ALAN M. ARAKAWA
Mayor

STEWART STANT
Director

MICHAEL M. MIYAMOTO
Deputy Director

MICHAEL RATTE
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

June 14, 2016

Mr. Scott Glenn, Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i
235 S. Beretania Street, Room 702
Honolulu HI 96813

Subject: South Maui Recycled Water System Expansion Project – 2nd 1.0 MG Tank and Pipeline Improvements, (Job No. WW15-01)

Dear Mr. Glenn:

With this letter, the County of Maui, Wastewater Reclamation Division hereby transmits the draft environmental assessment and anticipated finding of no significant impact (DEA-AFONSI) for the South Maui Recycled Water System Expansion Project – 2nd 1.0 MG Tank and Pipeline Improvements, situated at 2-2-024:010 & 2-2-002:075, in Makawao District, on the island of Maui, for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, two copies of the DEA-AFONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact Ms. Joanie Gushiken at (808) 270-1763 or joanie.gushiken@co.maui.hi.us.

Sincerely,

Stewart Stant, Director
Department of Environmental Management

Enclosures

AGENCY PUBLICATION FORM

Project Name:	South Maui Recycled Water System Expansion Project – 2nd 1.0 MG Tank and Pipeline Improvements
Project Short Name:	South Maui R-1 System Expansion
HRS §343-5 Trigger(s):	Use of County lands and funds
Island(s):	Maui
Judicial District(s):	Makawao
TMK(s):	2-2-024:010 & 2-2-002:075
Permit(s)/Approval(s):	NPDES Permit & Community Noise Permit, as applicable; Department of Health Approval to Construct and Approval to Use; Construction Permits
Proposing/Determining Agency:	County of Maui, Department of Environmental Management, Wastewater Reclamation Division
Contact Name, Email, Telephone, Address	Ms. Joanie Gushiken, Joanie.Gushiken@co.maui.hi.us (808)270-1763, 2200 Main Street, Suite 610, Wailuku, Hawaii 96793-2155
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Fukunaga & Associates, Inc.
Contact Name, Email, Telephone, Address	Ms. Lynn Malinger, lmalinger@fukunagaengineers.com (808)944-1821, 1357 Kapiolani Boulevard, Suite 1530, Honolulu, Hawaii 96814

Status (select one)	**Submittal Requirements**
__X__ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
____ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.

____ Withdrawal — Identify the specific document(s) to withdraw and explain in the project summary section.

____ Other — Contact the OEQC if your action is not one of the above items.

Project Summary
Provide a description of the proposed action and purpose and need in 200 words or less.

The County of Maui, Wastewater Reclamation Division (WWRD) operates the Kihei WWRF which produces R-1 recycled water, the highest grade of recycled water for non-potable use, and distributes this valuable water resource through the South Maui Recycled Water System. During the summer months, the WWRD delivers approximately 1.8 million gallons per day (MGD) of recycled water to approximately 30 customers in South Maui. The proposed 2nd 1.0 MG tank would be located on the existing County site adjacent to the existing 1.0 MG R-1 tank, and the proposed pipeline improvements would occur at the Kihei WWRF. The proposed improvements will create a more robust system that can accommodate the increase in recycled water demands during the peak summer months, provide redundancy and greater reliability, and allow for an increase in the number of recycled water customers. The overall effect would provide an alternate water source to meet non-potable demands and thereby reserve potable water for potable needs, as well as decrease the use of injection wells for effluent disposal.

DRAFT
ENVIRONMENTAL ASSESSMENT

SOUTH MAUI
RECYCLED WATER SYSTEM EXPANSION
2ND 1.0 MG TANK & PIPELINE IMPROVEMENTS

WASTEWATER RECLAMATION DIVISION
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF MAUI

Prepared by:

Fukunaga & Associates, Inc.
1357 Kapiolani Blvd., Suite 1530
Honolulu, Hawaii 96814

June 2016

Table of Contents

LIST OF FIGURES

APPENDICES

LIST OF ABBREVIATIONS

ALISH	Agricultural Lands of Importance to the State of Hawaii
APE	Area of Potential Effect
BMPs	Best Management Practices
CDP	Census Designated Place
CWRM	State of Hawaii, Department of Land and Natural Resources, Commission on Water Resource Management
CZM	Coastal Zone Management
DBEDT	State of Hawaii, Department of Business, Economic Development, and Tourism
DLNR	State of Hawaii, Department of Land and Natural Resources
DOH	State of Hawaii, Department of Health
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FPPA	Farmland Protection Policy Act
FEMA	Federal Emergency Management Agency
FWCA	Fish and Wildlife Coordination Act
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
HAR	Hawaii Administrative Rules
HRS	Hawaii Revised Statutes
IRH	Indoor and Radiological Health
LID	Low Impact Development
MG	Million Gallons
MGD	Million Gallons per Day
MIP	Maui Island Plan
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NESDIS	National Environmental Satellite, Data, and Information Service
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
PWS	Public Water System
SDWA	Safe Drinking Water Act
SHPD	State of Hawaii, Department of Land and Natural Resources, Historic Preservation District
SIP	State Implementation Plan
SIR	Scientific Investigations Report
SMA	Special Management Area
SRF	State Revolving Fund
TMK	Tax Map Key
UHERO	University of Hawaii, Economic Research Organization
UIC	Underground Injection Control
U.S.	United States
USDA	United States Department of Agriculture

LIST OF ABBREVIATIONS (Continued)

USGS	United States Geological Survey
USFWS	United States Fish & Wildlife Service
WWRF	Wastewater Reclamation Facility
WWRD	Wastewater Reclamation Division
WUDP	Water Use and Development Plan

EXECUTIVE SUMMARY

Project Name:	South Maui Recycled Water System Expansion Project 2nd 1.0 Million Gallon (MG) Tank and Pipeline Improvements	
Proposing/Determining Agency:	County of Maui Department of Environmental Management Wastewater Reclamation Division 2200 Main Street, Suite 610 Wailuku, Hawaii 96793-2155	
Property Owner:	County of Maui	
Consultant:	Fukunaga & Associates, Inc. 1357 Kapiolani Boulevard, Suite 1530 Honolulu, Hawaii 96814	
Location:	Kihei, Maui Island	
Tax Map Key:	2-2-024:010 & 2-2-002:075	
State Land Use District:	Agriculture	
Maui Island Plan Land Use:	2-2-024:010 2-2-002:075	Urban, Outside of Protected Areas Outside of Growth Boundaries, Outside of Protected Areas
Community Plan Land Use:	2-2-024:010 2-2-002:075	Public/Quasi-Public & Agriculture Agriculture
County Zoning:	Agriculture	
Environmental Assessment "Trigger":	Proposed use of County Lands and Funds	
Determination:	Anticipated Finding of No Significance (AFONSI)	

1. PROJECT OVERVIEW

1.1 PROJECT LOCATION, CURRENT LAND USE, AND OWNERSHIP

The project is located to the east of Piilani Highway on two properties identified by Tax Map Key (TMK) 2-2-002:075 and TMK 2-2-002:010. TMK 2-2-002:075 is the location of the existing 1.0 million gallon (MG) recycled water storage tank and is owned by the County of Maui. The 1.332 acre tank site is approximately 0.5 miles east of the Kihei Wastewater Reclamation Facility (WWRF) and is within property owned by the Monsanto Company. The tank site is accessed via a private paved roadway from Piilani Highway. TMK 2-2-024:010 is the location of the existing Kihei WWRF and is owned by the County of Maui. The 12.931 acre Kihei WWRF is located off of Piilani Highway and is accessible through East Welakahao Road. See **Figure 1** for the project location.

1.2 PROPOSED ACTION

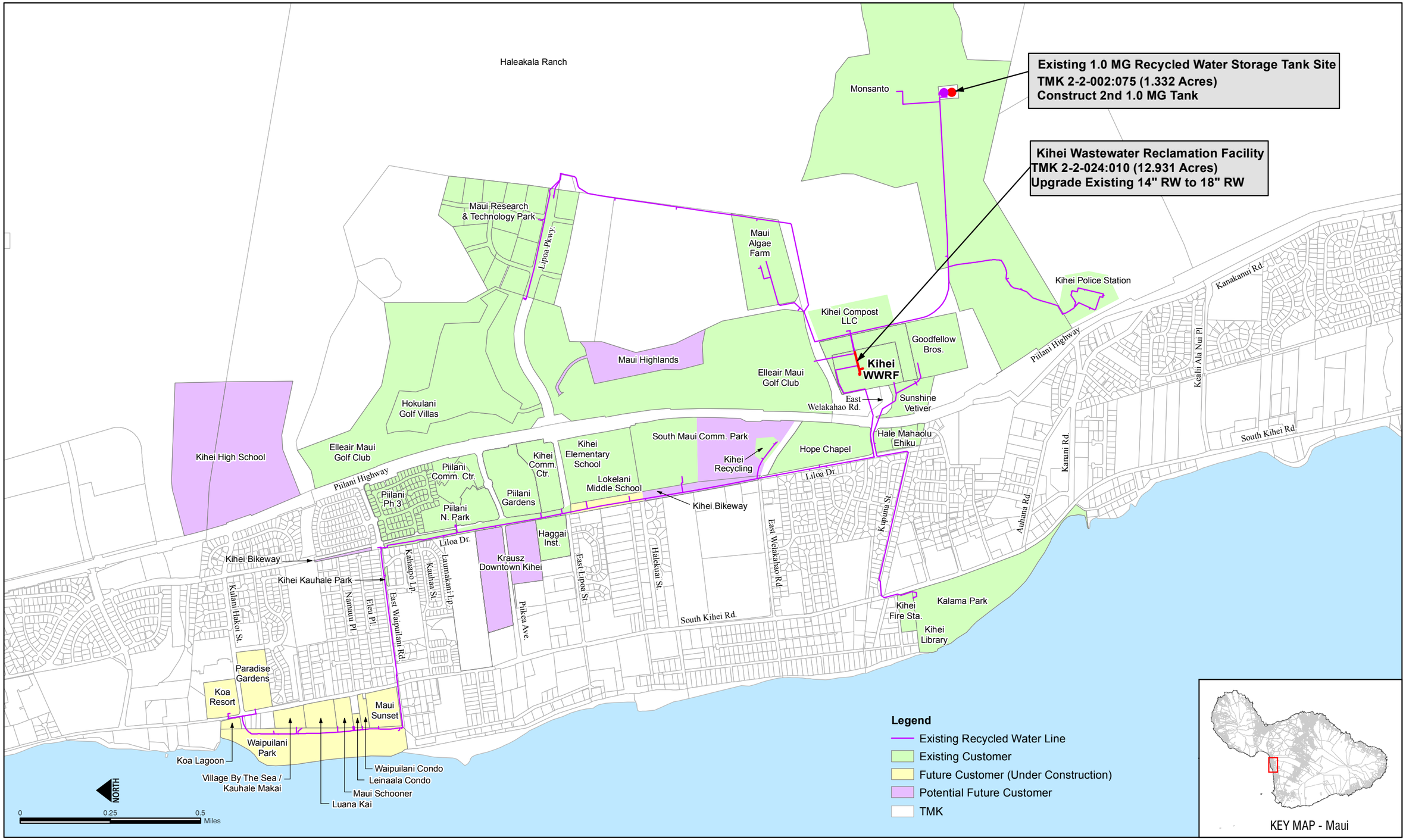
The proposed project includes work as described below:

- Construct a new 1.0 MG recycled water storage tank and appurtenances adjacent to the existing tank. The tank dimensions would be similar to the existing tank, approximately 20 feet high and 100 feet in diameter. See **Figure 2** for photos of the existing tank site.
- Provide new electric service from an existing Monsanto overhead line and provide security lighting at the tank site.
- Upgrade approximately 400 feet of existing 14-inch recycled water line to 18-inch recycled water line, replace the effluent pump station flow meter and provide a new meter vault at the Kihei WWRF. See **Figure 3** for the proposed 18-inch recycled water line alignment.

1.3 PURPOSE AND NEED

The County of Maui, Wastewater Reclamation Division (WWRD) operates the Kihei WWRF which produces R-1 recycled water, the highest grade of recycled water for non-potable use, and distributes this valuable water resource through the South Maui Recycled Water System. During the summer months the WWRD delivers approximately 1.8 million gallons per day (MGD) of recycled water to approximately 30 customers in South Maui. The existing system consists of a 1.0 MG recycled water storage tank and distribution system that extends service to commercial properties and public facilities as shown on **Figure 1**. Future potential areas of service are also shown on **Figure 1**.

The County of Maui has been at the forefront of water reuse in the State of Hawaii, and has been proactively developing its reuse programs since the early 1990's. In 1996, Chapter 20.30 – Use of Reclaimed Water, was adopted into the Maui County Code of Ordinances. Chapter 20.30 – Use of Reclaimed Water serves to "conserve the limited water resources in the County of Maui, encourage the use of reclaimed water and reduce the reliance on injection wells for the disposal of wastewater effluent." This ordinance requires the mandatory use of recycled water for irrigation by commercial properties where there is a recycled water distribution main contiguous or within one hundred feet of the consumer's property line.



South Maui Recycled Water System Expansion
Draft Environmental Assessment

PROJECT LOCATION AND SOUTH MAUI RECYCLED WATER SYSTEM SERVICE AREA

Fukunaga & Associates, Inc.

FIGURE 1

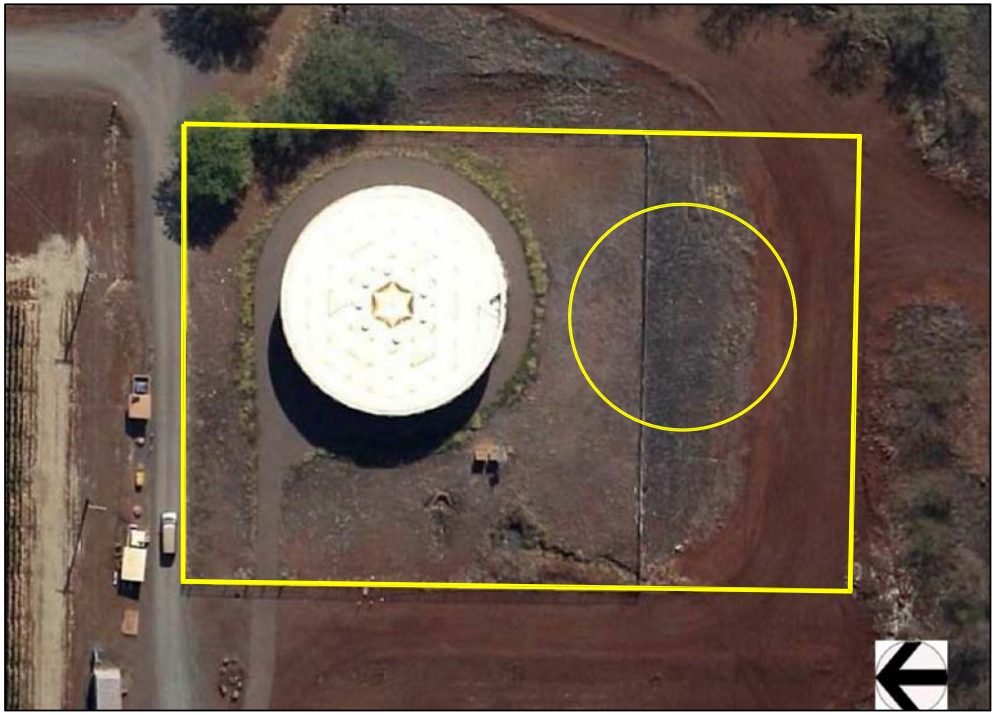


Photo 2: Existing 1.0 MG recycled water storage tank; approximate boundary of TMK 2-2-002:075 delineated in yellow. *(Source: Google Maps)*

Photo 1: Existing 1.0 MG recycled water storage tank looking east/mauka. *(Source: Google Maps)*

Photo 3: Existing Kihei Wastewater Reclamation Faciiity (WWRF); general location of new 18-inch recycled water line.

