



Mary Alice Evans, Director  
Office of Planning and Sustainable Development Environmental Review Program  
235 S. Beretania Street, Suite 702  
Honolulu, HI 96813

Subject: Kona Community Hospital Redundant Wastewater Treatment System Final  
Environmental Assessment and Finding of No Significant Impact, TMK  
(3rd): 7-9-010:081, North Kona District, Hawai'i Island

Dear Ms. Evans:

Our agency has determined after a review of comments on the Draft EA for the proposed project that there will be no significant impacts in the context of Title 11, Chapter 200.1-13. Please publish a notice of the FEA and FONSI in the next edition of The Environmental Notice. Please contact me at 808-322-4495 if you have any questions.

We are also providing a pdf copy of the Final EA, the action summary, significance criteria, and other required information via The Environmental Notice online submittal platform. Please contact our project consultant, Ron Terry of Geometrician Associates, at (808) 987-5239, if you have any questions concerning the submittal.

Sincerely,

David J. Duber CHFM CLSS-HC CHEPP  
Regional Director of Facilities  
Kona Community Hospital  
79-1019 Haukapila St  
Kealahou, HI 96750  
808.322.4495 Office  
865.679.7148 Cell

**From:** [webmaster@hawaii.gov](mailto:webmaster@hawaii.gov)  
**To:** [DBEDT OPSD Environmental Review Program](#)  
**Subject:** New online submission for The Environmental Notice  
**Date:** Tuesday, November 28, 2023 7:29:05 AM

---

**Action Name**

Kona Community Hospital Redundant Wastewater Treatment System

**Type of Document/Determination**

Final environmental assessment and finding of no significant impact (FEA-FONSI)

**HRS §343-5(a) Trigger(s)**

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

North Kona, Hawai'i

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

(3) 7-9-010:081

**Action type**

Agency

**Other required permits and approvals**

Hawai'i County Building Division Approval Hawai'i County Planning Department Plan Approval Hawai'i State Department of Health WWTS Approval

**Proposing/determining agency**

Kona Community Hospital Hawaii Health Systems Corporation

**Agency contact name**

Robert Hollandsworth

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

[rhollandsworth@hhsc.org](mailto:rhollandsworth@hhsc.org)

**Email address or URL for receiving comments**

[rhollandsworth@hhsc.org](mailto:rhollandsworth@hhsc.org)

**Agency contact phone**

(808) 322-4555

**Agency address**

79-1019 Haukapila Street  
Kealakekua, HI 96750  
United States  
[Map It](#)

**Was this submittal prepared by a consultant?**

Yes

**Consultant**

Geometrician Associates

**Consultant contact name**

Ron Terry

**Consultant contact email**

[rterry@hawaii.rr.com](mailto:rterry@hawaii.rr.com)

**Consultant contact phone**

(808) 987-5239

**Consultant address**

10 Hina Street  
Hilo, HI 96720  
United States  
[Map It](#)

**Action summary**

KCH proposes a redundant wastewater treatment system with a capacity of 50,000 gallon-per-day (gpd) to supplement its existing 50,000-gpd system, which requires a shutdown to perform critical repair and maintenance. Because hospital operations must not be disrupted, KCH will divert the wastewater flow to the redundant system while the existing system is offline, and whenever future maintenance is needed. The project is not intended to accommodate expanded wastewater flows, as the system is limited by existing absorption bed capacity. For any substantial future expansion at KCH, a new absorption bed (with a 100 % backup) or other methods to deal with the treated wastewater will be developed. No sensitive biological, hydrological, archaeological, cultural or other resources are present. The project will be timed to minimize effects to medical facility operations, personnel and patients. The project would not adversely affect surface water or groundwater.

**Reasons supporting determination**

Chapter 11-200.1-13, Hawai'i Administrative Rules, outlines those factors agencies must consider when determining whether an Action has significant effects:

(a) In considering the significance of potential environmental effects, agencies shall consider and evaluate the sum of effects of the proposed action on the quality of the environment.

(b) In determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected impacts, and the proposed mitigation measures. In most instances, an action shall be determined to have a significant effect on the environment if it may:

1. Irrevocably commit a natural, cultural, or historic resource. No valuable natural or cultural resource would be committed or lost at the quarter-acre grassed/paved project site through construction and use of additional wastewater treatment system facilities at the hospital.
2. Curtail the range of beneficial uses of the environment. Only a small area would be affected, and no restriction of beneficial uses would occur.
3. Conflict with the State's environmental policies or long-term environmental goals established by law. The State's long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The project is minor,

environmentally beneficial, and fulfills aspects of these policies calling for an improved social environment. It is thus consistent with all elements of the State's long-term environmental policies.

4. Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State. The project would improve the social welfare of the community and State by improving wastewater treatment.

5. Have a substantial adverse effect on public health. The project would affect public health and safety in only beneficial ways by ensuring adequate wastewater treatment at a medical facility that is vital for the Kona community.

6. Involve adverse secondary impacts, such as population changes or effects on public facilities. No adverse secondary effects are expected to result from the proposed action, which would not induce immigration, demand on other services, or lead to any unintended effects.

7. Involve a substantial degradation of environmental quality. The project is minor and environmentally benign, and thus it would not contribute to environmental degradation.

8. Be individually limited but cumulatively have substantial adverse effect upon the environment or involves a commitment for larger actions. Review of HRS 343 and National Environmental Policy Act documents in the editions during the previous year of The Environmental Notice, as well as press coverage, indicates no known major planned or ongoing projects in the Kealahou area in the 2023 to 2025 timeframe that could interact with the proposed project. Most development in this area will continue to involve construction or renovation of individual homes and commercial structures, and no major infrastructure or development projects were noted. Operationally, the project would not generate any substantial effects of any type, including on subsurface or coastal water quality, as there would be no increase in the quantity of treated wastewater. For the construction phase, very minor additional construction traffic, noise, air quality and scenic impacts will occur. There does not appear to be any potential for the redundant wastewater treatment system project's impacts to accumulate with impacts from any other known project or existing development to create a substantial adverse impact.

9. Have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat. The project site is a small, grassed/paved area with no natural vegetation or habitat. Impacts to rare, threatened or endangered species of flora or fauna will not occur.

10. Have a substantial adverse effect on air or water quality or ambient noise levels. No adverse effects on these resources would occur. Mitigation of construction-phase impacts will prevent erosion, sedimentation, or other pollution that could affect surface water quality. No increase in treated wastewater levels is expected. After completion, although the total system may be able to handle roughly double the wastewater volume, no measurable increase is expected, as there are no expansion plans at KCH that would generate substantially more wastewater. In addition, the redundant wastewater treatment system will only be used while the existing is undergoing maintenance/repair and will not be used concurrently with the existing wastewater treatment system.. Kona Community Hospital will ensure that the construction contractor consults with the Department of Health. If applicable, it will obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction that may include various mitigation measures for construction noise.

11. Have a substantial adverse effect on or be 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. Although the project is located in an area with volcanic and seismic risk, the entire Island of Hawai'i shares this risk, and the project is not imprudent to construct. There is only minimal flood hazard in this area, and at over 1,600 feet in elevation, no risk from sea level rise.

12. Have a substantial adverse effect on scenic vistas and viewplanes, during day or night, identified in county or state plans or studies. No scenic vistas and viewplanes will be adversely affected by the project, and all lighting will be shielded, with a low-blue spectra that minimizes light pollution.

13. Require substantial energy consumption or emit substantial greenhouse gases. Negligible amounts of energy input and greenhouse gas emissions would be required for construction and use of the new WWTS. The facility would meet or exceed all energy efficiency standards.

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

- [Final-EA-Kona-Community-Hospital-Redundant-Wastewater-System.pdf](#)
- [FONSI-KCH-WWTP.pdf](#)

**Shapefile**

- The location map for this Final EA is the same as the location map for the associated Draft EA.

**Action location map**

- [KCH-WWTP-Property.zip](#)

**Authorized individual**

Ron Terry

**Authorization**

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

# **FINAL ENVIRONMENTAL ASSESSMENT**

## **Kona Community Hospital Redundant Wastewater Treatment System**

TMK (3<sup>rd</sup>.) 7-9-010:081  
North Kona District, Island of Hawai‘i, State of Hawai‘i

December 2023

Prepared for:

Kona Community Hospital  
Hawaii Health Systems Corporation  
79-1019 Haukapila Street  
Kealahou, Hawaii, 96750



**FINAL ENVIRONMENTAL ASSESSMENT**  
**Kona Community Hospital Redundant Wastewater Treatment System**

TMK (3<sup>rd</sup>) 7-9-010:081  
North Kona District, Island of Hawai'i, State of Hawai'i

PROPOSING/  
APPROVING AGENCY:

Kona Community Hospital  
79-1019 Haukapila Street  
Kealahou, Hawaii, 96750

CONSULTANT:

Geometrician Associates LLC  
10 Hina Street  
Hilo, Hawai'i 96720

CLASS OF ACTION:

Use of State Land and State Funds

This document is prepared pursuant to:

The Hawai'i Environmental Protection Act,  
Chapter 343, Hawai'i Revised Statutes (HRS), and  
Title 11, Chapter 200.1, Hawai'i Department of Health Administrative Rules (HAR).



**[this page intentionally left blank]**

## TABLE OF CONTENTS

SUMMARY .....	ii
PART 1: PROJECT DESCRIPTION, PURPOSE AND NEED AND E.A. PROCESS .....	1
1.1 Project Description and Location .....	5
1.2 Purpose and Need .....	5
1.3 Environmental Assessment Process .....	4
1.3 Public Involvement and Agency Coordination .....	5
PART 2: ALTERNATIVES.....	6
2.1 No Action .....	6
2.2 Alternative Sites or Strategies.....	6
PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION.....	7
3.1 Physical Environment .....	7
3.1.1 Climate, Geology, Soils and Geologic Hazards.....	7
3.1.2 Drainage, Water Bodies, Groundwater and Water Quality.....	8
3.1.3 Flora and Fauna.....	12
3.1.4 Air Quality, Noise and Scenic Resources .....	14
3.1.5 Hazardous Substances, Toxic Waste and Hazardous Conditions .....	15
3.2 Socioeconomic and Cultural .....	16
3.2.1 Socioeconomic and Health Characteristics.....	16
3.2.2 Cultural and Historic Resources.....	16
3.3 Infrastructure.....	21
3.2.3 Utilities.....	21
3.2.3 Roads and Parking .....	22
3.4 Secondary and Cumulative Impacts.....	22
3.5 Required Permits and Approvals .....	22
3.6 Consistency With Government Plans and Policies .....	23
3.6.1 Hawai‘i State Plan.....	23
3.6.2 Hawai‘i County Zoning, General Plan and Kona CDP.....	23
3.6.3 Hawai‘i State Land Use Law .....	24
PART 4: DETERMINATION, FINDINGS AND REASONS .....	25
4.1 Determination.....	25
4.2 Findings and Supporting Reasons.....	25
REFERENCES .....	28
LIST OF FIGURES	
FIGURE 1 Project Location Map.....	2
FIGURE 2 Project Site Photos .....	3
FIGURE 3 Site Plan .....	4
FIGURE 4 Flood Insurance Rate Map .....	9
FIGURE 5 Sea Level Rise Exposure Map .....	9
FIGURE 6 UIC Line .....	11
APPENDIX 1A	Comments in Response to Early Consultation
APPENDIX 1B	Comments to Draft EA and Responses

## **SUMMARY OF THE PROPOSED ACTION ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

Kona Community Hospital (KCH) is located in the village of Kealahou on the Island of Hawai'i. KCH has determined that its 50,000 gallon-per-day (gpd) wastewater treatment system requires a shutdown to perform critical repair and maintenance. The project would build a redundant system with a capacity of 50,000 gpd. Because hospital operations must not be disrupted, KCH plans to divert the wastewater flow to the redundant system during the period when the existing system is offline, and at any time in the future when maintenance is required. The project is not intended to accommodate expanded wastewater flows, as the system is limited by the existing absorption bed capacity. For any substantial future expansion at KCH, a new absorption bed (with a 100 % backup) or other methods to deal with the treated wastewater will be developed.

