Article 5). Furthermore, the Owners will be required to procure a Use Permit for the use of the WWTP on the Site.

*Article 5: Resort Districts*

Section 8-5.2 establishes the types of Resort districts and the uses of the districts. The Property is partially zoned as *Resort* and is identified as areas in pleasing and harmonious surroundings to accommodate the needs and desires primarily of visitors, tourists and transient guests.

Section 8-5.3 establishes the development standard for Resort development and includes ordinances pertaining to lot size, setback requirements, minimum distances between buildings, parcel dimensions, driveways and parking areas, height limitations, lot coverage, sewers, and public access.

Section 8-5.4 establishes the permits required for the development of properties within the Resort districts. The ordinance requires that a Class IV zoning permit be obtained for development of the Property large enough to qualify for more than twenty-five (25) dwelling units and is within a Resort district.

*Article 9: Open Districts*

Section 8-9.2 establishes the Open district development standards including land coverage and density requirements.

Section 8-9.4 establishes the permits required for the development of properties within the Open districts. No development or construction will occur within the Open zoned portion of the property. Therefore, no open district zoning permit will be required.

Articles 4, 6 to 8, 11 to 26 are not applicable to the proposed WWTP replacement project.

### 3.1.3 SPECIAL MANAGEMENT AREA RULES AND REGULATIONS

The SMA rules and regulations are administered and regulated by the KPD through the authority conferred by HRS §205A. The purpose of the SMA rules is to "preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawaii." The Project is located within the SMA, and therefore must undergo the procedural steps set forth in HRS 343 prior to an SMA permit being issued.

The HCR is in the process of preparing an SMA Use Permit application for the Proposed WWTP described in Section 2. The permit application will be submitted following the acceptance of the Final EA and issuance of a FONSI.

### 3.1.4 WATER POLLUTION CONTROL

Water pollution control requirements and regulations governing the Property are administered and regulated by the HDOH Clean Water Branch [CWB]. The requirements and regulations are contained in HAR Chapters 11-54 and 11-55 (HDOH, 2014b, 2019a). The purpose of these regulations is to prevent the discharge of contaminated water into the navigable waters of the United States or adjoining shorelines.

The Property and the planned construction activities meet the State's *Antidegradation Policy* (HAR §11-54-1.1), which states that "existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." By "existing uses," the policy refers to the existing uses of the receiving State water. In addition, the Property and the planned construction activities comply with the State's water quality standards (HAR Chapter 11-54), and the planned construction activities will not adversely impact water quality. The Project does not require Section 401 Water Quality Certification (HAR Chapter 11-53).

In addition to State water pollution control requirements and regulations, the County of Kauai Rules Relating to Water Quality apply to all development and land disturbing activities within the County of Kauai.

During construction of the proposed WWTP, erosion control measures and land-based sources of pollution barrier measures will be implemented to prevent sediment from entering the ocean. These measures include sediment fences, silt screens, and environmental socks.

The Project will comply with the prevailing rules relating to water quality. Appropriate Best Management Practices [BMP] will be used during construction of the proposed WWTP to prevent the discharge of the aforementioned pollutants of concern into coastal waters. Specific mitigation measures to prevent pollution and protect water quality are discussed in Section 4.2.2.

#### *3.1.4.1 Water Quality*

Water quality in the State of Hawaii is under the oversight of the HDOH CWB. According to the CWB (http://health.hawaii.gov/cwb), its mission is as follows.

"The mission of the CWB is to protect the public health of residents and tourists who recreate in and on Hawaii's coastal and inland water resources, and to also protect and restore inland and coastal waters for marine life and wildlife. The mission is to be accomplished through statewide coastal water surveillance and watershed-based environmental management through a combination of permit issuance, monitoring, enforcement, sponsorship of polluted runoff control projects, and public education."

The objectives of the CWB are as follows.

1. Control point source discharges by issuing the appropriate National Pollutant Discharge Elimination System [NPDES] permits to maintain the designated uses of State receiving waters.

2. Ensure that permitted activities under Section 404 of the Clean Water Act will not adversely impact the designated uses of the State receiving waters.

3. Identify impaired water bodies and restore them to their designated uses.

4. Ensure expeditious compliance with the State water pollution rules.

5. Control polluted runoff through public and private partnerships.

6. Improve water quality in priority watersheds.

7. Develop appropriate Water Quality Standards.

The CWB is particularly concerned with the beneficial uses of State waters. Some examples include the capturing and re-use of storm water runoff so that: (1) important groundwater resources can be replenished, rather than having storm water discharge directly to the ocean, and (2) landscaping and crops can be irrigated, rather than using potable water resources for irrigation. Other examples include the re-use of greywater and the protection of coastal waters from contamination caused by non-point source runoff.

Construction of the proposed WWTP will be in accordance with State and Federal water quality regulations. The proposed WWTP will not cause an increase in runoff quantities. The injection wells associated with the proposed WWTP are currently permitted by the HDOH SDWB (see Section 3.1.3).

#### *3.1.4.2 Storm Water Associated with Construction Activity*

The Project will not disturb more than an acre of land and, therefore, does not require an NPDES permit for discharges of storm water associated with construction activity.

#### *3.1.4.3 Drinking Water Sources*

The protection of Hawaii's drinking water sources is under the oversight of the HDOH SDWB. According to the SDWB (http://health.hawaii.gov/sdwb), its mission is as follows.

"The mission of the SDWB is to safeguard public health by protecting Hawaii's drinking water sources (surface water and groundwater) from contamination and assure that owners and operators of public water systems provide safe drinking water to the community. This mission is accomplished through the administration of the Safe Drinking Water Program, UIC Program, Groundwater Protection Program, and the Drinking Water State Revolving Fund."

The UIC program serves to protect the quality of Hawaii's underground sources of drinking water from chemical, physical, radioactive, and biological contamination that could originate from injection well activity. Underground injection wells are wells used for injecting water or other fluids into a groundwater aquifer. HAR Chapter 11-23 (HDOH, 1992) provides conditions governing the location, construction, and operation of injection wells so that injected fluids do not migrate and pollute underground sources of drinking water.

The Property is located below (makai of) the UIC line, indicating that the underlying aquifer is not considered a drinking water source. Approval from the SDWB's UIC program was obtained for installation and operation of the seven existing injection wells associated with the proposed WWTP (HDOH, 2019c).

### 3.1.5 WASTEWATER SYSTEMS

Wastewater system requirements and regulations are administered and regulated by the HDOH Wastewater Branch. The requirements and regulations can be found in HAR Chapter 11-62 (HDOH, 2106a). The purpose of these regulations is to ensure that the disposal of wastewater and wastewater sludge do not contaminate or pollute valuable water resources and do not become a hazard or potential hazard for public health, safety, and welfare. The proposed WWTP design plans and specifications must be reviewed and approved by the HDOH Wastewater Branch prior to construction and must conform to the applicable provisions of HAR Chapter 11-62.

### 3.1.6 AIR QUALITY STANDARDS

Air quality standards are administered and regulated by the HDOH Clean Air Branch. The requirements and rules are documented in HAR 11-59 (HDOH, 2001) and HAR 11-60.1 (HDOH, 2014a). The purpose of these standards is to protect public health and welfare, and to prevent significant deterioration of air quality.

The proposed WWTP is not anticipated to be a significant source of air pollution. Construction and operation of the WWTP will be required to comply with all applicable air quality standards. The potential impacts to air quality are addressed in Section 4.4.

### 3.1.7 COASTAL ZONE MANAGEMENT

The purpose of the Hawaii CZM (HPD, 1977) is to provide for the management, beneficial use, protection, and development of the coastal zone. The CZM area encompasses all lands of the State and the offshore area out to the limit of the States police power and management authority. The CZM Program's objective and policies include recreational resources, historic resources,

scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, development management, public participation, beach protection and marine resources.

The Property is within the CZM, and the proposed WWTP conforms to CZM Program objectives and policies, aside from minor temporary noise and traffic related disturbances during the projects construction phase, it will not have any significant impacts or conflict with the resources and activities associated with the CZM program, as described below.

#### *3.1.7.1 Recreational Resources*

The proposed WWTP will not generate additional demands on the existing public parks or beaches. It will not restrict access to or adversely affect the existing coastal recreational resources or their uses by the public. Thus, the proposed WWTP is not in conflict with the State's objective of providing coastal recreational opportunities that are accessible to the public. The potential impacts to recreational resources are addressed in Section 5.5.

#### *3.1.7.2 Historic Resources*

The proposed WWTP will not be located in an area where there are man-made or natural historic resources. Thus, the proposed WWTP is not in conflict with the state's objective of protecting, preserving, and restoring historic and prehistoric resources that are significant in Hawaiian and American history and culture. The potential impacts to historical and cultural resources are addressed in Section 5.3.

#### *3.1.7.3 Scenic and Open Space Resources*

The proposed WWTP will not interrupt the intermittent visual continuity and rural character of the area. The proposed WWTP is not in conflict with the State's objective of protecting, preserving, restoring, or improving the quality of the open space resources. The potential impacts to visual and aesthetic appeal and mitigation measures are addressed in Section 5.4.

#### *3.1.7.4 Coastal Ecosystems*

The proposed WWTP is not located in an area where there are sensitive coastal ecosystems that could be threatened. Thus, the proposed WWTP is not in conflict with the State's objective of protecting valuable costal ecosystems from disruption and minimizing adverse impacts to coastal ecosystem. The potential impacts to coastal ecosystems are addressed in Section 4.3.

#### *3.1.7.5 Economic Uses*

The proposed WWTP is not located in an area where there are economic uses that could be threatened. Thus, the proposed WWTP is not in conflict with the State's objective of providing public or private facilities and improvements important to the State's economy in suitable locations. Land use and economic issues are addressed in Sections 5.1 and 5.2.

#### *3.1.7.6 Coastal Hazards*

The proposed WWTP is not located in an area where there may be coastal hazards, however it potentially could be threatened by tsunamis or potential hazards related to climate change, such as extreme sea level rise. The proposed WWTP is not threatened by storm waves, flooding, erosion, subsidence, or pollution from coastal sources. The WWTP is not in conflict with the State's objective of reducing the hazards to life and property posed by tsunamis, storm waves, stream flooding, erosion, subsidence, and pollution. The potential impacts posed by sea level rise are addressed in Section 4.6.

#### *3.1.7.7 Managing Development*

The proposed WWTP is in an area where there is minimal ongoing development. The proposed WWTP is not a significant coastal development and is not in conflict with the State's objective of improving the development review process, communication, and public participation in the management of coastal resources and hazards.

#### *3.1.7.8 Public Participation*

State and County permits and approvals required by the proposed WWTP include provisions for public participation and ensure protection of coastal resources. The public will be provided the opportunity to participate in the review of the Draft EA and provide comments. Thus, the proposed WWTP is not in conflict with the State's objective of stimulating public awareness, education, and participation in coastal management. A list of recipients who will be provided with a copy of the Draft EA is provided in Section 1.7.

#### *3.1.7.9 Beach Protection*

The proposed location for the WWTP is not located in an area that will adversely impact beaches for public use, thus, the proposed WWTP is not in conflict with the State's objective of protecting beaches for public use and recreation. The potential impacts to recreational resources are addressed in Section 5.5.

#### *3.1.7.10 Marine Resources*

The proposed WWTP is not located in an area that will adversely impact marine resources. Thus, the proposed WWTP is not in conflict with the State's objective of promoting the protection, use, and development of marine and coastal resources to assure their sustainability.

### 3.1.8 STATE ENVIRONMENTAL POLICY

The State environmental policy was developed to establish a policy that will encourage productive and enjoyable harmony between people and their environment, promote efforts to prevent or eliminate damage to the environment and the biosphere, stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawaii (HDOH, 1974b). One of the mandates of the policy is to conserve natural resources so that natural resources, such as land, water, mineral, visual, and

air, are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's natural environmental characteristics.

The proposed WWTP does not conflict with the State Environmental Policy. The proposed replacement of the existing wastewater treatment system will provide better protection of the natural resources and is anticipated to positively impact land, air, and water quality by mitigating potential pollution due to wastewater spills. The environmental resources identified in the area and the potential impacts to these resources are addressed in Section 4.

### 3.1.9 FLOOD AREA HAZARDS

The proposed WWTP is located in a flood hazard area (Zone VE) (Figure 12), it is subject to the provisions of KCC Chapter 15, Article 1 (Floodplain Management), which imposes restrictions on the construction in areas subject to flood hazards in order to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions. The proposed WWTP will comply with the applicable provisions and development standards of KCC, Chapter 15 Article 1. Specific mitigation measures to minimize damage from flood hazards are discussed in Section 4.2.2.

## 3.2 SOCIAL AND ECONOMIC POLICIES, PLANS, AND CONTROLS

### 3.2.1 HAWAII STATE PLAN

The Hawaii State Plan, which is set forth in the Hawaii State Planning Act (HRS 226) (HPD, 1978), is a comprehensive, long-term plan that identifies the goals, objectives, policies, and priorities for the State. It provides guidelines for growth, development, and the allocation of State resources. The plan contains diverse policies and objectives on topics of State interest, including the population, the economy (e.g., agriculture, the visitor industry), the physical environment (e.g., natural resources, historic resources, quality of the environment), facility systems (e.g., solid and liquid wastes, water, energy), socio-cultural advancement (e.g., housing, health, culture), and sustainability.

The proposed WWTP is consistent with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan, and directly supports multiple objectives and policies of the Plan by decreasing the risk of wastewater spills and protecting environmental resources. The most relevant sections of the Hawaii State Plan in relationship to the proposed WWTP include the following: land-based, shoreline, and marine resources (HRS 226-11); land, air, and water quality (HRS 226-13); scenic, natural beauty, and historic resources (HRS 226-12); and facility systems – solid and liquid wastes (HRS 226-15). These sections are described below.

#### *3.2.1.1 Land-based, Shoreline, and Marine Resources*

The proposed WWTP is not in conflict with the State's two objectives.

1. Prudent use of Hawaii's land-based, shoreline, and marine resources
2. Effective protection of Hawaii's unique and fragile environmental resources

The proposed WWTP will have no long-term negative impacts on land-based, shoreline, and marine resources. No unique and fragile environmental resources have been identified in the area. The potential impacts to these resources are addressed in Section 4.

#### *3.2.1.2 Scenic assets, Natural beauty, and Multi-Cultural/Historic Resources*

The proposed WWTP is not in conflict with the State's objective.

1. Enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.

The proposed WWTP will have no long-term negative impacts on Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources. The proposed WWTP will not be located in an area that will impact scenic views, natural beauty, or multi-cultural or historic resources.

#### *3.2.1.3 Land, Air and Water Quality*

The proposed WWTP is not in conflict with the State's objective.

1. Maintenance and pursuit of improved quality in Hawaii's Land, air, and water resources.
2. Greater public awareness and appreciation of Hawaii's environmental resources.

The proposed WWTP will have no long-term negative impacts on Hawaii's land, air, and water resources. The potential impacts to these resources are addressed in Section 4.

#### *3.2.1.4 Facility Systems – Solid and Liquid Wastes*

The proposed WWTP is not in conflict with the State's two objectives.

1. Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid waste.
2. Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.

The proposed WWTP will replace the existing wastewater treatment system to provide improved treatment and disposal of solid and liquid waste.

### 3.2.2 HAWAII STATE LAND USE CONTROLS

Land in the State of Hawaii is divided into the following four classifications: (1) urban, (2) agriculture, (3) rural, and (4) conservation. The Project location is designated as an urban district. The urban district generally includes lands characterized by "city-like" concentrations of people, structures, and services. This district also includes vacant areas for future development. Generally, lot sizes and uses permitted in the district area are established by the respective county through ordinances or rules. The County of Kauai split zoning designation for the Project location is *RR-Resort, and O-Open*. According to the KCC Comprehensive Zoning Ordinance Chapter 8, the intent of the *Resort* district is to create and protect attractive areas in pleasing and harmonious surroundings to accommodate the needs and desires primarily of visitors, tourists and transient

guests. To control density and to assure that undue congestion of streets and facilities will not occur. To control the organization and design of use and structures to assure that the development will not detract from the natural features and attributes of the surrounding area. To insure that physical and visual public access to recreational, historic and scenic areas is maintained and improved. The intents of the *Open* district is to create and maintain an adequate and functional amount of predominantly open land to provide for the recreational and aesthetic needs of the community or to provide for the effective functioning of land, air, water, plant and animal systems or communities. The proposed WWTP is consistent with the prescribed land use classification and zoning regulations for the area.

### 3.2.3 KAUAI COUNTY GENERAL PLAN

The County of Kauai General Plan establishes priorities for managing growth and community development of a 20-year planning timeframe (KPD, 2018). It is a comprehensive statement of objectives and policies which sets forth the long-range aspirations of island residents and shapes the strategies and actions needed to achieve them. The General Plan was adopted in 1971, and most recently amended in 2018. It is the first level of a comprehensive planning process that addresses physical, social, economic, and environmental concerns.

The proposed WWTP is consistent with the visions, goals, and policies set by the General Plan by decreasing the risk of wastewater spills and protecting environmental resources. The most relevant section in the Kauai General Plan is Sector IV: Critical Infrastructure and is described below.

#### *3.2.3.1 Critical Infrastructure: Wastewater, Septic Systems and Cesspools*

The proposed WWTP is not in conflict with the County objective:

1. To preserve and protect our fresh and ocean water resources from wastewater and other pollutants.

The proposed WWTP will replace the existing wastewater treatment system to provide improved treatment and disposal of solid and liquid waste.

## 3.3 BUILDING, GRADING, FIRE PERMITS

Prior to construction of the proposed WWTP at the Property, the necessary permits and reviews will be obtained from the appropriate State of Hawaii and County of Kauai agencies.

HDOH, SDWB:

- *UIC Permit* No. UK-1388 has previously been issued for the installation and operation of the seven existing injection wells. The permit is currently in the process of being renewed for higher flow rates, testing has already been completed and the final report is awaiting HDOH review before the UIC program approval.

HDOH, Wastewater Branch:

- Review of *Basis of Design and Engineering Report and Plan Set for Wastewater*

*Treatment Plant Replacement* for the design and construction of the wastewater treatment system.

County of Kauai Department of Planning

- Class IV Zoning Permit, Use Permit, an SMA Use Permit for the construction of the wastewater treatment system. The Permit will be presented to the Kauai Planning Commission for approval via public hearing. The Project location is within the SMA area, which extends inland from and along the shoreline. It is the most sensitive area of the coastal zone.

County of Kauai Department of Public Works

- Building/Grading Permit for the construction of the wastewater treatment system (includes review by KIUC and Kauai Department of Water)

County of Kauai Fire Department

- Tank Installation Permit for the fuel tank associated with the emergency backup generator.

# SECTION 4 PHYSICAL ENVIRONMENT AND POTENTIAL IMPACTS

Wastewater treatment facilities potentially can have negative impacts on the physical environment in which they are constructed and operated and on the surrounding area. One of the principal objectives of an EA is to assess whether such impacts could be significant. The areas of potential concerns that have been identified regarding the construction and operation of the proposed WWTP are as follows: (1) land impacts (2) water impacts, (3) biological impacts, (4) air quality impacts, and (5) noise impacts. Potential impacts related to climate change should be included in the evaluation.

## 4.1 POTENTIAL LAND IMPACTS

### 4.1.1 EXISTING TOPOGRAPHIC AND GEOLOGICAL CONDITIONS

The Property is located on a relatively flat coastal plain, at a surface elevation of approximately 8 to 9 feet amsl. There is no significant elevation change across the Property. No unique topographical features are located on the Property.

The island of Kauai originated as a submerged basaltic shield volcano with a single caldera, the Olokele Caldera, formed from the collapse of the eruptive center of the volcano. The island was built up over time from thousands of thin flows of basaltic lava which would spill out over the rim of the Olokele Caldera. As the volcano emerged from the sea, a second caldera formed from the collapsing of minor eruptive centers on the southeast of the island. Near the end of the period of the of the filling of the major caldera, collapsing of the volcano formed the southwest portion of the island and the Waimea Canyon. After the formation of the Kauai Shield Volcano came a long period of erosion in which waves cut sea cliffs around the island and streams cut canyons as deep as 3000 feet. (Macdonald et. al, 1960).

The principal lithologic unit underlying the Property consists of Holocene beach deposits (Sherrod et al., 2021). These deposits consist of sand and gravel eroded from older Olokele Caldera, Napali formations, and Koloa volcanics alluvium and palagonitic tuff which were deposited at the mouth of the Wainiha River, Lumahai River, and Wainiha Bay. Over time, the accumulation of the deposits forms large plains that typically form perpendicular to the ocean and along rivers and streams.

Shallow subsurface soil underlying the Property are classified as *Mokuleia Fine Sandy Loam* and *Beaches* on a 0 to 2 percent slope. *Mokuleia Fine Sandy Loam* is typically found on coastal plains up to 16 inches below ground surface [bgs] and is typically formed from alluvium deposited over coral sand. The soil is characterized as being well drained and having very low runoff (WSS, 2023).

The Land Study Bureau [LSB] of the University of Hawaii prepared an inventory and evaluation of the state's land resourced during the 1960s and 1970s. The Bureau grouped undeveloped lands in the state into homogeneous units of land types; described their condition and environment; rated the land on its overall quality in terms of agricultural productivity; appraised its performance for the selected alternative crops and delineated the various land types and grouping

based on the soil properties and productive capabilities. From these criteria, overall ratings of A through E were created; with A having the overall highest soil productivity rating and E having the lowest (Murabayashi et. al, 1967). The Property was omitted from the LSB study since it was already developed at the time of the study. Therefore, The Property does not contain any LSB rated soils.

### 4.1.2 Potential Topographic and Geological Impacts and Mitigation

The proposed WWTP will be constructed on the southwestern edge of the Property near the pool shed. The areas of excavation will be for installation the new WWTP tank foundation slab and for piping to existing injection wells. The area of disturbance is roughly a 7-foot by 21-foot area, or approximately 147 square feet. Soil disturbed during excavation and grading will be reused on site. The Project does not include the offsite export of soil.

Less than significant short-term impacts to ground topography and soils are anticipated from the proposed WWTP. Minor short-term excavation and little to no grading will be required during construction of the proposed WWTP. *County of Kauai Stormwater Construction Best Management Practice Manual* will be followed during construction, in addition to the provisions of the grading permit that will need to be obtained. Adherence to these regulatory guidelines, which would include protecting exposed soils from runoff using filter socks, silt and dust fences, tarping soil stockpiles, and other appropriate BMPs, would mitigate potential impacts of soil erosion and fugitive dust during grading or excavation.

Future operation of the proposed WWTP will mitigate future potential spills of wastewater to the soil of the Property. There would be no long-term adverse impacts to site soils, topography, or geological resources from the proposed WWTP upgrades.

### 4.1.3 Existing Storm Water Conditions

The area of the proposed WWTP is in the southwestern portion of the Property. The current space is in an open area near the pool shed by the road. Buildings are located around the lot with planters in front of each building. There are no storm drains on the Property, however there is a stream that runs through the center of the Property which drains directly to the Pacific Ocean.

### 4.1.4 Potential Storm Water Impacts and Mitigation

Less than significant short-term impacts from storm water runoff are anticipated during construction. BMPs will be used during construction of the proposed WWTP to prevent soil generated by construction activities from discharging beyond the Project location as storm water runoff. Upon completion of construction activities, the area surrounding the WWTP will be restored to its previous condition.

There will be no impact to long-term storm water runoff quantities at the Property or the surrounding area compared to existing conditions. All areas disturbed during construction will be covered with gravel or concrete in accordance with the building permits. The Project will not

increase impervious surfaces. There will be no changes to existing surface water drainage patterns.

## 4.2 POTENTIAL WATER IMPACTS

Waters of potential concern in the area of the Property include (1) shallow groundwater and (2) deep, basal, drinking water. Of these, shallow groundwater is the principal concern.

### 4.2.1 EXISTING HYDROGEOLOGICAL CONDITIONS

Groundwater in Hawaii exists in two principal types of aquifers. The first and most important type, in terms of drinking water resources, is the basal aquifer. The basal aquifer exists as a lens of fresh water floating on and displacing seawater within the pore spaces, fractures, and voids of the basalt that forms the underlying mass of each Hawaiian island. In parts of Kauai, including the area of the Property, groundwater in the basal aquifer is confined by the overlying caprock and is under pressure. Water that flows freely to the surface from wells that tap the basal aquifer is referred to as artesian.