This project will create a more robust system that can accommodate the increase in recycled water demands during the peak summer months, provide redundancy and greater reliability, and allow for an increase in the number of recycled water customers. The overall effect would provide an alternate water source to meet non-potable demands and thereby reserve potable water for potable needs, as well as decrease the use of injection wells for effluent disposal.

1.4 CONSTRUCTION COST AND IMPLEMENTATION SCHEDULE

The estimated cost of construction is $3.5 million. It is anticipated that the project will be bid in 2017. Construction is expected to be completed within 18 months of award.

1.5 CHAPTER 343, HAWAII REVISED STATUTES (HRS) REQUIREMENTS

The proposed project will utilize County of Maui lands and funds which is a statutory trigger for processing an Environmental Assessment, pursuant to HRS Section 343-5(a), Environmental Impact Statement (EIS), Applicability and requirements, and Hawaii Administration Rules (HAR), Section 11-200-5 Agency action.

2. AFFECTED ENVIRONMENT – EXISTING CONDITIONS, POTENTIAL IMPACTS, AND PROPOSED MITIGATION MEASURES

2.1 NATURAL PHYSICAL ENVIRONMENT

2.1.1 Surrounding Land Uses

Existing Conditions

The Kihei WWRF and the tank site are located to the east of Piilani Highway. The Kihei WWRF is bordered by the Elleair Maui Golf Club to the north, Goodfellow Bros. offices to the south, and Kihei Compost, LLC to the east. The existing 1.0 MG recycled water storage tank site is located within land owned by Monsanto Corporation, which is utilized for cultivation of high quality seed corn. See **Figure 1** for the location of adjacent properties with respect to the Kihei WWRF and tank site.

Potential Impacts and Proposed Mitigation Measures

The existing Kihei WWRF and recycled water storage and transmission system have been in operation since the late 1990's, reclaiming 1.6 to 2.0 MGD and providing recycled water to neighboring properties. The surrounding properties currently utilize the valuable water resource for irrigation and fire protection and will benefit from the increased capacity and reliability provided by the project.

2.1.2 Climate

Existing Conditions

The mean annual temperature of the island is approximately 76.9 degrees Fahrenheit. The mean annual rainfall in Kihei is 12.15 inches, with a high of 2.86 inches in January and low of 0.16 inches in July. However, studies summarized in a National Oceanic and Atmospheric Administration (NOAA) Technical Report National Environmental Satellite, Data, and Information Services (NESDIS) 142-8, Regional Climate Trends and Scenarios for the U.S. National Climate Assessment, dated January 2013, have indicated that Hawaii's temperature has slowly increased over the past 50 – 90 years, while the amount of rainfall has decreased over the past 100 years. The Kihei area is reported to have the lowest rainfall on Maui, and is considered one of the driest areas in the Hawaiian Island archipelago.

Potential Impacts and Proposed Mitigation Measures

The pipeline improvements at the existing Kihei WWRF, construction of the 1.0 MG recycled water storage tank, and operations of the facilities are not anticipated to have an impact on the climate.

2.1.3 Geology and Topography

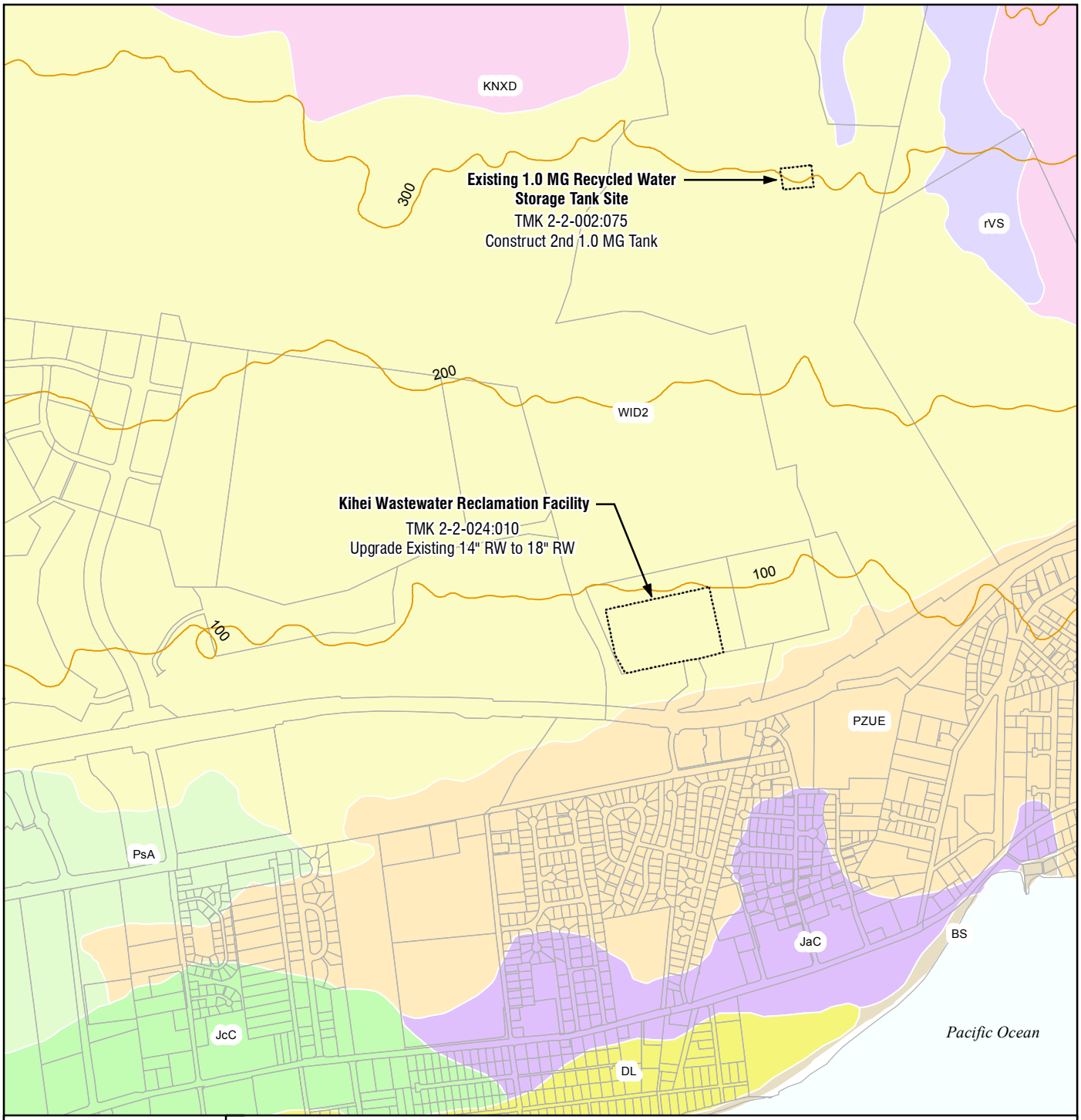
Existing Conditions

Maui is the second largest island in the State of Hawaii with a land area of approximately 728 square miles. The island of Maui was formed by the merging of the West Maui volcano and the East Maui volcano and is divided into three main areas, West Maui, East Maui, and Central Maui. Central Maui is the strip of land that connects West and East Maui. Kihei is located on the western slopes of East Maui. This area is relatively smooth and sloping to moderately steep.

The Kihei WWRF and tank site topography generally slopes at about 3 percent in the westerly direction from mauka to makai. The Kihei WWRF is located at approximately 80 feet to 100 feet mean sea level (MSL), and the tank site is located at approximately 300 feet MSL. See **Figure 4** for the general topography of the Kihei WWRF and tank site.

Potential Impacts and Proposed Mitigation Measures

This project does not significantly alter the topography of the existing terrain. Construction of the new 1.0 MG recycled water storage tank is proposed on the existing tank site, adjacent to the existing tank. Short term impacts include ground disturbing activities, which would be limited to excavation down to depths and subsurface material as recommended by the geotechnical report for spread footings and excavation required for piping, power conduits, and lighting at this location. Long term impacts are anticipated to be negligible because the existing tank site was previously mass graded. Fine grading will be required for the new tank and related site improvements, but will not significantly alter the topography of the existing terrain.



NORTH

0 0.125 0.25 Miles

KEY MAP - Maui

Legend

- TMK
- Elevation

Soil Type Symbol & Name

- BS: Beaches
- DL: Dune land
- JaC: Jaucas sand, 0 to 15 percent slopes
- JcC: Jaucas sand, saline, 0 to 12 percent slopes
- KNXD: Keawakapu extremely stony silty clay loam, 3 to 25 percent slopes
- PsA: Pulehu clay loam, 0 to 3 percent slopes
- PZUE: Puuone sand, 7 to 30 percent slopes
- rVS: Very stony land
- WID2: Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes, eroded

South Maui Recycled Water System Expansion
Draft Environmental Assessment

USGS SOIL AND ELEVATION MAP

Fukunaga & Associates, Inc.

FIGURE 4

Pipe related upgrades at the Kihei WWRF will have short term impacts from ground disturbing activities. No long term impacts to the Kihei WWRF are anticipated because the surface is intended to be restored to its original condition.

2.1.4 Soils Survey

Existing Conditions

The Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, United States Department of Agriculture (USDA), Soil Conservation Service, August 1972, "Soil Survey" provides maps indicating the locations of various soil classifications and descriptions of these soil classifications and soil characteristics. According to the Soil Survey, the soil classification of the Kihei WWRF and the tank site is Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes, eroded (WID2). See **Figure 4** for the soil classification of the Kihei WWRF and tank site. The Soil Survey describes WID2 as, "similar to Waiakoa very stony silty clay loam, 3 to 7 percent slopes, except that it is eroded and stones cover 3 to 15 percent of the surface. In most areas about 50 percent of the surface layer has been removed by erosion. Runoff is medium, and the erosion hazard is severe." This soil is primarily used for pasture and wildlife habitat. Low bedrock outcrops are commonly associated with these soils, and cultivation is usually impractical unless the stones are removed.

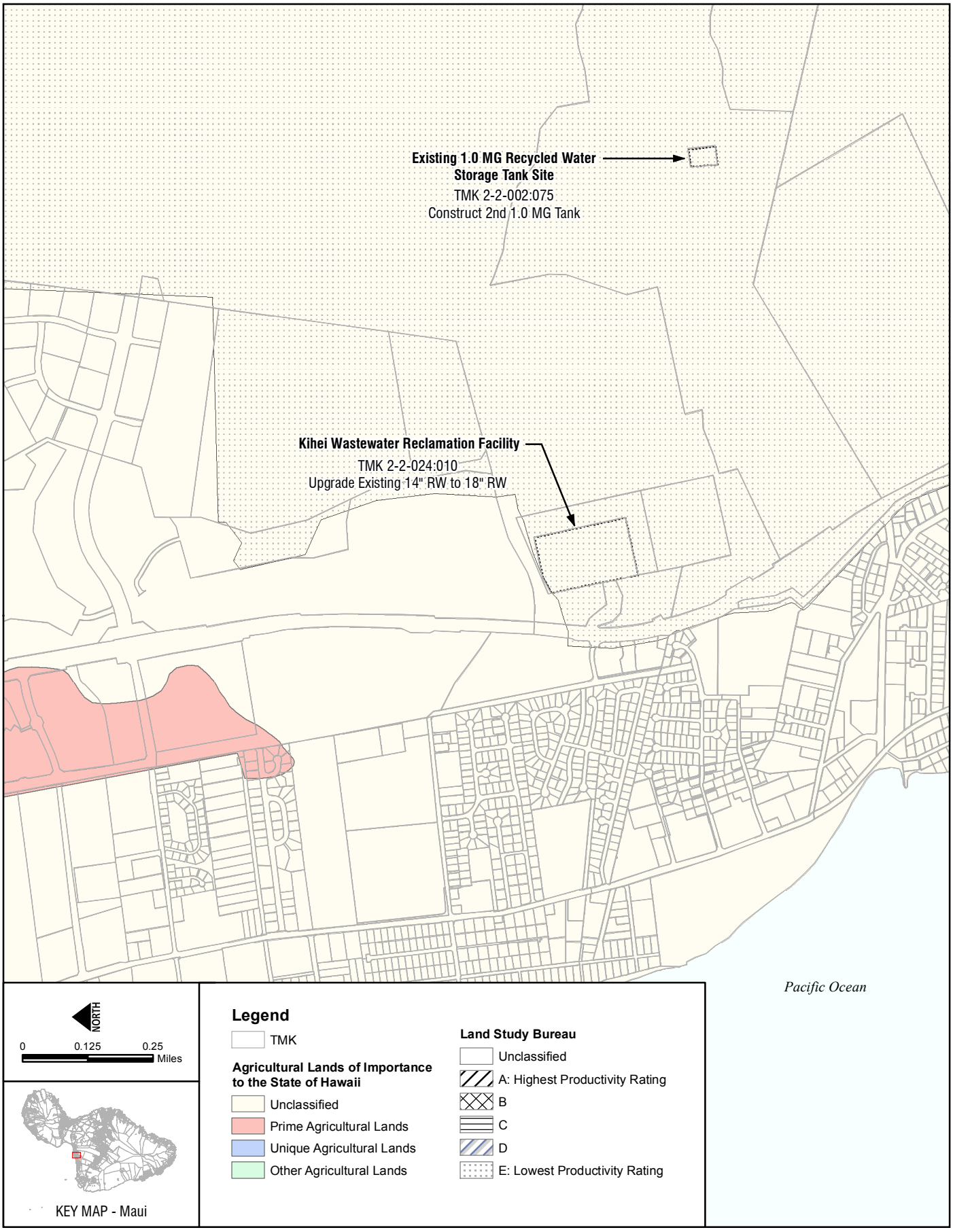
Potential Impacts and Proposed Mitigation Measures

A soils investigation report for the tank site and vicinity of the pipe upgrade at the Kihei WWRF, dated February 26, 2016 describes the subsurface conditions as silty clay of highly compressible nature and collapsing type soil structure. Based on exploratory borings, laboratory testing, and analysis, it was recommended that the material be removed and conventional spread footings be founded on weathered basalt to support a 1.0 MG recycled water storage tank. The report also indicated that the new flow meter vault may be founded directly on the underlying weathered basalt and the proposed effluent pipe may be supported on conventional pipe cushion. Short term impacts during construction will be mitigated with Best Management Practices (BMPs). In order to minimize runoff and erosion associated with WID2 soil, BMPs which may consist of compost filter sock and drain inlet filters to minimize the quantity of sediment leaving the site, and soil stabilization using appropriate ground cover will be implemented.

2.1.5 Agriculture

Existing Conditions

The University of Hawaii, Land Study Bureau 1967 "Detailed Land Classification – Island of Maui" rated all non-urban lands in five categories based on their soil properties and capabilities for agricultural productivity, which is measured by their performance on selected crops. The categories were assigned letters "A" through "E" in order of highest to least productive. The Kihei WWRF and tank site area are entirely within State Agricultural land and have been classified by the Land Study Bureau as "E," the least productive agricultural land. See **Figure 5**.



South Maui Recycled Water System Expansion
Draft Environmental Assessment

AGRICULTURAL LAND CLASSIFICATION

Fukunaga & Associates, Inc.

FIGURE 5

The Department of Agriculture "Agricultural Lands of Importance to the State of Hawaii" (ALISH) provides a classification system primarily based on soil characteristics. ALISH consists of three classifications which include Prime Agricultural Lands, Unique Agricultural Land, and Other Agricultural Land. These classifications identify the long term implications of land use options for production of food, feed, forage, and fiber crops. However, the classifications do not designate areas for any specific land use. Unclassified Lands not considered for classification as ALISH are 1) Developed urban land over 10 acres, 2) Natural or artificial enclosed bodies of water over 10 acres, 3) Forest reserves, 4) Public use lands, 5) Lands with slopes in excess of 35%, and 6) Military installations, except undeveloped areas over 10 acres. The Kihei WWRF and tank site are entirely within ALISH Unclassified Lands. See **Figure 5**.