No sensitive biological, hydrological, archaeological, cultural or other resources are present. In the highly unlikely event archaeological resources are encountered during land-altering activities associated with construction, work in the immediate area of the discovery will be halted and the State Historic Preservation Division will be contacted. The only sensitive noise receptors in the vicinity are associated with KCH itself, and the project will be timed and constructed to minimize effects to medical facility operations, personnel and patients. The project would not be expected to adversely affect surface waters or groundwater.

## **PART 1: PROJECT DESCRIPTION, PURPOSE AND NEED AND ENVIRONMENTAL ASSESSMENT PROCESS**

### **1.1 Project Description and Location**

Kona Community Hospital (KCH) is located on *mauka* of Mamalahoa Highway on Haukapila Street in the village of Kealahou in Kona, on the Big Island of Hawai'i (Figures 1-3). KCH has determined that its wastewater treatment system (WWTS) requires a shutdown to perform critical repair and maintenance in order to continue effective operation. The hospital was built in 1975 and after many renovations is now a full service hospital with services including acute inpatient medical/surgical, obstetrics, skilled nursing, intensive care, and outpatient surgery. Services include a 24-hour emergency room, laboratory, radiology, pharmacy, occupational, physical, respiratory and speech therapy, mental health and dietary services.

Wastewater is currently treated in a 50,000-gpd WWTS that came online in 1975. The extended aeration system used here involves input of raw wastewater for treatment in separate compartments for aeration, clarifying, and chlorination. This treatment system works by providing ideal "living conditions" for aerobic bacteria and other micro-organisms; these micro-organisms then decompose the sewage. The existing plant is capable of treating 50,000 gallons per day (gpd) of raw sanitary sewage to all applicable standards, including a 5-day Biological Oxygen Demand (BOD) not to exceed 240 parts per million (ppm). The treated effluent is then discharged into two 26 x 37-foot absorption beds. The existing WWTS is operating at 70-90% of capacity, so the effluent discharged into the absorption bed is estimated from 35,000 gpd to 45,000 gpd.

The project would build a second, redundant WWTS with a capacity of 50,000 gpd (Figure 3). Once the redundant system is fully operational, repairs to the existing system can be conducted. A nearby seepage pit area previously permitted for emergency use will be used for the absorption process during the brief time required for the diversion of the influent to the new system. After that, the systems will be capable of being operated alternately. Current demand can be filled with just one system operational at a time, and there are no immediate significant expansion plans at KCH that would generate substantially more wastewater. For any substantial future expansion at KCH, a new absorption bed (with 100% backup) or other methods to deal with the treated wastewater will be developed.

The entire construction area will be less than a quarter-acre. All areas involved have previously been disturbed and are currently paved or grassed. The location of the existing absorption beds below the Maintenance Building is concrete paved and is currently used for parking for less than ten vehicles. It will be used as a staging area during the site preparation and installation of the new WWTS. Parking for the interim is available across Haukapila Street. Minor rerouting of the existing sewer line and concrete walkway will also be necessary.

**Figure 1. Project Location Map**



**Figure 2. Project Site Photos**

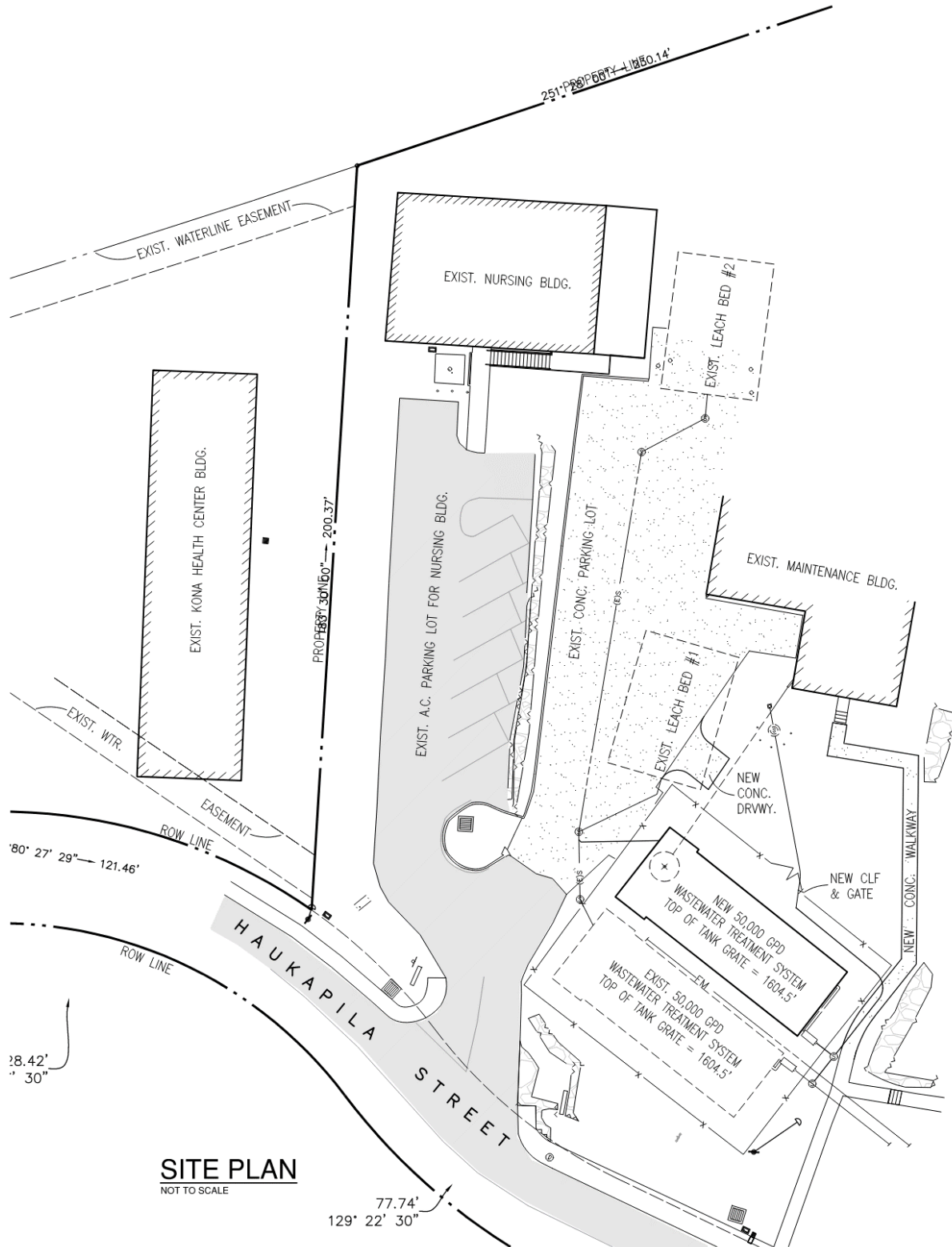


2a, Existing WWTs (left) and Proposed Site of Redundant System (right)

2b, Site of Subsurface Absorption Bed



**Figure 3. Site Plan.**







Fire Department  
Public Works Department

Planning Department  
Police Department

Organizations and Individuals:

Sierra Club

Copies of communications received during early consultation are contained in Appendix 1a. Notice of the availability of the Draft EA was published in the June 8, 2023 edition of *The Environmental Notice*. Appendix 1b contains all written comments on the Draft EA. Various places in the EA have been modified to reflect input received in the comment letters; additional/modified non-procedural text is denoted by double underlines.

**PART 2: ALTERNATIVES**

**2.1 No Action**

Under the No Action Alternative, the redundant wastewater treatment system would not be built. Repair and maintenance of the system would be difficult or infeasible to accomplish without a temporary full or partial shutdown of the hospital. Future repair and maintenance would entail the same disruption.

**2.2 Alternative Sites or Strategies**

Although other sites are available on the KCH campus, proximity to the existing system has the advantage of efficiency, economy and less disruption and disturbance, and no other sites are preferable. The nearest sewer lines for the existing County wastewater system are more than five miles from KCH and connecting to this hooking up to a sewer system is not financially feasible. Several other optional treatment systems for use during the implementation of the necessary repair/maintenance to the existing system were evaluated. These included Membrane Bioreactor (MBR), Moving Bed Biofilm Bioreactor (MBBR) and Fixed Bed Bioreactor (FBB). While these newer types of systems provide the same result as the existing conventional WWTS, they require constant monitoring and are costly to operate and maintain. A system designed to produce reusable water is not feasible because of high costs, no available area for the additional required facilities and buffering distances, and extremely limited potential use for non-potable water in this area. As discussed in the response to a comment letter from Mr. Stephen Holmes in Appendix 1b, the engineering and KCH facilities team carefully re-evaluated the pros and cons of an MBR system after the Draft EA and determined that it was not justified for the context and purpose and need of the project.

As there do not appear to be any environmental or other disadvantages associated with the proposed process and project site, no alternative sites or strategies have been advanced for study in the Environmental Assessment.

## **PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES**

### *Basic Geographic Setting*

The portion of Kona Community Hospital in the village of Kealahou upon which the project facility would be built is referred to throughout this EA as the *project site*. The project site is a grassed/paved about a quarter-acre in size located behind the existing WWTS on Haukapila Street. This site is approximately 1,600 feet in elevation above mean sea level and 700 feet *mauka* of Highway 11 (Mamalahoa Highway) (see Figs. 1-3). The area around the hospital has been extensively modified over the last hundred years by commercial, institutional, residential, and agricultural uses. Within a quarter mile are about a hundred residences, several coffee farms, a shopping center, a post office, a public charter school, a mortuary, and various other uses.