The second type of aquifer is the caprock aquifer, which consists of various kinds of unconfined and semi-confined groundwater. The nearly impermeable sediments that form the caprock separate the caprock aquifer from the basal aquifer. The impermeable nature of these materials and the artesian nature of the basal aquifer severely restrict the downward migration of groundwater from the upper caprock aquifer.

There are two aquifers in the area of the Property. Both aquifers are part of the *Wainiha aquifer system* of the *Hanalei Aquifer sector* (Mink and Lau, 1992). The upper aquifer is a basal unconfined aquifer that resides in sedimentary deposits; it has potential use, is ecologically important, and has moderate salinity. It has a high vulnerability to contamination and is considered irreplaceable. The deeper aquifer is a basal unconfined aquifer residing in dike formations. It has low salinity and has potential use as a drinking water source. The aquifer is considered moderately vulnerable to contamination and is considered irreplaceable.

Based on a review of well logs for drinking water wells installed nearby, the caprock extends to approximately 70 feet bgs (UH, 2023) Therefore, it is assumed that the basal drinking water aquifer in the area of the Property occurs at a depth of 70 feet or greater. The direction of groundwater flow in the area is likely northwest towards the Pacific Ocean.

There are 2 drinking water wells within 1 mile of the site, however there are no water wells of any kind downgradient (Figure 8). Based on the distance and direction to the nearest drinking water supply wells and the depth to the basal (drinking water) aquifer, it is not likely that contaminants originating at the Property have impacted or could impact drinking water sources.

### 4.2.2 POTENTIAL HYDROGEOLOGICAL IMPACTS AND MITIGATIONS

The proposed WWTP is anticipated to have no adverse impacts on shallow groundwater or the basal (drinking water) aquifer. There will likely be beneficial water quality impacts since the new WWTP will retain and treat wastewater more effectively compared to the existing treatment

system. The proposed WWTP will provide improved treatment of solid and liquid waste. The effluent that will be disposed in the injection wells must meet the requirements of HAR Chapter 11-62, “Wastewater Systems” (HDOH, 2016).

The proposed WWTP will not cause an increase in runoff quantities. Construction and operation of the proposed WWTP will be conducted in accordance with the State’s water quality standards (HAR Chapter 11-54) and the County’s Floodplain management standards (KCC Chapter 15, Article 1) (KPD, 1987). During construction, barriers (e.g., sediment fences, silt screens, bags, or environmental filter socks) will be used as needed to limit sediment and land-based sources of pollution from discharging into nearby inland waters. Operation of the proposed WWTP will mitigate future potential spills of wastewater that could possibly reach the nearby inland waters.

## 4.3 POTENTIAL BIOLOGICAL IMPACTS

There are numerous recognized ecosystems in Hawaii. Because so many Hawaiian species are highly specialized, populations are small and many of Hawaii’s plants and animals are listed as threatened or endangered species by the USFWS. For the purposes of this EA, the following three biological communities of potential concern in the area of the Property have been identified: (1) floral, (2) faunal, and (3) marine.

### 4.3.1 EXISTING BIOLOGICAL CONDITION

#### *4.3.1.1 Floral (Plant Communities)*

The Project site is situated in a *RR-Resort and O-Open* split-zoned area with a surrounding residential area of Hanalei. The Property was grubbed of the native trees in the mid-1960s. There are no native rare or endangered floral species found on the Property; Therefore, the proposed WWTP will not adversely affect endangered or threatened plant species. The State of Hawaii Geographic Information System [GIS] “threatened and endangered plants map” and “critical habitat map” show little to no threatened or endangered species are found within the Property boundaries. (HPD, 2022). The USFWS Critical Habitat for Threatened and Endangered Species GIS Online Map shows that no critical habitats are present at or surrounding the Property (USFWS, 2022a). A review of the USFWS Wetlands Inventory Mapper indicates that two Freshwater Emergent Wetlands are located to the south of the Property (USFWS, 2020b). As such, plants associated with wetlands may be present in the vicinity of the Property.

Based on a review of the United States Department of Agriculture Natural Resources Conservation Services soil map and soil description for where the Project is located; the soil type present is *Mokuleia Fine Sandy Loam* on 0 to 2 percent slope and has very low run-off (WSS, 2023). *Mokuleia Clay* is considered an important farmland soil and can be used for used for taro, pasture, sugarcane, and vegetables.

#### *4.3.1.2 Fauna (Animal Communities)*

Wildlife in the area of the Property is limited to coastal and marine animals, mammals and birds which have also adapted to an urban environment. The State of Hawaii GIS “Kauai critical habitat

– Ecosystem" map shows no Federal or State listed candidate for threatened or endangered animal species currently with the Property boundaries. (HPD, 2022b).

According to the USFWS' Information for Planning and Consultation tool, the USFWS noted federal data indicate a federally endangered Hawaiian Hoary Bat (*Lasiurus cineres semotus*), Band-rumped Storm-petral (*Oceanodroma castro*), Hawaiian Duck (*Anas wyvilliana*), Hawaiian Common Gallinule, (*Gallinula galeata sandvicensis*), Hawaiian Coot (*Fulica americana alai*), Hawaiian Petrel (*Pterodroma Sandwichensis*), Hawaiian Stilt (*Himantopus mexicanus knudseni*), and a threatened Newell's Townsend's Shearwater (*Puffinus auricularis newlli*) and Hawaiian Goose (*Branta sandvicensis*) are around the area of the proposed Project (USFWS, 2023a). However, there is no known habitat for these species on the Property (USFWS, 2023).

#### *4.3.1.3 Marine (Ocean Floral and Faunal Communities)*

The Property is located along the shoreline and Pacific Ocean; no disturbances or construction related activity will occur within the shoreline setback area of the property. Therefore, no threatened or endangered marine species are present in the vicinity of the Property.

### 4.3.2 POTENTIAL BIOLOGICAL IMPACTS AND MITIGATION

There would be a less than significant impact to biological resources from the proposed WWTP. None of the plants within the Property are known to be federal or State threatened or endangered of candidate species, Since the Property is developed and mostly open space or covered by buildings, there is no known habitat for the Hawaiian Hoary Bat or protected seabirds. The following mitigation measures will be implemented to minimize potential impacts to the biological resources:

1. Construction activities will be limited to daylight hours to avoid the use of construction work lights which may attract or disorient Hawaiian Hoary Bats or migrating seabirds. All exterior lighting associated with the Project will be shielded. These mitigation measures will be implemented to avoid potential impacts to protected or endangered species.
2. To reduce the possibility of spreading invasive species, pathogens, or pests, all equipment, materials, and personnel should be cleaned of excess soil and debris and the movement of plants or soil material between worksites should be avoided.
3. In order to reduce the presence of bird predators at the Property, feral cats will be removed from the Property, bait stations for rodents and mongoose will be installed, and covered trash receptacles should be used.
4. To reduce the possibility of spreading invasive species pathogens, or pests, all equipment, materials, and personnel should remove excess soil and debris, and the movement of plants or soil material between worksites should be avoided.

With these mitigation measures in place, the construction of the proposed WWTP is expected to result in no significant adverse impacts to existing plant species or native wildlife species or their habitat.

During the operation of the proposed WWTP, the treated wastewater will be discharged to the onsite injection wells disposal system, the primary disposal wells are located approximately 14 meters from the shoreline, and nutrients in the effluent are unlikely to mix with seawaters which could impact marine wildlife. Furthermore, the proposed WWTP is anticipated to significantly reduce nitrogen and phosphorus levels in the effluent. Due to the oxygen supplied for the biological process within the treatment system, complete nitrification is anticipated based on the system design. With proper operation of the treatment system, no significant impact to marine wildlife species is anticipated. Based on communication with the HDOH CWB, a NPDES permit will not be required for the disposal of treated wastewater via the injection wells.

## 4.4 POTENTIAL AIR QUALITY IMPACTS

Air pollution can be caused by natural sources; however, many different man-made activities can contribute. To determine if emissions generated at the Property would adversely affect air quality conditions, potential air quality impacts were evaluated in accordance with national and state air quality standards.

### 4.4.1 EXISTING AIR QUALITY CONDITIONS

The HDOH Clean Air Branch [CAB] has established the State Ambient Air Quality Standards [SAAQS]. The HDOH CAB regularly samples ambient air quality at monitoring stations throughout the State, and annually publishes this information, On Kauai, there is one monitoring station. The station monitors multiple parameters and is located in Nawiliwili. The station measures sulfur dioxide, nitrogen dioxide, and particulate matter.

Air quality in the State of Hawaii continues to be one of the best in the nation, and criteria pollutant levels remain well below the SAAQS. According to the *Annual Summary 2022 Hawaii Air Quality Data,* air quality monitoring data compiled by the HDOH indicates that the established air quality standards for all monitored parameters are consistently met throughout the State and on Kauai (HDOH, 2023).

Air quality in the vicinity of the Property is primarily affected by emissions from motor vehicles, residential sources, and agricultural sources. Air quality standards in the area generally meet the State air quality standards because of prevalent trade winds and the lack of any major stationary pollutant emission source.

### 4.4.2 POTENTIAL AIR QUALITY IMPACTS AND MITIGATIONS

Impacts on the air quality are anticipated to be less than significant and short-term. Construction of the proposed WWTP will require machinery that may generate dust, and emissions from the construction equipment and support vehicles may impact the air quality in the immediate area. The prevailing trade winds from the northeast are expected to disperse emissions and prevent elevated emission levels.

The short-term effects on air quality during the construction of the proposed WWTP will be mitigated by compliance with HDOH air pollution rules. Fugitive dust emissions will be controlled

by implementing BMPs such as watering active work areas, maintaining cleanliness on work area egress locations, and covering open bodied trucks, and limiting work area to be disturbed at any given time.

Long-term operation and maintenance of the WWTP is not expected to have any adverse impacts on air quality. The pumps and blowers associated with the WWTP are electric powered and will not discharge air pollutants.

## 4.5 POTENTIAL NOISE IMPACTS

Noise pollution can result from construction activities and heavy equipment operations. To determine if noise generated at the Property would adversely affect noise quality in the area, potential noise impacts were evaluated in accordance with stat noise control standards of HAR 11-46 (HDOH, 1996).

The maximum permissible sound level for areas zoned as *Resort* or *Open* is 60 A-weighted decibels [dBA] during the daytime (7 am to 10 pm) and 50 dBA during the nighttime (10 pm to 7 am) (HDOH,1996). The maximum permissible sound level can be exceeded for short periods of time, but no more than ten percent of the time within any twenty-minute period. The maximum permissible sound level for impulsive noises is 10 dBA above the maximum permissible sound level. Backup alarm devices on vehicles are exempt from the maximum permissible sound levels, where such devices are required by the Occupational Safety and Health Administration.

### 4.5.1 EXISTING NOISE CONDITIONS

Currently, noise levels in the vicinity of the Property are low to moderate as land use in the area are primarily residential or open in nature. Sources of ambient noise are vehicular traffic along Kuhio Highway and activity associated with the Hanalei Colony Resort and adjacent residential neighborhoods.

### 4.5.2 POTENTIAL NOISE IMPACTS AND MITIGATION

There will be less than significant short-term intermittent noise impacts generated during construction of the proposed WWTP. However, noise levels are not expected to adversely affect residents at or near the Project location. All work is anticipated to be done during the daytime hours, between 7:00 am and 6:00 pm. Construction activities must comply with the provisions of HAR Chapter 11-46, “Community Noise Control” (HDOH, 1996). The contractor will be required to obtain a noise permit if the noise levels from construction activities are expected to exceed 60 dBA.

Blowers and pumps will be utilized during long-term operation of the WWTP and may generate low levels of noise. However, the noise from this system is not anticipated to exceed the maximum permissible sound levels. The noise generating equipment (i.e., blowers and pumps) will be housed in a utility enclosure and will include the new emergency generator which operates the blowers. Therefore, there would be less than significant long-term noise impacts from the proposed WWTP.

Noise levels associated with the operation of the emergency generator is exempt from the rules of HAR Chapter 11-46.

## 4.6 CLIMATOLOGICAL CONDITIONS AND IMPACTS

### 4.6.1 EXISTING CLIMATOLOGICAL CONDITIONS

Climatological conditions in the area of the Property consist of warm to moderate temperatures and moderate rainfall. The Property is on the north shore of Kauai, which has a prevailing northeasterly trade wind. The average annual precipitation in the area is approximately 85 inches, occurring year mainly between November and April (Giambelluca et al. 2013). The evapotranspiration rate is approximately 27 inches (Giambelluca et al., 2014). Average temperatures range from the low to high 70s (degrees Fahrenheit) (Giambelluca et al, 2014).

### 4.6.2 POTENTIAL IMPACTS RELATED TO CLIMATE CHANGE

The potential impacts of climate change have become a significant concern on Hawaii's infrastructure and natural environment. As a reflection of this concern, the County of Kauai's Resiliency Team which includes representatives from the KPD, Kaua'i Emergency Management Agency, Office of Economic Development, the Mayor's Office, and the University of Hawai'i Sea Grant College Program, is currently developing the Kaua'i Climate Adaptation Plan [KCAP] to ensure our communities continue to thrive as the climate changes. The KCAP will address future hazards that may be exacerbated by climate change such as sea level rise, temperature rise, increased precipitation, flooding, and storms. The KCAP will draw upon community and scientific knowledge to provide framework for County climate change adaptation actions (KPD, 2023). The Climate Change Adaptation Policy Guidelines of the Hawaii State Planning Act (HRS 226-109), support planning and preparing for future disruptions and dislocations due to climate change.

The principal concern identified which poses a potential hazard to the Property is changing weather patterns in the Pacific Ocean that could result in localized increased precipitation severity, sea-level rise and flooding. Tsunami and hurricane hazards have the potential to increase with the any warming of the Pacific Ocean and therefore these impacts are included below.

#### *4.6.2.1 Flooding and Tsunami Hazards*

According to the State GIS flood hazard zones map, the Property is located in flood hazard area Zone VE (Figure 12), which is defined as an area inundated by the 1% annual chance flood event, or the 100-year flood, in any given year which exceeds the defined base flood elevation [BFE] (HPD, 2021). The proposed WWTP will be located in Zone VE with a BFE of 9 feet amsl.

Tsunamis and inundations of the low-lying coastal areas are natural phenomena that occur infrequently in Hawaii. The location of the islands in the Pacific Ocean exposes them to waves generated from tectonic activity from the edges of the Pacific Plate, also known as the Pacific Ring of Fire. The Property is located in the County's Tsunami Evacuation Zone maps.

According to USACE sea level rise predictions tool, there is potential for a 0.81-foot to 4.12-feet range of sea level rise by 2060 and a 1.04-foot to 6.94-feet range of sea level rise by 2080 at the Property (Figure, 10) (NOAA, 2017). The Property is not currently at risk of storm surges at Category 1 to Category 4 hurricane conditions according to the NOAA National Storm Surge Hazards Map (Figure 13) (NOAA, 2020). The increase in sea level elevation and the potential for increase in monsoonal weather patterns brought by climate change will likely increase the chance of inundation by floodwaters at the Property.

#### *4.6.2.2 Flood and Tsunami Impacts and Mitigation.*

The proposed WWTP will be designed to withstand tsunami inundations as well as floods from inland. The proposed WWTP will be designed, located, and constructed as far from the shoreline as possible to minimize or eliminate flood damage, impairment, and/or contamination during and subsequent to flooding by the regulatory flood. In addition, structural components will have the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy due to the potential of flooding. The pumps and blower panels will be protected from potential flooding by having them installed in weatherproof housing. By incorporating these design features there would be less than significant impacts from flooding, tsunami, and sea level rise. The proposed WWTP improvements would result in beneficial impacts compared to existing conditions since the WWTP components would be more resilient to flood waters from land and sea.

Currently, the impacts of minor flooding events are minimal; however, the impacts of a major tsunami at the Property could be significant. The chance of impacts will increase with the increase in sea level rise and climate change. The combination of sea level rise compounded by increased precipitation associated with climate change will increase the chances of major flooding events at the Property. Major flooding could cause an overflow of the effluent disposal system (i.e., injection wells), which would result in a potential spill of treated wastewater to the Hanalei Colony Resort and/or adjacent waters. To reduce the threat of flooding or sea level rise impacts to the injection wells, the following mitigation measures can be implemented as necessitated:

1. The effluent can be pumped directly to a temporary holding tank or removed using a pumping service.
2. Temporary or permanent flood barriers can be added around the wells.

These mitigation measures would reduce the flooding impacts to the injection wells to less than significant. By the year 2080, if the WWTP is still in operation, measures will need to be taken to protect the WWTP from rising sea water, or the WWTP will need to be decommissioned or relocated to a new location inland away from the coastline. Conditions of the UIC permit require annual inspection, testing, and monitoring of the injection wells to evaluate their performance and prevent injection well failures. These observations will be used to determine if sea level rise is compromising the performance of the injection well system.

If sea level rise impacts the performance of the treatment system components or the injection well system, all applicable regulations in place at the time will be followed. If it is determined that the WWTP should be decommissioned, it will be decommissioned in accordance with HDOH Wastewater Branch regulations.

# SECTION 5 SOCIAL ENVIRONMENT AND POTENTIAL IMAPCTS

## 5.1 LAND USE

### 5.1.1 EXISTING LAND USE

The Property and surrounding land are zoned as an *Urban* district under State Land Use Designations (Figure 3). The County of Kauai CZO designates the Property as *RR Resort, and O Open.* (Figure 4).

The Property is occupied by the Hanalei Colony Resort and consists of thirteen two-story resort buildings and an administrative building. The remaining areas of the Property are in use as open or recreational space and parking spaces. The areas surrounding the Property are occupied by Kepuhi Beach and the Pacific Ocean to the north and east, the Opakapaka Grill and Bar, Hanalei Day Spa, Kauai Beach Villa and residential properties to the west. Further residential properties and open zoned land are located across Kuhio Highway to the east. (Figures 4 & 6).

The general area around the Property is developed with single-family residences with a density of approximately 4 homes per acre. Based on available planning documents, the Property and surrounding areas will continue to be used for residential, conservation, and agricultural purposes for the foreseeable future.

### 5.1.2 POTENTIAL LAND USE ISSUES

The Property and surrounding areas are zoned resort, open, and residential uses, and its current and future use are consistent with the types of land use at surrounding properties. The Property has not had a significant impact on existing land use in the area. The proposed WWTP is not expected to have any impact on land use. The proposed WWTP will be installed behind multiple buildings and a shed in an unused area and therefore will not affect any of the Property's open space or parking stalls.

## 5.2 SOCIAL AND ECONOMIC ISSUES

### 5.2.1 EXISTING SOCIAL AND ECONOMIC CONDITIONS

The Project is located in Hanalei, Kauai within census tract 401.04. According to the 2020 United States Decennial Census, Hanalei had a population of 444, making it approximately 0.6% of the total population of Kauai County. The population in Hanalei has an average age that is slightly younger than the overall age of Kauai population. The racial demographics of the Hanalei population is comprised primarily of Caucasians, Asians, and Native Hawaiians. Approximately 63% of the Hanalei population are less than high school graduates. The median income in 2020 for the typical Hanalei household was $88,750 and approximately 23.4% of individuals over the age of 18 are below the poverty level. The primary industry employing the population of Hanalei is in the arts, entertainment, recreation, food service and accommodations industry, with construction industry employing the second most individuals (USCB, 2020).

### 5.2.2 POTENTIAL SOCIAL AND ECONOMIC IMPACTS

The proposed WWTP is anticipated to have no adverse impacts to socio-economic resources. The proposed WWTP will not result in an increase of dwelling units or the population of the Hanalei area. Construction of the WWTP will generate short-term economic benefits through expenditures for construction materials and employment of workers.

## 5.3 HISTORIC, ARCHEOLOGICAL, AND CULTURAL RESOURCES

### 5.3.1 EXISTING HISTORIC, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

According to the Hawaii Cultural Resource Information System database, there are no records of historical properties or archaeological assessments in the TMK that the Property is located in (SHPD, 2022). According to the State Historic Preservation Department, there have been past findings of culturally significant artifacts in TMK (4) 5-8-011:011, which is located near the Property of discussion in this assessment. But, at that time (2015) it was determined that those historical artifacts would not be impacted by the development.

Consultation with the State of Hawaii Historic Preservation Department was initiated to determine if historic, archaeological, or cultural resources would be impacted by the proposed WWTP. The SHPD requested submittal of the HRS §6E Form to formally begin their review process. The purpose of this review is to both identify historic resources and to avoid or mitigate potential negative affects to them. The form was submitted and a response from SHPD is pending.

### 5.3.2 POTENTIAL IMPACTS TO HISTORIC, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

The proposed WWTP is not expected to result in adverse impacts to historical, archaeological, or cultural resources since the Project is being constructed at the location of the existing pool shed area (Figures 6 and 7). The new WWTP system components will all be constructed above ground other than the new lift station, which will disturb minimal area, and the existing effluent disposal system (i.e., injection wells) are already in an area that has had extensive ground disturbance. The excavation activities are not anticipated to disturb any archaeological or cultural features. The existing wastewater treatment system will be demolished and removed as necessary; however this is an area that was previously disturbed when the system was installed.

## 5.4 VISUAL AND AESTHETIC APPEAL

### 5.4.1 EXISTING VISUAL AND AESTHETIC APPEAL

The Hanalei Colony Resort is designated as an urban district under state land use designations. It designated as a split zoned resort and open area. It is primarily surrounded by residential homes, open lands, the Kuhio Highway, and runs along coastline near Kepuhi beach and the Pacific Ocean. The existing WWTP is primarily located subsurface on the property and does not obstruct the aesthetic appeal of the surrounding area.

### 5.4.2 POTENTIAL IMPACTS TO THE VISUAL AND AESTHETIC APPEAL

The proposed WWTP is designed to be far from the shoreline and behind the buildings, as to not obstruct any scenic corridor on the Property. The Project will not hinder or obstruct access to the public beach the runs along the north end of the Property. Furthermore, the goal of the Project is to upgrade the existing system as to further enhance and protect the surrounding ecosystems from adverse effects of runoff and wastewater. This may positively affect the surrounding ocean waters by bettering water quality in the long term.

The dimensions of the proposed WWTP are approximately 7-feet high 7-feet wide by 21-feet long. The WWTP will not be visible to the public view. The visual and aesthetic appeal of the area will be maintained by locating the WWTP in an unused pool maintanence area. Therefore, the proposed WWTP improvements will not result in significant impacts to visual and aesthetic resources.

## 5.5 RECREATIONAL ACTIVITIES AND AREA

### 5.5.1 EXISTING RECREATIONAL ACTIVITIES AND AREAS

The Hanalei Colony Resort is utilized as a vacation resort complex and recreational area for tourism as well as the local Kauai County population. There is public beach access located through the Property. Kepuhi Beach is located along and immediately northeast of the Property.

### 5.5.2 POTENTIAL IMPACTS TO THE RECREATIONAL ACTIVITIES

The proposed WWTP project will maintain the area as an area for recreational use for tourism and the Kauai County population. Due to the presence of the surrounding buildings and the distance to the public beaches and beach parks, the proposed WWTP will have no adverse impact on the current recreational activities during the construction period, or during the long-term operation of the WWTP.

# SECTION 6 INFRASTRUCTURE AND POTENTIAL IMPACTS

The proposed project has the potential to have impact on the following two public services: (1) transportation and (2) utilities. Due to the location of the proposed WWTP and the nature of its operations, it is not expected that other public services will be affected.

## 6.1 TRAFFIC AND ROADS

### 6.1.1 EXISTING TRANSPORTATION INFRASTRUCTURE

Kuhio Highway is the main roadway serving the commercial area of Hanalei. There are two driveways onto the Property, from Kuhio Highway one is located on the western boudary of the Property and one on the eastern portion of the Property. The Primary vehicle access to the Property is from the western driveway. The WWTP is located on the southwestern corner of the Property and would be accessed from Kuhio Highway (Figures 6 and 7).

Bus service to the Property is provided by the Kauai Bus Route 400 which runs along Kuhio Highway. Generally, smooth traffic is a characteristic along these routes. Traffic is typically busiest during weekday commuter periods and weekend afternoons with main traffic areas around the Property.