Potential Impacts and Proposed Mitigation Measures

The Kihei WWRF and tank site are unclassified by ALISH and have the lowest productivity rating by the Land Study Bureau. The ALISH classification system does not affect the Kihei WWRF and tank site because the sites are public use lands.

Both project sites have been previously dedicated for public utility facilities, therefore no adverse impact to agriculture is anticipated. This project will have positive impacts on agriculture by enhancing the existing recycled water distribution system, which provides an important water resource for agricultural use.

2.1.6 Flora and Fauna

Existing Conditions

The terrestrial ecosystem of this area is described by the "Atlas of Hawaii," third edition, dated 1998 as Lowland Dry Shrubland and Grassland. Natural vegetation typical of Lowland Dry Shrubland and Grassland are rare, but generally consist of pili grasslands and aalii shrublands, and dry cliff vegetation. Threats include wildfires fueled by widespread alien grasses, ferel goats, cattle grazing, and human activity. Fauna typically consists of introduced animals such as rats, mongoose, and alien birds. The project area is highly disturbed, and much of this terrestrial ecosystem has been altered.

Potential Impacts and Proposed Mitigation Measures

The Kihei WWRF is a developed site where surfaces are comprised of gravel and paved roads, and landscaped grassed areas. The tank site has been previously disturbed by construction activities and currently agricultural activities. Flora and fauna in the vicinity of the Kihei WWRF and tank site are generally limited to non-native species and do not include areas known to be inhabited by endangered species. Long term and short term negative impacts on the flora and fauna as a result of this project are not anticipated.

2.1.7 Hydrology

Existing Conditions

Groundwater is defined in the State Water Code as "any water found beneath the surface of the earth, whether in perched supply, dike-confined, flowing, or percolating in underground channels or streams, under artesian pressure or not, or otherwise." Surface water is defined as "both contained surface water—that is, water upon the surface of the earth in bounds created naturally or artificially including, but not limited to, streams, other watercourses, lakes, reservoirs, and coastal waters subject to state jurisdiction— and diffused surface water—that is, water occurring upon the surface of the ground other than in contained water bodies. Water from natural springs is surface water when it exits from the spring onto the earth's surface." The Commission on Water Resource Management (CWRM) has established hydrologic units for both groundwater and surface water resources.

Groundwater

Groundwater hydrologic units have been delineated by Aquifer Sector Areas which are further subdivided into Aquifer System Areas. The Kihei WWRF and tank site are located within the Central Aquifer Sector, over the Kamaole Aquifer System. The sustainable yield for the Kamaole Aquifer System is estimated at 11 MGD. Groundwater movement in aquifers is generally from the mountain to the ocean.

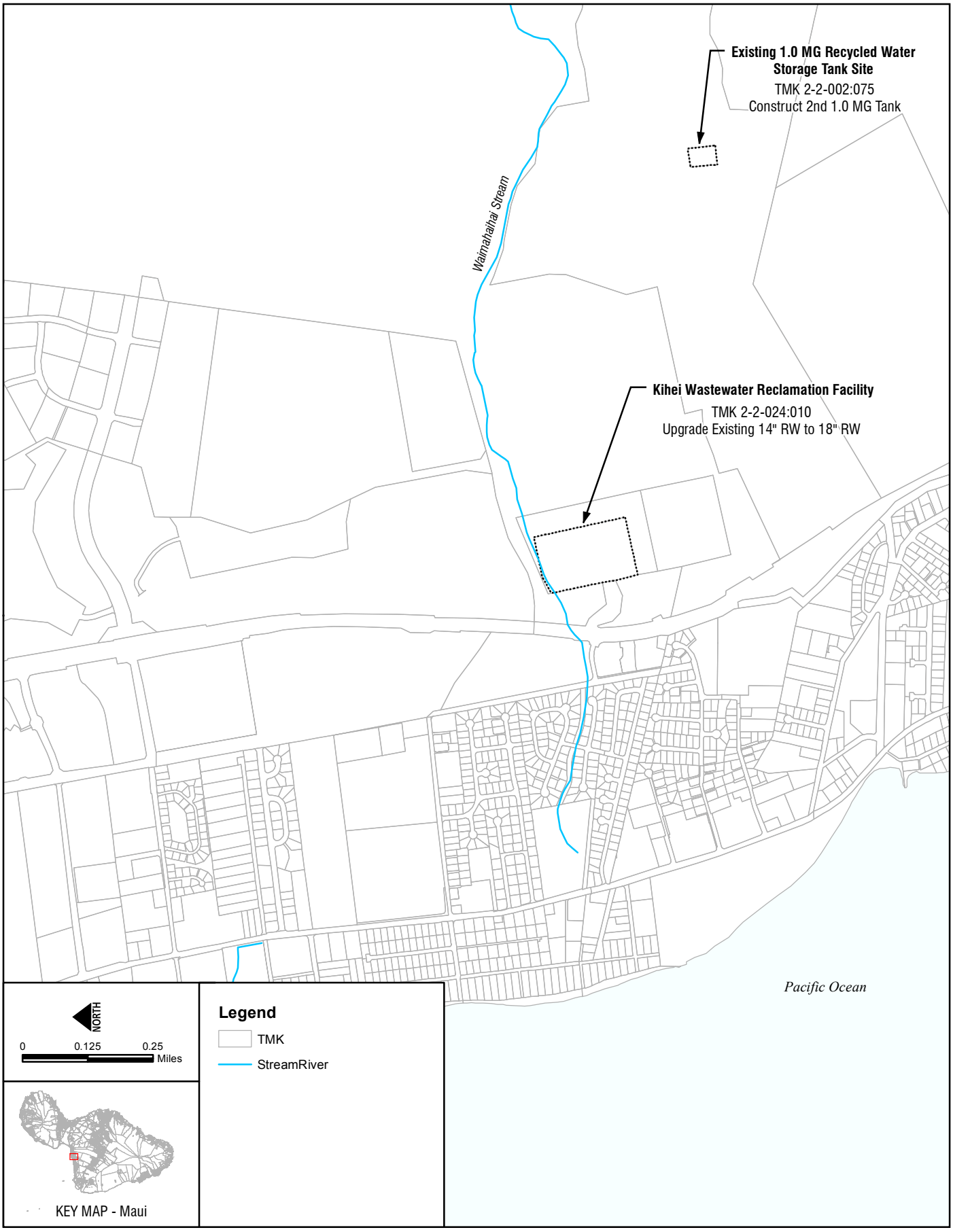
Surface Water

Surface water hydrologic units are divided by watershed units which are comprised of one or more drainage basins. The Kihei WWRF and tank site are located within the Hapapa surface water hydrologic unit. The State of Hawaii Office of Planning global information system (GIS) data indicate that Waimahaihai Stream, an intermittent stream, is closest in proximity to the Kihei WWRF and tank site. There are no perennial streams in the area. See **Figure 6** for the approximate location of the Waimahaihai Stream with respect to the Kihei WWRF and tank site.

Potential Impacts and Proposed Mitigation Measures

Groundwater – Quantity

Long term impacts include a greater supply of recycled water to help offset the decrease in groundwater recharge which has been documented in, a United States Geological Survey (USGS) Scientific Investigations Report (SIR) 2007 – 5103, "A Study of the Effects of Agricultural Land-Use Changes and Rainfall on Ground Water Recharge in Central and West Maui, Hawaii, 1926-2004." The central area identified in the study generally overlaps with the area defined as the Central Aquifer Sector and includes the Kamaole Aquifer System beneath Kihei. The study reports that a decrease in groundwater recharge has been attributed to changes in irrigation methods from furrow irrigation to drip irrigation, an overall reduction in agricultural land use, and periods of below-average rainfall.



South Maui Recycled Water System Expansion
Draft Environmental Assessment

STREAMS, RIVERS AND DIVERSIONS MAP

Fukunaga & Associates, Inc.

FIGURE 6

Groundwater – Quality

Negative impacts on groundwater quality resulting from this project and related recycled water use are not anticipated. In fact, positive impacts include a reduction in the amount of treated wastewater effluent disposed of via injection wells as more of the effluent is reused to meet non-potable water demands. With respect to impacts of reuse on groundwater quality, State and Federal regulatory oversight provides a framework to ensure the safe use of recycled water covering treatment, distribution and use; R-1 recycled water is the highest grade of recycled water which is treated and distributed in accordance with the State Department of Health (DOH) regulations set forth in the Reuse Guidelines, dated January 2016. The guidelines require appropriate application rates and application times to minimize the amount of recycled water from percolating into the ground. The guidelines also delineate approved service areas for recycled water application to protect underground potable water sources.

Surface Water

Recycled water is not anticipated to have an impact on surface waters. The recycled water will be conveyed to the new 1.0 MG recycled water tank and distributed through a closed pipe system. In addition, the Reuse Guidelines requires BMPs for the method and rate of application of recycled water to avoid surface runoff.

2.1.8 Drainage

Existing Conditions

Drainage conditions related to overland flow resulting from storm water runoff, both during and post-construction are discussed in this section. Overland flow at the Kihei WWRF generally travels from east to west and is captured in existing onsite drain inlets. Overland flow at the tank site generally travels from east to west across the site and sheet flows offsite at the west end of the property to surrounding agricultural lands. The nearest surface water is Waimahaihai Stream, which is an intermittent stream located to the west of the Kihei WWRF and tank site.

The DOH Water Quality Standards Classifications Map indicates that the project is within an inland area with an Inland Classification of "Class 2 streams & waterbodies."

Potential Impacts and Proposed Mitigation Measures

The Waimahaihai Stream is the closest receiving water for storm water runoff from the project sites. In order to meet the requirements of the antidegradation policy HAR, Section 11-54-1.1, protect the designated uses of Class 2 waters as defined in HAR, Section 11-54-3, and meet the water quality criteria as defined in HAR, Section 11-54-4 through 11-54-8, the Contractor will be required to implement BMPs to mitigate discharge of storm water runoff and sediment resulting from construction activities.

Proposed construction at the Kihei WWRF is entirely within the developed portion of the existing facility, and disturbed surfaces from construction will be restored to their original conditions. Project improvements will not increase the quantity of storm water runoff, and post construction

storm water runoff will continue to discharge into the existing onsite drainage structures and drainage features. Existing drainage features include grass landscaped areas. Proposed construction at the tank site will include a paved perimeter road around the 1.0 MG recycled water tank, sloped to direct storm water runoff westward to water quality facilities. In compliance with the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters, low impact development (LID) techniques such as detention facilities, limiting impervious surfaces, and reducing driveway and roadway widths will be considered.

In compliance with HAR, Chapter 11-55, a National Pollution Discharge Elimination System (NPDES) Permit will also be obtained for the project if the disturbed area is determined to be greater than one acre.

The proposed project does not involve work in, over, or under waters of the United States. Army permitting requirements do not apply to this project.

2.1.9 Historical and Archaeological Sites

Existing Conditions

The Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD) includes three branches, History and Culture, Archaeology, and Architecture. SHPD maintains the Hawaii Register of Historic Places, which recognizes districts, sites, structures, buildings, and other objects in Hawaii's history, architecture, archaeology, engineering, and culture. The National Park Service (NPS) maintains the National Register of Historic Places, which includes significant properties nominated by State and Federal agencies, historic areas in the National Park System, and all National Historic Landmarks.

An Archaeological Field Inspection was performed for the project sites which included historical and archaeological background research of the area and a field inspection to identify surface archaeological sites or features and an assessment of the potential for impact to such features. Refer to Appendix A for the Archaeological Field Inspection Report. No historic properties were identified. Further, due to the shallow nature of soils in the project areas and heavily modified landscape (mechanical grading and use), there seems little possibility that historical properties would occur in subsurface contexts. A formal Archaeological Inventory Survey of the property is not recommended.

Potential Impacts and Proposed Mitigation Measures

Based on the findings of the Archaeological Field Inspection, no adverse impacts on historical and archaeological sites are anticipated. In the event that human skeletal remains are inadvertently discovered during construction, the requirements in HRS Section 6.E-43.6 "Inadvertent discovery of burial sites," will be met. All contractors shall ensure that the remains shall not be moved and any activity in the immediate area that could damage the remains or the potential historic site shall cease, and SHPD, the appropriate medical examiner or coroner, and police department shall be contacted.

2.1.10 Air Quality

Existing Conditions

The quality of air in the general Kihei area is considered "Good." The existing sources of air pollution are emissions from motor vehicles travelling along Piilani Highway.

Potential Impacts and Proposed Mitigation Measures

Potential short term impacts on air quality during construction will be mitigated by BMPs. Fugitive dust and exhaust from construction vehicles and equipment traffic and earthmoving activities will be minimized by appropriate BMPs such as regular sprinkling of water, particularly during earthwork, limiting vehicle and equipment speeds over unpaved surfaces, protecting stockpiles of excavated material, and regular vehicle maintenance in accordance with manufacturer's recommendations.

2.1.11 Noise Quality

Existing Conditions

The DOH, Indoor and Radiological Health (IRH) Branch administers the regulations for community noise control and maximum noise tolerances as indicated in HAR Title 11, Chapter 46 Community Noise Control. The Kihei WWRF and tank site are bordered by businesses conducting agricultural activities, such as Kihei Compost, Vetiver, and Monsanto, and industrial activities, such as Goodfellow Brothers, and the Elleair Maui Golf Club to the north of the tank site. The closest residential area is across Piilani Highway approximately 0.11 miles from the closest edge of the Kihei WWRF.

Potential Impacts and Proposed Mitigation Measures

Noise from construction activities will be short term and localized. An approved Community Noise Permit may be required if construction exceeds the noise code and has a total cost of more than $250,000 (based on the value on the building permit). Regular construction work hours will generally be during the hours of 7:00 AM to 6:00 PM Monday through Friday, and if needed, during the hours of 9:00 AM to 6:00 PM on Saturday. Certain construction equipment such as pile drivers, hydraulic hammers, jackhammers, etc., shall be restricted to 9:00 AM to 5:30 PM, Monday through Friday. Construction exceeding the maximum permissible sound levels outside of these hours will require a Community Noise Variance. Permits and variances required from the DOH IRS Branch would be obtained by the Contractor prior to construction.

2.2 ECONOMIC AND SOCIAL CONDITIONS

According to the U.S. Census Bureau, the population, percent non-Caucasian, and median household income of Kihei are as follows:

Census Designated Place	Population[1]	% Minorities[1]	Median Household Income[2]
Kihei	20,881	49.3	$68,804

[1]Source: U.S. Census Bureau, 2010 Census Redistricting Data (Public Law 94-171), Summary, extracted by Department of Business, Economic Development & Tourism (DBEDT), Hawaii State Data Center
[2]Source: U.S. Census American Community Survey (ACS), 2010-2014

The University of Hawaii Economic Research Organization (UHERO) conducts independent economic research on issues central to Hawaii. The organization produces summaries of their research in various forms such as Forecasts, Research Papers, Media, and UHERO Briefs. A UHERO State Forecast Update dated February 26, 2016 concludes that the Hawaii economy continues on a moderate growth path despite financial market volatility, a strong dollar, and global slowing. Previous record-setting visitor activity is slowing, however, is offset by an increase in construction activity and a pause in federal sequestration. The economic information relevant to Maui are as follows:

- Hawaii tourism overall experienced an increase in the number of visitors by about 4% more than in 2014. Each county saw an increase in the number of visitor days. However, there has been a deceleration of visitor spending related in part to the strengthening of the U.S. dollar.
- The labor market overall is improving, where employment growth is outpacing expansion of the labor force, driving the unemployment rate down.
- Where previously employment growth was once driven by travel and tourism, it is now construction that is generating the greatest job gains. Employment in the public sector and medium term prospects for federal employment remain bleak. Outside of the construction sector, strong surges in employment occurred in healthcare and transportation and utilities.

The project will have short term, positive impacts associated with construction. Assuming the project is awarded to a local contractor, jobs will be created, and assuming those workers spend their income on goods and services, a positive impact on the economy would be recognized.

The project will have long term, positive economic impacts, as it will increase the amount of recycled water available necessary to support the irrigation needs of existing and potential future development, provide redundancy and less dependency on potable water resources.