### **3.1 Physical Environment**

#### **3.1.1 Climate, Geology, Soils and Geologic Hazards**

##### *Environmental Setting*

At an elevation of 1,600 feet above sea level, temperatures are moderately warm in the daytime and cool at night. Average annual rainfall is about 55 inches. Winds are generally light upslope sea breezes in the daytime and light downslope land breezes at night (UH Hilo Dept. of Geography 1998; Giambelluca et al. 2013).

The geologic substrate at the project site is lava flows from Mauna Loa Volcano dated to more than 10,000 years before the present (Wolfe and Morris 1996). Soil here is classified by the U.S. Natural Resources Conservation Service as *Honuaulu hydrous silt loam, 10 to 20 percent slopes* (U.S. Soil Conservation Service 1973). This well-drained, low-runoff silty clay loam forms in ash over 'a'a lava flows, with a typical 30-inch depth to bedrock. The soil supports tree crops as well as pasture, woodland, and wildlife areas (U.S. Soil Conservation Service 1973).

The Big Island is subject to geologic hazards, especially lava flows and earthquakes. Volcanic hazard as assessed by the U.S. Geological Survey in this area of Kona is 3 on a scale of ascending risk 9 to 1 (Heliker 1990:23). The high hazard is based on the fact that Mauna Loa is presently an active volcano. Volcanic hazard zone 3 has had 1-5% of the land covered by lava or ash flows since the year 1800, but is at lower risk than zone 2 because it is farther from recently active vents and/or because local topography makes it less likely that flows will cover the area.

The Island of Hawai'i experiences high seismic activity and is at risk from earthquake damage (USGS 2000), especially to structures that are poorly designed or built, as the 6.7-magnitude quake of 2006 and the 6.9-magnitude quake of 2018 demonstrated. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

### *Impacts and Mitigation Measures*

In general, geologic conditions impose no constraints on the proposed project and it is not imprudent to implement. Project design will take the seismic setting into account.

There is a scientific consensus that the earth is warming due to manmade increases in greenhouse gases in the atmosphere, according to the United Nations' Intergovernmental Panel on Climate Change (UH Manoa Sea Grant 2014). Global mean air temperatures are projected to increase by at least 2.7°F by the end of the century. This will be accompanied by the warming of ocean waters, expected to be highest in tropical and subtropical seas of the Northern Hemisphere. Wet and dry season contrasts will increase, and wet tropical areas in particular are likely to experience more frequent and extreme precipitation. For Hawai'i, where warming air temperatures are already quite apparent, accelerating sea level rise is expected. Not only is the equable climate at risk but also agriculture, ecosystems, the visitor industry and public health. It is possible, and even likely, that larger and more frequent tropical storms and hurricanes will affect the Hawaiian Islands in the future. Guidance to federal agencies for addressing climate change issues in environmental reviews was released in August 2016 by the Council on Environmental Quality (US CEQ 2016). The guidance urged that agencies should consider: 1) the potential effects of a proposed action on climate change as indicated by assessing greenhouse gas emissions in a qualitative, or if reasonable, quantitative way; and, 2) the effects of climate change on a proposed action and its environmental impacts. It recommends that agencies consider the short- and long-term effects and benefits in the alternatives and mitigation analysis in terms of climate change effects and resiliency to the effects of a changing climate. The State of Hawai'i in Hawai'i Revised Statutes §226-109 encourages a similar analysis, and Title 11-200.1-13 includes significance criteria that consider greenhouse gas emissions and the hazardousness of sea level rise.

As shown in Figure 4, the location of the project site at 1,600 feet above sea level and 2.57 miles from the shoreline will preclude direct effects of sea level rise under any expected scenario. It is not anticipated that the potential for larger and more frequent tropical storms that could be part of a changing climate will have major effect on the proposed facility. Negligible amounts of energy input and greenhouse gas emissions would be required for construction and use of the new WWTS.

#### **3.1.2 Drainage, Water Bodies, Groundwater and Water Quality**

##### *Existing Environment*

The waters of the Kona Coast are celebrated for their excellent marine biota, including healthy coral-based ecosystems. The project is located 2.57 miles from the coast, at about 1,600 feet in elevation. The project area has no perennial surface water bodies such as streams or ponds. The Flood Insurance Rate Map (FIRM) 155166-0968 (9/29/2017) shows the project site in Flood Zone X, outside of the 500-year floodplain (Figure 5). The nearest drainage within a flood zone is South Kona Watercourse No. 1, located about a half mile to the south. No flooding from this

**Figure 4. Sea Level Rise Exposure Map**



Source: <https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/>

**Figure 5. Flood Insurance Rate Map of Kona Community Hospital Property**



Source: Hawai'i State Department of Land and Natural Resources: <http://gis.hawaiiinfip.org/fhat/>

intermittent stream or any source has been reported on the property. Normal runoff from the project site soaks into the ground and then percolates through thousands of feet of aerated rock.

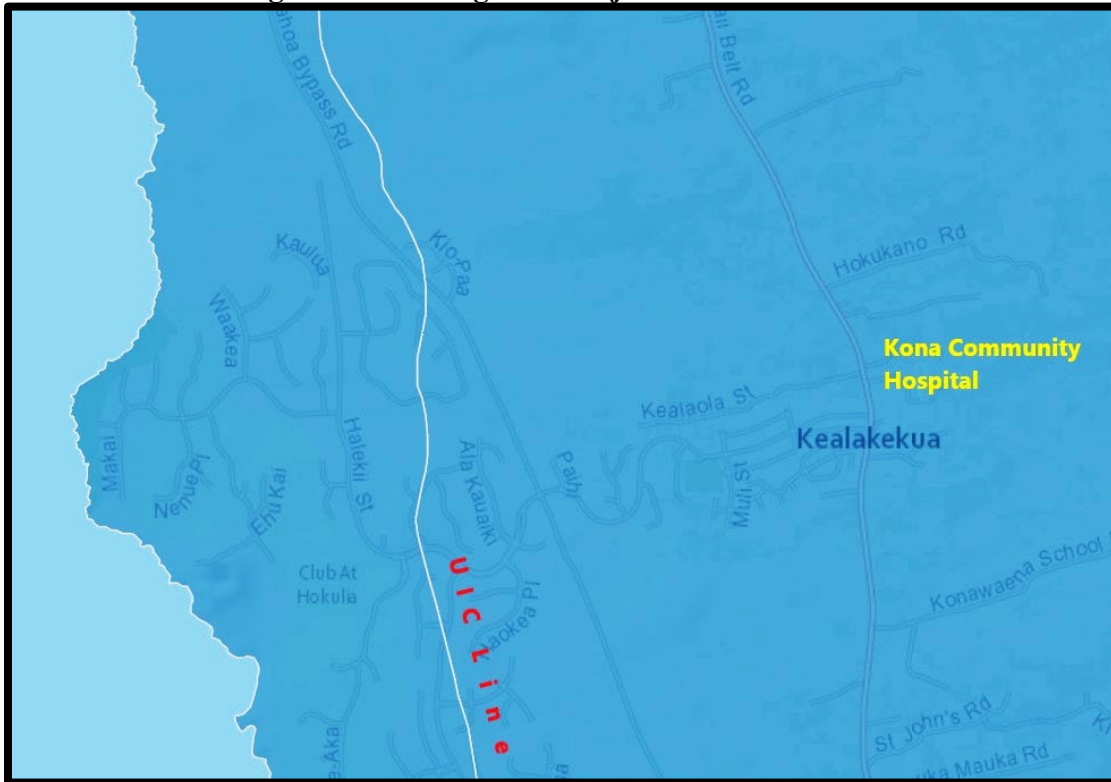
The State Commission on Water Resource Management (CWRM) classification of aquifers locates this part of Kona within in the Kealakekua Aquifer System (80603), a subunit of the Southwest Mauna Loa Aquifer Sector Area (ASEA). Groundwater within this aquifer is utilized for various private and public domestic, municipal, irrigation and industrial wells.

The State of Hawai‘i’s Underground Injection Control (UIC) program is a component of the State’s mandate to protect our underground drinking water aquifers from potential contamination by discharges of wastewater and other fluids. The program classifies aquifers into those that are designated as underground sources of drinking water and those that are not. The boundary between non-drinking water aquifers *makai* and underground sources of drinking water on the *mauka* side is generally referred to as the UIC Line. Key sources of potential pollution are underground injection wells, which are facilities commonly used for subsurface injection of water or other fluids. The UIC program governs the location, construction, and operation of injection wells so that injected fluids do not migrate and pollute drinking water. Restrictions on injection wells differ, depending on whether the area is *mauka* or *makai* of the UIC line. The Underground Injection Control Line is situated about two miles *makai* of Kona Community Hospital (Figure 6).

The existing and proposed systems both treat the wastewater and then convey it to absorption beds for infiltration into the ground within absorption beds. The disposal of treated wastewater is done without the use of injection wells and is not subject to regulation by the UIC program. The extended aeration system involves treatment of raw wastewater within separate compartments for aeration, clarifying, and chlorination. This treatment system works by providing ideal living conditions for aerobic bacteria and other micro-organism that decompose the sewage. Section 11-62-26 of the Hawai‘i Administrative Rules, Title 11 Chapter 62 “Wastewater Systems,” sets requirements for sampling type, frequency and reporting for Biological Oxygen Demand (BOD), suspended solids, and other components. The KCH wastewater is sampled and analyzed in conformance with these rules and meets all standards. Specifically, the plant is capable of treating 50,000 gpd of wastewater with a 5-day BOD not-to-exceed 240 parts per million. The treated effluent is then discharged into two 26 x 37-foot absorption beds. The existing WWTS is operating at 70-90% of capacity, so the effluent discharged into the absorption bed is estimated from 35,000 to 45,000 gpd.

The WWTS is 2.57 miles from the shoreline, at 1,600 feet above sea level. Owing to the high permeability of the lava flows that underlie the area, treated wastewater effluent likely transits the vadose zone between the disposal area and groundwater relatively rapidly and then flows to sea. In rural areas such as the southern parts of Kona, treated wastewater becomes heavily diluted from filtering rainwater. This effluent is subject to considerable further natural

**Figure 6. Underground Injection Control Line**



Source: Hawai'i State DOH: <https://health.hawaii.gov/sdwb/underground-injection-control-program/>

remediation by its passage through several hundred to over a thousand feet of aerated rock layers. It is possible, and perhaps likely, that this flow is interrupted at some point by a confined higher level aquifer or aquifers present in between the ground surface and the basal aquifer.

*Impacts and Mitigation Measures for Drainage and Surface Waters*

The small scale and nature of project will avoid any noticeable generation of additional stormwater, and no drywells or other engineered drainage facilities will be required. The Hawai'i County Department of Public Works will be consulted during design to ensure compliance with all applicable regulations, in particular Chapter 27, Drainage.