### 6.1.2 POTENTIAL IMPACTS TO TRAFFIC AND ROADS MITIGATION METHODS

All construction activities associated with the proposed WWTP will take place within the Property boundaries. No work will be performed within the State Right-of-Way. Construction activities will not alter public roadways or affect bus service or bike/pedestrian access to the State Right-of-Way. There will be no modifications to site access/egress on Kuhio. While the Project is not expected to have significant traffic impacts, traffic on and adjacent to the Property may be impacted on a short-term basis during transportation of construction equipment and supplies to the Project site. Construction vehicles will add to the traffic on the roadways during these short periods. The following mitigation measures are recommended for optimal traffic conditions during construction:

- Construction activities and construction materials should be located and stored away from vehicular traffic. Sight lines for drivers on the roadway should be carefully maintained.
- Trucks delivering construction materials should be scheduled on weekdays during times of non-peak commuter periods (8:30 AM to 3:30 PM).

With these mitigation measures in place, the Project would result in less than significant impacts to traffic and roads.

## 6.2 UTILITIES

### 6.2.1 EXISTING UTILITIES IN THE AREA

#### *6.2.1.1 Electrical Supply*

Electrical power is provided to the Property by KIUC overhead service lines along the Kuhio Highway and a KIUC-owned transformer located on the south side of the Property. The electrical components of the proposed WWTP will be connected to the onsite 208 volts 3-phase electrical lines, through a branch circuit from the Hanalei Colony Resort building circuit. In the event of a commercial power outage, the new emergency generator will be linked to an automatic transfer switch so that essential loads will automatically transfer to emergency power.

#### *6.2.1.2 Water Supply*

Potable water is provided to the Property by the Kauai County Water Department water line on Kuhio Highway. Daily water usage consists of residential uses from the resort's guests. Fire suppression water supply is also provided on the Property.

### 6.2.2 POTENTIAL IMPACTS TO UTILITIES IN THE AREA

The proposed WWTP is not anticipated to require any offsite improvements. Utility services, such as potable water and electricity, to the surrounding area will not be affected. However, onsite utilities may be affected during construction activities. Additional electricity needed for operation of the proposed WWTP will be supplied by the onsite transformer. Therefore, there would be short-term less than significant impacts to utilities from the proposed WWTP.

# SECTION 7 DETERMINATION

Based on the analysis of information in this EA, it has been determined that the proposed Hanalei Colony Resort WWTP Project will not have significant negative impacts to the natural, built, or social environment. Therefore, it is anticipated that a FONSI will be issued and an EIS will not be required.

## 7.1 FINDINGS AND REASONS SUPPORTING THE DETERMINATION

The potential effects of the proposed WWTP were evaluated based on the thirteen *significance criteria* identified in HAR Title 11, Chapter 200.1-13. All phases and expected consequences of the proposed WWTP have been evaluated, including potential primary, secondary, short-term, long-term, and cumulative impacts. Table 7.1 summarizes the significance criteria and the evaluation of the potential effects of the Project.

It is concluded that the proposed WWTP does not meet any of the thirteen criteria. By not meeting these criteria, it is appropriate that the proposed WWTP be issued a FONSI and that an EIS not be required.

**Table 7.1: Evaluation of Significant Criteria**
**Hanalei Colony Resort WWTP**
**Draft Environmental Assessment**

| No. | Significance Criterion | Yes | No | Reason for Determination |
|---|---|---|---|---|
| 1 | Irrevocably commits a natural, cultural, or historic resource? | ☐ | ☑ | The Project is not expected to irrevocably commit any natural, cultural, or historic resource. The proposed WWTP will be installed in an unused pool maintanence area that has been previously disturbed by commercial development. There are no known significant cultural or historic resources in the Project area and recommendations by the SHPD will be followed to protect cultural or historic resources. |
| 2 | Curtails the range of beneficial uses of the environment? | ☐ | ☑ | The Project will not permanently curtail the beneficial uses of the environment. The proposed WWTP conforms to the land use designation for the Property and will be located within the existing property boundary of the Hanalei Colony Resort. |
| 3 | Conflicts with the State's environmental policies or long-term environmental goals established by law? | ☐ | ☑ | The Project will be in conformance with the State's environmental policies and goals established by law. The proposed WWTP will provide better treatment of Hanalei Colony Resort's wastewater and will accommodate present day flows. This is anticipated to reduce the risk of future wastewater spills. |
| 4 | Has a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State? | ☐ | ☑ | The Project is not anticipated to have any adverse effects on the economic and social welfare or cultural practices of the community or state. Rather, it will benefit the residents of Hanalei and visitors of Hanalei Colony Resort by providing an improved wastewater treatment system. |
| 5 | Has a substantial adverse effect on public health? | ☐ | ☑ | The Project is not anticipated to have any adverse effects on public health. Rather, it will have a positive impact on public health by improving treatment of wastewater and reducing the risk of future wastewater spills. |

| No. | Significance Criterion | Yes | No | Reason for Determination |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 6 | Involves adverse secondary impacts, such as population changes or effects on public facilities? | ☐ | ☑ | The Project is not anticipated to result in adverse secondary impacts. The Project is designed only to accommodate present day wastewater flows at the Hanalei Colony Resort, and to reduce the risk of future wastewater spills. |
| 7 | Involves a substantial degradation of environmental quality? | ☐ | ☑ | The Project is not anticipated to degrade environmental quality; it is anticipated to protect environmental quality by providing upgraded wastewater treatment. The Project is intended to replace the existing wastewater treatment system to accommodate present day flows to reduce the risk of future wastewater spills. |
| 8 | Is individually limited but cumulatively has substantial adverse effect upon the environment or involves a commitment for larger actions? | ☐ | ☑ | The Project is not anticipated to result in a significant cumulative negative impact on the environment. The Project site has already been developed and any adverse impacts related to the proposed WWTP will primarily be limited within the property boundary. Due to the rural nature of the general area, other significant development projects are not anticipated. Therefore, the incremental effects of the proposed WWTP combined with the effects of other past, present, and reasonably foreseeable future actions are not cumulatively considerable. The Project does not involve a commitment to larger actions. In fact, it will replace Hanalei Colony Resort's existing wastewater treatment system, which will help reduce the need for additional actions. |
| 9 | Has a substantial adverse effect on a rare, threatened, or endangered species, or its habitat? | ☐ | ☑ | The Project is not anticipated to adversely affect any rare, threatened, or endangered species or habitat. There are no known significant biological resources or habitats in the Project area. |
| 10 | Has a substantial adverse effect on air or water quality or ambient noise levels? | ☐ | ☑ | The Project is not anticipated to adversely affect long term air quality, water quality, or ambient noise levels. The Project may temporarily affect air, water, or noise quality during construction, but BMPs will be implemented to minimize any impacts. |

| No. | Significance Criterion | Yes | No | Reason for Determination |
|---|---|---|---|---|
| 11 | Has a substantial adverse effect on or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion- prone area, geologically hazardous land, estuary, fresh water, or coastal waters? | ☑ | ☐ | The Project is located within the SMA and appropriate permits will be obtained for the SMA. The proposed WWTP is located within the 100-year flood hazard area, in the County's Tsunami inundation evacuation zone and sea level rise exposure area. The WWTP will be designed, located, and constructed to minimize or eliminate flood damage, impairment, and/or contamination during and subsequent to flooding by the regulatory flood. In addition, structural components will have the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy due to the regulatory flood or a tsunami. |
| 12 | Has a substantial adverse effect on scenic vistas and view planes, during day or night, identified in county or state plans or studies? | ☐ | ☑ | The proposed WWTP will be installed behind existing buildings in an publicly inaccessible pool maintanence area and the dimensions of the proposed WWTP are approximately 7 feet wide by 21 feet long, and 7 feet high. The WWTP will therefore maintain the visual and aesthetic appeal of the view of the ocean. |
| 13 | Requires substantial energy consumption or emits substantial greenhouse gases? | ☐ | ☑ | The Project will not require substantial energy consumption. A slight increase in energy use will result from the proposed WWTP and will be accommodated by the existing KIUC power supply on the Property. The Project will not emit substantial greenhouse gases. |

## SECTION 8 REFERENCES

Giambelluca et al., 2014, Evapotranspiration of Hawaii, Final report submitted to the U.S. Army Corp of Engineers – Honolulu District, and the Commission on Water Resource Management, State of Hawaii. Accessed May 2023.

Giambelluca et al., 2013, Online Rainfall Atlas of Hawai'i. *Bull. Amer. Meteor. Soc.* 94, 313-316, doi: 10.1175/BAMS-D-11-00228.1.

HDOH, 1974a, Environmental Impact Statements: State of Hawaii Department of Health, Hawaii Revised Statutes, Chapter 343 (revised August 31, 1996).

HDOH, 1974b, State Environmental Policy: State of Hawaii Department of Health, Hawaii Revised Statutes, Chapter 344 (revised 1993).

HDOH, 1992, Underground Injection Control: State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 23, November 12, 1992.

HDOH, 1996, Community Noise Control: State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 46, September 23, 1996.

HDOH, 2001, Ambient Air Quality Standards: State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 59, September 5, 2001.

HDOH, 2014a, Air Pollution Control: State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 60.1, June 20, 2014.

HDOH, 2014b, Water Quality Standards: State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 54, November 15, 2014.

HDOH, 2016, Wastewater Systems: State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 62, March 21, 2016.

HDOH, 2019a, Water Pollution Control: State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 55, Amended February 9, 2019.

HDOH, 2019b, Environmental Impact Statement Rules: State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 200.1, August 9, 2019.

HDOH, 2019c, Underground Injection Control Permit Number UK-1388, State of Hawaii Department of Health, Safe Drinking Water Branch, Underground Injection Control program.

HDOH, 2021, Section 401 Water Quality Certifications, State of Hawaii Department of Health, Hawaii Administrative Rules, Title 11, Chapter 53, Adopted, October 22, 2021.

HDOH, 2023, State of Hawaii Annual Summary 2022 Air Quality Data, State of Hawaii Department of Health, Clean Air Branch. September 2023

HPD, 1977, Coastal Zone Management, State of Hawaii Office of Planning, Hawaii Revised Statutes, Chapter 205A, 1977 (revised January 2006).

HPD, 1978, Hawaii State Planning Act: State of Hawaii Office of Planning, Hawaii Revised Statutes, Chapter 226, 1978 (revised 1986, 2011).

HPD, 2021, Flood Hazard Areas (DFIRM) – Kauai County, State of Hawaii Office of Planning, Hawaii Statewide GIS Program website: https://geoportal.hawaii.gov/. Accessed June and July, 2023.

HPD, 2022a, Kauai Critical Habitat – Plant, State of Hawaii Office of Planning, Hawaii Statewide GIS Program website: https://geoportal.hawaii.gov/. Accessed May and June 203.

HPD, 2022b, Kauai Critical Habitat – Ecosystem, State of Hawaii Office of Planning, Hawaii Statewide GIS Program website: https://geoportal.hawaii.gov/. Accessed May and June 2023.

KPD, 2018, Kauai County General Plan. Kauai Planning Department, 2018.

KPD, 1987, Kauai County Comprehensive Zoning Ordinance. Chapter 8. Kauai County Planning Department, 1987.

KPD, 2023, Kauai Climate Adaptation Plan, Kauai County Planning Department, website: https://kauaiadaptation.com/, Accessed May 2023.

Macdonald et. al., 1960, Geology and Ground-water resources of Island of Kauai, Hawaii Division of Hydrogeology, Bulletin 13.

Mink, J. F. and Lau, L. S., 1992, Aquifer Identification and Classification for Kauai: Groundwater Protection Strategy for Hawaii: Water Resources Research Center University of Hawaii at Manoa Technical Report No. 186, September 1992.

Murabayashi et. al., 1967, Detailed Land Classification – Island of Kauai, University of Hawaii (Honolulu). Land Study Bureau. Bulletin No. 9.

NOAA et. al., 2017, Global and Regional Sea Level Rise Scenarios for the United States, National Oceanic and Atmospheric Administration, Technical Report NOS CO-OPS 083, Silver Spring, Maryland, January 2017.

NOAA, 2020, National Oceanic and Atmospheric Administration National Weather Service, National Hurricane Center Storm Surge Unit, National Storm Surge Hazard Maps, Viewer: http://noaa.maps.arcgis.com/apps/MapSeries, Accessed May, 2023.

OEQC, 2012, Guide to the Implementation and Practice of the Hawaii Environmental Policy Act: State of Hawaii Office of Environmental Quality Control, January 2012.

SHPD, 2020 State of Hawaii State Historic Preservation, Hawaii Register of Historic Places, https://dlnr.hawaii.gov/shpd/home/state-register/. Accessed May 2023.

UH, 2023, Hawaii Groundwater and Geothermal Resources Center, Hawaii State Water Wells, https://www.higp.hawaii.edu/hggrc/wells/wells.php, Accessed May 2023.

USCB, 2020, Decennial Census 2020, United States Census Bureau, website: https://www.census.gov/data.html. Accessed May 2023.

USFWS, 2023a, Information for Planning and Consultation Tool, United States Fish and Wildlife Service, https://ipac.ecosphere.fws.gov/. Accessed July 2023.

USFWS, 2023b, United States Fish and Wildlife Service Critical Habitat Mapper. Accessed at: https://fws.maps.arcgis.com/apps/mapviewer/index.html. Accessed July 2023.

USFWS, 2020b, United States Fish and Wildlife Service National Wetlands Inventory Mapper. Accessed at: https://www.fws.gov/wetlands/data/mapper.html.

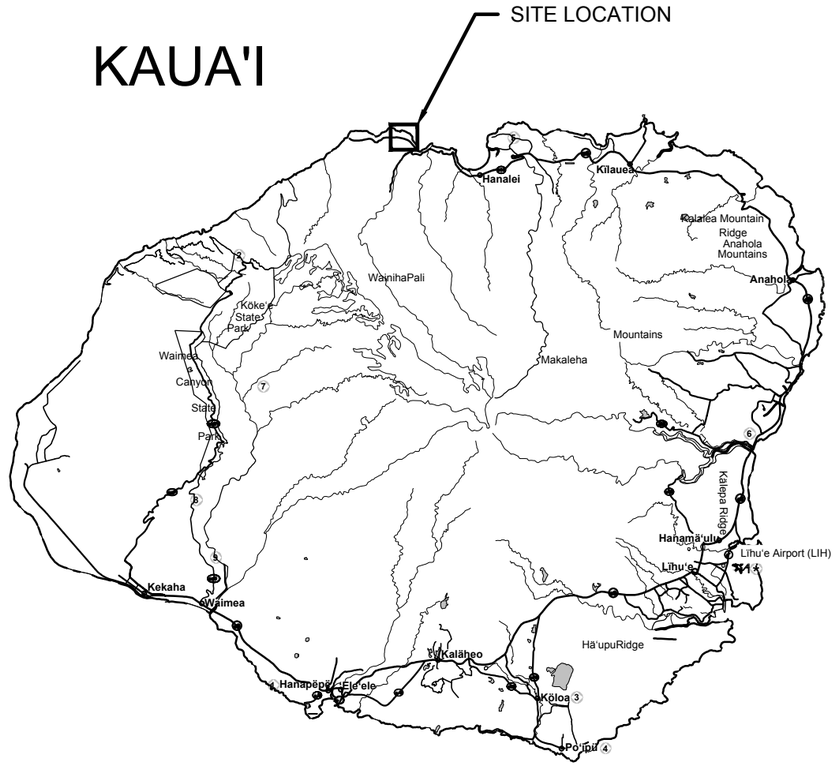
WSS, 2023, Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Sil Survey. http://websoilsurvey.sc.egov.usda/, Accessed May 2023.

# FIGURES


PLAN NORTH

2000' 0' 2000' 4000'

SCALE: 1" = 2000'




PLAN NORTH

10 km 0 km 10 km 20 km

SCALE: 1" = 10 km

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**LEGEND**

HANALEI COLONY RESORT
TMK: (4) 5-8-011:027

**NOTES**

THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

**SOURCES**

https://en-us.topographic-map.com/map-tdj6dn/Kauai/?overlay=0&zoom=14&center=22.21568%2C-159.55496&base=2

https://apps.nationalmap.gov/downloader/#/maps

HANALEI COLONY RESORT WWTP REPLACEMENT
5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
TMK: (4) 5-8-011:027

SHEET TITLE

FIGURE 1
REGIONAL LOCATION & TOPOGRAPHIC MAP

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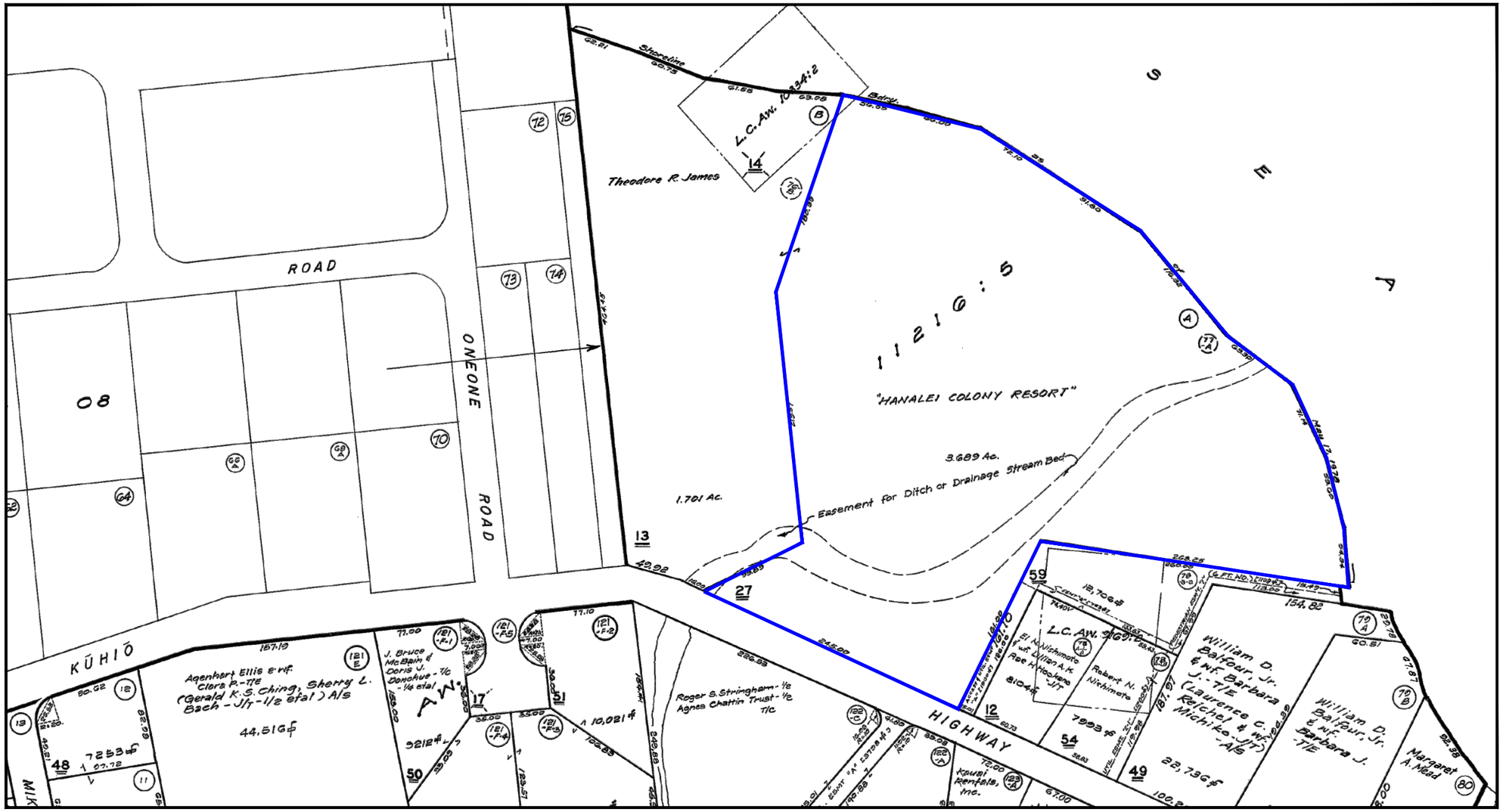
SCALE: SEE DETAILS

PROJECT NO. 22034_22053

SHEET NO. 1

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**NOTES**

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**SOURCES**

https://www.kauai.gov/Government/Departments-Agencies/Finance/Real-Property-Tax/Assessment/Tax-Maps

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5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
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SHEET TITLE
FIGURE 2
TAX MAP

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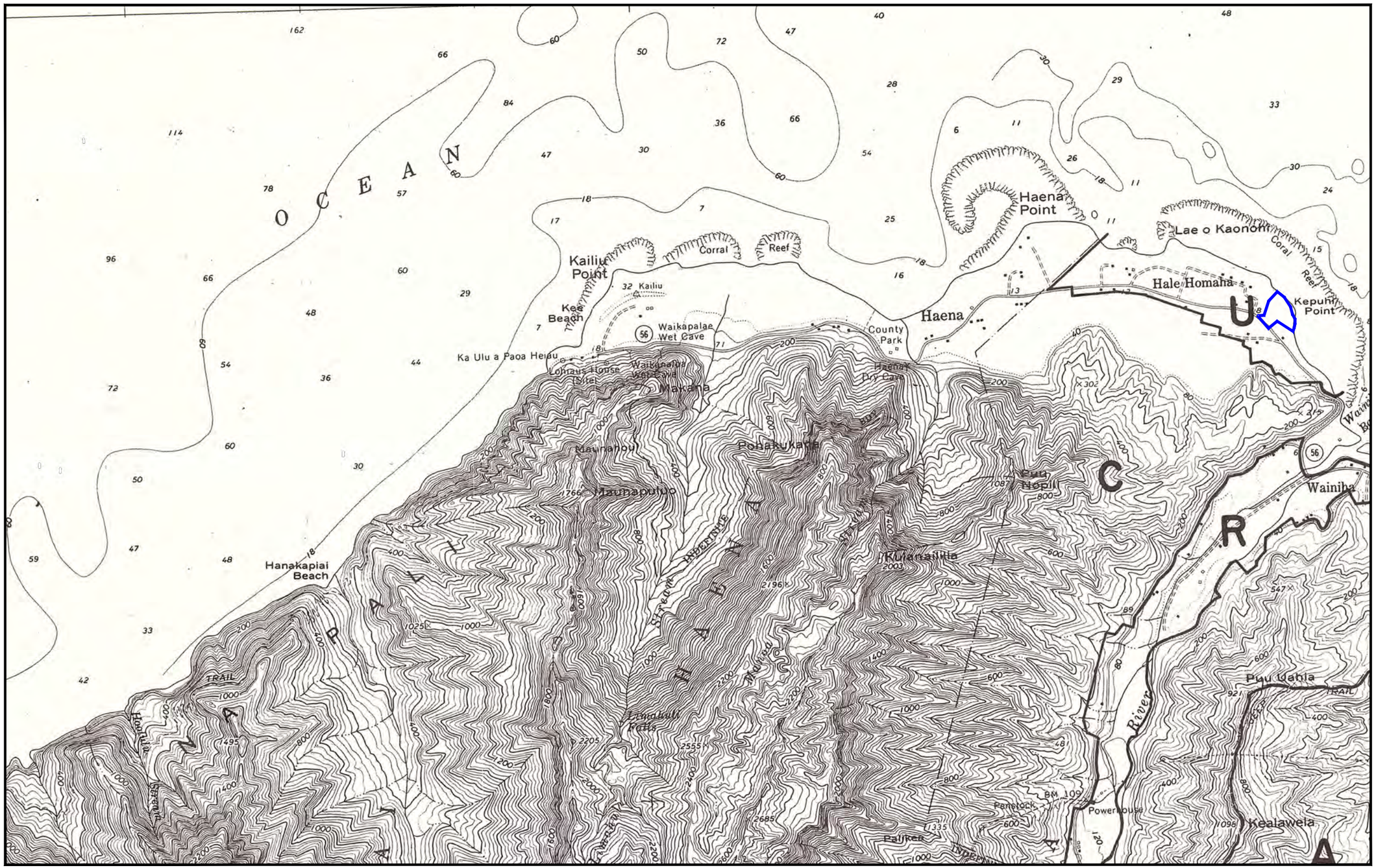
| | |
|---|---|
| SCALE: | 1" = 100' |
| PROJECT NO. | 22034_22053 |
| SHEET NO. | 2 |