2.2.1 Cultural Impact

The coastal area of the Kihei-Makena community was known for its fishing villages. Several fishponds still remain along the coast, including the Kalepolepo Fishpond, which is included on the National Register of Historic Places in 1966. Construction is estimated between 1400-1500 AD, and the fishpond was used for farming awa (milkfish) and ama ama (flathead mullet). The southwestern end of the community includes a variety of archaeological resources, including Hawaiian burial sites,

fishing shrines, heiau, and shelters. During the 1800s and first half of the 1900s south Maui was known for its role in cattle-ranching.

The Kihei WWRF and tank site are east of Piilani Highway, away from the coast in a relatively dry region. As a result of low rainfall and fairly unproductive soils, the general area in which the project is located is labeled as the "barren zone." Based on archaeological and historic research, the barren zone was not subject to permanent or expansive population until recent times. As such, architectural structures associated with permanent habitation sites or ceremonial sites are not often identified in the area. The project sites are not within a culturally sensitive area, and negative impacts to cultural practices are not anticipated.

3. RELATIONSHIP TO LAND USE PLAN, POLICIES, AND CONTROLS

3.1 State Land Use Designation

The HRS, Chapter 205 Land Use Commission established four major categories of land use districts in which all lands in the state are placed. These four land use districts are designated as "Conservation," "Agricultural," "Urban," and "Rural." Both the Kihei WWRF and the tank site are entirely within an area designated as "Agricultural." See **Figure 7**.

The new 1.0 MG recycled water storage tank and related work at the tank site will be constructed adjacent to the existing 1.0 MG recycled water storage tank, and is one of the permissible uses within the agricultural districts as defined in Section 205-4.5 Permissible uses within the agricultural districts. This project will have positive impacts on agriculture by enhancing the existing non-potable water distribution system which provides an important water resource for agricultural use.

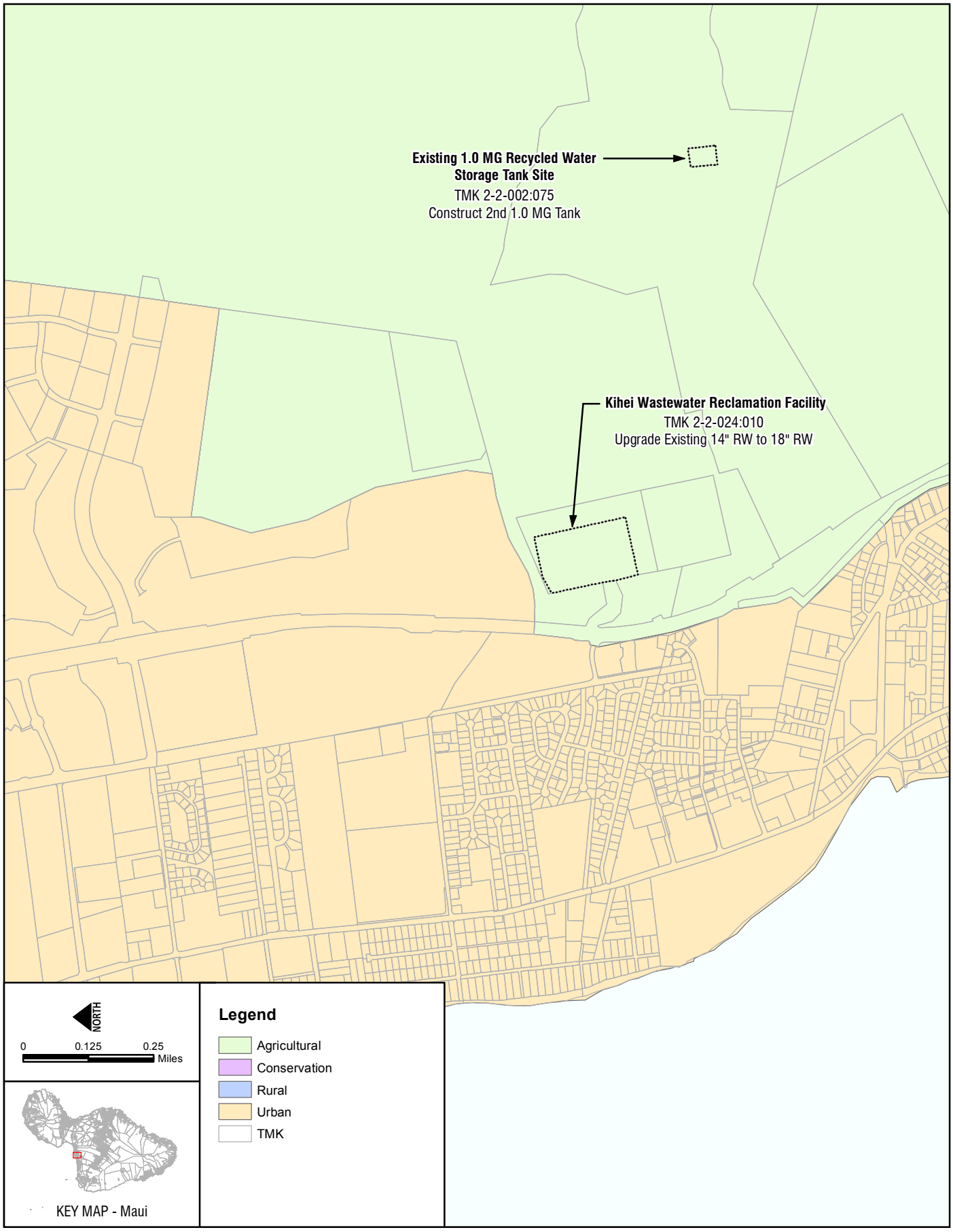
3.2 Hawaii State Plan

The HRS, Chapter 226 Hawaii State Planning Act, also known as the Hawaii State Plan was adopted in 1978. The Hawaii State Plan serves as a guide for the future long-range development of the State through identification of goals, objectives, policies, and priorities. The objectives and policies relevant to the proposed project are described below:

Section 226-13, Objectives and policies for the physical environment – land, air, and water quality.

(a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:
(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.

(b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:
(2) Promote the proper management of Hawaii's land and water resources.
(6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.



South Maui Recycled Water System Expansion
Draft Environmental Assessment

STATE LAND USE MAP

Fukunaga & Associates, Inc.

FIGURE 7

Section 226-14, Objectives and policies for facility systems – in general.

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

(b) To achieve the general facility systems objective, it shall be the policy of this State to:
(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.
(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.

Section 226-16, Objective and policies for facility systems – water.

(a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of this provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.

(b) To achieve the facility system water objective, it shall be the policy of this State to:
(3) Reclaim and encourage the productive use of runoff water and waste water discharges.
(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.

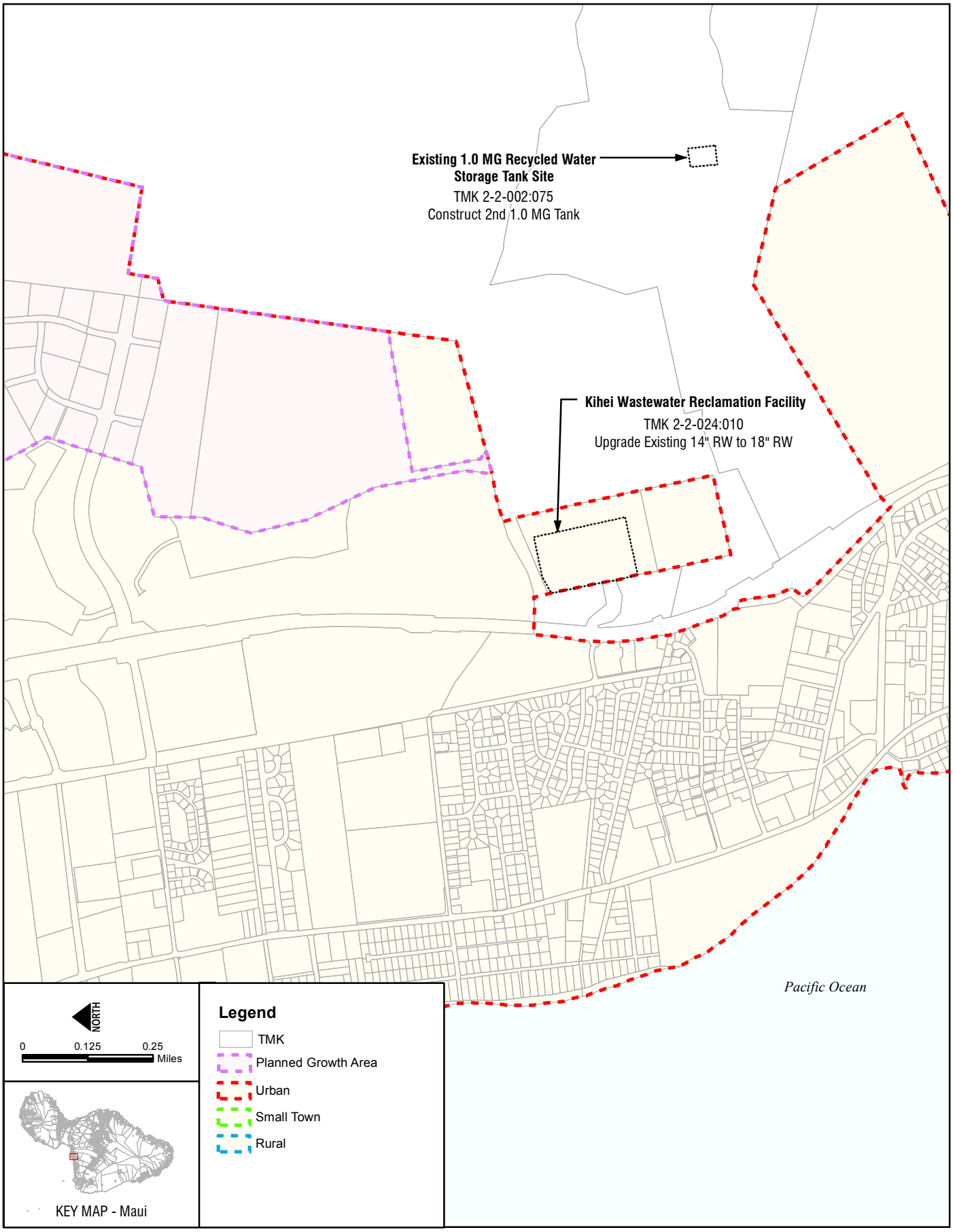
The project is in compliance with the aforementioned objectives and policies. The proposed project will improve the existing South Maui Recycled Water Distribution System, which will support existing use and future additional use of non-potable water to meet non-potable water demands such as irrigation, which might otherwise use potable water. Further, additional reuse will decrease effluent disposal through injection wells. Therefore, the proposed project will promote the proper management of Hawaii's water resources by providing an alternative source so that water is put to its best and highest use; i.e. potable water available for drinking water purposes.

3.3 Maui Island Plan, General Plan 2030

The Maui Island Plan (MIP), General Plan 2030 is intended to transform the way Maui County manages its lands and plans for its communities by providing direction for growth, the economy, and social and environmental decisions through the year 2030. The plan includes a Directed Growth Plan which identifies areas within and outside of designated growth boundaries. Areas within a growth boundary are further subcategorized into three types of areas, Urban, Small Town, and Rural. The Kihei WWRF is identified as an Urban area within the growth boundaries. The tank site is outside of the growth boundaries. See **Figure 8** for the location of the growth boundaries and land use designations with respect to the Kihei WWRF and tank site.

As stated in the MIP vision statement,

> *"Maui Island will be environmentally, economically, and culturally sustainable with clean, safe, and livable communities and small towns that will protect and perpetuate a pono lifestyle for the future."*



South Maui Recycled Water System Expansion
Draft Environmental Assessment

MAUI ISLAND PLAN MAP

Fukunaga & Associates, Inc.

FIGURE 8

The MIP identifies 11 core values that are intended as a guide to achieving the Maui Island Vision:

A. *Adopt responsible stewardship principles by applying sound natural resource management practices.*
B. *Respect and protect our heritage, traditions, and multi-cultural resources.*
C. *Plan and build communities that include a diversity of housing.*
D. *Retain and enhance the unique identity and sense of place.*
E. *Preserve rural and agricultural lands and encourage sustainable agriculture.*
F. *Secure necessary infrastructure concurrently with future development.*
G. *Support efforts that contribute to a sustainable and diverse economy for Maui.*
H. *Create a political climate that seeks and responds to citizen input.*
I. *Respect and acknowledge the dignity of those who live on Maui.*
J. *Establish a sustainable transportation system that includes multiple modes, including walking, biking, and mass transit, as well as automobile-based modes.*
K. *Recognize and be sensitive to land ownership issues and work towards resolution.*

Core values relevant to the proposed project are items A. Adopt responsible stewardship principles by applying sound natural resource management practices and E. Preserve rural and agricultural lands and encourage sustainable agriculture. By increasing the amount of recycled water available, the demands on potable water decrease. An increase in the available recycled water would also encourage sustainable agriculture.

In line with the core values, goals, objectives, policies, and implementation actions for the following nine planning categories are identified by the MIP.

1. *Population*
2. *Heritage Resources*
3. *Natural Hazards*
4. *Economic Development*
5. *Housing*
6. *Infrastructure and Public Facilities*
7. *Land Use*
8. *Directed Plan Growth*
9. *Monitoring & Evaluation*

The objectives and policies of Chapter 6 Infrastructure and Public Facilities that are relevant to the proposed project are as follows:

WASTEWATER

Objective 6.2.2:

- *Adequate levels of wastewater service with minimal environmental impacts.*

Policy 6.2.2.c:

- *Improve and upgrade the County's existing wastewater collection, treatment, and reuse facilities consistent with current and future plans and the County's Capital Improvement Projects (CIP).*

Objective 6.2.3:

- *Increase the reuse of wastewater.*

Policy 6.2.3.b:

- *Expand the reuse of wastewater from the Central Maui, Kihei, Lahaina, and other wastewater systems.*

The proposed project is consistent with the objectives and policies and serves to maximize wastewater reuse where feasible.