Because of the scale of the proposed project and the environmental setting, very little potential for impacts to water quality from runoff exist. The project area including staging will involve only about a quarter acre, all within an existing graded and grassed area. In order to minimize the potential for sedimentation and erosion, the contractor shall perform all earthwork and grading in conformance with Chapter 10, Erosion and Sediment Control, Hawai'i County Code. Construction plans that are currently under development will require the contractor to implement an extensive array of Best Management Practices), including but not limited to the following:

- All grading work shall conform to Chapter 10 of the Hawai‘i County Code. Should a grading permit be required, grading work will not commence until the Department of Public Works approves a grading permit.
- The contractor shall remove all silt and debris deposited in drainage facilities, roadways and other areas resulting from his work.
- The contractor shall keep the project and surrounding areas free from dust nuisances. The work shall be in conformance with the air pollution control rules of the State Department of Health, HAR 11-60.1, “Fugitive dust”.
- All grading operations shall be performed in conformance with the applicable provisions of the Hawai‘i Administrative Rules, Title 11, Chapter 55, Water Pollution Control and Chapter 54, Water Quality Standards, and to the Erosion and Sedimentation Control Standards and Guidelines of the Department of Public Works, County of Hawaii.
- The contractor shall inform the Department of Public Works of the locations of the disposal and/or borrow site(s) required for this project when an application for a grading permit is made. The disposal and/or borrow site(s) must also fulfill the requirements of the grading ordinance.

#### *Impacts and Mitigation Measures for Groundwater*

As discussed above, treated wastewater volumes averaging 50,000 gallons per day are currently disposed of using absorption beds, and the quality of effluent meets all standards. The redundant system is of the same type and is expected also to meet such standards. KCH is unaware of any adverse effects to the quality of Kona’s groundwater, wells or coastal waters as a result of this use. The purpose of the redundant system is to allow repair and maintenance of the existing WWTs. No increase in treated wastewater levels is expected. After completion, although the total system may be able to handle roughly double the wastewater volume, no measurable increase is expected, as there are no expansion plans at KCH that would generate substantially more wastewater.

### **3.1.3 Flora and Fauna**

#### *Existing Environment*

The natural vegetation in mauka Kona is mesic rain forest dominated by ‘ōhi‘a (*Metrosideros polymorpha*) and koa (*Acacia koa*) (Gagne and Cuddihy 1990). This original type was radically altered by Hawaiian cultivation and later cattle grazing, agriculture and urban uses. Vegetation here is now mainly managed, in the form of commercial and residential landscaping, farms, and small commercial operations, interspersed with patches of weeds.

The project site itself is a grassy/paved area used for parking and turnarounds and contains entirely non-native herbs, grasses and vines. No listed or proposed threatened or endangered plant species were found or would be expected on the project site. In terms of conservation value, no botanical resources requiring special protection are present.

This area is not suitable habitat for feeding, nesting or most other bird activities, although a few common non-native birds such as common myna (*Acridotheres tristis*) may briefly perch on trees and shrubs in the area. During our field visits, this species and Japanese white-eyes (*Zosterops japonicus*) were the only birds observed, although repeated observations would undoubtedly reveal more bird species, all likely non-native.

Hawaiian hawks (*Buteo solitarius*) were delisted as federal endangered species in 2019 but are still listed by the State. They nest in tall trees between March and October and are vulnerable during this period. Endangered Hawaiian hoary bats (*Lasiurus cinereus semotus*) are commonly observed in many parts of the island of Hawai'i. Bats roost in woody vegetation taller than 15 feet, and female bats while caring for their young in summer months are extremely vulnerable to disturbance. No vegetation suitable for hawk nests or bat roosts is present on or near the project site.

The endangered Hawaiian petrel (*Pterodroma sandwichensis*), the endangered band-rumped storm petrel (*Oceanodroma castro*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*) may overfly the general project area. The primary cause of mortality for these seabirds in Hawai'i is predation by alien mammalian species at the nesting colonies, followed by collision with man-made structures. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with manmade structures and, if not killed outright, become easy targets of predatory mammals.

### *Impacts and Mitigation Measures*

The fully developed project site lacks native ecosystems or threatened or endangered plant species and no adverse impacts to botanical resources would occur as a result of clearing and construction. Because of the limited vegetation, no Hawaiian hawk nests or Hawaiian hoary bats roosts are present, and the project presents no impacts to these species. All lighting installed for either construction or operation of the facility will be required to be shielded in conformance with the Hawai'i County Outdoor Lighting Ordinance (Hawai'i County Code, Article 9), and will also be low-blue spectra and low-light emitting, in order to reduce the risk that seabirds may be attracted to and then disoriented by the lighting. Additionally, no nighttime, lighted, outdoor construction work will be allowed during the seabird-fledging season, which runs from September 15 through December 15 each year. Best Management Practices to prevent sedimentation and erosion that will be required during construction will prevent offsite impacts to water quality and aquatic habitat.



### 3.1.4 Air Quality, Noise, and Scenic Resources

#### *Environmental Setting*

Human-induced air pollution in West Hawai‘i is minimal, but a volcanic haze (vog) derived from emissions of sulfur dioxide that convert into particulate sulfate frequently blankets the district. This condition was exacerbated by the 2018 eruptive activities at Kilauea’s summit and East Rift Zone but has lately dissipated to some extent.

Noise on the project site is moderate and is derived mainly from hospital activities and motor vehicles on the nearby Mamalahoa Highway and adjacent roads, combined with sounds from residential, agricultural and road maintenance activities. All nearby uses are hospital-related except for the Hawai‘i District Health Office, which is directly *makai* of the facility.

The project area does not contain any sites that are considered significant for their scenic character in the Hawai‘i County General Plan or any other scenic resources.

#### *Impacts and Mitigation Measures*

There may be short-term and very minor impacts to air quality and noise levels during construction. Due to the sensitive nature of nearby facilities, care will be taken to minimize these short-term impacts.

There is very limited potential for fugitive dust emissions due to disturbance of soil during dry periods. The project will not generate any substantial dust and emissions, and KCH officials will ensure that construction managers develop and implement a dust control plan to minimize any impacts. Adherence to best management practices (BMPs) including but not limited to covering stockpile materials and routine watering of bare, disturbed soil and fill/stockpile materials during dry periods will minimize this potential. Air quality will not be adversely affected by construction or operation of the facility.

Development would entail limited excavation, grading, compressors, vehicle and equipment engine operation, and construction of new infrastructure. These activities could generate noise exceeding 95 decibels at times, impacting nearby sensitive noise receptors. If construction noise is expected to exceed the Department of Health’s (DOH) “maximum permissible” property-line noise levels, the contractor would be required to consult with DOH and may need to obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction. DOH would review the proposed activity, location, equipment, project purpose, and timetable in order to decide upon conditions and mitigation measures, such as restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers. KCH will ensure that the construction contractor consults with the Department of Health. If applicable, the contractor will obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction that may include various mitigation measures for construction noise.

A redundant WWTS on the project site would not interfere with any scenic sites, viewplanes or vantages. All lighting fixtures will be low light emitters designed for safety as people move around the site at night. The design will utilize lighting with a CCT of 2700 K or less. Given the number and design features of the lighting fixtures, no effect on astronomical observatories would be expected.

### **3.1.5 Hazardous Substances, Toxic Waste, and Hazardous Conditions**

No Phase I Environmental Site Assessment has been conducted for the project site. Based upon prior and present use of the project site, there is currently no evidence that the site contains hazardous or toxic substances or has a history of spills or other incidents. The existing facility does not utilize or generate any hazardous materials, and the facility is not considered a hazardous waste generator.

No Above Ground Storage Tanks (AST), Underground Storage Tanks (UST) or Leaking Underground Storage Tanks (LUST) are visible on or near the project site. State databases of incidents and releases note a 15-gallon spill of diesel that occurred in 2004, 500 feet away on the other side of the main hospital building, which was subsequently remediated. No other records of incidents or releases are known (<https://eha-cloud.doh.hawaii.gov/iheer/#!/viewer> accessed August 2022). The redundant WWTS would not pose any unreasonable risk in terms of worker or public exposure to hazardous materials or toxic substances. Although it is unlikely that any potentially hazardous, toxic or radioactive waste is present on the project site, reasonable precautions will be undertaken by KCH and its contractors in the context of the project construction Best Management Practices for the appropriate response and remediation should any such material be encountered during construction of the project.

For construction, in addition to the measures related to water quality detailed in Section 3.1.3, engineering plans will specify the following conditions in order to ensure to minimize the possibility for spills of hazardous materials:

- Unused materials and excess fill will be removed and disposed of at an authorized waste disposal site.
- During construction, emergency spill treatment, storage, and disposal of all hazardous materials, will be explicitly required to meet all State and County requirements, and the contractor will be asked to adhere to “Good Housekeeping” for all appropriate substances, with the following instructions:
  - Onsite storage of the minimum practical quantity of hazardous materials necessary to complete the job;
  - Fuel storage and use will be conducted to prevent leaks, spills or fires;
  - Products will be kept in their original containers unless unresealable, and original labels and safety data will be retained;
  - Disposal of surplus will follow manufacturer’s recommendation and adhere to all regulations;
  - Manufacturers’ instructions for proper use and disposal will be strictly followed;

- Regular inspection by contractor to ensure proper use and disposal;
- Onsite vehicles and machinery will be monitored for leaks and receive regular maintenance to minimize leakage;
- Construction materials, petroleum products, wastes, debris, and landscaping substances (herbicides, pesticides, and fertilizers) will be prevented from blowing, falling, flowing, washing, or leaching into the ocean
- All spills will be cleaned up immediately after discovery, using proper materials that will be properly disposed of;
- Regardless of size, spills of toxic or hazardous materials will be reported to the appropriate government agency; and
- Should spills occur, the spill prevention plan will be adjusted to include measures to prevent spills from re-occurring and for modified clean-up procedures.

## **3.2 Socioeconomic and Cultural**

### **3.2.1 Socioeconomic and Health Characteristics**

The project would benefit the population of the County of Hawai‘i, in particular the Kona area, which is the second largest population center on the island and a major locus of the visitor industry-based economy. The resident population of the North Kona District in 2010 was 37,875. The Hawai‘i County General Plan 2005 projected the resident population of North Kona to increase to 42,275 by the year 2020; however, the recent 2020 US Census reported an actual population of 47,252. Similar to the entire island and State of Hawai‘i, there is a severe shortage of physicians and other medical services that amounts to a State crisis, evidenced also by the recent signing by Governor David Ige of Senate Bills 2597 and 2657, appropriating a combined \$6.75 million to medical education and training and loan repayment for graduates in health care careers.

#### *Impacts*

The proposed project would benefit public health by enhancing and ensuring continuing of infrastructure vital for hospital operations and would have no negative socioeconomic impacts.

### **3.2.2 Cultural and Historic Resources**

#### *Existing Environment*

The material in this section is based on previous archaeological reports and environmental assessments for *mauka* Kona as well as a cultural study conducted by Maly and Maly (2001).

The purpose of this review was to document the presence of any historic properties or traditional cultural properties that might exist on the project site or be affected by project activities. Research and consultation were restricted because the activities are limited to construction on an

already fully disturbed quarter-acre project site, and no undeveloped land or land with any cultural resources is involved.