PLAN NORTH

1000' 0' 1000' 2000'

SCALE: 1" = 1000'

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HANALEI COLONY RESORT
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STATE LAND USE DISTRICT BOUNDARY CODE

U = URBAN

C = CONSERVATION

A = AGRICULTURAL

**NOTES**

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**SOURCES**

https://luc.hawaii.gov/maps/land-use-district-boundary-maps/ludb-maps-island-of-kauai/

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5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
TMK: (4) 5-8-011:027

SHEET TITLE

FIGURE 3
STATE LAND USE MAP

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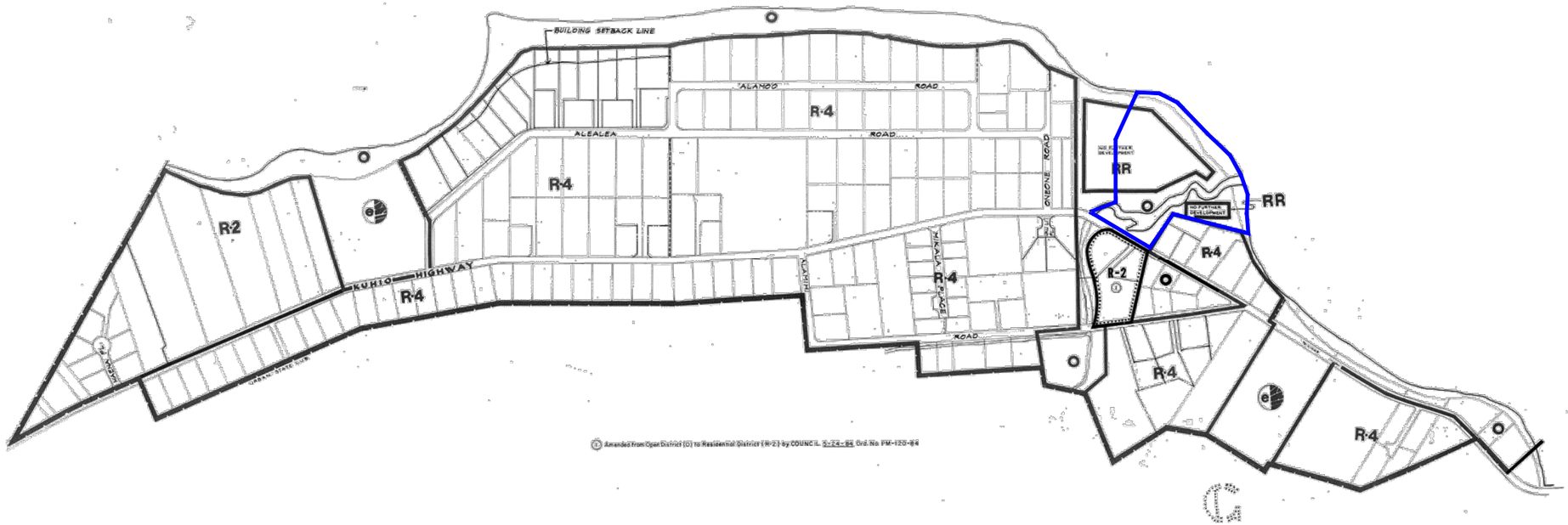
| | |
|---|---|
| SCALE: | 1" = 1000' |
| PROJECT NO. | 22034_22053 |
| SHEET NO. | 3 |




PLAN NORTH

500' 0' 500' 1000'

SCALE: 1" = 500'

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CITY & COUNTY OF KAUA'I LAND USE ORDINANCE (LUO) ZONING CODE

R-2 = RESIDENTIAL (TWO UNITS PER ACRE)

R-4 = RESIDENTIAL (FOUR UNITS PER ACRE)

O = OPEN DISTRICT

A = AGRICULTURE DISTRICT

C N = NEIGHBORHOOD COMMERCIAL

R R = RESORT

ST-P = SPECIAL TREATMENT (PUBLIC)

ST-C = SPECIAL TREATMENT (CULTURAL, HISTORIC)

ST-R = SPECIAL TREATMENT (SCENIC, ECOLOGIC RESOURCES)

C = NATURE CONSERVATION

**NOTES**

THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

**SOURCES**

https://www.kauai.gov/Government/Departments-Agencies/Planning/Zoning-Maps

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SHEET TITLE
FIGURE 4
COUNTY OF KAUA'I ZONING MAP

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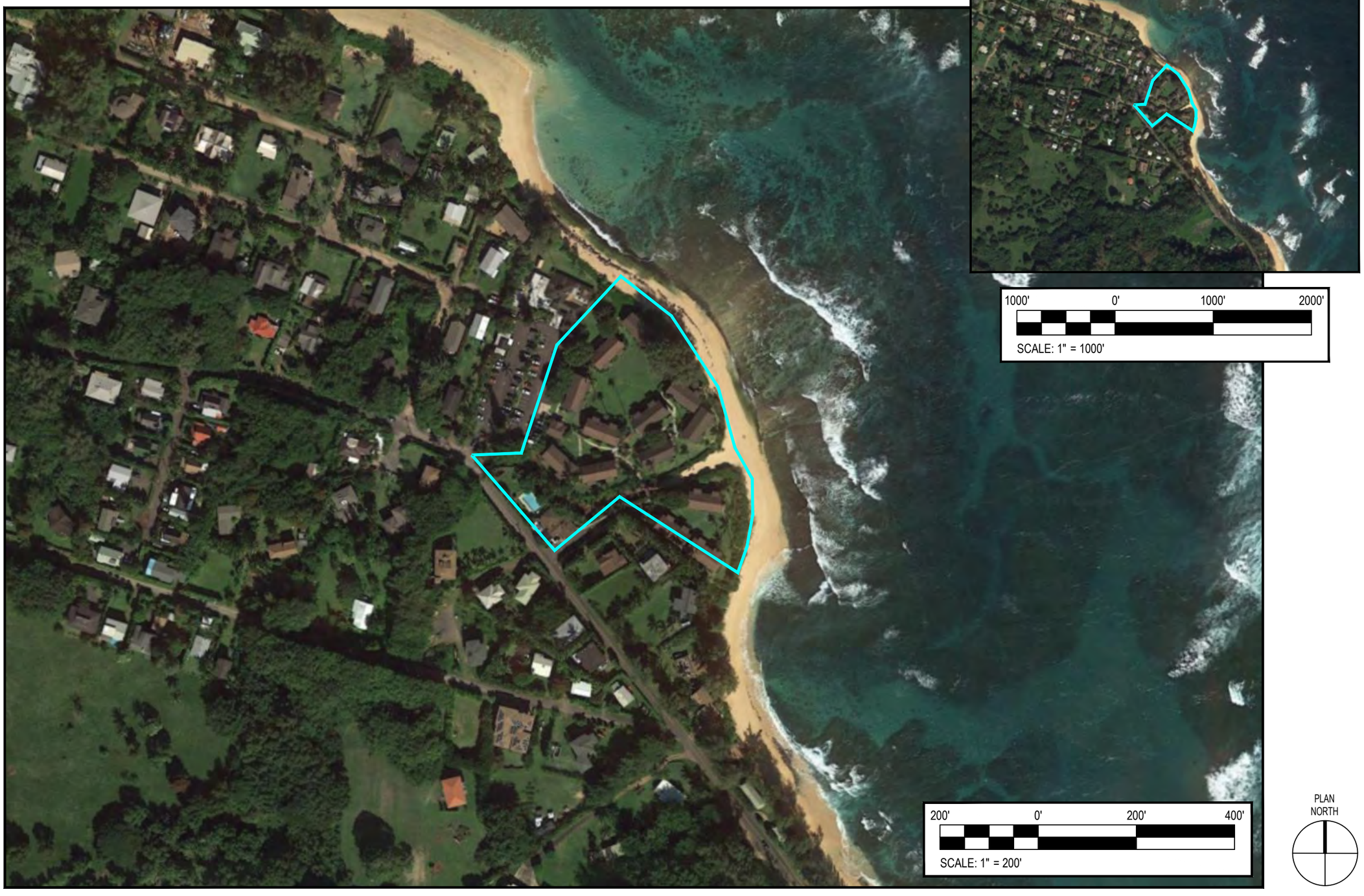
| | |
|---|---|
| SCALE: | 1" = 500' |
| PROJECT NO. | 22034_22053 |
| SHEET NO. | 4 |

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**NOTES**

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**SOURCES**

Aerial Map, 22°13'16"N 159°32'41"W. Google Earth. August 23, 2023.

HANALEI COLONY RESORT WWTP REPLACEMENT
5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
TMK: (4) 5-8-011:027

SHEET TITLE: FIGURE 5
SITE LOCATION

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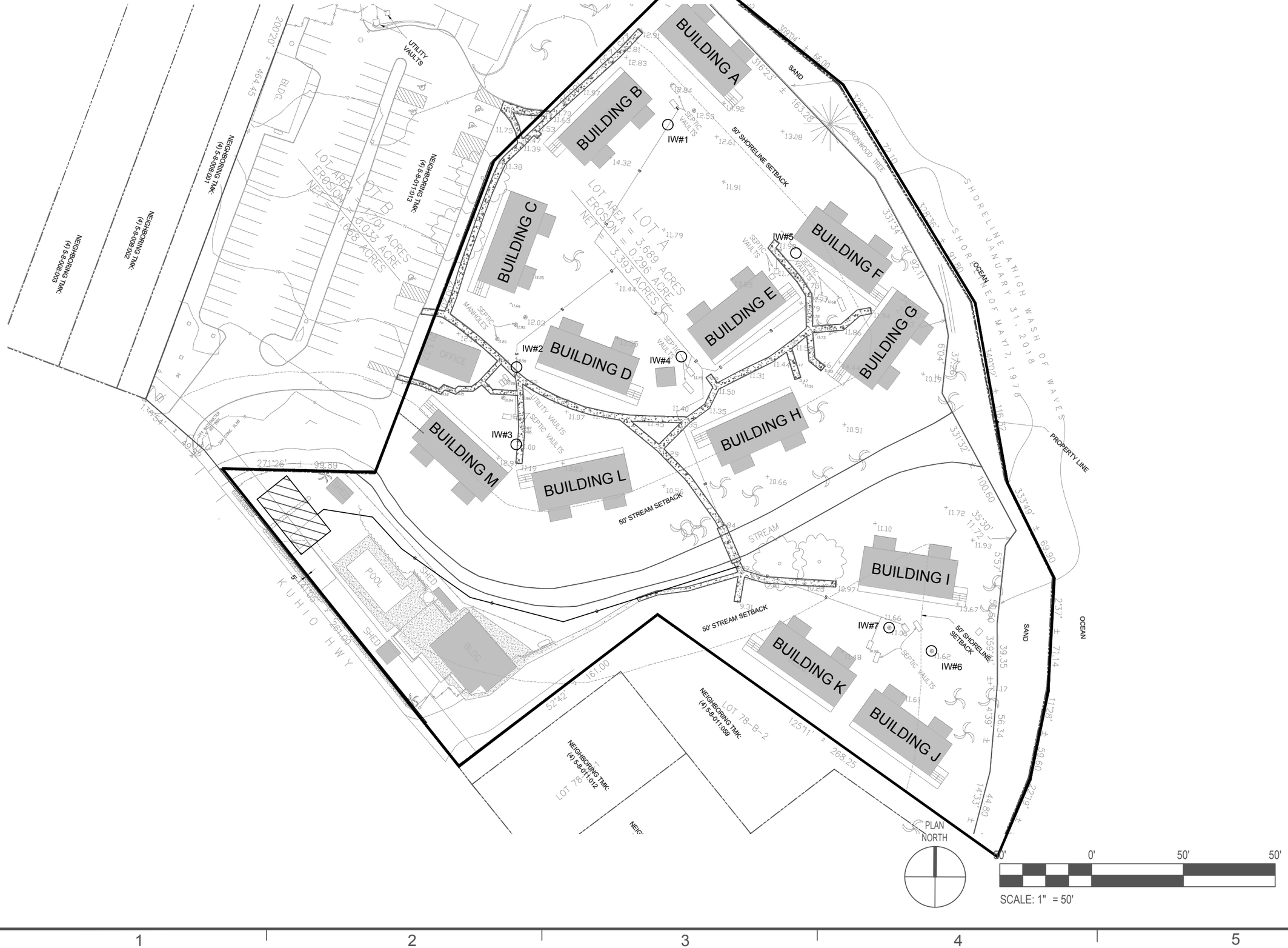
| | |
|---|---|
| SCALE: | SEE DETAILS |
| PROJECT NO. | 22034_22053 |
| SHEET NO. | 5 |

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**LEGEND**

- HANALEI RESORT COLONY TMK: (4) 5-8-011:027
- PROPERTY LINES
- BUILDING/STRUCTURE
- CONCRETE

**NOTES**

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**SOURCES**

C-100 General Site Plan, Hanalei Colony Resort WWTP Replacement. Laulea Engineering, LLC., 2023.

HANALEI COLONY RESORT WWTP REPLACEMENT
5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
TMK: (4) 5-8-011:027

SHEET TITLE
FIGURE 6
SITE PLAN

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| | |
|---|---|
| SCALE: | 1" = 50' |
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| SHEET NO. | 6 |


PLAN NORTH

70' 0' 70' 140'

SCALE: 1" = 70'

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AREA OF NEW WWTP SYSTEM

**NOTES**

THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

**SOURCES**

C-100 General Site Plan, Hanalei Colony Resort WWTP Replacement. Laulea Engineering, LLC., 2023.

Aerial Map, 22°13'16"N 159°32'41"W. Google Earth. August 23, 2023.

HANALEI COLONY RESORT WWTP REPLACEMENT
5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
TMK: (4) 5-8-011:027

SHEET TITLE
FIGURE 7
SITE PLAN & AERIAL MAP

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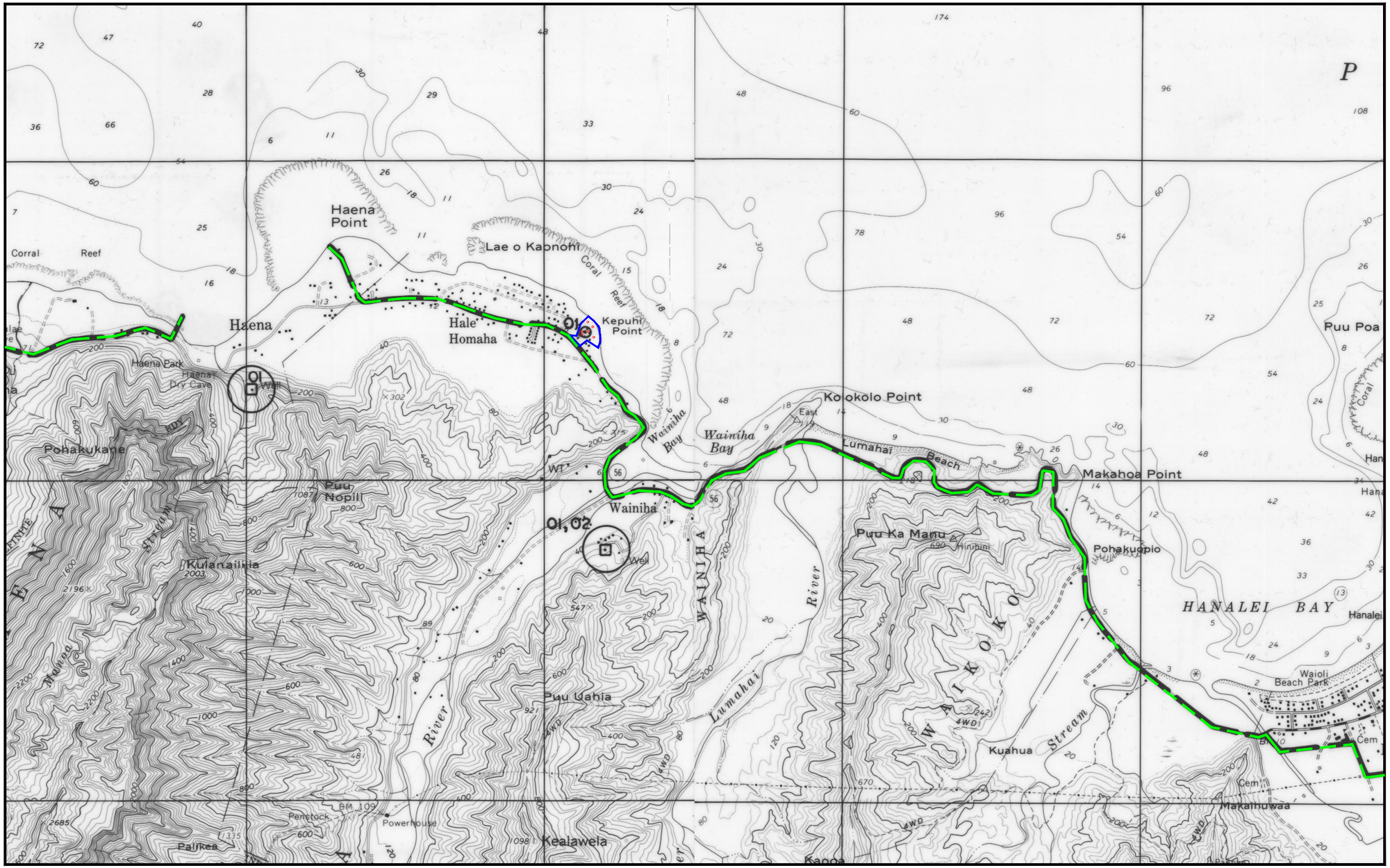
| | |
|---|---|
| SCALE: | 1" = 70' |
| PROJECT NO. | 23021_23004 |
| SHEET NO. | 7 |




PLAN NORTH

2000' 0' 2000' 4000'

SCALE: 1" = 2000'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**LEGEND**

- HANALEI COLONY RESORT TMK: (4) 5-8-011:027
- LOCATION OF EXISTING WASTE WATER TREATMENT SYSTEM(S)
- UNDERGROUND INJECTION CONTROL (UIC) LINE
- DRINKING WATER WELL
- INJECTION WELL
- OTHER WELL

**NOTES**

THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

**SOURCES**

United States Department of the Interior Geological Survey; State of Hawaii Department of Health Underground Injection Control Program. July 6, 1984.

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5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
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SHEET TITLE

FIGURE 8
UIC LINE & WELL LOCATION MAP

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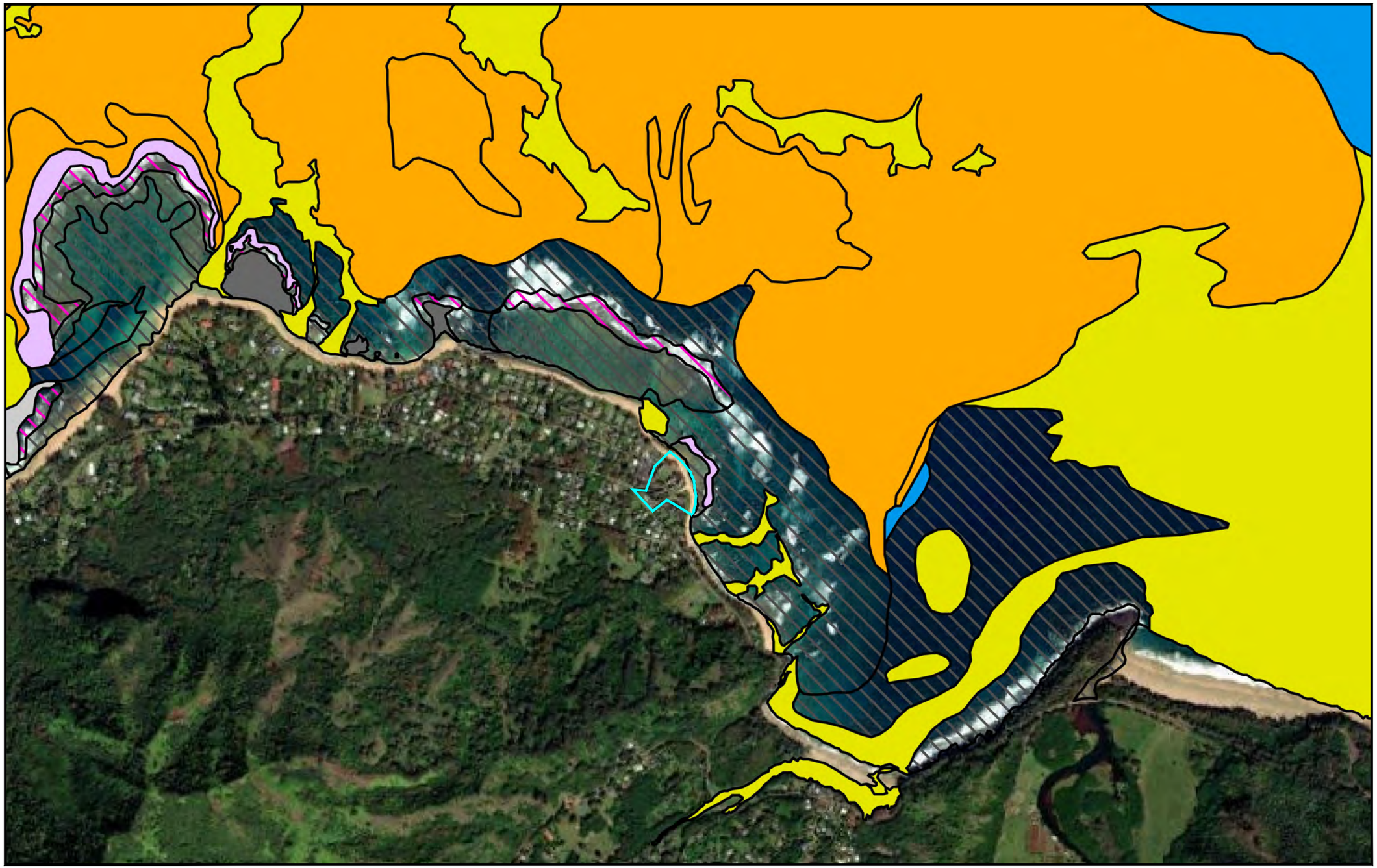
| | |
|---|---|
| SCALE: | 1" = 2000' |
| PROJECT NO. | 23021_23004 |
| SHEET NO. | 8 |



PLAN NORTH

1000' 0' 1000' 2000'

SCALE: 1" = 1000'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HANALEI COLONY RESORT
TMK (4) 5-8-011:027

BENTHIC HABITAT SYMBOLOGY CODE

- UNKNOWN
- UNCONSOLIDATED SEDIMENT
- CORAL REEF AND HARDBOTTOM
- CORAL REEF AND HARDBOTTOM
- CORAL REEF AND HARDBOTTOM
- CORAL REEF AND HARDBOTTOM
- CORAL REEF AND HARDBOTTOM

**NOTES**

THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

**SOURCES**

Resource Mapping Hawaii, Maxar | NOAA National Centers for Coastal Ocean Science; Hawaii Statewide GIS Program

https://qpublic.schneidercorp.com/Application.aspx?AppID=986&LayerID=20101&PageTypeID=1&PageID=8741&Q=256615262&KeyValue=580110270000