WATER

Objective 6.3.2:

- *Increase the efficiency and capacity of the water systems in striving to meet the needs and balance the island's water needs.*

Policy 6.3.2.c:

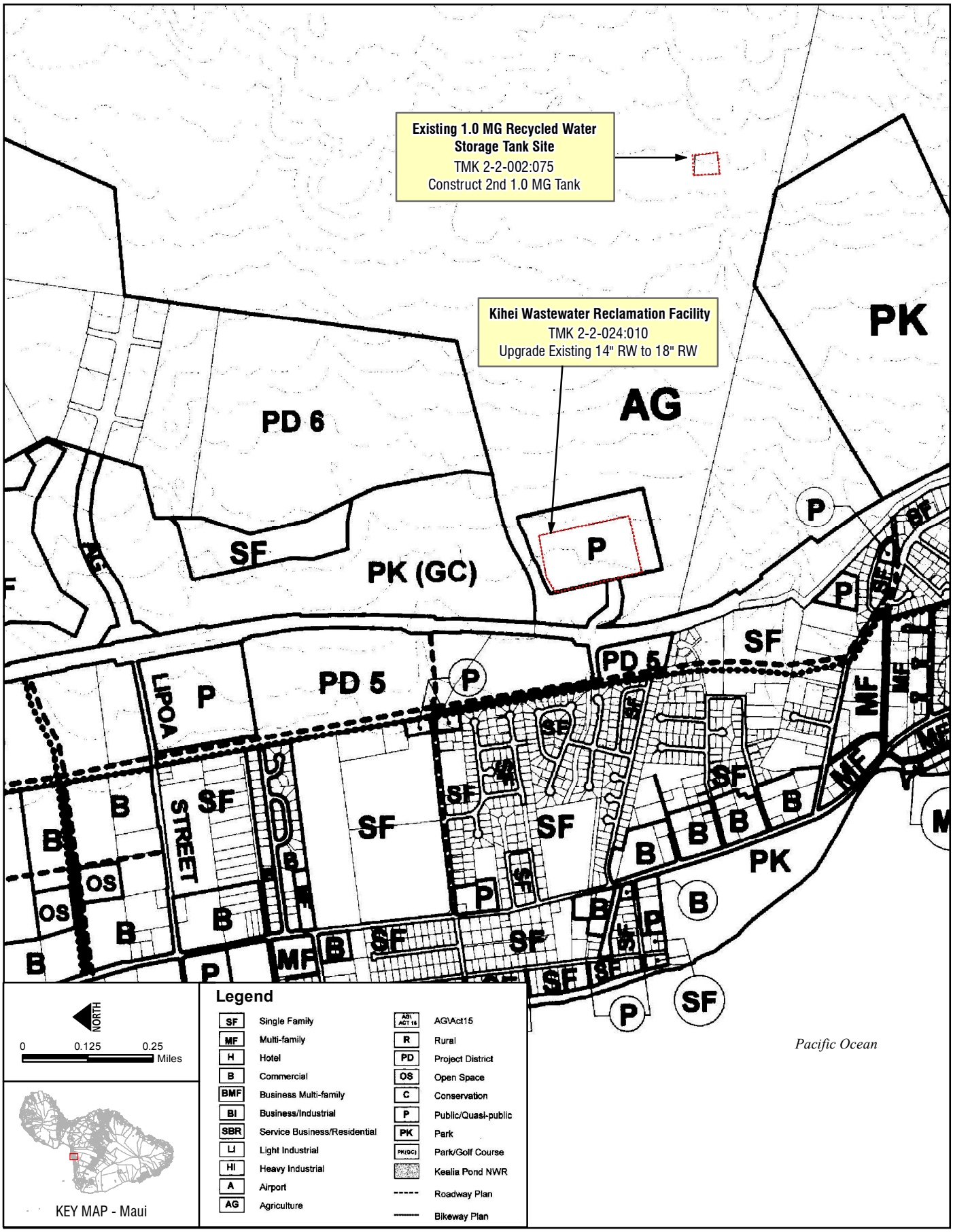
- *Maximize the efficient use of reclaimed wastewater to serve nonpotable needs.*

The proposed project will improve the South Maui Recycled Water System which will support existing use and future additional use of non-potable water to meet non-potable water demands, such as irrigation, which might otherwise use potable water. Kihei Mauka is identified in the Maui Island Plan (MIP), General Plan 2030 as a Planned Growth Area, and the population is expected to increase. Maui County currently supplies potable water to Kihei through its Central Maui Public Water System (PWS), the only PWS in the Central Maui District. The Central Maui PWS receives about 75 percent of its water from the Iao Aquifer System Area which was designated as a water management area by the CWRM in 2003, and is pumped at approximately 95 percent of the sustainable yield. The MIP indicates a total projected 2030 potable water demand estimated at 34.11 MGD on the Central Maui system, which exceeds the current 26 MGD supply of the system by 8.11 MGD. The MIP emphasizes that, "Development of additional sources is crucial for the Central Maui System." The proposed project is consistent with the objective and policy and serves to maximize the use of recycled water to meet non-potable needs.

3.4 Kihei-Makena Community Plan

Maui County is divided into nine community plan regions, each governed by its own community plan. The project is located in the Kihei-Makena region, which is governed by the Kihei-Makena Community Plan. The Kihei-Makena Community Plan was first adopted by Ordinance No. 1490 in 1985 and was later updated in 1997. The Kihei-Makena Community Plan (1998) reflects current and anticipated conditions in the Kihei-Makena region and advances planning goals based on desired land use designations, objectives, policies, and implementation considerations to guide decision-making in the region through the year 2010. The recommendations in the Kihei-Makena Community Plan are intended to address the goals, objectives, and policies contained in the General Plan, while recognizing the values and unique attributes of the Kihei-Makena area in order to enhance the region's overall living environment. Updates to the Kihei-Makena Community Plan to reflect the 2030 MIP goals and policies are not available; therefore the following discussion is based on the 1998 Kihei-Makena Community Plan.

The existing land use designations for the Kihei WWRF and tank site are shown on the Kihei-Makena Community Plan Land Use Maps. The Kihei-Makena Community Plan identifies 16 land use designations. The land use designation for the Kihei WWRF is "P" for "Public/Quasi-Public," and the land use designation for the tank site is "AG" for "Agriculture." See **Figure 9**.



South Maui Recycled Water System Expansion
Draft Environmental Assessment

COMMUNITY PLAN LAND USE MAP

Fukunaga & Associates, Inc.

FIGURE 9

The impacts of the proposed project are consistent with the following goals, objectives, and policies of the Kihei-Makena Community Plan:

Land Use

Goal:

- *A well-planned community with land use and development patterns designed to achieve the efficient and timely provision of infrastructural and community needs while preserving and enhancing the unique character of Ma'alaea, Kihei, Wailea and Makena as well as the region's natural environment, marine resources and traditional shoreline uses.*

Objectives and Policies:

- *Allow special permits in the State Agricultural Districts to accommodate unusual yet reasonable uses including: (1) limited agriculturally related commercial, public and quasi-public uses serving the immediate community; (2) uses clearly accessory or subordinate to a principal agricultural use on the property; (2) public facility uses such as utility installations or landfills whose location depends on technical considerations; and (4) extractive industries, such as quarrying, where the operation would not adversely affect the environment or surrounding agricultural uses.*

Environment

Goal:

- *Preservation, protection, and enhancement of Kihei-Makena's unique and fragile environmental resources.*

Objectives and Policies:

- *Maintain and enhance the long-term availability of shoreline resources for public enjoyment through adequate access, space, and facility provisions, and through on-going resource management programs.*
- *Protect the quality of nearshore waters by ensuring that land-based discharges meet water quality standards. Continued monitoring of existing and future waste disposal systems is necessary to ensure their efficient operations. Programs should be implemented to reduce the reliance on injection wells for wastewater disposal.*

Physical and Social Infrastructure

Goal:

- *Provision of facility systems, public services and capital improvement projects in an efficient, reliable, cost effective, and environmentally sensitive manner which accommodates the needs of the Kihei-Makena community, and fully support present and planned land uses, especially in the case of projects district implementation.*

  Allow no development for which infrastructure may not be available concurrent with the development's impact.

Objectives and Policies, Water Distribution:

- *Encourage the use of non-potable water for irrigation purposes and water features. Prohibit the use of potable water in large water features or require substantial mitigation fees.*

Objectives and Policies, Liquid and Solid Waste:

- *Coordinate the improvements to sewer transmission lines and wastewater reclamation facilities to meet the needs of future population growth. Require that the Wailea Resort Company and the Wailea Makena Alliance work toward a solution that would enable the Wailea sewerage system to be dedicated to the County.*
- *Provide efficient, safe and environmentally sound systems for the reuse, recycling, and disposal of liquid and solid wastes.*
- *Reduce the reliance on injection wells for wastewater disposal. Require the use of reclaimed effluent -- a procedure which is safe, economical and environmentally sound -- for irrigation of golf courses, parks and landscaped areas.*

The proposed project is consistent with the aforementioned objectives and policies. A new 1.0 MG recycled water storage tank and pipeline improvements would serve to support a safe and environmentally sound system for recycling, reduce reliance on injection wells for wastewater disposal, and increase the capacity of the recycling system to aid in meeting the needs of future population growth and encourage use of non-potable water for non-potable needs.

3.5 Maui County Zoning

The Kihei WWRF and tank site are currently zoned "Agriculture" by the Maui County Code of Ordinances. See **Figure 10**.

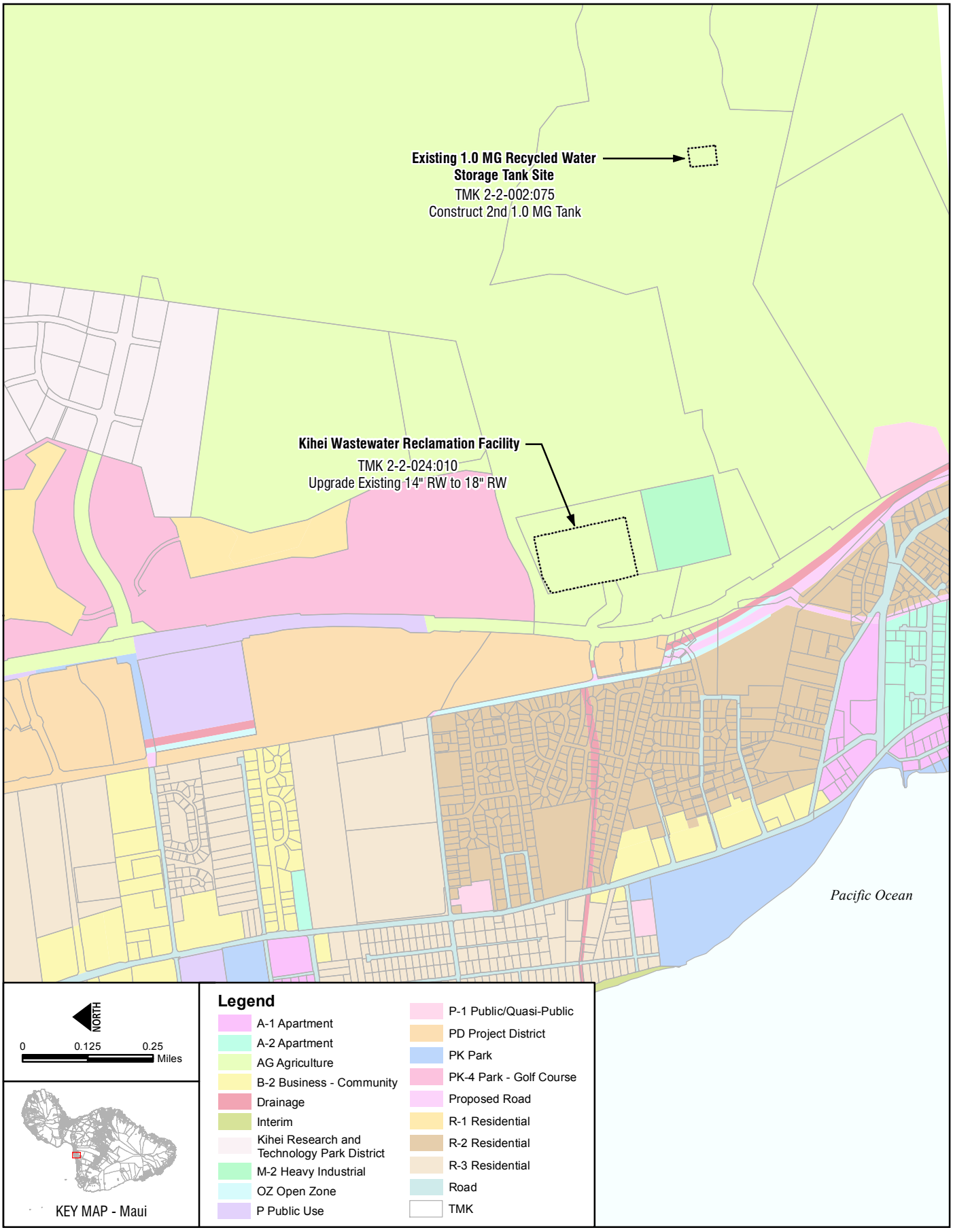
According to Maui County Code Section 19.30A.050 Permitted Uses, uses and structures permitted in the agricultural district include "Minor utility facilities" which is defined in Section 19.04.040 Definitions:

> *Utility facilities, minor. 'Minor utility facilities' means transmission lines used directly in the distribution of utility services that have minor impact on adjacent land uses which include, but which are not limited to, twenty-three kilovolt transmission substations, vaults, water wells, tanks and distribution equipment, sewage pump stations, and other similar type uses.*

3.6 Maui Water Use and Development Plan

The State Water Code (HRS Chapter 174C) was enacted in 1987 to protect and manage Hawaii's surface and ground water resources. The State Water Code requires formulation of the Hawaii Water Plan as the guide for implementing the policy. The Maui County Water Use and Development Plan is one of eight subplans which collectively comprise the Hawaii Water Plan.

The Water Use and Development Plan (WUDP) serves as the long range planning guide for water resource development for all uses of water including recycled water over a 20-year time frame. The WUDP inventories existing water sources and addresses existing and future land uses and related water needs, resource impacts, considers multiple forecasts, and sets forth a program by which water needs will be met. The Maui WUDP, dated March 1990, is currently being updated by the



South Maui Recycled Water System Expansion
Draft Environmental Assessment

COUNTY ZONING ORDINANCE MAP

Fukunaga & Associates, Inc.

FIGURE 10

Department of Water Supply. Recycled water is a valuable non-potable water resource. The South Maui Recycled Water System will be included in the Maui WUDP development.

3.7 Flood and Tsunami Hazards

The Flood Hazard Assessment Report is based on the Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA) delineating the floodplain boundaries of various flood zones, and communities' flood base elevations. The Flood Hazard Assessment Report indicates that the Kihei WWRF and tank site are within Zone X. Zone X is an area determined to be outside of the 500 year flood plain and less than 1 foot depth in a 100-year flood event. Zone X is a low to moderate risk flood zone. See **Figure 11a** and **Figure 11b**, Flood Hazard Assessment Report.

3.8 Coastal Zone Management Program

Hawaii's Coastal Zone Management (CZM) Program was approved in 1977 through HRS Chapter 205A Coastal Zone Management subsequent to the passage of the Federal CZM Act in 1972. The program was enacted to provide a common focus for State and County actions dealing with land and water uses and activities; and establishes objectives and policies to preserve, protect, and restore natural resources of Hawaii's coastal zone. Objectives and policies are upheld by the Special Management Area (SMA) permit. The SMA permit regulates permissible land uses that are already allowed by land use policies including zoning designations, county general plans, and community development plans. The SMA area is generally near the coastline and delineated as the area to the west of Pillani Highway. **Figure 12** shows the SMA area with respect to the Kihei WWRF and tank site.

The Kihei WWRF and tank site are to the east of Piilani Highway; therefore, permits associated with the CZM intended to uphold CZM objectives and policies within the SMA and Shoreline Setback are not applicable. The project meets the objectives and policies set forth in HRS Section 205A-2 as discussed below:

1. Recreational Resources

   Objective: *Provide coastal recreational opportunities accessible to the public.*
   Policies:
   - *a. Improve the coordination and funding of coastal recreational planning and management*
   - *b. Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
     - *i. Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
     - *ii. Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*

Flood Hazard Assessment Report

www.hawaiinfip.org

S Maui Recycled Wtr Sys 1

Property Information

COUNTY:	MAUI
TMK NO:	(2) 2-2-002:075
WATERSHED:	HAPAPA
PARCEL ADDRESS:	KIHEI KIHEI, HI 96753

Notes:

Flood Hazard Information

FIRM INDEX DATE:	NOVEMBER 04, 2015
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL:	1500030588G
PANEL EFFECTIVE DATE:	NOVEMBER 04, 2015

THIS PROPERTY IS WITHIN A TSUNAMI EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

0 100 200 ft

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND

(Note: legend does not correspond with NFHL)

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A**: No BFE determined.
- **Zone AE**: BFE determined.
- **Zone AH**: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO**: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V**: Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE**: Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF**: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded)**: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X**: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D**: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase apply, but coverage is available in participating communities.