The cultural and archaeological setting of Kealahou and surrounding areas has been described in various archaeological and ethnographic works (Kelly 1983; Kaschko 1984, Hammatt et al. 1997, Robins et al. 2001, Maly and Maly 2001; Haun and Associates 2016). This section, which discusses the cultural history of the area, is based primarily upon information in these works.

For many years, researchers have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawai'i were underway by A. D. 300, although recent work suggests that Polynesians may not have arrived in Hawai'i until at least A. D. 1000 (Kirch 2012). The initial inhabitants of Hawai'i are believed to have come from the southern Marquesas Islands and settled initially on the windward side, eventually expanding to leeward areas. Early Hawaiian farmers developed new strategies and tools for their new environment (Ibid.). Societal order was maintained by their traditional philosophies and by the conical clan principle of genealogical seniority (Ibid). Universal Polynesian customs brought from their homeland included the observance of major gods Kane, Ku, and Lono; the *kapu* system of law and order; cities of refuge, various beliefs, and the concepts of *mana* and the *'aumakua* (Fornander 1969).

Nearby Kealahou Bay is popularly recognized as an important point of western contact, with James Cook's visit and subsequent death at Ka'awaloa, at the north end of Kealahou Bay. Accounts from this and later visits by explorers, whalers, and missionaries recall thriving communities with a highly developed system of agriculture. A member of Cook's crew estimated the population around Kealahou Bay at 15,000 (Ledyard 1963). Cook's midshipman Gilbert recorded, "The Country here is one entire plantation; as far as we could see from the ship which is divided into squares by stones thrown together or hedges of sugar cane" (Holmes 1982).

Settlement patterns and the social evolution of this portion of Kona are mirrored by the network of archaeological sites known as the Kona Field System, a major agricultural complex that extended from the coast to wetter reaches on the higher slopes of Hualālai and Mauna Loa. Inland cultivation was well underway by the 14<sup>th</sup> century A.D. (Schilt 1984). Growth of the Kona Field System in this period is tied to the region's ascent in political and religious importance.

The town of Kealahou stretches for more than a mile along the Mamalahou Highway, with parts of many *ahupua'a* aside from Kealahou itself. The project site is actually located in Kanaeue, the southernmost *ahupua'a* of the North Kona District. Kanaeue translates to "rotating," but is said to be named for a chief (Pukui et al. 1976:84). The *ahupua'a*'s exact boundaries have not been mapped but it appears to extend from near Pu'u 'Ohau on the coast to the vicinity of the hospital and at least slightly *mauka*.

Traditional life in Hawai'i took a sharp turn on January 18, 1778 with the arrival of British Capt. James Cook in the islands. On a return trip to Hawai'i ten months later, Kamehameha

visited Cook aboard his ship the *Resolution* off the east coast of Maui and helped Cook navigate his way to Hawai'i Island. Cook exchanged gifts with Kalaniopu'u at Kealahou Bay the following January and Cook left Hawai'i in February. However, Cook's ship then sustained damage to a mast in a severe storm off Kohala and returned to Kealahou, setting the stage for his death on the shores of the bay.

Fifteen years after Cook's visit, the botanist and surgeon on George Vancouver's expedition observed:

“Seeing these upper regions so industriously cultivated and teeming with productive crops...we are certain that nothing but wars, destructive wars, and commotions can ever reduce them to scarcity, seeing that they thus avail themselves of Nature's bounty in the conformation of their country by extending their cultivation to different regions of the air, they secure a continued succession of crops and therefore can never be destitute of supply” (Menzies 1920).

This account describes adaptation of cultivars to particular microclimates, which varied primarily with altitude. The project site is located in a zone of breadfruit (*Artocarpus altilis*), where useable space in between these trees planted with other food plants (Kelly 1983). Planting areas were divided by *kuaiwi*, or low stone walls running with the slope, which may have also served as trails between cultivated areas and were undoubtedly present near or even on the project site prior to terrain grading and recontouring for use as a hospital.

After contact, social change soon accelerated, driven by disease and drought, missionary activity, trade and urbanization. Trade with both the western world and Asia brought the beginnings of a money economy, and demand for sandalwood proved lucrative to the *ali'i*, distracting their attention from food production. While at first whaling and other forms of trading centered around Kealahou, this activity soon declined as Kamehameha directed ships to the urban centers of Kailua, Lahaina, and Honolulu.

Schilt (1984) summarized the early historic period of Kailua, Kona's port that emerged as its major town. In the late 1700s to early 1800s, Kamehameha monopolized foreign commerce including the provisioning of trading and whaling ships and beginning in 1811 the sandalwood trade. The first missionaries arrived in Kailua in 1820, but only stayed a few months. They returned in 1823 and were given land to establish missions and schools. The gradual shift from subsistence farming to a market economy began with the introduction of coffee, corn, pumpkins, cotton, pineapple, and Irish potatoes in the 1820s to 1840s, co-incident with the arrival of missionaries. The missionaries living in the region prior to 1850 traveled overland between Keauhou Bay and Kealahou Bay by means of a cart road that largely followed an earlier coastal footpath.

Introduced diseases rapidly took their toll on the native population, and by 1833 the population of the entire Kona district was estimated at 10,000 to 12,000, compared to the estimated 11,000 at Kealahou alone around the time of contact. The effects of disease were exacerbated by

drought and fire during this period. Kealakekua Bay was closed to ships for several years in 1846 due to epidemics.

In the 1840s, political acts of the Hawaiian Kingdom government changed the land tenure system in Hawai‘i. All lands were segregated into one of three categories: “Crown Lands” owned by the occupant of the throne, “Government Lands” controlled by the state, and “Konohiki Lands” controlled by the chiefs; and “were all subject to the rights of native tenants” (Chinen 1958:29). In 1846, King Kamehameha III appointed a Board of Commissioners commonly known as the Land Commissioners, to “confirm or reject all claims to land arising previously to the 10th day of December, AD 1845.” The legislature did not acknowledge this act until June 7, 1848 (Chinen 1958:16) and the act is known today as the Māhele.

In 1850, the Kingdom government passed laws allowing foreigners to purchase fee simple lands, and the Kuleana Act of 1850 allowed for fee simple land ownership by commoners. The lands of Kanaeue were claimed by the *ali‘i* Keohokaloli but ended up as Crown Land. A number of *kuleana* were awarded in the *ahupua‘a*; current tax maps do not depict any in the area of the project site. The Mahele of 1848 effectively severed much of the connection the *maka‘ainana*, or commoners, had maintained with their traditional croplands, leaving ownership of all of Kealakekua in the hands of a select few individuals. Shortly after 1850, accounts suggest that the Kona Field System was largely unmaintained, depopulation of the area being extensive (Hill 1856, Anderson 1865).

In conjunction with the *Kuleana* Act, the King authorized the issuance of Land Grants to applicants for tracts of Government land that were allocated during the *Māhele*. These Land Grants were generally larger than those awarded by the Land Commission. The Act resolved that portions of the Government Lands should be set aside and sold as grants ranging in size from one to fifty acres at a cost of fifty cents per acre. The stated goal of this program was to enable native tenants, many of whom were not awarded or insufficiently awarded land through the *Kuleana* Act, to purchase lands of their own. Despite the goal, this provided the mechanism that allowed many foreigners to acquire large tracts of Government Lands. In 1850, Grant 173 to John Peters included the land that is now the project site. This land was sold in 1851 to Nakookoo, who had acquired grants for much of the adjacent land.

In the 1850s, large portions of nearby Kalukalu Ahupua‘a were sold to Henry Nicholas Greenwell as Land Grants. Greenwell continued to acquire more land and his ranches, farms and other economic interests and those of his descendants were a large part of Kona history for the next century and a half. As described in Hammatt et al. (1997):

Henry N. Greenwell, founder of the Greenwell store was born in England in 1826 to a landed family in Lanchester, Durham at the Ford, the family home. He graduated from Sandhurst and spent time in Ireland doing Government work. Finding the military life insupportable, he sold his military commission in the army at the age of 23. He left for Australia to make a new start where he bought a sheep station. In 1849 he put all his money into a partnership which purchased a ship and goods, and sailed to San Francisco

with this shipload of provisions to be sold there during the Gold Rush. The crew deserted in the harbor and because his partner was elderly, Henry had to unload the ship by himself, consequently hurting himself badly. His partner sent him off to Honolulu because the best doctors in the Pacific were held by royalty here. He returned to San Francisco after his R & R only to find his partner had taken off with all the profits.

Henry then returned to Honolulu and worked on Fort Street with an English import/export company. He was sent to Kona to open a store there. In 1851 King Kamehameha III began selling land to foreigners. He purchased and planted them in oranges. After 15 years, the oranges caught a blight and Henry went on a trip around the world, stopping in the West Indies where he met a lime planter's daughter and married her and brought her back in 1868, along with a new variety of oranges found in Brazil.

Henry Greenwell is remembered for cultivating oranges, putting "Kona Coffee" on the European Market in the 1870s and for his temper. He raised sheep for wool at the higher elevations of his land after the civil war, dairies in the 1880s and later began extensive cattle ranching. He and his wife had 10 children. Henry N. Greenwell died in 1891 and his eldest son William H. Greenwell, born in 1869, inherited his estate which later became the W.H. Greenwell ranch (1997:44).

Commercial sugar cane cultivation was attempted in the early 1900s but was abandoned by the mid-1920s (Kelly 1983). The West Hawai'i Railway Company began building a railroad in 1901 to transport sugar cane to the Kailua Sugar Company Mill situated in Waiaha. The tracks paralleled a mid-elevation road below the main highway about a mile *makai* of the project site.

Cattle ranching continued and expanded during the 20th Century. Oral historical accounts cited by Hammatt et al. (1997:74) describe mid-20th century chain dragging and bulldozing above the 1,200-foot elevation in the project area, for pasture "improvement."

During the 20th century, the traditional subsistence and coastal settlement pattern was completely supplanted by the market economy and a concomitant shift to dispersed settlement; with houses and commercial establishments developed along the *mauka* Alanui Aupuni, predecessor to the Hawai'i Belt Road. By the 1970s, the rapidly developing tourism industry began to transform the region's land use from mainly ranching and farming to subdivisions, resorts, and commercial establishments, although coffee production persisted and even grew. While coffee cultivation started slowly, by the turn of the century it dominated agriculture in Kona, having displaced other crops including sugar cane, which was not as profitable in the dry climate. Coffee cultivation affected settlement patterns by creating many subdivided properties of five acres upon which both homes and farms were built.

### *Impacts and Mitigation Measures*

As part of the EA process, an effort was made to obtain information about any potential traditional cultural properties and associated practices that might be present, or have taken place

in the vicinity of the project site. The Office of Hawaiian Affairs was contacted but supplied no information relative to the existence of traditional cultural properties or customary practices at the graded and graveled lot that comprises the small project site. No caves, springs, *pu'u*, native forest groves, gathering resources or other natural features are present on or near the project site. The vegetation here – a driveway and lawn used for vehicle turnarounds and parking – does not contain the quality and quantity of resources that would be important for native gathering. As no resources or practices of a potential traditional cultural nature appear to be present on or near the project site, and there is no evidence of any traditional gathering uses or other cultural practices, the proposed wastewater treatment system would not appear to impact any culturally valued resources or cultural practices. The Draft EA was made available to agencies and groups who might have knowledge in order to confirm this finding. No party reviewing the Draft EA supplied any cultural information.