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SHEET TITLE

FIGURE 9
BENTHIC MAP

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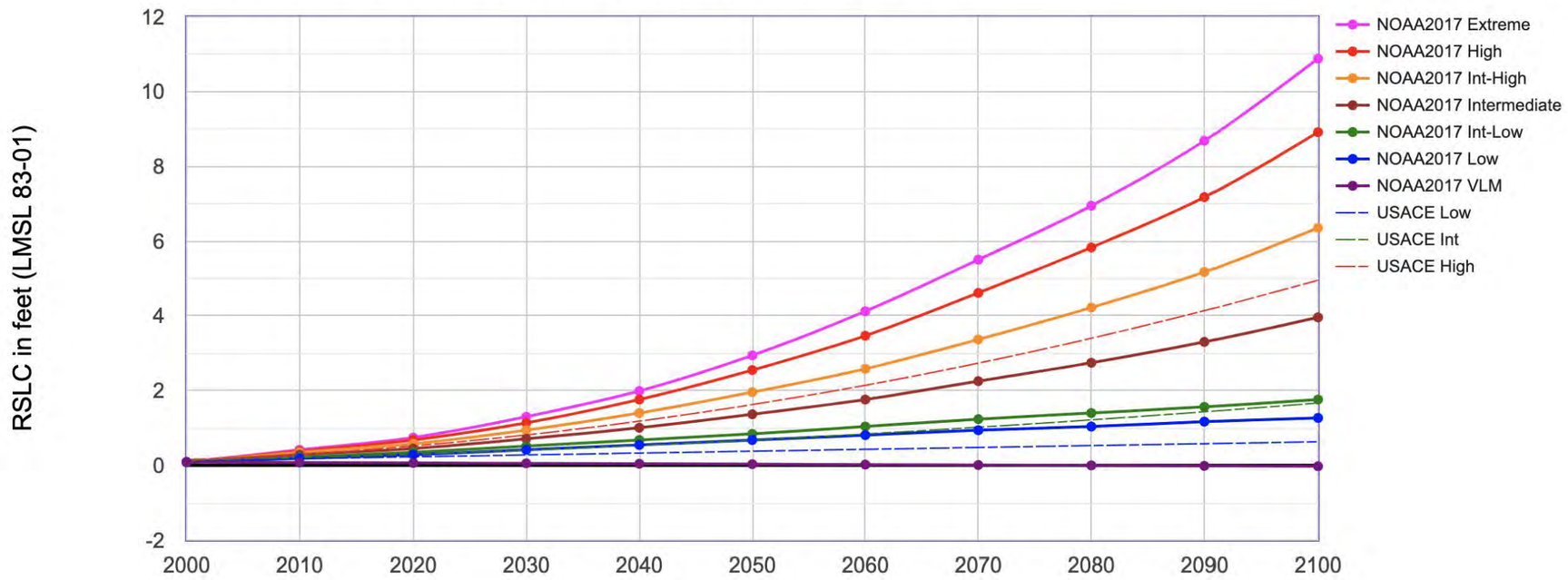
| | |
|---|---|
| SCALE: | 1" = 1000' |
| PROJECT NO. | 23021_23004 |
| SHEET NO. | 9 |

## NOAA et al. 2017 Relative Sea Level Change Scenarios for : NAWILIWILI BAY




Scenarios for NAWILIWILI BAY
NOAA2017 VLM: -0.00112 feet/yr
All values are expressed in feet

| Year | NOAA2017 VLM | NOAA2017 Low | NOAA2017 Int-Low | NOAA2017 Intermediate | NOAA2017 Int-High | NOAA2017 High | NOAA2017 Extreme | USACE Low | USACE Int | USACE High |
|---|---|---|---|---|---|---|---|---|---|---|
| 2000 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.13 | 0.13 | 0.15 |
| 2010 | 0.08 | 0.19 | 0.22 | 0.28 | 0.35 | 0.38 | 0.42 | 0.18 | 0.21 | 0.30 |
| 2020 | 0.07 | 0.28 | 0.35 | 0.45 | 0.58 | 0.68 | 0.74 | 0.23 | 0.30 | 0.52 |
| 2030 | 0.05 | 0.42 | 0.51 | 0.71 | 0.94 | 1.14 | 1.30 | 0.28 | 0.41 | 0.81 |
| 2040 | 0.04 | 0.55 | 0.68 | 1.01 | 1.40 | 1.76 | 1.99 | 0.33 | 0.53 | 1.18 |
| 2050 | 0.03 | 0.68 | 0.84 | 1.37 | 1.96 | 2.55 | 2.94 | 0.38 | 0.68 | 1.63 |
| 2060 | 0.02 | 0.81 | 1.04 | 1.76 | 2.58 | 3.47 | 4.12 | 0.43 | 0.84 | 2.14 |
| 2070 | 0.01 | 0.94 | 1.24 | 2.25 | 3.37 | 4.62 | 5.50 | 0.48 | 1.02 | 2.73 |
| 2080 | -0.00 | 1.04 | 1.40 | 2.75 | 4.22 | 5.83 | 6.94 | 0.53 | 1.22 | 3.40 |
| 2090 | -0.01 | 1.17 | 1.56 | 3.30 | 5.17 | 7.17 | 8.68 | 0.58 | 1.43 | 4.14 |
| 2100 | -0.02 | 1.27 | 1.76 | 3.96 | 6.35 | 8.91 | 10.88 | 0.63 | 1.67 | 4.95 |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1. Nawiliwili Bay is a permanent service for mean sea level (MSL) station.
2. LMSL 83-01 is the local mean sea level from 1993 to 2001, which adjusts the MSL datum by 0.084 feet.
3. RSLC = Relative Sea Level Change
   VLM = Vertical Land Movement (feet/year)

**NOTES**

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**SOURCES**

NOAA et al. 2017

USACE Sea Level Change Curve Calculator (20117.55). https://cwbi-app.sec.usace.army.mil/rccslc/slcc_calc.html

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SHEET TITLE
FIGURE 10
RELATIVE SEA LEVEL CHANGE SCENARIOS FOR NAWILIWILI BAY

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SCALE: NTS

PROJECT NO. 23021_23004

SHEET NO. 10


PLAN NORTH

500' 0' 500' 1000'

SCALE: 1" = 500'

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**LEGEND**

Hanalei Colony Resort
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SEA LEVEL RISE EXPOSURE AREA, 3.2 FEET SCENARIO

**NOTES**

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**SOURCES**

Hawaii Statewide GIS Program, SLR Exposure Area - 3.2 Ft. Scenario. September 4, 2022.

https://qpublic.schneidercorp.com/Application.aspx?AppID=986&LayerID=20101&PageTypeID=1&PageID=8741&Q=256615262&KeyValue=580110270000

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SHEET TITLE
FIGURE 11
SEA LEVEL RISE EXPOSURE MAP

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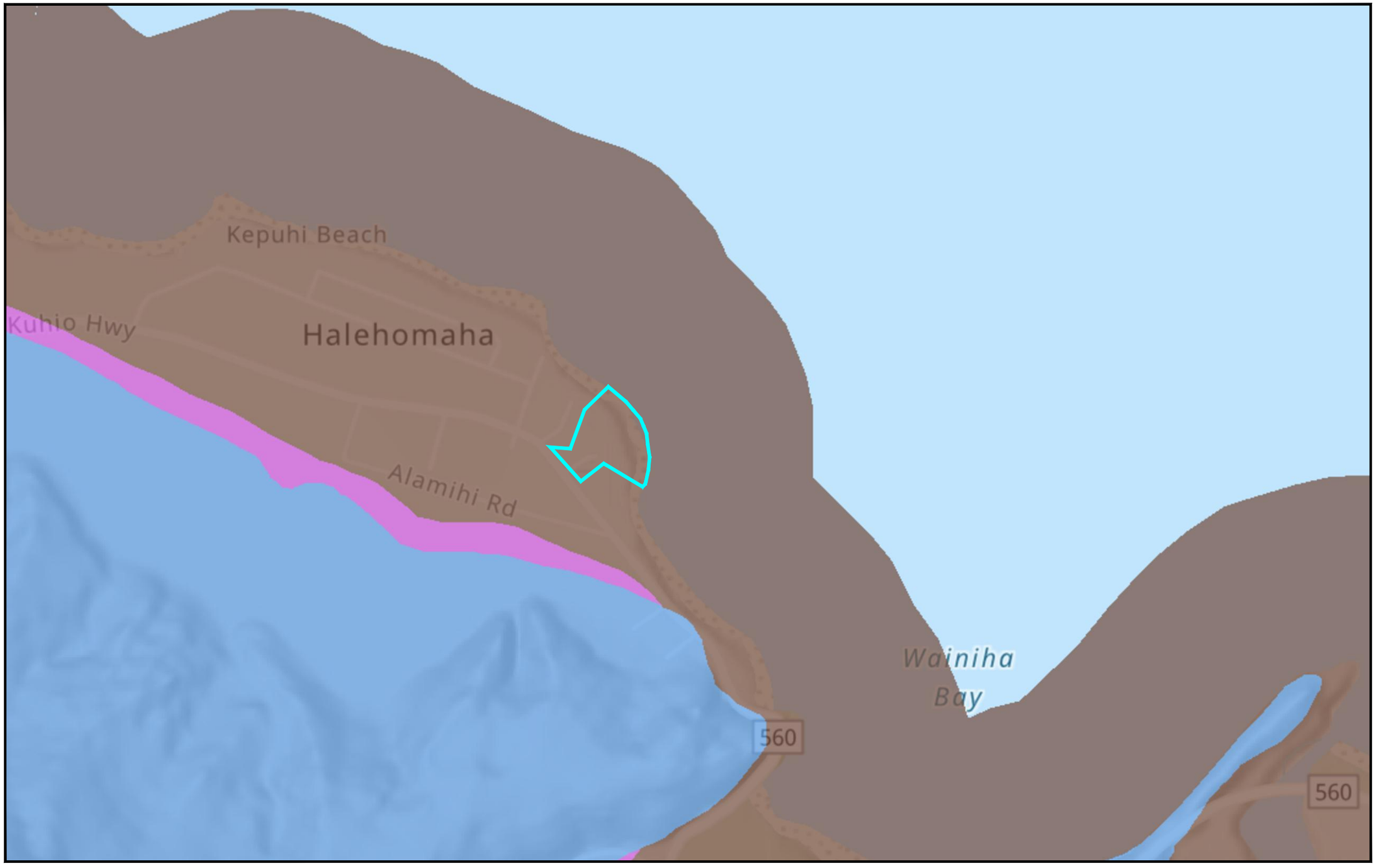
SCALE: 1" = 500'

PROJECT NO. 23021_23004

SHEET NO. 11




PLAN NORTH

500' 0' 500' 1000'

SCALE: 1" = 500'

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TMK (4) 5-8-011:027

SPECIAL FLOOD HAZARD AREA

*Special Flood Hazard Areas [SFHA] are defined as the area that will be inundated by the flood event having a 1% chance of being equaled or exceeded in any given year. The 1% annual chance flood is also referred to as the base flood or 100-year flood.*

Zone AE: Area subject to inundation by the 1%-annual-chance flood event for which Base Flood Elevations (BFEs) have been determined.

Zone VE: Area inundated by the 1%-annual-chance flood event with Velocity Hazard (wave action) for which BFEs have been determined.

Zone X: Area of moderate risk within the 0.2%-annual-chance flooding.

**NOTES**

THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

**SOURCES**

Hawaii Statewide GIS Program, Flood Hazard Areas (DFIRM) - Kauai County. September 17, 2021.

https://qpublic.schneidercorp.com/Application.aspx?AppID=986&LayerID=20101&PageTypeID=1&PageID=8741&Q=2566152626&KeyValue=580110270000

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5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
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SHEET TITLE
FIGURE 12
FLOOD HAZARD MAP

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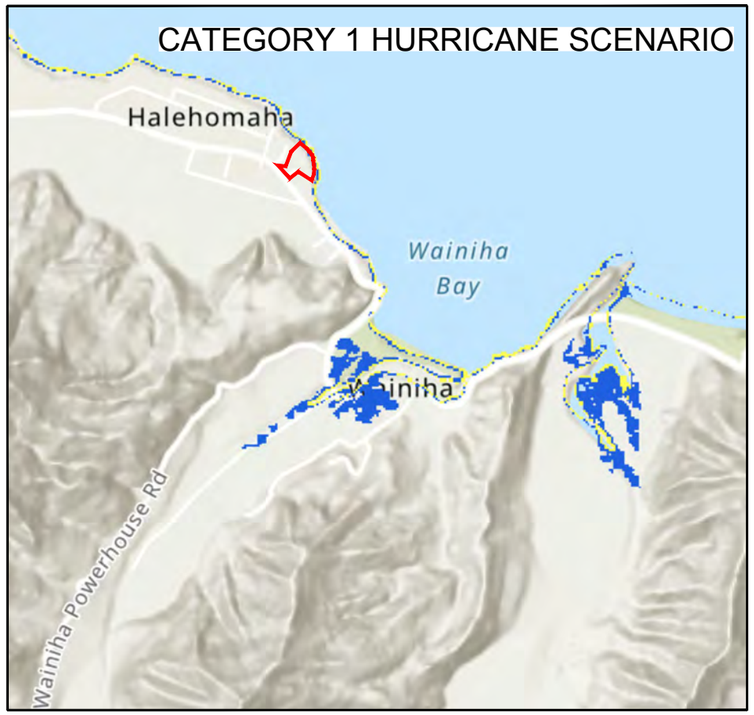
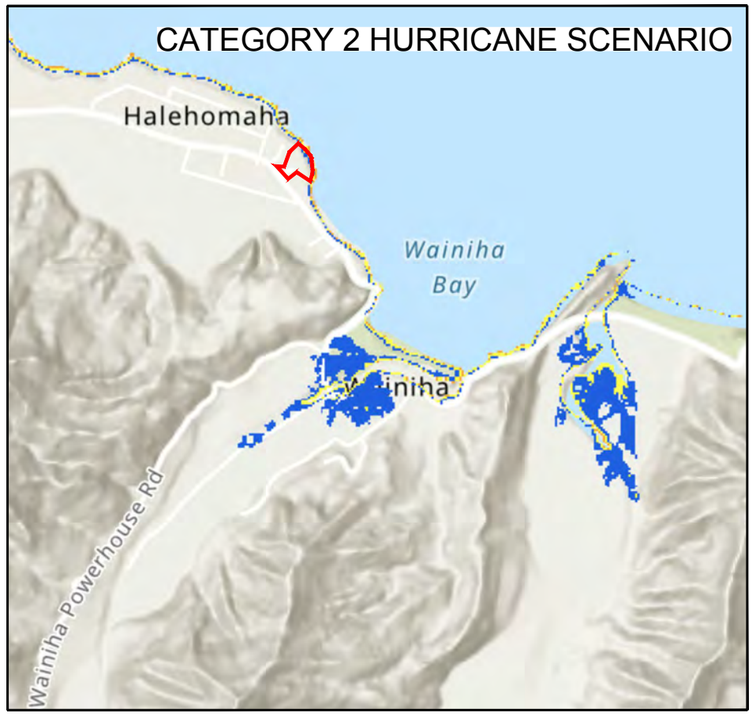
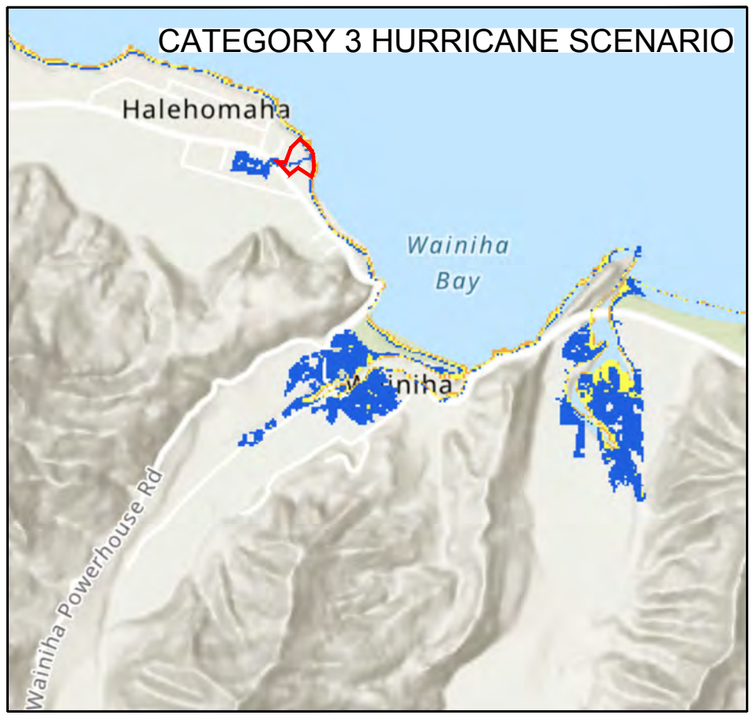
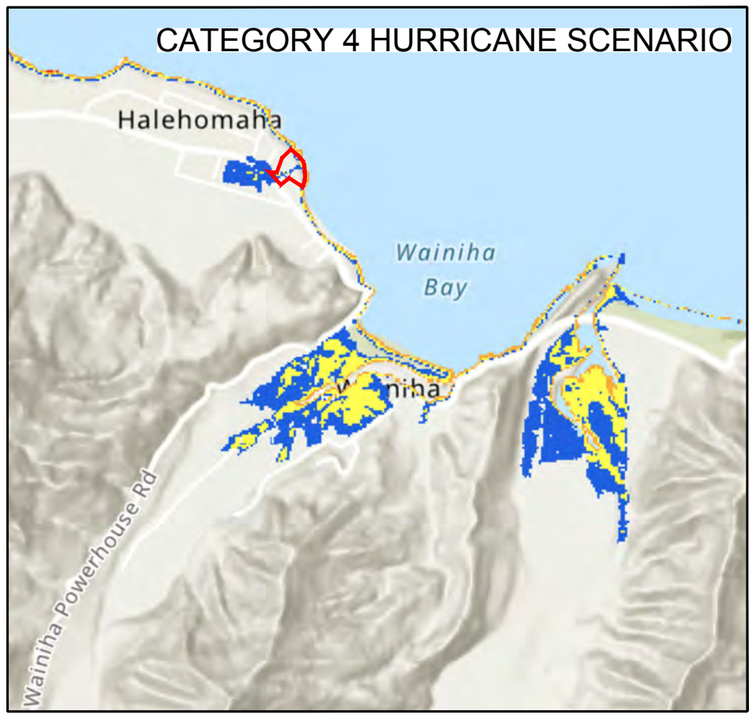
| | |
|---|---|
| SCALE: | 1" = 500' |
| PROJECT NO. | 23021_23004 |
| SHEET NO. | 12 |




LAULEA ENGINEERING, LLC
LAULEA ENGINEERING, LLC
P.O. Box 25988
HONOLULU, HI 96825
WWW.LAULEALLC.COM

**LEGEND**

HANALEI COLONY RESORT
TMK (4) 5-8-011:027

HAWAI'I STORM SURGE INUNDATION HEIGHT

- Less than 3 feet above ground
- Greater than 3 feet above ground
- Greater than 6 feet above ground
- Greater than 9 feet above ground

**NOTES**

THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

**SOURCES**

National Hurricane Center Storm Surge Risk Maps. https://experience.arcgis.com/experience/203f772571cb48b1b8b50fdcc3272e2c

PLAN NORTH

8000' 4000' 0' 4000'

SCALE: 1" = 4000'

HANALEI COLONY RESORT WWTP REPLACEMENT
5-7130 KUHIO HIGHWAY, HANALEI, KAUAI, HI 96714
TMK: (4) 5-8-011:027

SHEET TITLE
FIGURE 13
STORM SURGE HAZARD MAP

WWW.LAULEALLC.COM

| | |
|---|---|
| SCALE: | 1" = 4000' |
| PROJECT NO. | 23021_23004 |
| SHEET NO. | 13 |

# APPENDIX A

# Site Photographs

**Photo 1:** West facing view from Hanalei Colony Resort entrance into neighboring parking lot

**Photo 2:** Northeast facing view of the lot from in between buildings C and D

**Photo 3:** Southeast view of buildings M and L

**Photo 4:** East view of walkway between buildings D and L

# PHOTOGRAPHIC LOG

| | |
|---|---|
| PROJECT NAME | Hanalei Colony Resort WWTP<br>Draft Environmental Assessment |
| PROJECT NO. | 22034_22053 |
| SHEET NO. | 1 |
| PHOTO NOS. | 1 – 4 |

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HONOLULU, HI 96825

**Photo 5:** Northeast view of large lot A1, buildings C, B, and A can be seen

**Photo 6:** Southeast view of large lot A1, buildings E and F can be seen

**Photo 7:** South view of front office, property line, and neighboring parking lot

**Photo 8:** Northeast view of property line, building A, and ocean

# PHOTOGRAPHIC LOG

| PROJECT NAME | PROJECT NO. | SHEET NO. | PHOTO NOS. |
|---|---|---|---|
| Hanalei Colony Resort WWTP<br>Draft Environmental Assessment | 23021_23004 | 2 | 5 – 8 |

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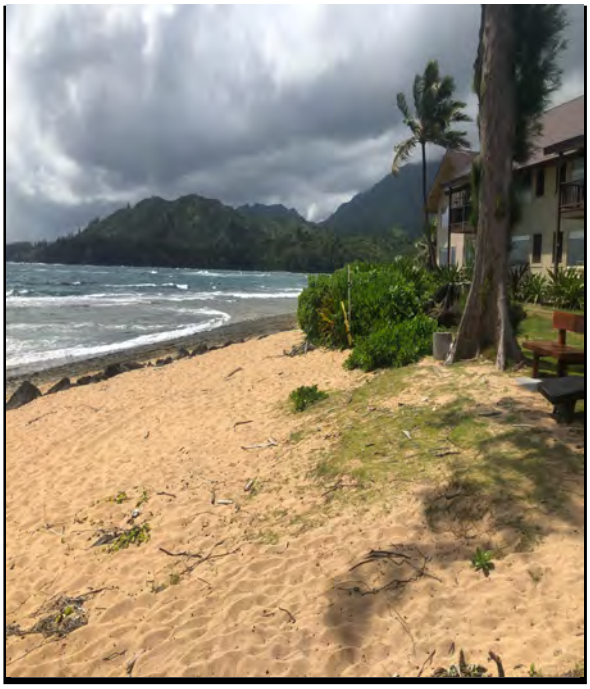

**Photo 9:** Southeast view of ocean and building F

**Photo 10:** Southeast view of ocean in front of building A

**Photo 11:** Southwest view of walkway from between buildings E and G

**Photo 12:** North view from mouth of stream showing ocean and building G

# PHOTOGRAPHIC LOG

| | |
|---|---|
| PROJECT NAME | Hanalei Colony Resort WWTP<br>Draft Environmental Assessment |
| PROJECT NO. | 23021_23004 |
| SHEET NO. | 3 |
| PHOTO NOS. | 9 – 12 |

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HONOLULU, HI 96825

**Photo 13:** West view from mouth of stream, shows buildings I and H

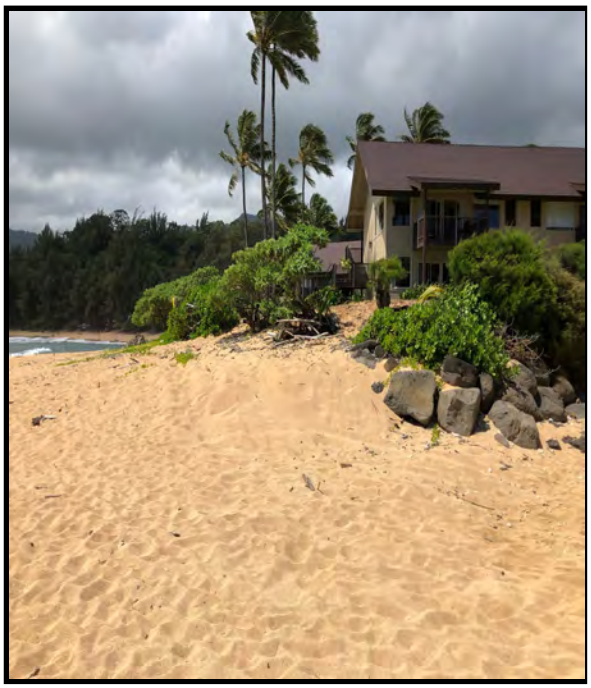

**Photo 14:** South view from mouth of stream showing ocean and building I

**Photo 15:** Southwest view of property line and poolhouse

**Photo 16:** West facing view of smaller lot A2 showing buildings I, J, and K

# PHOTOGRAPHIC LOG

| | |
|---|---|
| PROJECT NAME | Hanalei Colony Resort WWTP<br>Draft Environmental Assessment |
| PROJECT NO. | 23021_23004 |
| SHEET NO. | 4 |
| PHOTO NOS. | 13 – 16 |

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HONOLULU, HI 96825

**Photo 17:** South view of property line and main road

**Photo 18:** West view of poolhouse and stream from bridge

**Photo 19:** South view of bridge connecting to lot A2, storage, and building K

**Photo 20:** Southeast view of building I from between buildings G and H

# PHOTOGRAPHIC LOG

| | |
|---|---|
| PROJECT NAME | Hanalei Colony Resort WWTP<br>Draft Environmental Assessment |
| PROJECT NO. | 23021_23004 |
| SHEET NO. | 5 |
| PHOTO NOS. | 17 – 18 |

LAULEA ENGINEERING, LLC

LAULEA ENGINEERING, LLC.
P.O. Box 25988
HONOLULU, HI 96825

# APPENDIX B

# Comments and Responses

LAULEA
ENGINEERING, LLC

1314 S King St #705
Honolulu, HI 96814
info@laulealLc.com
www.laulealLc.com

August 11, 2023

ATTN: Rodney Funakoshi
Office of Planning and Sustainable Development
P.O. Box 2359
Honolulu, HI 96804-2359

**Subject:** Hanalei Colony Resort Wastewater Treatment System Replacement Project
5-7130 Kuhio Highway, Hanalei, Kauai, Hawaii, TMK (4) 5-8-011:027

Dear Sir or Madam,

Laulea Engineering, LLC is presently preparing an Environmental Assessment [EA] study for the replacement of the wastewater treatment infrastructure at the Hanalei Colony Resort [HCR] located at 5-7130 Kuhio Highway in Hanalei, Kauai, Hawaii (Figure 1, hereinafter referred to as the "Site").