Flood Hazard Assessment Report

www.hawaiinfip.org

S Maui Recycled WtrSys 2

Property Information

COUNTY:	MAUI
TMK NO:	(2) 2-2-024:010
WATERSHED:	HAPAPA
PARCEL ADDRESS:	480 PILANI HWY KIHEI, HI 96753

Notes:

Flood Hazard Information

FIRM INDEX DATE:	NOVEMBER 04, 2015
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL:	1500030588G
PANEL EFFECTIVE DATE:	NOVEMBER 04, 2015

THIS PROPERTY IS WITHIN A TSUNAMI EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

0 200 400 ft

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND

{Note: legend does not correspond with NFHL}

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

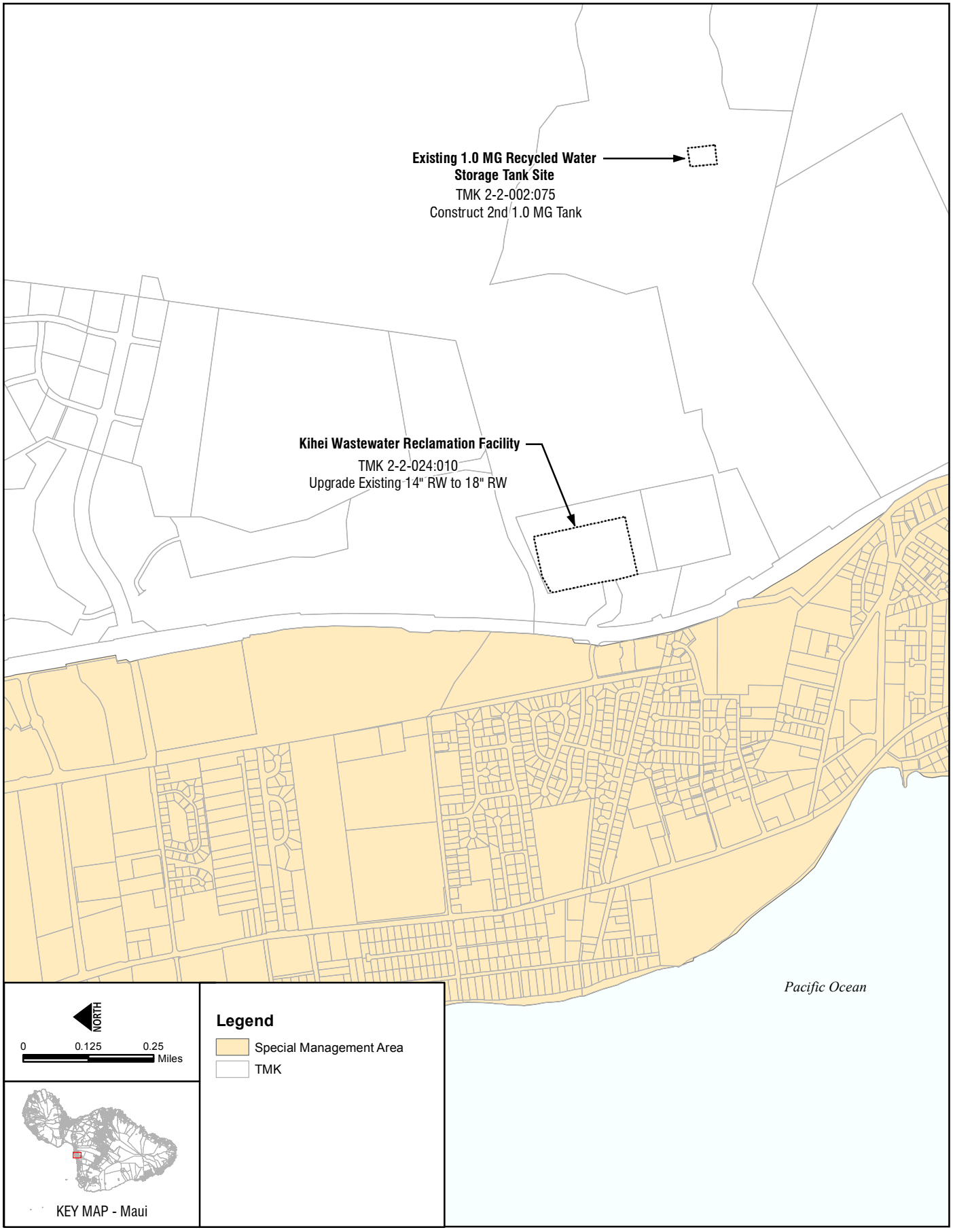
- **Zone A**: No BFE determined.
- **Zone AE**: BFE determined.
- **Zone AH**: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO**: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V**: Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE**: Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF**: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded)**: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X**: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D**: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase apply, but coverage is available in participating communities.



South Maui Recycled Water System Expansion
Draft Environmental Assessment

SPECIAL MANAGEMENT AREA MAP

Fukunaga & Associates, Inc.

FIGURE 12

iii. *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
iv. *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
v. *Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*
vi. *Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*
vii. *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
viii. *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6, HRS.*

Response: The project sites are located inland to the east of Piilani Highway away from the coastline, outside of the area regulated by SMA and Shoreline Setback permitting. Based on the location of the project, no impacts are anticipated on recreational opportunities or on public access to the shoreline.

2. Historic Resources

Objective: *Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies:

a. *Identify and analyze significant archaeological resources;*
b. *Maximize information retention through preservation of remains and artifacts or salvage operations; and*
c. *Support state goals for protection, restoration, interpretation, and display of historic resources.*

Response: An Archaeological Field Inspection was performed for the project sites. No historic properties were identified. Further, due to the shallow nature of soils in the project areas and heavily modified landscape (mechanical grading and use), there seems little possibility that historical properties would occur in subsurface contexts. No adverse impacts on historical and archaeological sites are anticipated. In the event that human skeletal remains are inadvertently discovered during construction, the requirements in HRS Section 6.E-43.6 "Inadvertent discovery of burial sites," will be met. All contractors shall ensure that the remains shall not be moved and any activity in the immediate area that could damage the remains or the potential historic site shall cease, and SHPD, the appropriate medical examiner or coroner, and police department shall be contacted.

3. Scenic and Open Space Resources

Objective: *Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.*

Policies:

a. *Identify valued scenic resources in the coastal zone management area;*
b. *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
c. *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
d. *Encourage those developments that are not coastal developments to locate in inland areas.*

Response: The proposed project does not lie within a coastal scenic corridor or near the shoreline. The proposed site improvements include piping improvements below grade at the Kihei WWRF and a 1.0 MG tank of similar height and construction to the existing tank at the tank site. Agricultural lands surround the tank site and the closest public road is Piilani Highway approximately 4,000 feet from the tank site. The visual impact of the proposed project is expected to be insignificant.

4. Coastal Ecosystems

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

Policies:

a. *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
b. *Improve the technical basis for natural resource management;*
c. *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*
d. *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
e. *Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.*

Response: The project sites are located inland to the east of Piilani Highway away from the coastline, outside of the area regulated by SMA and Shoreline Setback permitting. Based on the location of the project, no impacts are anticipated on the coastal ecosystem as a result of the proposed project.

5. Economic Uses

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

Policies:

a. *Concentrate coastal dependent development in appropriate areas;*
b. *Ensure that coastal development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area and;*
c. *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
    i. *Use of presently designated locations is not feasible;*
    ii. *Adverse environmental effects are minimized; and*
    iii. *The development is important to the State's economy.*

Response: The project sites are located inland to the east of Piilani Highway away from the coastline. In addition, these proposed public facilities will be located at existing public facility sites.

6. Coastal Hazards

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

Policies:

a. *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
b. *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;*
c. *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*
d. *Prevent coastal flooding from inland projects.*

Response: The project sites are located inland to the east of Piilani Highway away from the coastline, outside of the area regulated by SMA and Shoreline Setback permitting and away from storm waves. The project sites are to the east of Piilani Highway within Zone X, determined to be outside the 0.2% annual chance floodplain. BMPs will be implemented during the construction phase to mitigate erosion and storm water discharge from the project sites.

7. Managing Development

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

Policies:

a. *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
b. *Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirement; and*
c. *Communicate the potential short and long-term impacts of the proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Response: The environmental review process set forth in HRS Chapter 343, ensures that environmental concerns are given appropriate consideration in decision making along with economic and technical considerations and integrates public notification and participation in development of the proposed project.

8. Public Participation

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

Policies:

a. *Promote public involvement in coastal zone management processes;*
b. *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and*
c. *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Response: The environmental review process set forth in HRS Chapter 343, ensures that environmental concerns are given appropriate consideration in decision making along with economic and technical considerations and integrates public notification and participation in development of the proposed project.

9. Beach protection

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

Policies:

a. *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;*
b. *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*
c. *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

Response: The project sites are located inland, to the east of Piilani Highway away from the shoreline. Therefore, there are no anticipated impacts on beach resources.

10. Marine Resources

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

Policies:

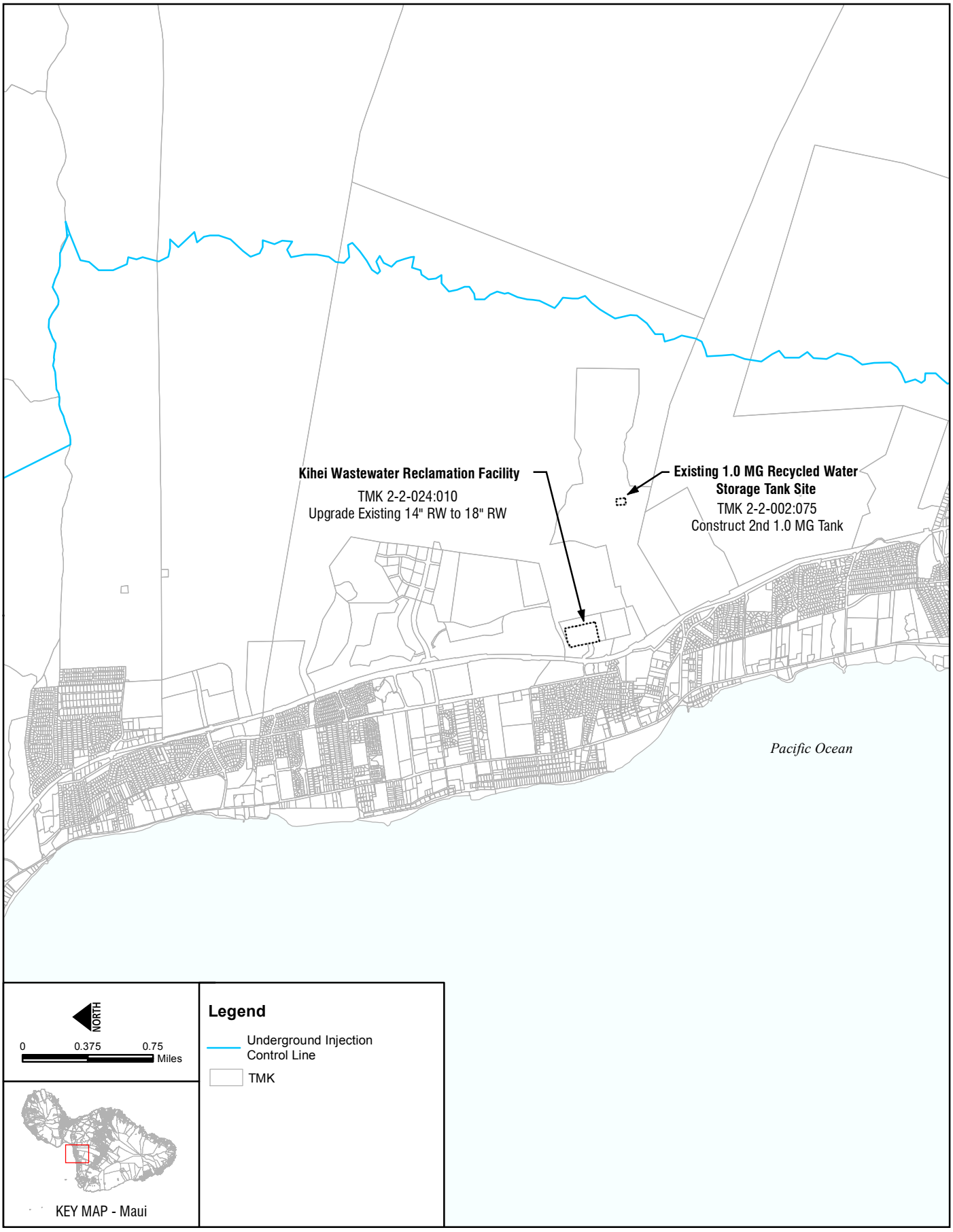
a. *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
b. *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*
c. *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*
d. *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
e. *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Response: The project sites are located inland to the east of Piilani Highway away from the coastline, outside of the area regulated by SMA and Shoreline Setback permitting. Based on the location of the project, no impacts are anticipated on the marine and coastal resources as a result of the proposed project.

3.9 Underground Injection Control (UIC) and Critical Wastewater Disposal Areas

The Underground Injection Control (UIC) Program is one of several programs administered by the State DOH Safe Drinking Water Branch. The UIC Program serves to protect Hawaii's underground sources of drinking water from chemical, physical, radioactive, and biological contamination that could originate from injection well activity. HAR Chapter 11-23 Underground Injection Control, provides conditions governing the location, construction, and operation of injection wells to prevent injected fluids from migrating and polluting aquifers designated as sources of drinking water. The boundary between aquifers designated as sources of drinking water and exempted aquifers is generally referred to as the "UIC Line."

This project does not include work related to locating, constructing, or operating an injection well, and is therefore not subject to the conditions of the UIC Program. In addition, the Kihei WWRF, tank site, and existing recycled water service area are below the UIC Line, where the underlying aquifer is not considered a drinking water source. See **Figure 13** for the location of the UIC Line with respect to the Kihei WWRF and tank site.



South Maui Recycled Water System Expansion
Draft Environmental Assessment

UNDERGROUND INJECTION CONTROL LINE MAP

Fukunaga & Associates, Inc.

FIGURE 13

4. FEDERAL CROSS-CUTTER AUTHORITIES

This project may be funded by Federal Funds through the State of Hawaii's Clean Water State Revolving Fund (SRF) Program, which would constitute a federal action, and will require the project to meet the National Environmental Policy Act (NEPA) and Hawaii SRF program requirements. The Clean Water SRF was established by the U.S. Congress in 1987 under the Water Quality Act. The intent of the Clean Water SRF is to assist with the construction of publicly owned treatment facilities, implementation of non-point source projects to address pollution, and the development and implementation of estuary comprehensive conservation and management plans.

4.1 Archaeological & Historic Preservation Act, National Historic Preservation Act

The Archaeological & Historic Preservation Act, 16 U.S.C. §469a-1, deals with the threat of loss or destruction of significant data by Federal construction projects; notification and request for preservation of data; and survey of sites, preservation of data and compensation. The National Historic Preservation Act (NHPA) of 1966 requires the consideration of the effect of any project on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. In addition, Section 106 of the NHPA requires consideration of the effects of a project with federal involvement on historic properties. Section 106 is applicable to the project if a federal agency is carrying out the project, approving it, or funding it.

As described in the Archaeological and Historical Sites section, an Archaeological Field Inspection was performed for the project sites which involved historical and archaeological background research of the area, a field inspection to identify surface archaeological sites or features, and an assessment of the potential impacts to such features. Results indicated extensive prior ground disturbance and an absence of historic properties. No historic sites were identified and it was determined that there is little possibility that historic properties would occur in subsurface contexts. As such, a formal Archaeological Inventory Survey of the property is not recommended. A request for a "No Effect" determination from SHPD will be submitted.

The Section 106 review process was initiated for this project in accordance with 36 CFR Part 800. Section 106 consultation letters were sent to organizations or individuals that might attach significance to the Area of Potential Effect (APE), defined as the Kihei WWRF and tank site, inviting them to participate in the process and identify any historic properties that may possess Native Hawaiian traditional religious and cultural significance or other Native Hawaiian cultural concerns. The DOH has concluded that no sites of historical importance within the APE are expected to be affected by the project and has requested concurrence from SHPD.

4.2 Clean Air Act

The Clean Air Act, 42 U.S.C. §7506(c), requires each State to develop a State Implementation Plan (SIP) delineating how Federal air quality standards will be attained and how this will be verified. The DOH, Clean Air Branch, Air Quality program is defined by HAR Chapter 11-60 and is a SIP approved by the Environmental Protection Agency (EPA).

As discussed in the Air Quality section, the quality of air in the general Kihei area is considered "Good." Existing sources of air pollution are emissions from motor vehicles traveling along Piilani Highway. Potential short term effects from dust and exhaust due to construction activities will be mitigated with BMPs such as water sprinkling and proper equipment maintenance. No long term impacts on air quality resulting from the proposed project are anticipated.