In terms of archaeological resources, as illustrated by the photos in Figure 2, the project site appears to have been graded to provide access, parking and construction staging in the past and is partially surfaced with concrete. As such, no archaeological features are present. In the unlikely event that archaeological resources are encountered during grading or construction, contract conditions will require that work in the immediate area of the discovery will be halted and DLNR-SHPD contacted as outlined in Hawai'i Administrative Rules 13§13-275-12. In order to assist in compliance with the Chapter 6e process, the State Historic Preservation Division (SHPD) was provided a link to a digital copy of the EA for their comment on the presumed lack of archaeological resources and no effect to significant historic properties. Kona Community Hospital will submit an SHPD HRS 6E Submittal Form prior as part of applying for a grading permit in order to complete review under Chapter 6e, HRS.

### **3.3 Infrastructure**

#### **3.3.1 Utilities**

##### *Existing Facilities and Services*

Electrical power to the project site is furnished by Hawai'i Electric Light Company (HELCO), telephone/cable TV service is supplied by Hawaiian Telcom, and potable water is provided by the Department of Water Supply (DWS).

##### *Impacts and Mitigation Measures*

All necessary utilities are available onsite. The project imposes only modest demands on electrical and water services and does not require any mitigation or special planning. Appropriate coordination with HELCO, DWS, and Hawaiian Telcom will be conducted during the design and construction of the redundant system.



### **3.3.2 Roads and Parking**

#### *Existing Facilities*

Access to the Kona Community Hospital, including the WWTS project site, is from Mamalahoa Highway via Haukapila Street, a two-lane County road. The driveway that accesses the project site also accesses the KCH Maintenance Building. There are no sight distance issues on this low-speed roadway.

#### *Impacts and Mitigation Measures*

No traffic issues are expected. By letter of July 5, 2022, the County of Hawai'i Police Department offered its initial review of the project and did not state any concerns with impact to traffic or public safety (see Appendix 1a).

### **3.4 Secondary and Cumulative Impacts**

The proposed project will not involve any long-term secondary impacts, such as population changes or effects on public facilities, because it simply enables Kona Community Hospital to continue to effectively treat its wastewater while providing maintenance on its treatment system. Although the project will provide some short-term construction jobs, these would almost certainly be filled by local residents and would not induce in-migration.

Review of HRS 343 and National Environmental Policy Act documents in the editions during the previous year of *The Environmental Notice*, as well as press coverage, indicates no known major planned or ongoing projects in the Kealahou area in the 2023 to 2025 timeframe that could interact with the proposed project. Most development in this area will continue to involve construction or renovation of individual homes and commercial structures, and no major infrastructure or development projects were noted. Operationally, the project would not generate any substantial effects of any type, including on subsurface or coastal water quality, as there would not be any increase in the volume of treated wastewater. In the context of all the homes, businesses and government facilities that have or will in the future contribute treated wastewater to the subsurface in this area of Kona, the current wastewater volumes from KCH are insignificant. For the construction phase, minor additional construction traffic, noise, air quality and scenic impacts will occur. There does not appear to be any potential for the redundant wastewater treatment system project's impacts to accumulate with impacts from any other known project or existing development to create a substantial adverse impact.

### **3.5 Required Permits and Approvals**

- Hawai'i County Building Division Approval
- Hawai'i County Planning Department Plan Approval
- Hawai'i State Department of Health WWTS Approval

### 3.6 Consistency With Government Plans and Policies

#### 3.6.1 Hawai'i State Plan

Adopted in 1978 and last revised in 1991 (Hawai'i Revised Statutes, Chapter 226, as amended), the Plan establishes a set of themes, goals, objectives and policies that are meant to guide the State's long-run growth and development activities. The three themes that express the basic purpose of the *Hawai'i State Plan* are individual and family self-sufficiency, social and economic mobility and community or social well-being. The proposed project would promote these goals by assisting Kona Community Hospital in effectively treating its wastewater and serving the Kona community.

#### 3.6.2 Hawai'i County Zoning, General Plan and Kona CDP

*Hawai'i County Zoning and SMA.* The project site is zoned single family residential (RS-15) by the County. Section 25-4-11 of the County Zoning Code allows for public uses that fulfill a government function within this zone, and the proposed facility is a permitted use. The Zoning Code specifies that Plan Approval shall be required for all public uses permitted under 25-4-11. The property is not situated within the County's Special Management Area (SMA).

The *General Plan* for the County of Hawai'i is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawai'i. The current plan was adopted by ordinance in 2005. The *General Plan* itself is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai'i. Most relevant to the proposed project are the following Standard and Course of Action:

##### Policies, Public Facilities, Health and Sanitation

(a) Encourage the development of new health care facilities or the improvement of existing health care facilities to serve the needs of Hamakua, North and South Kohala, and North and South Kona.

##### Standards, Public Facilities (1): Health and Sanitation

Hospitals should be on sites capable of handling moderate expansion of facilities. Quiet surroundings, convenient and adequate access, and compatibility with adjoining uses shall be required.

Discussion: The proposed project satisfies relevant standards and courses of action related to Public Health and Sanitation Facilities in Hawai'i County. Other relevant aspects of the General Plan relate to protection of natural and cultural resources and public safety and facilities. The proposed project will not adversely affect any natural or cultural resources or involve public safety or facility impacts.

The *Hawai‘i County General Plan Land Use Pattern Allocation Guide (LUPAG)*. The LUPAG map component of the *General Plan* is a graphic representation of the Plan’s goals, policies, and standards as well as of the physical relationship between land uses. It also establishes the basic urban and non-urban form for areas within the planned public and cultural facilities, public utilities and safety features, and transportation corridors. The project site is classified as Low Density Urban in the LUPAG. The proposed project is consistent with this designation.

### *Kona Community Development Plan*

The Kona Community Development Plan (CDP) encompasses the judicial district of North and South Kona and was developed under the framework of the February 2005 County of Hawai‘i General Plan. Community Development Plans are intended to translate broad General Plan Goals, Policies, and Standards into implementation actions as they apply to specific geographical regions around the County. CDPs are also intended to serve as a forum for community input into land-use, delivery of government services and any other matters relating to the planning area. The Kona CDP was adopted in September 2008 by the County Council. The purposes of the Kona CDP are to:

- Articulate Kona’s residents’ vision for the planning area.
- Guide regional development in accordance with that vision, accommodating future growth while preserving valued assets.
- Provide a feasible infrastructure financing plan to improve existing deficiencies and proactively support the needs of future growth.
- Direct growth in appropriate areas.
- Create a plan of action where government and the people work in partnership to improve the quality of life in Kona to live, work, and visit.
- Provide a framework to monitor the progress and effectiveness of the plan and to make changes and update, if necessary.

The Plan recognizes the somewhat limited role the County plays in the State’s hospital system, but contains **Objective PUB-3: Healthcare**: To ensure access to healthcare and promote a healthy lifestyle.

The proposed wastewater treatment system is consistent with these basic purposes and objectives and is not inconsistent with any other aspect of the Kona Community Development Plan.

### **3.6.3 Hawai‘i State Land Use Law**

All land in the State of Hawai‘i is classified into one of four land use categories – Urban, Rural, Agricultural, or Conservation – by the State Land Use Commission, pursuant to Chapter 205, HRS. The property is in the State Land Use Urban District. The proposed use is consistent with this State Land Use designation.

## **PART 4: DETERMINATION, FINDINGS AND REASONS**

### **4.1 Determination**

Based on the findings below, and upon consideration of comments to the Draft EA, Kona Community Hospital has determined that the proposed action will not have any significant effect in the context of Chapter 343, Hawai'i Revised Statutes and Chapter 11-200.1-13 of the State Administrative Rules significantly alter the environment, as impacts will be minimal, and will accordingly issue a Finding of No Significant Impact (FONSI).

### **4.2 Findings and Supporting Reasons**

Chapter 11-200.1-13, Hawai'i Administrative Rules, outlines those factors agencies must consider when determining whether an Action has significant effects:

- (a) In considering the significance of potential environmental effects, agencies shall consider and evaluate the sum of effects of the proposed action on the quality of the environment.
- (b) In determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected impacts, and the proposed mitigation measures. In most instances, an action shall be determined to have a significant effect on the environment if it may:
  1. *Irrevocably commit a natural, cultural, or historic resource.* No valuable natural or cultural resource would be committed or lost at the quarter-acre grassed/paved project site through construction and use of additional wastewater treatment system facilities at the hospital.
  2. *Curtail the range of beneficial uses of the environment.* Only a small area would be affected, and no restriction of beneficial uses would occur.
  3. *Conflict with the State's environmental policies or long-term environmental goals established by law.* The State's long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The project is minor, environmentally beneficial, and fulfills aspects of these policies calling for an improved social environment. It is thus consistent with all elements of the State's long-term environmental policies.
  4. *Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State.* The project would improve the social welfare of the community and State by improving wastewater treatment.
  5. *Have a substantial adverse effect on public health.* The project would affect public health and safety in only beneficial ways by ensuring adequate wastewater treatment at a medical

facility that is vital for the Kona community.

6. *Involve adverse secondary impacts, such as population changes or effects on public facilities.* No adverse secondary effects are expected to result from the proposed action, which would not induce in-migration, demand on other services, or lead to any unintended effects.
7. *Involve a substantial degradation of environmental quality.* The project is minor and environmentally benign, and thus it would not contribute to environmental degradation.
8. *Be individually limited but cumulatively have substantial adverse effect upon the environment or involves a commitment for larger actions.* Review of HRS 343 and National Environmental Policy Act documents in the editions during the previous year of *The Environmental Notice*, as well as press coverage, indicates no known major planned or ongoing projects in the Kealahou area in the 2023 to 2025 timeframe that could interact with the proposed project. Most development in this area will continue to involve construction or renovation of individual homes and commercial structures, and no major infrastructure or development projects were noted. Operationally, the project would not generate any substantial effects of any type, including on subsurface or coastal water quality, as there would be no increase in the quantity of treated wastewater. For the construction phase, very minor additional construction traffic, noise, air quality and scenic impacts will occur. There does not appear to be any potential for the redundant wastewater treatment system project's impacts to accumulate with impacts from any other known project or existing development to create a substantial adverse impact.
9. *Have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat.* The project site is a small, grassed/paved area with no natural vegetation or habitat. Impacts to rare, threatened or endangered species of flora or fauna will not occur.
10. *Have a substantial adverse effect on air or water quality or ambient noise levels.* No adverse effects on these resources would occur. Mitigation of construction-phase impacts will prevent erosion, sedimentation, or other pollution that could affect surface water quality. No increase in treated wastewater levels is expected. After completion, although the total system may be able to handle roughly double the wastewater volume, no measurable increase is expected, as there are no expansion plans at KCH that would generate substantially more wastewater. In addition, the redundant wastewater treatment system will only be used while the existing is undergoing maintenance/repair and will not be used concurrently with the existing wastewater treatment system.. Kona Community Hospital will ensure that the construction contractor consults with the Department of Health. If applicable, it will obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction that may include various mitigation measures for construction noise.