The existing wastewater treatment at the Site is indicated by available records to be at least 40 years old and consists of seven (7) separate cavitettes (aka aerobic treatment units [ATUs]) that service thirteen (13) buildings with four (4) units each for a total of fifty-two (52) units. Each of the cavittettes contain a primary 500-gallon aerated tank and a secondary 800-gallon aerated tank. Each separate treatment system utilizes a 1.1-hp blower and operates on a "4-hours on and 2-hours off" schedule. Treated effluent is then discharged into seven (7) active permitted injection wells. The existing wastewater treatment aging infrastructure will be modernized to be brought into compliance with current Hawaii Department of Health regulations and to limit any wastewater/sewage releases that may occur due to future deterioration or increases in wastewater flow generated by HCR.

The proposed replacement wastewater treatment plant [WWTP] will be subsurface and consist of the following:

- Reuse of the cavitettes after verification of their condition as preloaders and equalization [EQ] AND/OR installation of an EQ tank component
- A new secondary subsurface treatment utilizing a robust bioreactor (such as a membrane bioreactor [MBR] or membrane aerated bioreactor [MABR] which will include:
    - An Integrated Sludge Storage Tank
    - A recirculating Denitrification tank and Nitrification tank/membrane unit
    - A coagulant dosing unit
    - UV disinfection system
- A new modular utility enclosure

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- A new emergency generator and fuel tank (LPG or Diesel)
- An operational and permitted via the UIC program injection well disposal system
    - Pumped and Cleaned before reuse, or,
    - Injection well modification via UIC program compliance
    - Piping to injection wells

The proposed project will be constructed within the Special Management Area [SMA], which triggers the requirement for an EA under Chapter 343 of the Hawaii Revised Statutes. The draft EA is being prepared to comply with the State's environmental policy and to give appropriate regards to any potential environmental, economic, and/or technical impacts. We are notifying involved stakeholders and potentially interested parties to provide commentary or the inquires for potential concerns that will be addressed in the draft and final EA.

A draft copy of the EA will be made available for your review. A copy of the draft EA will also be placed in the Princeville Public Library, 4343 Emmalani Dr, Princeville, Kauai, for a 30-day public comment period to be held early to mid 2024.

Please direct your comments to Brian Carroll via e-mail: Brian@laulealLc.com, or phone (808) 389-8267.

Very Respectfully,

Brian Carroll
Sr. Environmental Scientist
Laulea Engineering, LLC

**Enclosures:**
Figure 1: Special Management Area Map
Figure 2: Site Map

# STATE OF HAWAIʻI
# OFFICE OF PLANNING
# & SUSTAINABLE DEVELOPMENT

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

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR

MARY ALICE EVANS
INTERIM DIRECTOR

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


Coastal Zone Management Program

Environmental Review Program

Land Use Commission

Land Use Division

Special Plans Branch

State Transit-Oriented Development

Statewide Geographic Information System

Statewide Sustainability Branch

DTS 202308151351NA

September 21, 2023

Mr. Brian Carroll
Sr. Environmental Scientist
Laulea Engineering, LLC
1314 S King Street, #705
Honolulu, Hawaiʻi 96814

Subject: Request for Pre-Consultation for an Environmental Assessment, Hanalei Colony Resort Wastewater Treatment System Replacement Project; 5-7130 Kuhio Highway, Hanalei, Kauaʻi, Hawaiʻi, TMK (4) 5-8-011:027

Dear Mr. Carroll,

Thank you for the opportunity to provide comments on your pre-consultation request for the proposed Hanalei Colony Resort Wastewater Treatment System Replacement project. The notification request was received by our office via memo dated August 11, 2023.

It is our understanding that the existing wastewater treatment system at the Hanalei Colony Resort is at least 40 years old and consists of seven aerobic treatment units that service thirteen buildings with four units each for a total of fifty-two units. Each of the aerobic treatment units contain a primary 500-gallon aerated tank and a secondary 800-gallon aerated tank. The existing wastewater treatment aging infrastructure will be modernized to be brought into compliance with current Hawaiʻi Department of Health regulations and to limit any wastewater/sewage releases that may occur due to future deterioration or increases in wastewater flow.

The proposed replacement wastewater treatment plant (WWTP) will be subsurface and will reuse the aerobic treatment units after verification of their condition as pre-loaders and equalization of the tank component; add a new secondary subsurface treatment utilizing a robust bioreactor (such as a membrane bioreactor or membrane aerated bioreactor); a new modular utility enclosure; a new emergency generator and fuel tank (powered by Liquid Petroleum Gas or Diesel); and an operational and permitted injection well disposal system via the Underground Injection Control program.

The Office of Planning and Sustainable Development (OPSD) has reviewed the transmitted material, and has the following comments to offer:

1 Hawai‘i Coastal Zone Management (CZM) Program
The CZM area is defined as “all lands of the State and the area extending seaward from the shoreline to the limit of the State’s police power and management authority, including the U.S. territorial sea” (Hawai‘i Revised Statutes (HRS) § 205A-1).

Pursuant to HRS § 205A-4, in implementing the objectives of the CZM program, agencies shall consider ecological, cultural, historic, esthetic, recreational, scenic, open space values, coastal hazards, and economic development. As this project will need agency approvals, to aid the decision-making process the Draft Environmental Assessment (Draft EA) should include a disclosure of project alignment with HRS § 205A-2, as amended. Furthermore, compliance with HRS § 205A-2 is an important component for meeting the requirements of HRS Chapter 343.

2 Special Management Area (SMA)
Based on the information available to us, the project area appears to be within the SMA as delineated by the County of Kaua‘i. Given that the subject Environmental Assessment (EA) may serve as a supporting document for a SMA Use Permit application, we recommend that the EA specifically discuss the compliance with the requirements of SMA use by consulting with the County of Kaua‘i, Department of Planning. The Draft EA should also include any applicable SMA Use permits in place for the existing wastewater treatment system. Furthermore, the Draft EA should provide a regional location map and include the project site’s proximity and relation to the designated SMA boundary and the shoreline.

3 Climate Change Adaptation / Sea Level Rise (SLR)
The Hanalei Colony Resort and its current and proposed wastewater system are within close proximity to the Pacific Ocean. Thus, this site is vulnerable to the natural threats associated with coastal areas such as shoreline flooding, storm surges, shoreline erosion, and related natural disasters associated with climate change. To assess potential impacts of SLR to the Hanalei Colony Resort’s wastewater treatment system, we suggest the Draft EA refer to the findings of the Hawai‘i Sea Level Rise Vulnerability and Adaptation Report 2017, accepted by the Hawai‘i Climate Change Mitigation and Adaptation Commission.

The Report, and Hawaii Sea Level Rise Viewer at https://www.pacioos.hawaii.edu /shoreline/slr-hawaii/ particularly identifies a 3.2-foot sea level rise exposure area across the main Hawaiian Islands, which may occur in the mid to latter half of the 21st century. The Draft EA should provide a map of 3.2-foot sea level rise exposure area in relation to the project area, and consider site-specific mitigation measures, including setbacks from the shoreline to limit erosion during the life of the proposed structure, in response to the potential impacts of 3.2-foot SLR.

4 Stormwater Runoff, Erosion, and Water Resources
Pursuant to Hawaii Administrative Rules (HAR) § 11-200.1-18(d)(7) – identification and analysis of impacts and alternatives considered; to ensure that nearshore marine resources along the coastal regions of Kauaʻi remain protected, the negative effects of stormwater inundation and sediment loading surrounding the proposed project site, ensuing from roadway improvements during the construction and operational phase should be evaluated.

Issues that may be examined include, but are not limited to, project site characteristics in relation to flood and erosion prone areas, vulnerability of the nearshore environment from the WWTS, and any increase of permeable surfaces that may lead to an increased volume or rate of stormwater runoff. Developing mitigation measures for the protection of surface water resources and the coastal ecosystem should take this into account, pursuant to HAR § 11-200.1-18(d)(8).

If you have any questions regarding EA comments, please contact Joshua Hekekia at (808) 587-2845 or Shichao Li on Special Management Area issues at (808) 587-2841.

Sincerely,

Mary Alice Evans

Mary Alice Evans,
Interim Director

LAULEA
ENGINEERING, LLC

1314 S King St #705
Honolulu, HI 96814
info@laulealLc.com
www.laulealLc.com

August 11, 2023

ATTN: Alec Wong, P.E.
DOH Clean Water Branch
2827 Waimano Home Rd.
Hale Ola Building, Room 225
Pearl City, HI 96782-1487

**Subject:** Hanalei Colony Resort Wastewater Treatment System Replacement Project
5-7130 Kuhio Highway, Hanalei, Kauai, Hawaii, TMK (4) 5-8-011:027

Dear Sir or Madam,

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    - A recirculating Denitrification tank and Nitrification tank/membrane unit
    - A coagulant dosing unit
    - UV disinfection system

LAULEA
ENGINEERING, LLC

1314 S King St #705
Honolulu, HI 96814
info@lauleallc.com
www.lauleallc.com

- A new modular utility enclosure
- A new emergency generator and fuel tank (LPG or Diesel)
- An operational and permitted via the UIC program injection well disposal system
    - Pumped and Cleaned before reuse, or,
    - Injection well modification via UIC program compliance
    - Piping to injection wells

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Please direct your comments to Brian Carroll via e-mail: Brian@lauleallc.com, or phone (808) 389-8267.

Very Respectfully,

Brian Carroll
Sr. Environmental Scientist
Laulea Engineering, LLC

**Enclosures:**
Figure 1: Special Management Area Map
Figure 2: Site Map

**JOSH GREEN, M.D.**
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

**KENNETH S. FINK, MD, MGA, MPH**
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

**STATE OF HAWAI'I**
**DEPARTMENT OF HEALTH**
**KA 'OIHANA OLAKINO**
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

07016CMHK.23

July 28, 2023

**MEMORANDUM**

SUBJECT: Clean Water Branch Standard Project Comments

TO: Agencies and Project Owners

FROM: DARRYL LUM, P.E., CHIEF
Clean Water Branch

**This memo is provided for your information and sharing. You are encouraged to share this memo with your project partners, team members, and appropriate personnel.**

The Department of Health (DOH), Clean Water Branch (CWB) will no longer be responding directly to requests for comments on the following documents (Pre-consultation, Early Consultation, Preparation Notice, Draft, Final, Addendums, and/or Supplements):

- Environmental Impact Statements (EIS)
- Environmental Assessments (EA)
- Stream Channel Alteration Permits (SCAP)
- Stream Diversion Works Permits (SDWP)
- Well Construction/Pump Installation Permits
- Conservation District Use Applications (CDUA)
- Special Management Area Permits (SMAP)
- Shoreline Setback Areas (SSA)

For agencies or project owners requiring DOH-CWB comments for one or more of these documents, please utilize the DOH-CWB Standard Comments below regarding your project's responsibilities to maintain water quality and any necessary permitting. DOH-CWB Standard Comments are also available on the DOH-CWB website located at: http://health.hawaii.gov/cwb/.

## DOH-CWB Standard Comments

The following information is for agencies and/or project owners who are seeking comments regarding environmental compliance for their projects with the Hawaii Administrative Rules (HAR), Chapters 11-53, 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program.

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

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

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

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

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for point source water pollutant discharges into State surface waters (HAR, Chapter 11-55). Point source means any discernible, confined, and discrete conveyance from which pollutants are or may be discharged.

    For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for a NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

    The DOH, Environmental Health Administration (EHA) e-Permitting Portal received Cross-Media Electronic Reporting Rule (CROMERR) certification by the Environmental Protection Agency (EPA) for electronic signature. Currently, Applicants and Permittees may now certify and submit EHA Electronic Signature Forms electronically through the EHA e-Permitting Portal without the need to physically send in an ink signature and CD/DVD/flash drive.

Beginning January 31, 2023, the DOH-CWB will only utilize electronic signature e-Permitting forms and discontinue the hard-copy signature forms. All hard-copy signature certification e-Permitting forms, including compliance forms, will be inactivated.

The electronic signature forms will require electronic signature approval to submit a form to the CWB. For details on how to obtain the electronic signature approval please visit CWB website located at: https://health.hawaii.gov/cwb/announcements/cwb-announces-new-requirement-for-electronic-signature-approval-for-all-submissions-beginning-january-31-2023/.

The NPDES NOI or application will be processed after the filing fees submitted and payable to the "State of Hawaii" in the form of a pre-printed check, cashier's check, money order, or as otherwise specified by the director is received by the CWB.

Some of the activities requiring NPDES permit coverage include, but, are not limited to:

a. Discharges of Storm Water.

   i. For Construction Activities Disturbing One (1) or More Acres of Total Land Area.

      By HAR Chapter 11-55, an NPDES permit is required before the start of the construction activities that result in the disturbance of one (1) or more acres of total land area, including clearing, grading, and excavation. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale.

   ii. For Industrial Activities for facilities with primary Standard Industrial Classification (SIC) Codes regulated in the Code of Federal Regulations (CFR) at 40 CFR 122.26(b)(14)(i) through (ix) and (xi). If a facility has more than one SIC code, the activity that generates the greatest revenue is the primary SIC code. If revenue information is unavailable, use the SIC code for the activity with the most employees. If employee information is also unavailable, use the SIC code for the activity with the greatest production.

   iii. From a small Municipal Separate Storm Sewer System (along with certain non-storm water discharges).

b. Discharges to State surface waters from construction activity hydrotesting or dewatering.

c. Discharges to State surface waters from cooling water applications.

d. Discharges to State surface waters from the application of pesticides (including insecticides, herbicides, fungicides, rodenticides, and various other substances to control pest) to State waters.

e. Well-Drilling Activities.

Any discharge to State surface waters of treated process wastewater effluent associated with well drilling activities is regulated by HAR Chapter 11-55. Discharges of treated process wastewater effluent (including well drilling slurries, lubricating fluids wastewater, and well purge wastewater) to State surface waters requires NPDES permit coverage.

NPDES permit coverage is not required for well pump testing. For well pump testing, the discharger shall take all measures necessary to prevent the discharge of pollutants from entering State waters. Such measures shall include, if necessary, containment of initial discharge until the discharge is essentially free of pollutants. If the discharge is entering a stream or river bed, best management practices (BMPs) shall be implemented to prevent the discharge from disturbing the clarity of the receiving water. If the discharge is entering a storm drain, the discharger must obtain written permission from the owner of the storm drain prior to discharge. Furthermore, BMPs shall be implemented to prevent the discharge from collecting sediments and other pollutants prior to entering the storm drain.

3. A Section 401 Water Quality Certification (WQC) may be required if your project/activity:

a. Requires a federal license or permit; and

b. May result in a discharge into waters of the United States (WOTUS).

"License or permit" means any permit, certificate, approval, registration, charter, membership, statutory exemption, or other form of permission granted by an agency of the federal government to conduct any activity which may result in any discharge.

The term “discharge” is defined in Clean Water Act, Subsections 502(16), 502(12), and 502(6).

Examples of “discharge” include, but are not limited to, allowing the following pollutants to enter WOTUS from the surface, or in-water: solid waste, rock/sand/dirt, heat, sewage, construction debris, any underwater work, chemicals, fugitive dust/spray paint, agricultural wastes, biological materials, industrial wastes, concrete/sealant/epoxy, and washing/cleaning effluent.

Determine if your project/activity requires a federal permit, license, certificate, approval, registration, or statutory exemption by contacting the appropriate federal agencies (e.g. Department of the Army (DA), U.S. Army Corps of Engineers (COE), Pacific Ocean Division Honolulu District Office (POH) Tel: (808) 835-4303; U.S. Environmental Protection Agency, Region 9 Tel: (415) 947-8021; Federal Energy Regulatory Commission Tel: (866) 208-3372; U.S. Coast Guard Office of Bridge Programs Tel: (202) 372-1511). If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the COE-POH regarding their DA permitting requirements.

To request an individual Section 401 WQC, you must complete and submit the Section 401 WQC application together with $1,000 filing fee made payable to the "State of Hawaii" in the form of a check or other method specified by the department. This application is available on the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/.

The processing of a Section 401 WQC application will begin after the CWB has received filing fee. The processing of a Section 401 WQC application is also subject to the compliance with 40 CFR §121 requirements.

Beginning January 31, 2023, the DOH-CWB will only utilize electronic signature e-Permitting forms and discontinue the hard-copy signature forms. All hard-copy signature certification e-Permitting forms, including compliance forms, will be inactivated.

The electronic signature forms will require electronic signature approval to submit a form to the CWB. For details on how to obtain the electronic signature approval please visit CWB website located at: https://health.hawaii.gov/cwb/announcements/cwb-announces-new-requirement-for-electronic-signature-approval-for-all-submissions-beginning-january-31-2023/.

Please see HAR, Chapters 11-53 and 11-54 for the State's Water Quality Standards and for more information on the Section 401 WQC. HAR, Chapters 11-53 and 11-54 are available on the CWB website at: http://health.hawaii.gov/cwb/.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapters 11-53 and 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation and up to two (2) years in jail.

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

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

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

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

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

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

LAULEA
ENGINEERING, LLC

1314 S King St #705
Honolulu, HI 96814
info@laulealLc.com
www.laulealLc.com

August 11, 2023

ATTN: Kauai Team Manager
US Fish and Wildlife, Pacific Office
300 Ala Moana Blvd. Room 3-122
Honolulu, HI 96850

**Subject:** Hanalei Colony Resort Wastewater Treatment System Replacement Project
5-7130 Kuhio Highway, Hanalei, Kauai, Hawaii, TMK (4) 5-8-011:027

Dear Sir or Madam,

Laulea Engineering, LLC is presently preparing an Environmental Assessment [EA] study for the replacement of the wastewater treatment infrastructure at the Hanalei Colony Resort [HCR] located at 5-7130 Kuhio Highway in Hanalei, Kauai, Hawaii (Figure 1, hereinafter referred to as the "Site").

The existing wastewater treatment at the Site is indicated by available records to be at least 40 years old and consists of seven (7) separate cavitettes (aka aerobic treatment units [ATUs]) that service thirteen (13) buildings with four (4) units each for a total of fifty-two (52) units. Each of the cavittettes contain a primary 500-gallon aerated tank and a secondary 800-gallon aerated tank. Each separate treatment system utilizes a 1.1-hp blower and operates on a "4-hours on and 2-hours off" schedule. Treated effluent is then discharged into seven (7) active permitted injection wells. The existing wastewater treatment aging infrastructure will be modernized to be brought into compliance with current Hawaii Department of Health regulations and to limit any wastewater/sewage releases that may occur due to future deterioration or increases in wastewater flow generated by HCR.

The proposed replacement wastewater treatment plant [WWTP] will be subsurface and consist of the following:

- Reuse of the cavitettes after verification of their condition as preloaders and equalization [EQ] AND/OR installation of an EQ tank component
- A new secondary subsurface treatment utilizing a robust bioreactor (such as a membrane bioreactor [MBR] or membrane aerated bioreactor [MABR] which will include:
    - An Integrated Sludge Storage Tank
    - A recirculating Denitrification tank and Nitrification tank/membrane unit
    - A coagulant dosing unit
    - UV disinfection system
- A new modular utility enclosure

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- A new emergency generator and fuel tank (LPG or Diesel)
- An operational and permitted via the UIC program injection well disposal system
    - Pumped and Cleaned before reuse, or,
    - Injection well modification via UIC program compliance
    - Piping to injection wells

The proposed project will be constructed within the Special Management Area [SMA], which triggers the requirement for an EA under Chapter 343 of the Hawaii Revised Statutes. The draft EA is being prepared to comply with the State's environmental policy and to give appropriate regards to any potential environmental, economic, and/or technical impacts. We are notifying involved stakeholders and potentially interested parties to provide commentary or the inquires for potential concerns that will be addressed in the draft and final EA.

A draft copy of the EA will be made available for your review. A copy of the draft EA will also be placed in the Princeville Public Library, 4343 Emmalani Dr, Princeville, Kauai, for a 30-day public comment period to be held early to mid 2024.

Please direct your comments to Brian Carroll via e-mail: Brian@laulealLc.com, or phone (808) 389-8267.

Very Respectfully,

Brian Carroll
Sr. Environmental Scientist
Laulea Engineering, LLC

**Enclosures:**
Figure 1: Special Management Area Map
Figure 2: Site Map

LAULEA ENGINEERING

**Brian Carroll <brian@laulealLc.com>**

# 2023-0120143-S7-001 Technical Assistance for the Proposed Hanalei Colony Resort Wastewater Treatment System Replacement Project, Kaua'i

**Dang, Charmian I** <charmian_dang@fws.gov> Thu, Aug 31, 2023 at 6:20 AM
To: "brian@laulealLc.com" <brian@laulealLc.com>

Dear Mr. Carroll,

Attached you will find the FWS Pacific Islands Fish and Wildlife Office's response to your Technical Assistance request for the above named project.

We thank you for your efforts to conserve listed species and native habitats. Please contact me should you have any questions pertaining to this response or require further guidance. When referring to this project, please include this reference number: 2023-0120143-S7-001.

The Pacific Island Fish and Wildlife Office (PIFWO) is transitioning to the use of the Information for Planning and Consultation (IPaC) online portal, https://ipac.ecosphere.fws.gov/, for federal action agencies and non-federal agencies or individuals to obtain official species lists, including threatened and endangered species and designated critical habitat in your project area. Using IPaC expedites the process for species list distribution and takes minimal time. Therefore, the IPaC list would fulfill your request for a species list. Since we have already written a response, you can use the response provided for this project and disregard the IPaC species list. Please find step by step instructions attached to use IPaC for future projects, and feel free to share with additional project partners.

For recommended avoidance and minimization measures, you can visit the following webpage https://www.fws.gov/office/pacific-islands-fish-and-wildlife/library

Aloha,
Charmian Dang

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Charmian Dang
U. S. Fish and Wildlife Biologist
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850
808-792-9400

**2 attachments**

**2023-0120143-S7-001 Hanalei Colony Resort Wastewater Treatment System Replacement Kauai.pdf**
451K

**IPaC Info Letter_Species List Instructions_PIFWO_20Apr2022_Final.pdf**
1532K
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

# United States Department of the Interior

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


In Reply Refer To:
2023-0120143-S7-001

August 30, 2023

Mr. Brian Carroll
Laulea Engineering, LLC
1314 S. King St., #705
Honolulu, Hawai‘i 96814

Subject: Technical Assistance for the Proposed Hanalei Colony Resort Wastewater Treatment System Replacement Project, Kaua‘i

Dear Mr. Carroll:

Thank you for your August 11, 2023 letter, requesting technical assistance for the proposed Hanalei Colony Resort Wastewater Treatment System Replacement Project located at 5-7130 Kūhiō Highway in Hanalei, on the island of Kaua‘i [TMK: (4) 5-8-011:027]. Hanalei Colony Resort proposes to replace their existing wastewater treatment system.