4.3 Coastal Barrier Resources Act

The Coastal Barrier Resources Act, 16 U.S.C §3501, designated various undeveloped, unprotected coastal barriers on the Atlantic Ocean and Gulf of Mexico coasts, and is not applicable to the State of Hawaii.

4.4 Coastal Zone Management Act

As discussed in the CZM Program section, HRS Chapter 205A sets forth Hawaii's CZM Program, which is in compliance with the Coastal Zone Management Act, 16 U.S.C. 1456(c)(1). HRS §205A-2 describes the CZM program, its objectives, and policies.

The proposed project is consistent with CZM objectives and policies. In addition, the SMA area is to the west of Piilani Highway, and the Kihei WWRF and tank site are located to the east of Piilani Highway, outside of the areas regulated by SMA and Shoreline Setback permitting.

4.5 Endangered Species Act, Fish & Wildlife Coordination Act, Essential Fish Habitat

The Endangered Species Act, 16 U.S.C. §1536(a)(2) and (4), is administered by the United States Fish & Wildlife Service (USFWS) and NOAA, National Marine Fisheries Service. The USFWS has primary responsibility for terrestrial and freshwater organisms, while NOAA is mainly responsible for marine wildlife. NOAA is also the agency consulted under the Essential Fish Habitat consultation process under the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §1801. The Fish and Wildlife Coordination Act (FWCA), 16 U.S.C. §662(a), provides the basic authority for USFWS involvement in evaluating impacts of proposed water resource development projects on fish and wildlife, and requires Federal agencies to take actions to prevent or mitigate loss or damage to wildlife resources.

The Kihei WWRF and tank site are existing public facility sites, and the proposed facilities are consistent with the existing use of the sites. Fauna in the vicinity of the project sites typically consists of introduced animals such as rats, mongoose, and alien birds; the area is not known to be inhabited by endangered species.

4.6 Environmental Justice Executive Order

Executive Order 12898 signed in 1994, directs federal agencies to identify and address disproportionately high adverse human health or environmental effects of its activities on minority and low-income populations.

The percentage of minorities in the Kihei Census Designated Place (CDP) is 49.3 percent, which is significantly higher than the national average of 27.6 percent. However, the 2010 – 2014 median household income of $63,804 was generally higher than the national average of $53,482. The design and operation of recycled water facilities, and allowable use of recycled water are highly regulated and monitored in accordance with the HAR 11-62 Wastewater Systems and the 2016 Hawaii State DOH Reuse Guidelines. Negative short term and long term health impacts associated with this project are not anticipated.

4.7 Farmland Protection Act

The Agriculture and Food Act (Public Law 97-98) was passed in 1981 and contained the Farmland Protection Policy Act (FPPA), Subtitle I of Title XV, Section 1539-1549. The intent of the FPPA was to minimize the impacts of Federal programs on prime farmland, unique farmland, and other land of statewide or local importance. It is administered by the USDA, National Resources Conservation Service. The three categories of farmland described in FPPA are translated to the DOA, ALISH classifications of "Prime," "Unique," and "Other" agricultural lands.

The Kihei WWRF and tank site are entirely within lands not considered for ALISH classification. Upgrades on the Kihei WWRF are within the existing facility, where no additional land will be utilized. The proposed site of the 1.0 MG recycled water storage tank at the existing tank site will utilize a fraction of land available for agriculture. Further, the proposed project will enhance the recycled water distribution system which provides an important non-potable water resource for agricultural irrigation.

4.8 Floodplain Management Executive Order

The objective of Executive Order 11988 is to avoid to the extent possible the adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. To accomplish this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities."

As discussed in the Flood and Tsunami Hazard section, the Kihei WWRF and tank site are located in Zone X, which is an area determined to be outside of the 500 year plain and less than 1 foot depth in a 100 year flood event. This project will not have an effect on the flood plain.

4.9 Protection of Wetlands Executive Order

The purpose of Executive Order 11990 is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." Federal agencies, to meet these objectives, in planning their actions are required to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland is unavoidable. The procedures require the determination of whether or not the proposed project will be in or will affect wetlands.

There are no wetlands in the vicinity of the Kihei WWRF and tank site. Executive Order 11990 is not applicable to this project. See **Figure 14**.

4.10 Safe Drinking Water Act

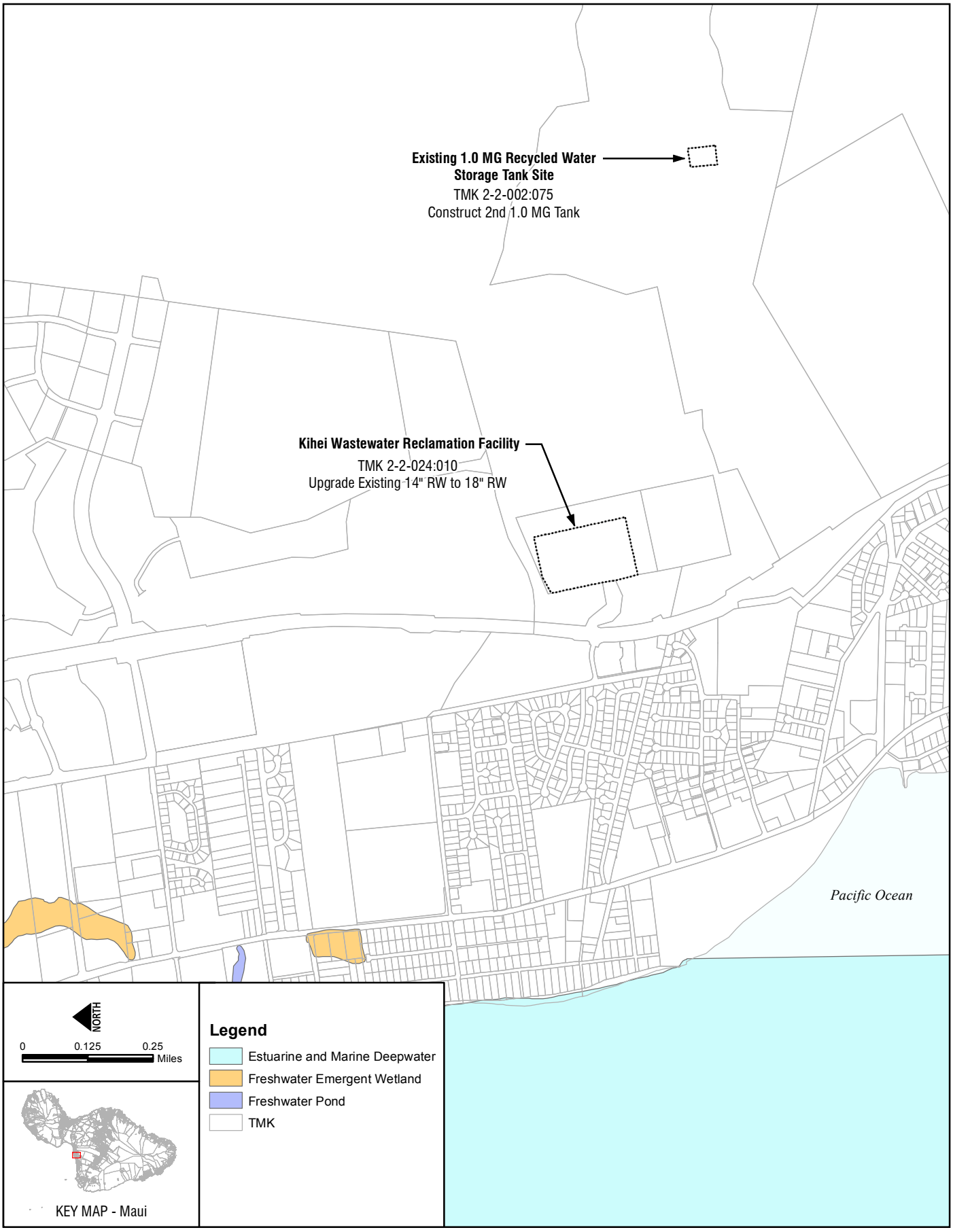
The Safe Drinking Water Act (SDWA), 42 U.S.C. §300f was established to protect the quality of all waters actually or potentially designed for drinking use from both underground and aboveground sources. The SDWA authorizes EPA to establish minimum standards to protect potable water with which all owners or operators of public water systems must comply; to oversee the agencies which can be approved to implement these rules on EPA's behalf, such as State governments; and to encourage attainment of secondary standards (nuisance-related). The SDWA also establishes the Sole Source Aquifer Program, under which EPA also may evaluate Federal-funded projects to determine whether they have the potential to contaminate a sole source aquifer.

As discussed in the Underground Injection Control and Critical Wastewater Disposal Areas section, the Kihei WWRF, tank site, and existing recycled service areas are below the UIC Line to the west, where the underlying aquifer is not considered a drinking water source. At present, there are two sole source aquifers in the State of Hawaii, the Southern Oahu Basal Aquifer on the island of Oahu and the Molokai Aquifer on the island of Molokai. The Kihei WWRF and tank sites are on the island of Maui, and are not within either aquifer.

4.11 Wild & Scenic Rivers Act

The Wild and Scenic Rivers Act, 16 U.S.C. 1271-1287, declares that certain selected rivers with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historical, cultural, or other similar values, shall be preserved in their free-flowing condition for the enjoyment of present and future generations.

The State of Hawaii has approximately 3,905 miles of river, but no designated wild and scenic rivers. The Wild & Scenic Rivers Act is not applicable to this project.



South Maui Recycled Water System Expansion
Draft Environmental Assessment

WETLANDS MAP

Fukunaga & Associates, Inc.

FIGURE 14

5. ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action

Under the No Action alternative, current levels of reuse would be limited by the existing 1.0 MG recycled water storage tank capacity, and all of the remaining recycled water would continue to be disposed of, unused, into injection wells. A policy (9.3.2.c) of the Maui Island Plan to maximize the efficient use of reclaimed wastewater would not be met and use of the deep injection wells would not be reduced. The Maui Island Plan projects an estimated 2030 potable water demand of 34.11 MGD, which exceeds the available supply of 26 MGD from the Central Maui Water System. The potential shortage in potable water appears to indicate an even greater need for recycled water to be available. In addition, County of Maui Ordinance, Chapter 20.30 – Use of Reclaimed Water, requires irrigation systems on commercial properties to use recycled water if a distribution main is within one hundred feet of the consumer's property line. Without a new 1.0 MG recycled water storage tank, recycled water availability and reliability would be potentially limited by the existing 1.0 MG recycled water storage tank.

5.2 Site Alternatives

Relative to other areas in Maui, South Maui had a considerable interest in utilizing recycled water according to the "South Maui Water Reuse Feasibility Study," by Brown and Caldwell, dated 1992. Potential major users of the reclaimed water included ranchers, golf courses, and resorts. Problems with high salinity and the potential increase in salinity due to continual extraction of brackish water identified the need for an alternative high quality water source in Kihei.

Locating the new 1.0 MG recycled water storage tank in an area outside of the existing tank site would require acquisition of additional lands and new transmission mains to connect the alternate tank site to the existing distribution system. Operations and maintenance of a new 1.0 MG recycled water storage tank in a separate location from the existing tank would also require more time. Alternative sites within Kihei, outside of the existing tank site is not as practical and economical as the tank site identified in this proposed project.

6. DETERMINATION

In accordance with the Hawaii Administrative Rules, Section 11-200-12, the potential effects of the proposed project are evaluated for the Thirteen Administrative Criteria for Significance as summarized below:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource:

   No natural or cultural resource was identified in or affected by the proposed project. The proposed project is therefore not expected to cause a loss or destruction of any natural or cultural resources.

2. Curtails the range of beneficial uses of the environment:

   The proposed project is enhancing the beneficial uses of the environment, as it increases the capacity and reliability of the existing recycled water system, making available more recycled water in the area to better serve the community. Short term construction related impacts on the environment related to Water Quality, Air Quality, and Noise Quality will be mitigated by the implementation of BMPs as indicated in the respective sections. The proposed project will not curtail the range of beneficial uses of the environment.

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

   The proposed project is in conformance with the guidelines set forth in the State Environmental Policy Chapter 344, HRS. All permits and approvals in accordance with State and County rules and regulations will be obtained. BMPs will be implemented to prevent degradation of the environmental conditions.

4. Substantially affects the economic or social welfare and cultural practices of the community or State:

   The proposed project will serve to increase the capacity and reliability of the existing South Kihei Recycled Water System, provide redundancy, allow for less dependency on potable water resources, and decrease effluent disposal into injection wells. The proposed project will indirectly have a positive effect on the economic and social welfare of the community. Infrastructure that supports an increase in available recycled water will assist in sustaining a growing community.

5. Substantially affects public health:

   Negative impacts on public health resulting from the proposed project are not anticipated. State and Federal regulatory oversight provides a framework to ensure the safe use of recycled water covering treatment, distribution and use. The South Maui Recycled Water Distribution System delivers R-1 recycled water, the highest grade of recycled water, in

accordance with the DOH regulations. Recycled water can only be applied in approved areas as defined by the DOH; and end users must be trained and are regulated by the County and DOH. Recycled water users must observe BMPs to reduce the potential for percolation of the recycled water to the ground water and runoff to surface water; and to minimize public contact with recycled water spray or mist. Design considerations include applying recycled water at a rate appropriate to plant uptake and evapotranspiration rates, and not irrigating during rainy periods; proper selection of sprinkler heads in publicly accessible areas; and protection of items such as drinking fountains, picnic tables, barbeques, and portable water coolers from exposure to recycled water or mist. Operational considerations include scheduling and limiting times of application when the chances of exposure are lowest (e.g. 11 pm to 3 am).

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

   The proposed project is limited to upsizing a 400-foot section of pipe at the Kihei WWRF and construction of a new 1.0 MG recycled water storage tank, which will increase the capacity and reliability of the existing South Maui Recycled Water System. A substantial increase in population is unlikely as a result of the proposed project.

7. Involves a substantial degradation of environmental quality:

   BMPs will be implemented to mitigate potential short term degradation of the environment which may occur during construction. The project will enhance the environment, limiting disposal of treated effluent and supporting the expanded use of a valuable alternative water resource.

8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions:

   The proposed project will increase the amount of recycled water available to accommodate additional users. As indicated in the Maui Island Plan, Kihei Mauka in Central Maui is identified as a Planned Growth area that will encompass more than 583 acres of mixed land uses, including open spaces, parks, and other public facilities. Increasing the amount of recycled water available will support conservation of potable water where the highest quality of water is used for the community's highest beneficial uses. The project will not have cumulative negative effects upon the environment.

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

   The project will not substantially affect a rare, threatened, or endangered species, or its habitat.

10. Detrimentally affects air or water quality or ambient noise levels:

    Short term effects on air quality, water quality, and noise impacts during construction will be addressed by BMPs, including an NPDES application as necessary.

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

    The Kihei WWRF and tank site are located to the east of Piilani Highway, away from the coastline outside of the area regulated by SMA and Shoreline Setback permitting, and are not anticipated to have adverse impacts on coastal waters or resources. As discussed in the Flood and Tsunami Hazard section, the Kihei WWRF and the tank site are located outside of the 500 year flood plain and less than 1 foot depth in a 100-year flood event, and are not considered vulnerable to flood and tsunamis.

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

    The Kihei WWRF and tank site are located on the east side of Piilani Highway. The pipe improvements at the Kihei WWRF are below ground. The proposed 1.0 MG recycled water storage tank site is located at approximately 300 feet in elevation MSL adjacent to the existing 1.0 MG recycled water storage tank of similar dimensions. Adverse impacts to scenic or open space resources resulting from the project are not anticipated.

13. Requires substantial energy consumption:

    Operation and maintenance of the new 1.0 MG recycled water storage tank will involve minimal energy consumption. The existing recycled water system is already in use, and additional substantial consumption of energy is not anticipated.

This Environmental Assessment has determined that the proposed project will not have significant impact on the environment, and an EIS is therefore unwarranted. It is anticipated that a Finding of No Significant Impact (FONSI) will be issued for the proposed project.