11. *Have a substantial adverse effect on or be 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.* Although the project is located in an area with volcanic and seismic risk, the entire Island of Hawai‘i shares this risk, and the project is not imprudent to construct. There is only minimal flood hazard in this area, and at over 1,600 feet in elevation, no risk from sea level rise.

12. *Have a substantial adverse effect on scenic vistas and viewplanes, during day or night, identified in county or state plans or studies.* No scenic vistas and viewplanes will be adversely affected by the project, and all lighting will be shielded, with a low-blue spectra that minimizes light pollution.

13. *Require substantial energy consumption or emit substantial greenhouse gases.* Negligible amounts of energy input and greenhouse gas emissions would be required for construction and use of the new WWTS. The facility would meet or exceed all energy efficiency standards.

## REFERENCES

- Anderson, R. 1865, *The Hawaiian Islands: Their Progress and Condition under Missionary Labors*, 3<sup>rd</sup> ed. Boston: Gould and Lincoln.
- Chinen, J.J. 1958. *The Great Mahele: Hawaiian Land Division of 1848*. Honolulu: University of Hawai'i Press.
- Fornander, A. 1969. *An Account of the Polynesian Race: Its Origin and Migrations*. Tokyo: Charles E. Tuttle Co., Inc.
- Gagne, W., and L. Cuddihy. 1990. "Vegetation," pp. 45-114 in W.L. Wagner, D.R. Herbst, and S.H. Sohmer, eds., *Manual of the Flowering Plants of Hawai'i*. 2 vols. Honolulu: University of Hawai'i Press.
- Giambelluca TW, Chen Q, Frazier AG, Price JP, Chen Y-L, Chu P-S, Eischeid J., and Delparte, D. 2013. The Rainfall Atlas of Hawai'i. <http://rainfall.geography.hawaii.edu>.
- Hammatt, H., D. Borthwick, B. Colin, I. Masterson, J. Robbins, and H. Wong-Smith. 1997. *Archaeological Inventory Survey and Limited Testing of a 1,540-Acre Parcel in the Ahupua'a of Honuaino, Hokukano, Kanaeue, Haleki'i, Ke'eke'e, 'Ilikahi, Kanakau, Kalukalu, and Onouli, Districts of North and South Kona, Island of Hawai'i*. Prepared by Cultural Surveys Hawai'i for 1250 Oceanside Partners. Honolulu.
- Haun and Associates. 2016. *Final Archaeological Inventory Survey, TMK: (3) 8-1-004: Por. 043 Kalukalu Ahupua'a, South Kona District, Island Of Hawai'i*. Prep. for Kona Historical Society. Kealahou.
- Hawai'i County Planning Department. 2005. *The General Plan, County of Hawai'i*. Hilo.
- \_\_\_\_\_. 2008. *Kona Community Development Plan*. Hilo.
- Heliker, C. 1990. *Volcanic and Seismic Hazards on the Island of Hawai'i*. Washington: U.S. GPO.
- Hill, S.S. 1856. *Travels in the Sandwich and Society Islands*. London: Chapman and Hall.
- Holmes, C. (ed). 1982. *Captain Cook's Final Voyage: The Journal of Midshipman George Gilbert*. Honolulu: University of Hawai'i Press.
- Kaschko, M. 1984. *Archaeological Reconnaissance Survey, Pu'u Ehu Estates Project Area, Lands of Honuaino, Hokukano, Kanueue, Halekii, and Keekee, Districts of North and South Kona, Island of Hawai'i (TMK: 3-7-9-12:3)*. Prepared by PHRI for Red Hill Joint Venture. Hilo, HI.
- Kelly, M. 1983. *Na Mala o Kona: Gardens of Kona, a History of Land Use in Kona, Hawai'i*. Departmental Report Series 83-2. Department of Anthropology, Bishop Museum, Honolulu.
- Kirch, P.V. 2012. *A Shark Going Inland Is My Chief: The Island Civilization of Ancient Hawai'i*. Berkeley, CA.: University of California Press.

Ledyard, J. 1963. *John Ledyard's Journal of Captain Cook's Last Voyage*. Edited by J.K. Munford. Corvallis, OR: Oregon State University Press.

Maly, K. and O. Maly. 2001. *He Wahi Mo 'Olelo No Nā 'Āina, A Me Nā Ala Hele I Hehi 'Ia, Mai Keauhou A I Kealakekua, Ma Kona, Hawai'i A Historical Overview of the Lands, and Trails Traveled, Between Keauhou And Kealakekua, Kona, Hawaii*. Hilo, HI, Kumu Pono Associates.

Menzies, A. 1920. *Hawaii Nei 128 Years Ago*. Edited by W.J. Wilson. Honolulu: The New Freedom.

Robins, J.R., R. Ness, and S. Williams (revised by R. Spear). 2001. *Archaeological Inventory Survey of the Proposed Mamalahoa Bypass Road Corridor in the Ahupua'a of Keauhou 2, Honalo, Ma'ihī 1-2, Kuamo'o 1-3, Kawanui 1-2, Lehu'ula 1-2 Honua'ino 1-4, Hokukano 1-2, Kanueue 1-2, Haleki'i, Ke'eke'e 1-2, 'Ilikahi, Kanakau, Onouli 1-2, Keopuka, and Ka'awaloa, North and South Kona Districts, Island of Hawai'i, Hawai'i*. Prepared for Oceanside 1250 Partners. Honolulu.

Schilt, R. 1984. *Subsistence and Conflict in Kona, Hawai'i: An Archaeological Study of the Kuakini Highway Realignment Corridor*. Departmental Report Series 84-1. Department of Anthropology, Bishop Museum, Honolulu.

U.S. Council on Environmental Quality (CEQ). 2016. *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*. Guidance dated August 1, 2016, signed by C. Goldfuss, CEQ.

U.S. Dept. of Commerce, Economics and Statistics Administration, Bureau of the Census, 2022, <http://factfinder.census.gov/>.

U.S. Fish and Wildlife Service (USFWS). 2022. *ECOS Environmental Conservation Online System*. <https://ecos.fws.gov/ecp/species-reports>

U.S. Geological Survey (USGS). 2000. *Seismic Hazard Maps for Hawaii*. By F.W. Klein, A.D. Frankel, C.S. Mueller, R.L. Wesson and P.G. Okubo.

U.S. Soil Conservation Service. 1973. *Soil Survey of Island of Hawai'i, State of Hawai'i*. Washington: U.S.D.A. Soil Conservation Service.

University of Hawai'i at Hilo, Dept. of Geography. 1998. *Atlas of Hawai'i*. 3rd ed. Honolulu: University of Hawai'i Press.

University of Hawai'i at Manoa, Sea Grant College Program. 2014. *Climate Change Impacts in Hawai'i - A summary of climate change and its impacts to Hawai'i's ecosystems and communities*. UNIH-SEAGRANT-TT-12-04.

Wolfe, E.W., and J. Morris. 1996. *Geologic Map of the Island of Hawai'i*. USGS Misc. Investigations Series Map i-2524-A. Washington, D.C.: U.S. Geological Survey.



**[This page intentionally left blank]**

# **ENVIRONMENTAL ASSESSMENT**

## **Kona Community Hospital Redundant Wastewater Treatment System**

### **APPENDIX 1A Comments in Response to Early Consultation**

**[This page intentionally left blank]**

**HAWAII FIRE DEPARTMENT . COUNTY OF HAWAII .  
HILO, HAWAII 96720**

**DATE** June 28, 2022

**Memorandum**

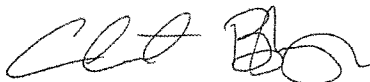
**TO :** RON TERRY

**FROM :** CAPTAIN CLINTON BAYBAYAN, FIRE PREVENTION BUREAU

**SUBJECT: EA ASSESSMENT FOR KONA COMMUNITY HOSPITAL  
WASTEWATER TREATMENT SYSTEM UPGRADE.**

In regards to the above mentioned project, Fire Department Access and Water Supply shall comply with Chapter 18 of the 2018 Hawaii State Fire Code and Chapter 26 of the Hawaii County Code. For any questions please email [Clinton.Baybayan@hawaiicounty.gov](mailto:Clinton.Baybayan@hawaiicounty.gov) or call 808-323-4761.

Respectfully Submitted,



Clinton Baybayan  
Fire Prevention Captain  
Fire Prevention Branch  
Hawaii Fire Department

**From:** Stephen Holmes <councilmemberholmes@icloud.com>

**Sent:** Thursday, June 23, 2022 10:18 AM

**To:** rterry@hawaii.rr.com

**Cc:** 333cory@gmail.com; Chuck Flaherty <one@aloha.net>; Robert Culbertson <dancingcloudrefuge@gmail.com>; Jon Olson <jonolson631@gmail.com>

**Subject:** Re: Early consultation for Kona Community Hospital Wastewater System Upgrade Environmental Assessment

Ron:

Obviously with the U.S. Supreme Court decision in Maui County v. Hawaii Wildlife Fund, any form of point source discharge to groundwater where pollutants can be conveyed to the regulated waters of the United States must have a Clean Water Act NPDES permit. The Court laid out a fairly broad test in it's decision and upon remand to Federal Judge Susan Mollway, an interpretation of the test was established. We now have case law.

While the Lahaina WWTP used injection wells, the Clean Water Act language for point source discharges includes sumps or percolation ponds. From the Hawaii County Wastewater GIS collection system maps, it looks like a sewer connection line extends to the hospital, so line capacity with the proposed expanded capacity would be the next issue to address in the EA. Both line capacity and pump capacity.

Currently, the Hilo Wastewater Treatment Plant is a train wreck with decades of deferred maintenance. EPA Region 9 officials recently came over to the Big Island and took the tour with DEM Director Ramzi Mansour. It is non-compliant and will likely be facing a new consent decree. This may impact adding additional flows. There may be a moratorium requirement. Normally, Hilo would have two separate trains for processing wastewater within the plant, but corrosion has fused parts and only one is operating and just barely. Any outage means a bypass and ongoing violation.

The Hilo collection system has major infiltration and inflow problems that reduce line capacity and allow saltwater into the system. This is corrosive to metal parts, reduces the biological treatment efficiency, increases pumping costs, and limits the ability to add more homes without risking bypass incidents that are all too frequent and impact water quality. Honolulu has successfully used Insituform or cured in place pipe technology to address this cost effectively without digging up roads. Under a federal consent decree, Honolulu has had to repair miles of sewer lines, so Hawaii County may be in a similar situation.