The existing wastewater treatment infrastructure at Hanalei Colony Resort is at least 40 years old and consists of seven separate cavitettes (aka aerobic treatment units) that service 13 building with four units each for a total of 52 units. Each of the cavitettes contain a primary 500-gallon aerated tank and a secondary 800-gallon aerated tank. Each separate treatment system utilizes a 1.1-hp blower and operates on a “4-hours on and 2-hours off” schedule. Treated effluent is then discharged into seven active permitted injection wells. The purpose of the project is to modernize existing wastewater treatment aging infrastructure to follow current Hawai‘i Department of Health regulations. The proposed project will also address wastewater/sewage releases that may occur due to future deterioration or increases in wastewater flow generated by Hanalei Colony Resort. The proposed project will be constructed within the Special Management Area, which triggers the requirement for an Environmental Assessment under Chapter 343 of the Hawai‘i Revised Statutes.

The proposed replacement wastewater treatment plant will be subsurface and consist of the following:

- Reuse of the cavitettes after verification of their condition as preloaders and equalization and/or installation of an equalization tank component;

- A new secondary subsurface treatment utilizing a robust bioreactor (such as a membrane bioreactor or membrane aerated bioreactor, which will include:
  - An Integrated Sludge Storage Tank,
  - A recirculating Denitrification tank and Nitrification tank/membrane unit,
  - A coagulant dosing unit, and
  - Ultraviolet disinfection system.
- A new modular utility enclosure;
- A new emergency generator and fuel tank (liquefied petroleum gas or diesel); and
- An operational and permitted via the Underground Injection Control program injection well disposal system.
  - Pumped and Cleaned before reuse, or,
  - Injection well modification via Underground Injection Control program compliance, and
  - Piping to injection wells.

Our letter has been prepared under the authority of and in accordance with provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.), as amended (ESA). We have reviewed the information you provided and pertinent information in our files, as it pertains to federally listed species in accordance with section 7 of the ESA. Our data indicate the following species may occur or transit through the vicinity of the proposed project area: the endangered ʻuaʻu (Hawaiian petrel, *Pterodroma sandwichensis*), endangered Hawaiʻi distinct population segment (DPS) of the ʻakēʻakē (band-rumped storm-petrel, *Hydrobates castro*), and threatened ʻaʻo (Newell's shearwater, *Puffinus newelli*) (hereafter collectively referred to as Hawaiian seabirds); the endangered ʻōpeʻapeʻa (Hawaiian hoary bat, *Lasiurus cinereus semotus*); and the threatened nēnē (Hawaiian goose, *Branta sandvicensis*). We provide the following to assist you in preparation of your project.

<u>Hawaiian Seabirds</u>
Hawaiian seabirds may traverse the project area at night during the breeding, nesting, and fledging seasons (March 1 through December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable to light attraction.

To avoid and minimize potential project impacts to Hawaiian seabirds we recommend you incorporate the following measures into your project:

- Fully shielded all outdoor lights so the bulb can only be seen from below bulb height and only used when necessary.
- Install automatic motion sensor switches and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
- Avoid nighttime construction during the seabird fledging period (September 15 through December 15).

‘Ōpe‘ape‘a

‘Ōpe‘ape‘a roosts in both exotic and native woody vegetation across all islands and will leave their young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, June 1 through September 15, there is a risk that young bats could inadvertently be harmed or killed, since they are too young to fly or may not move away. ‘Ōpe‘ape‘a forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.

To avoid and minimize impacts to the endangered ‘ōpe‘ape‘a we recommend you incorporate the following applicable measures into your project:

- Do not disturb, remove, or trim woody plants greater than 15 feet tall during the ‘ōpe‘ape‘a birthing and pup rearing season (June 1 through September 15).
- Do not use barbed wire for fencing.

Nēnē

Nēnē are found on the islands of Hawai‘i, Maui, Moloka‘i, and Kaua‘i. They are observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. Threats to the species include introduced mammalian and avian predators, wind facilities, and vehicle strikes.

To avoid and minimize impacts to nēnē we recommend you incorporate the following measures into your project:

- Do not approach, feed, or disturb nēnē.
- If nēnē are observed loafing or foraging within the project area during the breeding season (September through April), have a biologist familiar with nēnē nesting behavior survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).
- Cease all work immediately and contact the Service for further guidance if a nest is discovered within a radius of 150 feet of the proposed project, or a previously undiscovered nest is found within the 150-foot radius after work begins.
- In areas where nēnē are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

A 4(d) rule was established at the time the nēnē was downlisted to threatened status. Under the 4(d) rule, the following actions are not prohibited under the Act, provided the additional measures described in the downlisting rule are adhered to:

- Take by landowners, or their agents, conducting intentional harassment in the form of hazing or other deterrent measures not likely to cause direct injury or mortality, or nēnē surveys.
- Take that is incidental to conducting lawful control of introduced predators or habitat management activities for nēnē.

- Take by authorized law enforcement officers for the purpose of aiding or euthanizing sick, injured, or orphaned nēnē; disposing of dead specimens; and salvaging a dead specimen that may be used for scientific study.

We appreciate your efforts to conserve protected species. If you have questions regarding this response, please contact Charmian Dang, Fish and Wildlife Biologist (phone 808-792-9400, email: Charmian_Dang@fws.gov). When referring to this project please include this reference number: 2023-0120143-S7-001.

Sincerely,

Acting Island Team Manager
O‘ahu, Kaua‘i, Northwest Hawaiian Islands and American Samoa

# APPENDIX C

# Basis of Design and Engineering Report

# BASIS OF DESIGN ENGINEERING REPORT

# NEW WASTEWATER TREATMENT PLANT
# HANALEI COLONY RESORT
# 5-7130 KUHIO HIGHWAY, HANALEI, HI 96714
# TMK: (4) 5-8-011:027

**Prepared For:**

Hanalei Colony Resort
AOAO, Attn: Jonathan Kuharic
PO Box 206
Hanalei, Hawai‘i 96714

**Prepared By:**

LAULEA
ENGINEERING, LLC
PO Box 25988
Honolulu, Hawai‘i 96825

AUGUST 2024

## TABLE OF CONTENTS



## SUPPLEMENTAL REFERENCE ATTACHMENTS

## ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

| | |
|---|---|
| BOD5 | Biochemical Oxygen Demand, 5-day |
| COD | Chemical Oxygen Demand |
| COTG | Clean-Out to Grade |
| DLIR | State of Hawai‘i Department of Labor and Industrial Relations |
| DOH WWB | State of Hawai‘i Department of Health Wastewater Branch |
| DOH SDWB | State of Hawai‘i Department of Health Safe Drinking Water Branch |
| EPA | United States Environmental Protection Agency |
| F/M | Food to microorganism ratio |
| FOG | Fats, Oils, and/or Grease |
| ft² | Square foot or square feet |
| GI | Grease Interceptor |
| gpd | Gallon per day |
| HAR §11-62 | Hawai‘i Administrative Rules Title 11 Chapter 62 |
| HIOSH | Hawai‘i Occupational Safety and Health |
| L | Liter |
| lb | Pounds |
| mg | Milligrams |
| mpi | Minutes per inch |
| MSL | Mean Sea Level |
| OSHA | Occupational Safety and Health Administration |
| Owner | Subject property owner, which may be Owner(s), Trustee(s), Executor(s), etc. |
| pH | Potential of hydrogen; quantitative measure of the acidity or alkalinity of a solution |
| TMK | Tax Map Key |
| TSS | Total Suspended Solids |
| WWTP | Wastewater Treatment Plant |

# 1. PROJECT BACKGROUND

This new replacement WWTP project involves the real property with the following information:

| | |
|---|---|
| Tax Map Key (TMK): | (4) 5-8-011:027 |
| Project Address: | 5-7130 Kuhio Highway, Hanalei, HI 96714 |
| Total Land Area: | 3.69 acres |
| Property Class: | Condo Master |

Hanalei Colony Resort is situated in Hanalei on the northern coast of the island of Kauai. The real estate is bordered by a commercial property on the Northwest end and residential properties on the South end, with Kuhio Highway Southwest of the property. The Pacific ocean and beach lines the North and East sides of the property. There are thirteen (13) condominium buildings, with fifty-two (52) units, with thirteen (13) condominium buildings housing four (4) two-bedroom units each with direct sources of wastewater. There are currently seven (7) cavitettes serving the residences and an administration building, and an additional aerobic treatment system services the pool building/cabana facility. Each of these systems disposes of its effluent into seven (7) separate injection wells scattered across the property and permitted by HDOH SDWB under the UIC program.

There is a common area that has a swimming pool and its comfort station building that house two (2) restrooms (one women's and one men's), and a sink and outdoor shower area, which is centrally located on the property. The common area swimming pool is open for use between the hours of 7:00 AM to 10:00 PM; there is no staff assigned. Approximately twenty (20) people (guests and employees) use the common area and swimming pool per day. This common area is not included in the WWTP design as it has a separate upgraded septic system and leachfield.

The current WWTP is beyond the age used for typical useful service life and was installed at the time of the condominium development in the 1960s, and has since been modified to include a 1.1 horsepower blower for each system to aid in odor control. The current operations include four (4) hours of on-time and two (2) hours of off-time. Only the secondary tanks have been receiving regular pump-outs, which are scheduled in rotation such that each secondary tank gets pumped once per seven (7) months. The water quality data results from 2016 and 2017 indicate that most of the systems are on occasion not meeting the 60/60 mg/L BOD and TSS requirements.

This project will replace the existing seven (7) wastewater systems with a new, larger and robust, permanent WWTP. The new WWTP will receive influent from all thirteen (13) residences and the administrative building. The existing seven (7) cavitettes connected to the will be re-utilized as redundant equalization basins and connected to the new WWTP. Treated effluent will continue to be disposed into three (3) of the seven (7) existing injection wells.

# 2. DESIGN CRITERIA

The daily average design flow (in gpd) is calculated in the table below based on HAR §11-62:

| TYPE OF FACILITY | UNITS | GPD/UNIT | TOTAL IN GPD |
|---|---|---|---|
| Condominium Bedroom Units | 52 | 400 | 20,800 |
| Employees in Office | 2 | 20 | 40 |
| Contingency | -- | -- | 160 |
| **AVERAGE DAILY DESIGN CAPACITY** | -- | -- | **21,000** |

An average daily design flow of 21,000 gpd shall be used as the daily treatment capacity of the new proposed WWTP. For peak flow events, a safety factor multiplier of 1.4 was applied, thus, allowing for higher surge flows such as during storm events flowing into the new proposed WWTP; it will be designed to withstand a peak flow of 30,000 gpd. Influent BOD5 and TSS concentrations of 300 mg/L were used as an assumption per industry standard approximation for municipal waste, and also were compared with lab data via Hanalei Colony Resort's assigned licensed wastewater operator, while legal effluent limitations for disposal are set at 60 mg/L [HAR 11-62-26(b)(1)(D) & HAR 11-62-26(b)(2)(D)].

## 3. GENERAL WASTEWATER TREATMENT SYSTEM DESCRIPTION

The proposed wastewater treatment system will consist of the following:

- New Wet Well / Lift Station
- Equalization
- Primary Treatment Tank/System
  - Integrated Clarifier Tank
  - MBBR Reactor
  - Integrated Sludge Holding Tank
  - UV Treatment
  - Electromagnetic Flowmeter
- Existing Injection Wells (One (1) Primary and Two (2) Backup adding to 100% Redundancy)

### 3.1 Wet Well / Lift Station

The sewer laterals from the existing buildings conveys domestic wastewater to 7 existing cavitettes. Two new 6' diameter wet wells will be installed, one in each lot, and will be equipped with dual submersible lift pumps that operate at 3 phase 208 volts power from a branch circuit from the existing pool house electrical power. The pumps will convey the wastewater via force main to the new WWTP.

### 3.2 Equalization Tank

The equalization (EQ) utilized will be the existing 7 tank system. From here, the equalized flow will flow into the new lift stations to be conveyed via forcemain to pass through a screen above the new WWTP to remove large solids. The wastewater liquids will then flow directly to the first SSI MBBR reactor tank.

## 3.3 Treatment System: SSI MBBR Treatment System

There are two treatment tanks using biological treatment and MBBR media in the system. Influent will enter the first treatment tank after passing through a fine screen. SSI MBBR uses EEVE675TM Media made from virgin HDPE of prime resin. This media allows the growth of bacteria on the surface of the media and aeration enables bacteria to grow and treat the influent. After the first treatment tank, influent will travel into the clarifier/settling tank before travelling into the next MBBR treatment tank. From here, effluent will pass through UV treatment before heading to injection wells.

The SSI MBBR system sufficiently meets the requirements of DOH WWB set forth in §HAR 11-62, Subchapter 2 Wastewater Treatment Works. Effluent from the SSI MBBR will be treated to a maximum of 30 mg/L in BOD5 concentration and 30 mg/L in Suspended Solids.

## 3.4 UV Treatment and Electromagnetic Flowmeter

The new flowmeter is proposed to be a MagFlux® 7200 Sensor 3" ANSI/150 psi w/Display. See Attachment C for the Flowmeter Specification and Details.

## 3.5 Sludge Holding Tank

The SSI WWTP will include a sludge holding tank at the end of the multi-stage process to store the remaining sludge in a volume holding capacity of approximately 5 days before requiring to be pumped and hauled off to a proper and appropriate disposal location. Fine bubble aeration will be used to aerate the sludge tank as well. Close monitoring of the clarifier capacity will be necessary for the first few months. After monitoring steady state conditions, the operator will be able to provide an accurate estimated frequency/schedule to when the clarifier and wet well need to be pumped.

## 3.6 Utility Enclosure and WWTP Perimeter Fencing / Wall

The WWTP will be located on the west side of the property in the pool area, the proposed location for the new primary/standby blowers and WWTP control panels will be in the existing shed/pool house. The existing pool house is a non-occupied structure. Per the HAR, Title 11, Chapter 46, Community Noise Control Document, a 50 dBA noise level is to be met at the neighboring property lines. The noise generating equipment (i.e., blowers and pumps) will therefore all be housed in the utility enclosure. The blowers will be installed inside the room with individual sound enclosures to reduce the noise level. The emergency generator will be installed on a reinforced pad next to the WWTP. A new wooden picket fence painted brown approximately 6 feet high with a locking access door will be retained and installed around the perimeter of the WWTP tanks to limit public access. Foliage and landscaping will help to hide the WWTP from public view while also meeting setback requirements from the system.

## 4. PROCESS PARAMETERS

The new wastewater treatment plant design BOD5 and TSS loading is based on reasonable loading for residential municipal sewage. The wastewater is assumed to contain relatively low levels of fat, oils and grease (FOG) due to the general nature of residential activities.

| Overall MBBR Design | Units | Value |
|---|---|---|
| Number of Treatment Trains (in Parallel) | # x GPD | 1 x 21,000 |
| | # x CMD | 1 x 79.5 |
| Number of MBBR Stages per Train | # | 2 |
| Total Number of Biological Stages | # | 2 |
| MBBR HRT | hrs | 4.6 |
| MBBR dimension, each tank | L (ft) x W (ft) x SWD (f | 7 x 7 x 5.5 |
| MBBR Volume, each tank | ft3 | 269.5 |
| MBBR Footprint, each tank | ft2 | 49 |
| Total Volume of Media | ft3 | 211.9 |
| | m3 | 6 |
| BioFilm Carrier Model | -- | SSI EEVE675 |
| Total Surface Area | m2/m3 | 675 |
| Protected Surface Area | m2/m3 | 575 |
| % Fill | % | 40 |
| Diffusers, per tank | # | 16 |
| Airflow, per tank | SCFM | 30 |
| Diffuser Type | -- | ECD270-P-2mm |
| **Solids Holding Tank Design** | **Units** | **Value** |
| Dimensions | L (ft) x W (ft) x SWD (f | 7 x 7 x 5.5 |
| Volume | ft3 | 269.5 |
| Assume Sludge Production | GPD | 630 |
| HRT | hrs | 76.8 |
| **Clarifier Design** | **Units** | **Value** |
| Dimensions | L (ft) x W (ft) x SWD (f | 4 x 4 x 6 |

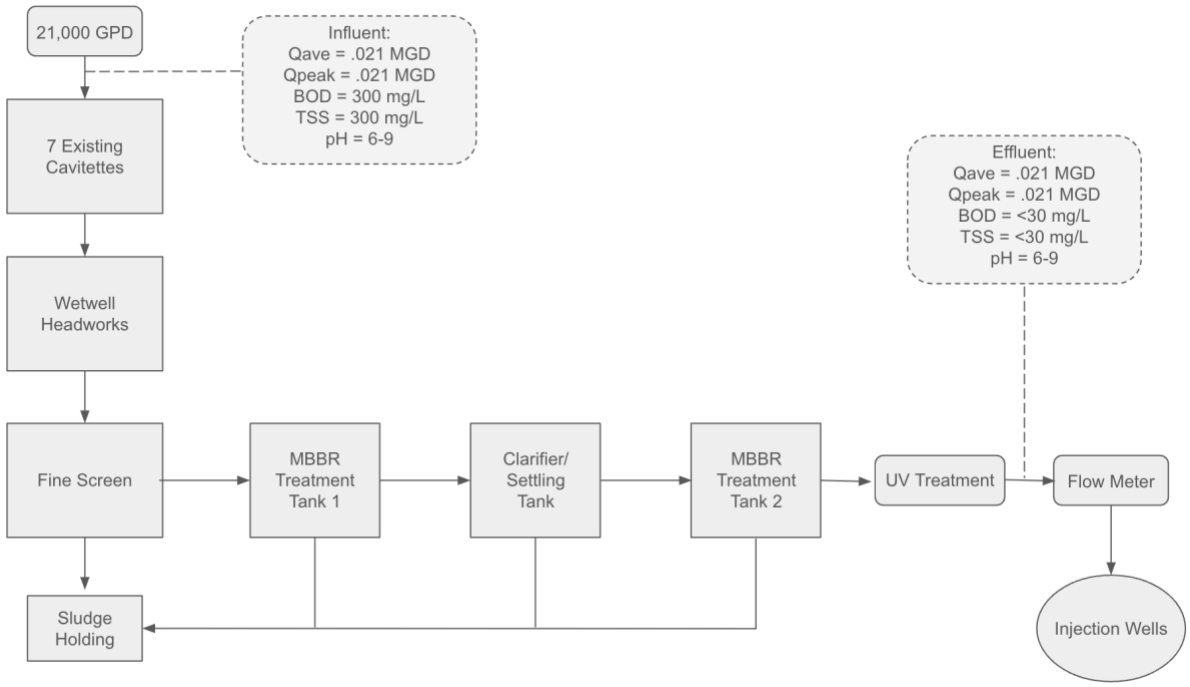


**Figure 4.1- Process Flow Diagram (Hydraulic Loading and Organic Capacities Shown)**

The wet well/trash tank is assumed to perform negligible treatment. Total after SSI MBBR:

% BOD5 Reduction from WWTP = 90%
% TSS Reduction from WWTP = 90%

## 5. ELECTRICAL AND EMERGENCY POWER

Electrical service will be provided by Kauai Island Utility Cooperative (KIUC) through a branch circuit from the Property's building circuit. The electrical components of the new WWTP will be connected to the existing on-site 208 volts 3-phase electrical lines.

Emergency power will be provided by a new diesel generator or equivalent equipment. The new generator will draw its fuel from a separate fuel tank source. The new generator will provide backup power to the WWTP blowers, motor controls and electrical panel(s), and the existing Wet Well/Lift Station.

## 6. EXISTING WASTEWATER EFFLUENT DISPOSAL AND SAMPLING

There are seven (7) existing Injection Wells, but only (3) of these wells are needed to meet the effluent disposal and 100% backup requirements. These wells will receive effluent treated by the wastewater treatment plant for disposal.

The effluent will gravity flow into a lift station where it will be pumped into the injection wells. Under UIC permit number UO-1305, each injection well is a 4-inch diameter shallow injection well (approximately 29 to 50 feet deep) that operates under gravity head.

## 8. SCUM, FOG DISPOSAL AND SLUDGE MANAGEMENT PLAN

Sludge, scum, FOG, and rubbish from the Wet Well/Lift Station and newly installed SSI MBBR WWTP will be vacuumed and trucked to nearby disposal facilities on a bi-weekly schedule.

The Hanalei Colony Resort AOAO will contract certified local pumping vendor(s) to extract and haul away sludge from the sludge holding tank to the nearest approved municipal wastewater treatment plant.

## 9. CONTROLS AND INSTRUMENTATION

The SSI MBBR WWTP supplier shall furnish a control system. The system shall include local control stations, motor starters, control switches, relays, and pilot lights. Control Panels shall be free standing, NEMA 4 enclosures. The panels shall be UL approved. Mounting pad and stand shall be the responsibility of the Installing Contractor. Motor starters shall be 208V/3Ph/60Hz power shall be provided.

## 10. OPERATIONS AND MAINTENANCE

Operations and Maintenance (O&M) manuals, including from the electrical vendor(s), shall be furnished during start-up. The manuals shall include installation, operation and maintenance instructions for all equipment provided. For WWTP startup, field personnel from SSI will perform a functional check of each item furnished and start-up of the process. During this time, the field representatives will provide operations training to the licensed operator retained by the AOAO, which shall include familiarization with the MBBR process, and review of the materials, equipment, appurtenances, and controls contained within the O&M manuals.

## 11. ESTIMATED PROCUREMENT AND CONSTRUCTION SCHEDULE

- Equipment Procurement (*Est. 1-2 months after DOH WWB review*)
    - SSI MBBR System and Utility Enclosure
- Mobilization of General Contractor (*Est. 1 month after GC is contracted*)
- WWTP Construction (*Est. 8 months*)
    - Three (3) Phases:
        - Shipping
        - Over-excavate, fill, concrete pad for WWTP, utility building, UV system and generator, install steel tank, electrical conduits/wiring, fencing, trenching, UV install, etc...
        - Seeding of newly installed WWTP, commissioning of new system
- DOH WWB inspection and Approval to Use/Operate (1-*2 months*)

## 12. ESTIMATED EQUIPMENT PROCUREMENT ROM COSTS

- SSI MBBR WWTP Treatment System (approx. $433,200)

- Utility Enclosure (*pending*)
- SSI MBBR Equipment Startup (*pending*)
- SSI MBBR Freight (approx. $60,000)
- Emergency Backup Generator (*pending*)
- UV Treatment (Pending)
- Electromagnetic Flowmeter (*pending*)

NOTE: Excludes construction labor and other costs, other required engineering consultants, and design/permitting related fees

## 13. REFERENCES

"Hawai‘i Administrative Rules", Department of Health, Chapter 62 of Title 11, Wastewater Systems, State of Hawai‘i, dated March 21, 2016 (hereafter called "HAR 11-62").

"Onsite Wastewater Treatment Systems Manual", Office of Water, Office of Research and Development, U.S. Environmental Protection Agency, dated February 2002 (hereafter called "EPA OWTSM").

## ATTACHMENTS

## ATTACHMENT A- Design Site Plan

## ATTACHMENT B- SSI MBBR Design Summary

## ATTACHMENT C- Flowmeter Specifications and Details

## ATTACHMENT D- UV System Specifications and Details

## ATTACHMENT E- Influent Laboratory Report

## ATTACHMENT F- BWS Billing and Consumption Data

# APPENDIX D

# Manufacturer's Literature

# SSI EEVolved™ MBBR

## HCR, HI –PP WWTP 0.021 MGD

## Submitted Date: January 5, 2024

## Type: STP, New, MBBR

## Revision Number : REV02

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# INTRODUCTION TO SSI

SSI was incorporated in 1995 with the goal of providing innovative, cost-conscious wastewater treatment solutions. SSI ensures a seamless continuum of project management, engineering and understanding of plant. As an industry leader for product innovation and streamlined integration, the choice to select SSI for your application links you with some of the highest performance and highest efficiency solutions available.

With references in the largest in the largest cities in the world, SSI is a trusted source for wastewater treatment. With a strong commitment to research and development, SSI's mission has been and will continue to be:

- Advance Process Technology through Innovation
- Provide Superior Quality Equipment
- Provide Superior Service
- Provide Superior Engineering and Process Expertise
- Provide Superior Process Understanding and Integration


Sincerely,

The Team at Stamford Scientific International

# EEVolved™ MBBR

## Rethink MBBR. SSI has created the EEVolved™ MBBR: Energy Efficient, Volumetrically Optimized, Low Volatile Effluent Discharge MBBR.

### The SSI Advantage

EEVolved MBBR for biological treatment utilizes innovative biofilm carrier technology with advanced integration to provide the most efficient MBBR process available.