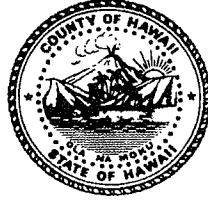
There are private wastewater service companies that have approached Hawaii County with no upfront capital financing options, but so far no movement from the Roth Administration. The Environmental Management Commission has passed a resolution urging support for a wastewater enterprise fund to provide dedicated funding, but no movement on that either. The County already faces two existing federal consent decrees and the resources are not being provided to DEM. It's a mess.

Another issue will be disposal of solids from private treatment as the Big Island has no septage handling facilities or digester tanks for this purpose. Landfilling solids leads to methane outgassing if the gas is not collected and beneficially used. This adds to our greenhouse gas and climate crisis.

Thanks for your outreach.

Steve Holmes

**Mitchell D. Roth**  
Mayor



**Paul K. Ferreira**  
Police Chief

**Kenneth Bugado, Jr.**  
Deputy Police Chief

## County of Hawai'i

### POLICE DEPARTMENT

349 Kapi'olani Street • Hilo, Hawai'i 96720-3998  
(808) 935-3311 • Fax (808) 961-2389

July 5, 2022

Mr. Ron Terry, Ph.D  
Geometrician Associates LLC  
10 Hina Street  
Hilo, HI 96720

Dear Mr. Terry:

**SUBJECT: EARLY CONSULTATION FOR ENVIRONMENTAL ASSESSMENT FOR KONA  
COMMUNITY HOSPITAL WASTEWATER TREATMENT SYSTEM UPGRADE, TMK (3<sup>RD</sup>.)  
7-9-010:081, NORTH KONA DISTRICT, ISLAND OF HAWAII**

The above-referenced Early Consultation for Environmental Assessment for Kona Community Hospital Wastewater Treatment System Upgrade has been reviewed and we offer no comments at this time.

Should you have any questions, please contact Captain Gilbert Gaspar Jr., Commander of the Kona District, at (808)326-4646, extension 299.

Sincerely,

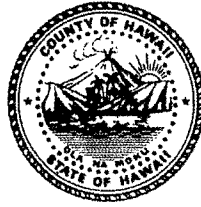
**PAUL K. FERREIRA**  
POLICE CHIEF



**CHAD BASQUE**  
ASSISTANT POLICE CHIEF  
AREA II OPERATIONS

GG/jaj  
22HQ0755

Mitchell D. Roth  
Mayor



Stephen M. Pause, P.E.  
Acting Director

Lee E. Lord  
Managing Director

**County of Hawai'i**  
**DEPARTMENT OF PUBLIC WORKS**  
**Aupuni Center**  
101 Pauahi Street, Suite 7 · Hilo, Hawai'i 96720-4224  
(808) 961-8321 · Fax (808) 961-8630  
public\_works@hawaiicounty.gov

JULY 22, 2022

ATTN: RON TERRY  
GEOMETRICIAN ASSOCIATES, LLC.  
P.O. BOX 396  
HILO, HAWAII 96721  
(via email to rterry@hawaii.rr.com)

SUBJECT: EARLY CONSULTATION FOR ENVIRONMENTAL ASSESSMENT FOR  
KONA COMMUNITY HOSPITAL WASTEWATER TREATMENT SYSTEM  
UPGRADE  
NORTH KONA DISTRICT, ISLAND OF HAWAII  
TMK: (3) 7-9-010:081

We received the subject dated June 23, 2022 and have the following comments:

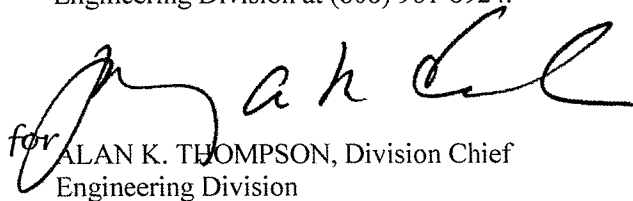
The subject parcels are in an area designated as Zone X on the Flood Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA). Zone X is an area determined to be outside the 500-year floodplain.

All development-generated runoff shall be disposed of on site and not directed toward any adjacent properties. A drainage study shall be prepared and the recommended drainage system shall be constructed meeting the approval of the Department of Public Works.

All activities shall comply with the requirements of Hawaii County Code (HCC), Chapter 10, Erosion and Sedimentary Control.

If there is any construction within Haukapila Street, a private road, it shall also comply with HCC, Chapter 10, Erosion and Sedimentary Control..

Should there be any questions concerning this matter, please contact Ms. Robyn Matsumoto in our Engineering Division at (808) 961-8924.

  
for ALAN K. THOMPSON, Division Chief  
Engineering Division

RM



**DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII**  
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAII 96720  
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

July 28, 2022

Ron Terry, Ph.D.  
Geometrician Associates, LLC  
10 Hina Street  
Hilo, HI 96721

Dear Dr. Terry:

**Subject: Pre-Environmental Assessment Consultation for Kona Community Hospital  
Wastewater Treatment System Upgrade, North Kona District, Island of Hawai'i  
Tax Map Key 7-9-010:081**

This is in response to your Pre-Environmental Assessment Consultation request dated June 23, 2022.

The proposed project is located approximately 1200 feet to the north and approximately 140 feet lower than the Department's Haleki'i Well. Based on these conditions, it should not have an adverse impact to the water quality of this well.

Should the proposed project require additional water from the Department, an estimated maximum daily water demand calculation should be provided, to determine if water is available from the existing system.

Should there be any questions, please contact Mr. Ryan Quitarano of our Water Resources and Planning Branch at (808) 961-8070, extension 256.

Sincerely yours,

Keith K. Okamoto, P.E.  
Manager-Chief Engineer

RQ:dfg



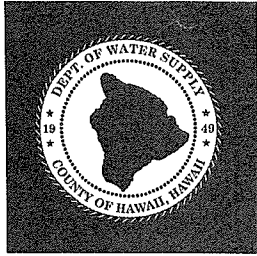
**[This page intentionally left blank]**

# **ENVIRONMENTAL ASSESSMENT**

## **Kona Community Hospital Redundant Wastewater Treatment System**

### **APPENDIX 1B Comments to Draft EA and Responses**

**[This page intentionally left blank]**



**DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I**  
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720  
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

June 20, 2023

Mr. Robert Hollandsworth, Acting Facility Director  
Kona Community Hospital  
Hawai'i Health Systems Corporation  
79-1019 Haukapila Street  
Kealahou, HI 96750

Dear Mr. Hollandsworth:

**Subject: Draft Environmental Assessment for Kona Community Hospital  
Redundant Wastewater Treatment System  
North Kona District, Island of Hawai'i  
Tax Map Key 7-9-010:081**

We have reviewed the subject Draft Environmental Assessment and have no additional comments to offer at this time.

Should there be any questions, please contact Mr. Ryan Quitarano of our Water Resources and Planning Branch at (808) 961-8070, extension 256.

Sincerely yours,

Keith K. Okamoto, P.E.  
Manager-Chief Engineer

RQ:dfg

copy - Geometrician Associates, LLC

# geometrician

ASSOCIATES, LLC  
integrating geographic science and planning

phone: (808) 969-7090 10 Hina Street Hilo Hawai'i 96720 rterry@hawaii.rr.com

November 23, 2023

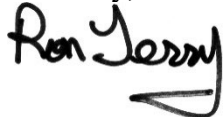
Keith K. Okamoto, P.E., Manager-Chief Engineer  
Department of Water Supply, County of Hawai'i  
345 Kekuanao'a Street, Suite 20  
Hilo HI 96720-3998

Dear Mr. Okamoto:

**Subject: Comment to Draft Environmental Assessment for Kona Community Hospital Redundant Wastewater Treatment System, TMK (3rd) 7-9-010:081, North Kona District, Island of Hawai'i.**

Thank you for the comment letter on the Draft EA in which you stated that the Department of Water Supply has no additional comments to offer at this time. We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,



Ron Terry, Principal  
Geometrician Associates

Cc: Robert Hollandsworth, Construction Supervisor, Facilities

-----Original Message-----

From: Stephen Holmes <councilmemberholmes@icloud.com>

Sent: Thursday, June 8, 2023 10:01 AM

To: rterry@hawaii.rr.com

Subject: Kona Hospital wastewater

Ron:

I recommend a containerized MBR system for easy install and high quality effluent. There are a number of companies making these and they can be done under lease or lease to purchase options. Lots of ways to structure it. They can even be set up for remote monitoring under a service contract.

The absorption bed might be considered a point source discharge under the Clean Water Act. As you probably have read, Earthjustice on behalf of a local hui is suing Hawaii County over discharges to a sump at Kealakehe. Water recycling avoids this potential legal issue.

Steve Holmes

# geometrician

A S S O C I A T E S , L L C  
integrating geographic science and planning

phone: (808) 969-7090 10 Hina Street Hilo Hawai'i 96720 rterry@hawaii.rr.com

November 23, 2023

Stephen Holmes  
councilmemberholmes@icloud.com

Dear Mr. Holmes:

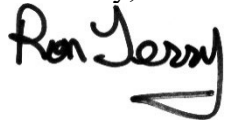
**Subject: Comment to Draft Environmental Assessment for Kona Community Hospital Redundant Wastewater Treatment System, TMK (3rd) 7-9-010:081, North Kona District, Island of Hawai'i.**

Thank you for the comment letter on the Draft EA in which you recommended a containerized membrane bioreactor (MBR) system for easy installation and high quality effluent. You provided details that indicated that it would be a relatively simple and straightforward way to handle the effluent, and that would avoid the potential for the proposed project's absorption bed to be considered a point source discharge under the Clean Water Act. In the interest of ensuring that all reasonable alternatives were considered, the project engineers were asked to evaluate the potential for this option to reasonably satisfy the purpose and need of the project. Their evaluation was carefully considered by Kona Community Hospital (KCH) officials.

The MBR system is designed in large part to provide irrigation/ready water. However, there is no irrigation system at KCH, and no need for one. The rainfall is adequate to provide water for all the landscaping. Furthermore, there is no nearby user that requires irrigation water, nor a mechanism to transfer water via pipes, pumps and storage facilities to such a user, even if they did exist. While the effluent that would result from an MBR system would be of higher quality, the proposed system also significantly remediates the wastewater. There are no identified water quality issues with the quantity and quality of effluent being absorbed in this particular location. The new proposed wastewater treatment system would be a redundant back-up system that would utilize the existing leach field and would not increase the amount of effluent. Only one of the plants would be used at any given time. Considering all these factors, the considerable extra expense and logistics of construction and maintenance of an MBR system, along with its own redundant backup system, is not justified.

We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

A handwritten signature in black ink that reads "Ron Terry". The signature is written in a cursive style with a large, stylized "R" and a long, sweeping underline.

Ron Terry, Principal  
Geometrician Associates

Cc: Robert Hollandsworth, Construction Supervisor, Facilities