### The SSI Design

EEVolved MBBR provides the lowest process HRT of any biological treatment process, enabling the use of advanced SSI aeration technologies. By combining advanced multi-layer PTFE fine bubble aeration with SSI biofilm carriers, SSI provides the highest volumetric efficiency of any biological treatment process available (compared to MBR, SBR, CAS, and Granular technologies).

**Engineered to Increase**

- Treatment Efficiency
- Hydraulic Capacity
- Resiliency
- Process Versatility
- Process Life Span
- Secondary Clarifier Efficiency

**Engineered to Reduce**

- Energy and Operating Cost
- Reactor Volume and HRT
- Control Complexity
- Operator Intervention
- Maintenance

# DESIGN CONCEPT

This proposal is generated using SSI's proprietary MBBR modeling program and is to be considered on preliminary basis unless otherwise stated. Design may be subject to modification. Detailed engineering will be provided at time of Order or following mutually agreed engineering contract. Please note that this proposal is focused on the Core MBBR (and secondary solids separation where required). Pretreatment, primary treatment and tertiary treatment are not currently included and assumed "by others" for the time being. SSI has ability to provide complete WWTP design and supply if required. Please find the preliminary design and proposal herein. Terms and Conditions are preliminary and may be subject to change prior to order confirmation. Process or Performance guarantees, when required, may be subject to price adjustment.

SSI System advantages

- Reduced treatment complexity
- Minimal control required
- Attached growth provides stability and will not wash out
- Reduced sludge production
- High bacterial population for increased volumetric efficiency
- Lowest energy MBBR (vs competitor MBBR systems)
- Typical Life > 20 years
- Quickest MBBR installation and startup period (vs competitor MBBR systems)
- Designed and develop by SSI Engineers (not 3rd parties)

Figure 1: SSI Biofilm Carrier MBBR/IFAS systems

# PRELIMINARY MBBR DESIGN CONCEPT

## Basis of Design

Influent and effluent values are shown below. The primary objective of the biological treatment is reduction of BOD and COD, and nitrification.

**Table 1: Basis of Design**

| Water Quality Parameter | Units | Influent (into MBBR) | Effluent Requirement |
|---|---|---|---|
| Average Daily Flow (ADF) | GPD<br>CMD | 21,000<br>79.5 | 21,000<br>79.5 |
| Peak Daily Flow (PDF) | GPD | 30,000 | 30,000 |
| $BOD_5$ | mg/l | 300 | ≤ 60 |
| $BOD_5$ Reduction | % | -- | 80% |
| Total Suspended Solids (TSS) | mg/l | 300 | ≤ 60 |
| Ammonia Nitrogen N-$NH_3$ | mg/l | 30* | -- |
| TKN | mg/l | 45* | -- |
| Alkalinity | mg/l | 375* | -- |
| WW Temp Min | °C | 20 | |
| WW Temp Max | °C | 35 | |
| Site elevation | masl | 10 | |

*assumed values

## Design Requirements/Assumptions:

- Primary treatment must be sufficient to reduce the TSS and FOG to adequate levels before entering the biological reactor.
- The information provided is assumed to be the maximum design values.
- In the absence of information, it is assumed that the water quality is sufficient for biological treatment including, but not limited to the following requirements:
    1. *Sufficient micronutrient is available to satisfy minimum biological requirements, as follows: 100 BOD : 5-10 N : 1-3 P*
    2. *pH is stabilized between 6.8-8*
    3. *BOD and COD are readily biodegradable*
    4. *No toxic or inhibitory compounds present*
    5. *All effluent values are assumed to be 24-hour composite, weekly average of clarified effluent*

## EEVolved™ MBBR Preliminary Design

### Table 2: MBBR Design Overview

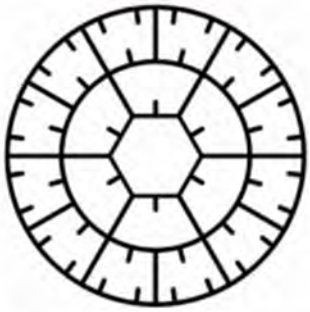
| Overall MBBR Design | Units | Value |
|---|---|---|
| Number of Treatment Trains (in Parallel) | # x GPD<br># x CMD | 1 x 21,000<br>1 x 79.5 |
| Number of MBBR Stages per Train<br>Total Number of Biological Stages | # | 2<br>2 |
| MBBR HRT | hrs | 4.6 |
| MBBR dimension, each tank | L (ft) x W (ft) x SWD (ft) | 7 x 7 x 5.5 |
| MBBR Volume, each tank | $ft^3$ | 269.5 |
| MBBR Footprint, each tank | $ft^2$ | 49 |
| Total Volume of Media | $ft^3$<br>$m^3$ | 211.9<br>6 |
| BioFilm Carrier Model | -- | SSI EEVE675 |
| Total Surface Area | $m^2/m^3$ | 675 |
| Protected Surface Area | $m^2/m^3$ | 575 |
| % Fill | % | 40 |
| Diffusers, per tank | # | 16 |
| Airflow, Per Tank | SCFM | 30 |
| Diffuser Type | -- | ECD270-P-2mm |
| **Solids Holding Tank Design** | **Units** | **Value** |
| Dimensions | L (ft) x W (ft) x SWD (ft) | 7 x 7 x 5.5 |
| Volume | ft3 | 269.5 |
| Assume Sludge Production | GPD | 630 |
| HRT | hrs | 76.8 |
| **Clarifier Design** | **Units** | **Value** |
| Dimensions | L (ft) x W (ft) x SWD (ft) | 4 x 4 x 6 |

## Biofilm Carrier Selection

The EEVE675$^{TM}$ has been selected for this treatment process,

# EEVE675$^{TM}$ Moving Media Data Sheet

EEVE675 ™ Media



Physical Properties:
Material: Virgin High Density Polyethylene (HDPE)
Specific Gravity: 0.96 +/- .01
Bulk Density: 125+/- 5 Kg/m3

Media Dimensions
Outer Diameter: 25 mm
Cylinder Length: 12 mm
Performance Characteristics
Total Surface Area: 675 $m^2/m^3$
Protected Surface Area: 575 $m^2/m^3$

**Figure 4: EEVE675 Data Sheet**

## Media Retention Screens

Media retention screens have been designed to minimize head loss between tanks and to optimize the movement of water and media throughout the tanks and around the screens. Screens are made of stainless-steel wedge wire. One end will be capped and the other will have a flange for connection to the tank.

Only effluent screens have been included in this proposal. If you plan to have a drain or overflow built into your tank, please talk to SSI about providing media retention screens for those connections as well.

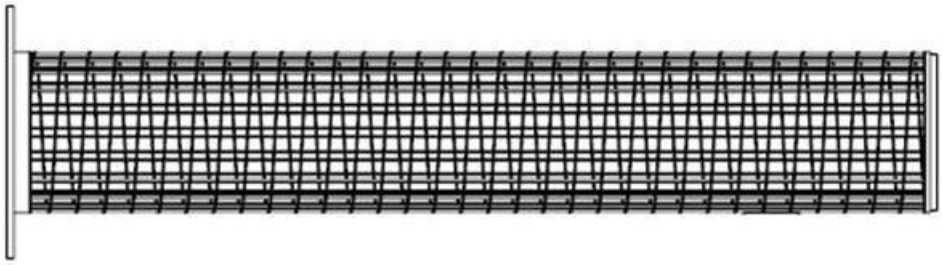


Figure 5: Example Media Retention Screen

## MBBR Aeration System

SSI's PTFE/PEEK fine bubble aeration systems are the perfect match with MBBR systems. The PTFE/PEEK coating reduces fouling and creep and minimizes required maintenance, all while creating a more efficient MBBR system.

SSI's fine bubble aeration systems are the key to our EEVolvedTM MBBR systems, which is why we call them "Energy Efficient, Volumetrically Optimized, Low Volatile Effluent Discharge" MBBRs.

A moisture purge system is used in all SSI fine bubble aeration systems to remove condensate from the piping system. Purging entrained water helps ensure even air distribution to all diffusers in a grid.

Figure 6: Example ECD Diffusers with PTFE Membranes

# SCOPE OF SUPPLY AND PRICE

SSI's scope of supply and price are shown in the table below.

**Table 3: SSI Scope of Supply – EEVolved™ MBBR System**

| # | Equipment | Quantity |
|---|---|---|
| 1 | **MBBR Biofilm Carriers**<br>EEVE675™ Media made from virgin HDPE of prime resin, USA production<br>• Carrier design shall allow for complete mix conditions within 6-8 hours of installation<br>• The biofilm carrier shall provide a circular disk with diameter of 25mm (+/- 2%) and shall provide a cylinder length 12mm (+/- 2%).<br>• The effective open area shall be no less than 87.5%.<br>• Internal protected surface area shall be 575 $m^2/m^3$<br>• Acceptable bulk density of carrier shall be > 125 kgs/m3<br>• Tensile strength shall be no less than 300 kg/cm2<br>• Elongation at break shall be no less than 500%<br>• Flexural modulus shall be no less than 12,500 kg/cm2<br>• Average wall thickness shall be > 0.3 mm<br>• Media packaged in 2.25m3 sacks + pallets, having 54m3 per container load. | 6 $m^3$ |
| 2 | **MBBR Full Fine Bubble Aeration**<br>Full System supply includes TBD qty ECD270-2-P 9-inch diffusers with grommet connections and 3" PVC piping with 304SS drop pipe. | TBD pcs (MBBR)<br>TBD pcs (Solids Holding) |
| 3 | **Effluent Retention Screens**<br>Wedge wire screens with minimum 80% opening, welded end cap, and flanged ANSI end for direct wall mount per tank. | 1 Lot |
| 4 | **Blowers – Process and Solids Holding**<br>(2) Process aeration blowers (1 duty, 1 standby) for aeration and mixing of process tank. Blowers shall be regenerative type. Estimated blower power 1 HP ea.<br>(2) Solids Holding Tank blowers (1 duty, 1 standby) for aeration and mixing of solids holding tank. Blowers shall be regenerative type. Estimated blower power 1 HP ea.<br>Blowers shall ship assembled and shall share a single enclosure.<br>Each set of blowers (2) blowers shall share (1) sound enclosure (2 sound enclosures total). | 4 Lot |

| | | |
|---|---|---|
| 5 | **Control Panel**<br>Control panel including; PLC, HMI, Motor Starters for (4) blowers described above, autodialer, and ancillaries required to complete the control panel. | 1 Lot |
| 6 | **Pumps**<br>Waste Activated Sludge Pumps – 1 duty 1 shelf spare | 2 Lot |
| 7 | **Package Treatment Tanks (2 MBBR + 1 SHT)**<br>Package treatment tank with total outside dimensions of ~7' L x 7' W x 7' H each. Two biological process stages and one solids holding tank. Tanks shall be Coated Carbon Steel coated with interior: two coats of Phenoline 341 (or equivalent) at 10-12 mils DFT each, exterior: two coats of Carboguard 890 (or equivalent) at 6 to 8 mils DFT each. Tanks are designed for 5' partial bury, and will ship with diffused aeration installed prior to shipment. Tanks shall have removable grating over tank to protect equipment from external debris. | 3 Tanks |
| 8 | **Lamella Style Clarifier**<br>Parkson (or equivalent) flat plate packaged clarifier. Improved footprint reduction over traditional hopper style clarifiers. | 1 Lot |
| | **Total, EX Works USA (USD)** | **$433,200.00** |

# TERMS AND CONDITIONS

1. Prices are provided in US Dollars (USD) and are valid for 15-days from date of submittal.
2. Electronic files: approval submittals, installation dwgs, shop dwgs, technical and relevant data, applicable calculations, equipment cut sheets, operation and maintenance manuals, etc. will be provided within 4-6-weeks after receipt of mutually accepted Purchase Order providing all necessary information to prepare submittal documents has been provided to SSI. A fee of $225.00 USD will be charged per additional hardcopy submittal set required, or for any additional documentation or hard copies required, depending nature and size.
3. Prices are Ex Works from the manufacturing facility. Freight/Taxes/Duties/Clearance is not included.
4. Unless otherwise noted all shipments are supplied loose for field assembly and installation.
5. Field assembly, installation, are not included within this contract price. All items are to be installed and inspected by contractor within 10-days of receipt.
6. SSI exclusions:
    i. Any items not specifically defined herein
    ii. Offloading, taxes, customs duties, brokerage, etc.
    iii. Assembly and installation other than previous defined above
    iv. Civil and structural engineering not included.
    v. Operation of equipment not included.
    vi. Electrical including motor control centers
7. Payment terms are subject to approval of SSIs Financial Department.
    i. 30% down payment with Approved Order.
    ii. 30% payment with submittal of engineering details.
    iii. 40% upon shipment, at site.
8. SSI Standard Terms and Conditions apply. Unless otherwise noted SSI's standard warranty/guarantee on the equipment supplied is for 18 months from the date of shipment or 12 months after the start up whichever occurs first. Warranty covers the workmanship and material of the listed items only. Any costs direct or indirect for transportation, site work, site repair/adjustments etc., are not covered under warranty. Further warranty is valid only when SSI or Its Representative/Associates approve/certify the installation. However as the inspection is done randomly certification on installation does not make SSI liable or responsible for any direct or indirect installation failure(s). Products manufactured by Seller are warranted to be free from defects in materials or workmanship for 18 months from date of shipment or 12 months from the date of startup, whichever comes first. Parts found to be defective in materials or workmanship will be repaired or replaced without charge, F.O.B. original point of shipment. The forgoing warranty is in lieu of and excludes all other warranties expressed or implied (including any warranty of merchantability or fitness or purpose). The responsibility of the Seller is limited to the cost of the defective part. Wear caused by faulty maintenance or operation shall not constitute defects. Elastomeric components damaged as a result of maintenance activities, excessive airflow, foreign debris in the process solution, or excessive exposure to direct ultraviolet and thermal radiation shall

be excluded. Decomposition by chemical action and chemical precipitate shall not constitute defects. Claims for defective, damaged or improper material or for shortages will not be allowed unless written notice specifying the nature and extent of the defect, damage or shortage is received in the Seller's office within fourteen (14) days from delivery. Seller assumes no responsibility of expense for repairs made on equipment sold by it to Buyer when such repairs are done outside Seller's factory facilities without its written consent. In all cases, a Start-Up certificate issued by SSI is for general conformance to the Manufacturer's installation instructions only after audit for work performed. However, in no cases, SSI can audit 100% of all work performed by others and cannot guarantee their work to fully meet our installation instructions. Warranty for installation labor and services provided by others shall be covered by the warranty of the entity performing those services. Failure by the Installer to fully meet our installation instructions and requirements may result in installation errors which may lead to equipment failure, for which Seller shall not be liable. Notwithstanding anything to the contrary, neither party shall be liable to each other for any consequential, incidental, special, punitive, or other indirect damages, and Seller's total liability arising at any time for the sale and/or use of goods and/or services shall not exceed 100% of the value of this purchase order in aggregate. This shall apply to SSI scope of supply.

## SSI – SSI Aeration, Inc.
## Standard Terms and Conditions of Sale

1. **General:** All products and services offered for sale by Stamford Scientific International, Inc. (hereinafter "Seller") or its subsidiaries or through its distributors or sales representatives are sold subject to the terms and conditions stated herein. This offer expressly limits acceptance to the terms hereof and any additional, different or inconsistent terms proposed by Buyer, whether in writing or otherwise, are hereby objected to and rejected and Seller shall not be bound thereby unless expressly agreed in a writing signed by an officer of the Seller that such terms and conditions shall supersede those contained herein.

2. **Estimates and Quotations**: All prices are subject to adjustment on account of specifications, quantities, shipment arrangements or other terms and conditions, which are not part of the original price quotation. Written estimates issued by the Seller will be valid for 30 days only. Products are sold at prices in effect at the time the order is taken. The company reserves the right to change prices without notice when necessary.

3. **Terms and Method of Payment**: For Buyers with established credit, payment of accounts due must be made within 30 days of shipment FOB Seller facility or 30 days after the goods are ready to ship and Buyer is notified of same. Seller may make partial billings of the contract price or invoice as various components of the equipment are shipped. Partial payments are expected to be made according to partial goods shipped. Custom built and special large orders shall require deposits in advance of production together with progress payments. For Buyers without credit, payment will be by company check, bank draft, Visa or Mastercard, telegraphic transfer or irrevocable letter of credit at time of order or progress payments according to quote offer.
The Buyer shall not be entitled to withhold payment of any sums due to the Seller by reason of any disputed claim by the customer relating to any goods or deliveries. If Buyer fails to make payment by the due dates then without prejudice to any other rights of the Seller: The Seller shall be entitled to suspend all or any other deliveries to be made under that or any other contract with the Buyer and in such event the Buyer shall not in any respect be released from its obligations to the Seller under that or any such other contract. The Seller shall also be entitled to treat the relevant contract or any other contract with the Buyer as having been terminated by the Buyer and to claim damages for breach of contract accordingly.

4. **Taxes**: Product prices do not include taxes. The amount of any present or future sales, use, excise, value-added or similar tax if applicable to the sale shall be paid by the Buyer unless a tax exemption certificate acceptable to the tax authorities is approved. If Seller is required to pay any such tax, fee or charge, Buyer shall reimburse Seller therefor.

5. **Delays in Delivery and Force Majeure**: All quoted delivery dates are approximate. The Seller will make commercially reasonable efforts to meet any delivery date(s) quoted in the agreement. However, under no circumstances shall the Seller be liable to Buyer for any delay in shipment or failure to meet any quoted delivery date(s) or other terms in the agreement due to unforeseen circumstances or due to a cause beyond its control. Examples of such causes are acts of God, wars, riots, embargoes, acts of civil or military authorities, fires, floods, accidents, strikes, transportation delays, inability to obtain materials or supplies, interruption for any reason in the manufacture of products by Seller's suppliers or other causes not within Seller's control.

6. **Warranty/Repairs**: Products manufactured by Seller are warranted to be free from defects in materials or workmanship for 18 months from date of shipment or 12 months from the date of start up, whichever comes first. Parts found to be defective in materials or workmanship will be repaired or replaced without charge, F.O.B. original point of shipment. **The forgoing warranty is in lieu of and excludes all other warranties expressed or implied (including any warranty of merchantability or fitness for a particular purpose).** The responsibility of the Seller is limited to the cost of the defective part. Wear caused by faulty maintenance or operation shall not constitute defects. Elastomeric components damaged as a result of maintenance activities, excessive airflow, foreign debris in the process solution, or excessive exposure to direct ultraviolet and thermal radiation shall be excluded. Decomposition by chemical action and chemical precipitate shall not constitute defects.

Claims for defective, damaged or improper material or for shortages will not be allowed unless written notice specifying the nature and extent of the defect, damage or shortage is received in the Seller's office within fourteen (14) days from delivery. Seller assumes no responsibility of expense for repairs made on equipment sold by it to Buyer when such repairs are done outside Seller's factory facilities without its written consent.

In all cases, a Start-Up certificate issued by SSI is for general conformance to the Manufacturer's installation instructions only after audit for work performed. However, in no cases, can SSI audit 100% of all work performed by others and SSI cannot guarantee their work to fully meet our installation instructions. Warranty for installation labor and services provided by others shall be covered by the warranty of the entity performing those services. Failure by the Installer to fully meet our installation instructions and requirements may result in installation errors which may lead to equipment failure, for which Seller shall not be liable.

7. **Cancellation and Returns Policy**: (A) Cancellations: Any request for order cancellation, rescheduling or modification by Buyer must be made in writing and such action must be approved in writing by an officer of Seller. Such request should be made to Seller at least four (4) weeks from scheduled shipment date in order to be considered. Such cancellation, rescheduling or modification shall be subject to the payment of reasonable cancellation charges, which shall include but not be limited to expenses already incurred for labor and material costs, commitments made by Seller and a reasonable profit. (B) Returns: Any request for product return by Buyer must be made in writing. Returns of products will not be accepted for any reason without prior written consent of Seller and issuance of a Return Material Authorization (RMA) number. Return of products must be shipped freight prepaid by Buyer. Seller will not accept freight charges. Returns may be subject to a 15% restocking fee and any other reasonable charges. Returns made without obtaining prior authorization shall be returned to sender at Buyer's expense. Custom made goods may not be returned under any circumstance

8. **Cost Escalation:** SSI Aeration, Inc. has priced the job according to existing market conditions and costs at the time of quote. Due to the current unpredictability of the market and wide fluctuations and increases in the price of stainless steel ,carbon steel, PVC components we are experiencing in very short time frames, the sales price of the equipment might be subject to escalation in price in the event there are delays to approve submittal, delays in delivery schedule and/or release to manufacture beyond what was quoted and beyond Seller's control. In the event that there is a significant increase of material or freight occurring during the performance of the contract, the contract sum and/or time of completion shall be equitably adjusted by Change order. A change in price will be considered significant when the overall cost of the system increases by 10% or higher.

Escalation shall be based upon the increase in the Producer Price Index, U.S Department of Labor, Bureau of Labor Statistics-Group: Machinery and Equipment: Special Industry Machinery and Equipment, Series Id-WPU116 9the "Index"). The escalation shall be calculated based upon the percentage increase of the monthly index between the date of quotation and the date of receipt of order and submittal approval/release to manufacture (ie: the index of the month of when the order is received and released to manufacture minus the index for the month of quotation divided by the index for the month of quotation, multiplied by the quoted price). Note there is approximately 2-4 month delay in the publishing and finalizing of these indexes by the U.S Federal Government. Therefore, the escalation will be calculated at the time the index for both months has been published and finalized.

9. **Limitation of Liability**: **Notwithstanding anything else to the contrary, Seller shall have no liability for consequential, incidental, punitive, indirect and/or special damages regarding the sale or use of a product even if the potential for such damages has been disclosed to Seller. Seller's total liability for product defect claims shall not exceed the purchase price paid for the product.**

10. **Complete Agreement**: These Terms and Conditions of Sale when combined with Seller's invoice represent the entire agreement between the parties with respect to the subject matter hereof. Language contained in any digital or written instrument from Buyer to Seller serving to modify the terms of any of the foregoing shall be of no effect.

11. **Severability**: If any provision of these Terms and Conditions of Sale shall be deemed illegal or unenforceable, such illegality or unenforceability shall not affect the validity and enforceability of any other provisions hereof, which together shall be construed as if such illegal and unenforceable provision or provisions had not been included herein.

12. **No Waiver**: The failure by Seller to enforce at any time any of the provisions of this agreement, or to exercise any election or option provided herein, shall not be a waiver and shall in no way be construed as a waiver of such provisions or options, nor in any way be construed to affect the validity of this agreement or any part thereof, or the right of Seller thereafter to enforce each and every such provision.

13. **No Indemnification**: Unless otherwise expressly provided in writing by both parties, Seller does not indemnify, nor does it hold Buyer harmless, against any liability, losses, damages and expenses (including attorney's fees) relating to any claim whatsoever, including without limitation, claims for personal injuries, death or property damage related to the products sold hereunder.

14. **Governing Law; Limitations**: The relationship between Buyer and Seller in relation to the products shall be governed by and construed in accordance with the laws of the State of New York, U.S.A. Any legal action with respect to any transaction must be commenced within one year after the cause of action has arisen.

15. **Dispute Resolution**: Actions by Seller for nonpayment by Buyer of the purchase price of products sold by Seller, or for redress of other breaches by Buyer of these Terms and Conditions of Sale, may be brought by Seller, at its option, before any court of competent jurisdiction in the State of New York. At Seller's option, disputes between Buyer and Seller, including all claims for non-performance by Seller, shall be finally settled by arbitration in Poughkeepsie, New York USA.

16. **Foreign Corrupt Practices Act**: Buyer represents and warrants to Seller that it shall comply with all laws in relation to its sale and/or use of the Products and will not pay anything of value to any government employee in connection with the sale of the Products.

17 **Precedence:** In the event of any inconsistency among the referenced documents, attachments, drawings, specifications or other provisions hereof, the following order of precedence shall apply: (1) special terms and conditions agreed to in writing by an Officer of the Seller, (2) these standard terms and conditions of sale, (3) specifications, (4) all other attachments or documents incorporated herein by reference.

Accepted by:

Company Name: _____
Signature: _____
Printed Name: _____
Title: _____
Date: _____