6.1 List of Permits and Approvals

The following list of permits and approvals are anticipated to be required for the proposed project:

State of Hawaii

1. National Pollutant Discharge Elimination System (NPDES) Permit, if applicable.
2. Community Noise Permit, if applicable.
3. Department of Health Approval to Construct.
4. Department of Health Approval to Use.

County of Maui

1. Construction Permits, as applicable.

7. CONSULTED PARTIES

An Early Consultation Letter was sent to various agencies and interested parties for the opportunity to provide preliminary comments prior to completing this Draft Environmental Assessment. The agencies and interested parties are listed below. Comments received and responses provided are incorporated in Appendix B.

Federal Agencies

U.S. Army Corp of Engineers, Honolulu District, Regulatory Branch

U.S. Department of Agriculture, Natural Resources Conservation Service, Pacific Islands Area, District Conservationist

U.S. Fish and Wildlife Service, Pacific Islands Office

State Agencies

Department of Accounting and General Services

Department of Agriculture

Department of Education, Planning Section, Facilities Development Branch

Department of Hawaiian Home Lands

Department of Health, Director

Department of Health, Clean Water Branch

Department of Health, Environmental Management Division

Department of Health, Environmental Planning Office

Department of Health, Safe Drinking Water Branch

Department of Health, Solid and Hazardous Waste Branch

Department of Health, Wastewater Branch

Department of Health, Maui District Health Office, District Environmental Health Program

Department of Land and Natural Resources, Land Division

Department of Land and Natural Resources, State Historic Preservation Division

Department of Transportation, Director

Department of Transportation, Maui Highways Division

Housing Finance and Development Corporation

Maui/Lanai Islands Burial Council

Office of Environmental Quality Control

Office of Hawaiian Affairs

Office of Planning

University of Hawaii, Environmental Center

University of Hawaii, Water Resource Research Center

County of Maui Agencies

Council of the County of Maui

Department of Environmental Management

Department of Fire and Public Safety

Department of Parks and Recreation

Department of Public Works

Department Transportation

Department of Water Supply

Planning Department

Other Individuals/Organizations

Haleakala Ranch Company

Kihei Community Association

Monsanto Hawaii

8. REFERENCES

A Multitracer Approach to Detecting Wastewater Plumes from Municipal Injection Wells in Nearshore Marine Waters at Kihei and Lahaina, Maui, Hawaii, Scientific Investigations Report 2009-5253, U.S. Department of the Interior, U.S. Geological Survey.

Air Pollution in the World, Real-time Air Quality Index (AQI), http://aqicn.org/city/usa/hawaii/kihei/

An Archaeological Monitoring Plan for the South Kihei Recycled Water System Expansion, Keokea Ahupuaa, Makawao (Kula) District, Island of Maui, Hawaii, dated January 2016.

Archaeological Field Inspection for the County of Maui, Environmental Management, Wastewater Reclamation Division, Job No. WW15-01 Kihei Recycled Water Tank, Waiohuli-Keokea Ahupuaa, Kihei, Maui Island, Hawaii, dated February 2016.

Atlas of Hawaii, third edition, Department of Geography, University of Hawaii at Hilo, dated 1998.

Central Oahu Watershed Management Plan, Community Meeting #1, December 11, 2014.

Effects of Agricultural Land-Use Changes and Rainfall on Ground-Water Recharge in Central and West Maui, Hawaii, 1926-2004, Scientific Investigations Report 2007 – 5103, U.S. Department of the Interior, U.S. Geological Survey.

Geotechnical Investigation, South Maui Recycled Water Expansion New 1.0 MG Water Storage Tank and Effluent Line, Kihei, Maui, Hawaii, February 26, 2016.

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

Hawaii Administrative Rules

Hawaii State Data Book 2014

Hawaii Revised Statues

Kihei-Makena Community Plan, dated 1998

Maui County Data Book, dated 2004, County of Maui, Office of Economic Development

Maui Island Plan, General Plan 2030, in effect on December 28, 2012.

National Wildlife and Scenic Rivers System, http://www.rivers.gov/hawaii.php.

NOAA Technical Report NESDIS 142-8, Regional Climate Trends and Scenarios for the U.S. National Climate Assessment, January 2013.

Noise Reference Manual, Maui County Edition, 2/2008.

Rainfall Atlas of Hawaii 2011, University of Hawaii. Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.-L. Chen, P.-S. Chu, J.K. Eischeid, and D.M. Delparte, 2013: Online Rainfall Atlas of Hawaii. *Bull. Amer. Meteor. Soc.* 94, 313-316, doi: 10.1175/BAMS-D-11-00228.1. http://rainfall.geography.hawaii.edu/interactivemap.html

Reuse Guidelines, Hawaii State Department of Health, Wastewater Branch, dated January 2016.

Reuse Guidelines, Volume I: Recycled Water Projects, Hawaii State Department of Health Wastewater Branch, January 2016.

Reuse Guidelines, Volume II: Recycled Water Projects, Hawaii State Department of Health Wastewater Branch, January 2016.

Soils Investigation, Piilani Highway Sewer – Phase I, Effluent Reservoir and Pipeline, Kihei, Maui, Hawaii, dated February 29, 1996.

Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, USDA Soil Conservation Service, August 1972.

United States Census Bureau, American Community Survey

Water Resource Protection Plan, State of Hawaii Commission on Water Resource Management, June 2008.

APPENDIX A

Archaeological Field Inspection Report

SCS Project Number 1830 FI-3

ARCHAEOLOGICAL FIELD INSPECTION FOR THE COUNTY OF MAUI ENVIRONMENTAL MANAGEMENT-WASTEWATER RECLAMATION DIVISION JOB NO. WW15-01 KIHEI RECYCLED WATER TANK WAIOHULI-KEOKEA AHUPUA`A, KĪHEI, MAUI ISLAND, HAWAI`I

[TMK: (2) 2-2-24: por. 010 & 011; (2) 2-2-02: por. 075]

Prepared by:
Nicole Andricci, B.A.
and
Michael F. Dega, Ph.D.
March 2016

Prepared for:
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

SCIENTIFIC CONSULTANT SERVICES Inc.

HAWAII

1347 Kapiolani Blvd., Suite 408 Honolulu Hawai`i 96814

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

Scientific Consultant Services, Inc. conducted an Archaeological Field Inspection and background study for the proposed construction of a 1.0 million gallon (MG) water storage tank, adjacent to an existing 1.0 MG water storage tank and replacement of a pipeline segment at the Kihei Wastewater Reclamation Facility, located in Waiohuli-Keokea Ahupua`a, Kīhei, Maui Island, Hawai`i [TMK: (2) 2-2-24: por. 010 & 011; (2) 2-2-02: por. 075] (Figures 1 and 2).

Fieldwork for this project was conducted on January 7th, 2016, by SCS archaeologist Nicole Andricci, B.A. and under the supervision of M. Dega, Ph.D. (Principal Investigator). The Archaeological Field Inspection was conducted on the grounds of the existing Kihei Wastewater Reclamation Facility for the proposed 1.0 MG tank installation and replacement of an existing pipeline segment for the County of Maui Wastewater Reclamation Division. The area was assessed for the potential presence of historic properties (including archaeological sites, buildings, structures, and Traditional- and Historic-era cultural materials).

The scope of work for this investigation included:

- Historical and previous archaeological background research including previous archaeological reports conducted in the vicinity of the project area corridor, Land Commission Awards, and historic maps in order to determine if archaeological sites have been recorded on or near this property, and to document the history of land use in and around the project area.
- Field inspection of the project areas to identify surface archaeological sites or features and to investigate and assess the potential for impact to such sites or features.
- Preparation of the current letter report which will include the results of the historical research and the fieldwork and make recommendations as to what additional work, if any, might be required.

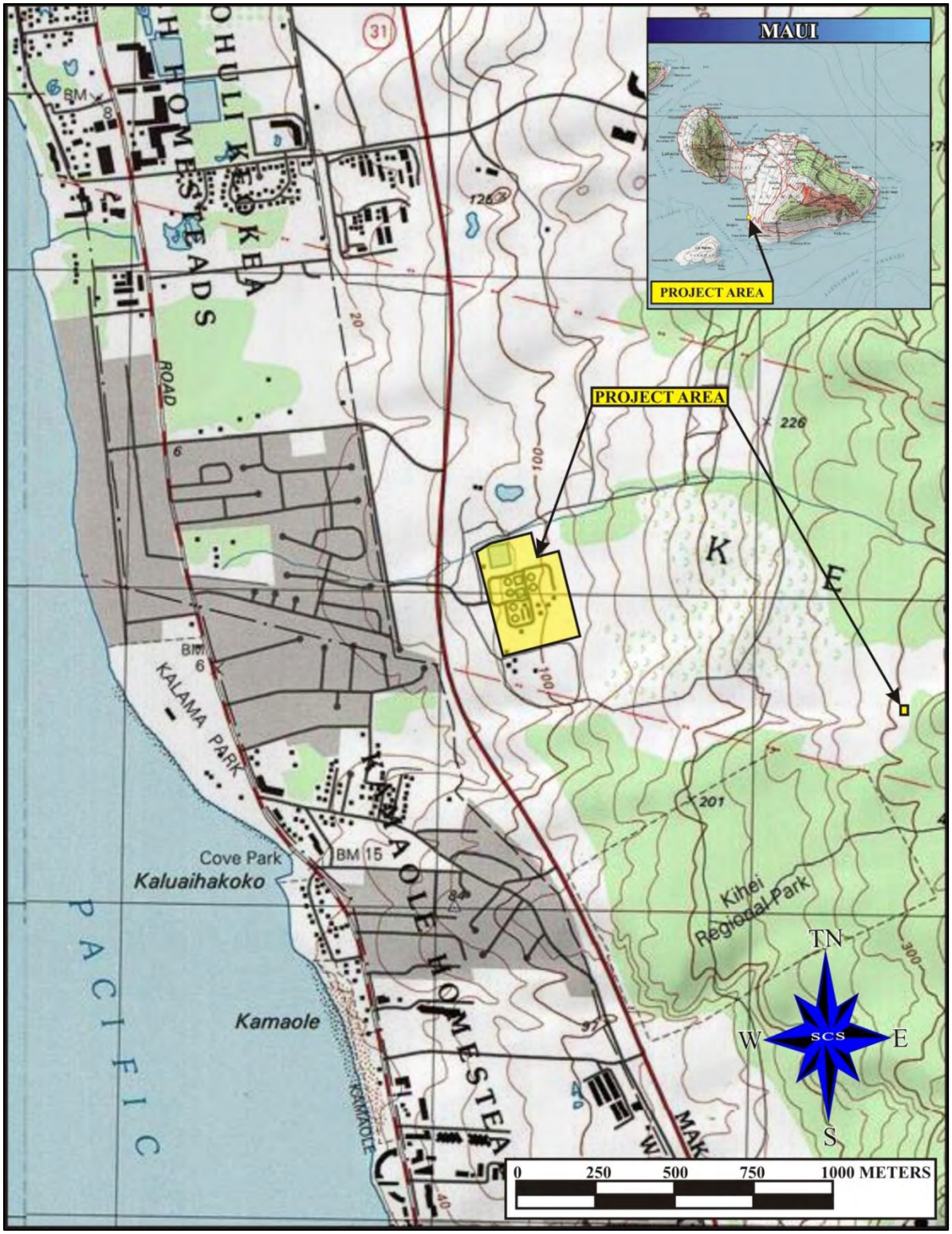


Figure 1: USGS Topographic (Puu O kali 1992; 1:24,000) Map Showing Project Area Location.

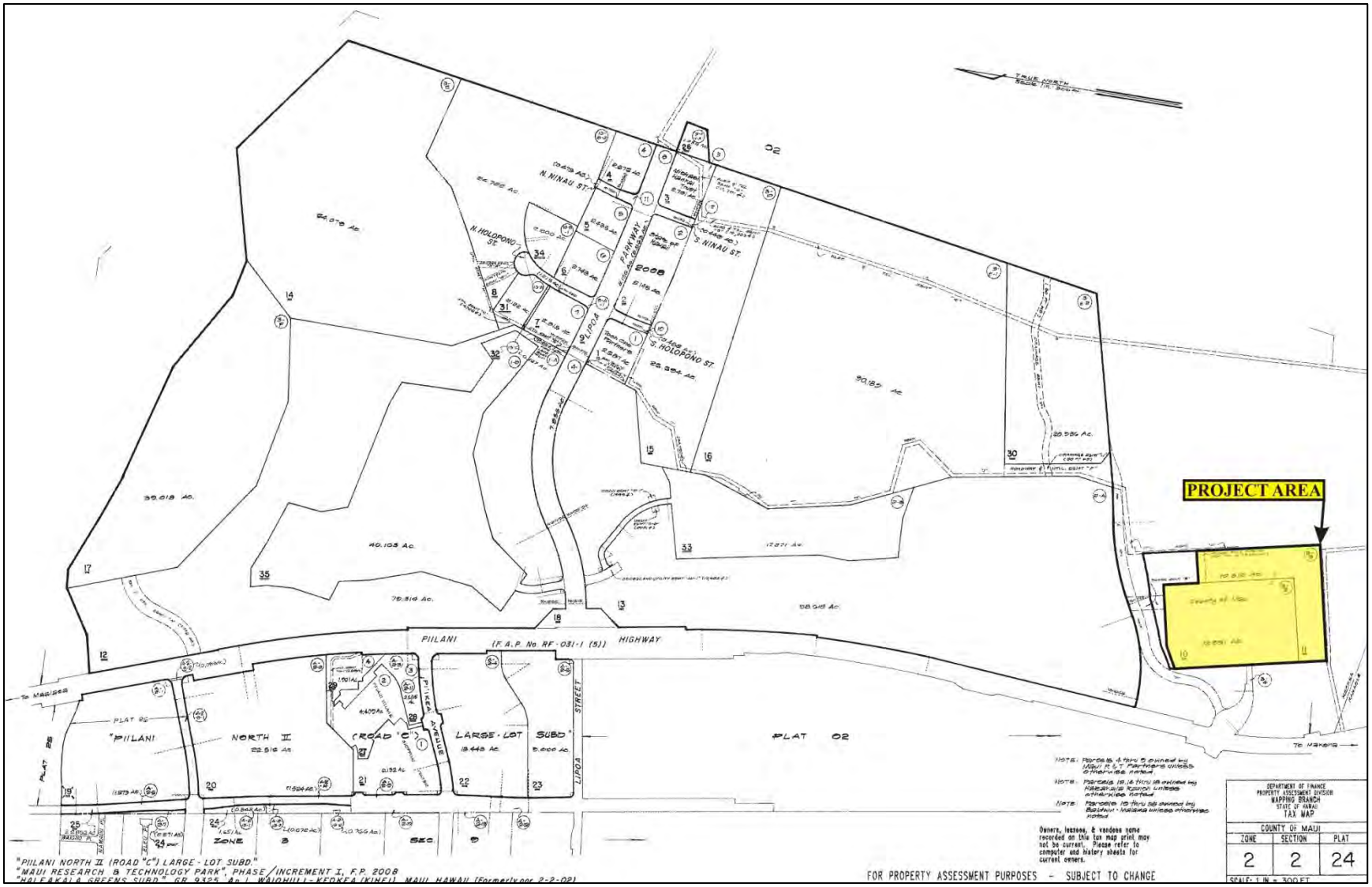


Figure 2: Tax Map Keys Showing Project Area Location (Close-up).

The parcels are owned by the County of Maui. The location where the 1.0 MG tank is proposed to be placed is on open, barren land with an existing 1.0 MG tank adjacent to the project area. The purpose of the Field Inspection was to determine the presence or absence of architecture, midden deposits, and/or artifact deposits on the surface of the project area, as well as assess the potential for the presence of subsurface cultural deposits.

NATURAL SETTING

The project area that will contain the proposed 1.0 MG water storage tank is 290 feet by 200 feet and is roughly rectangular-shaped, with elevations ranging from 295 feet to 310 feet A.M.S.L. Adjacent to the proposed location of the 1.0 MG water storage tank is an existing 1.0 MG tank. There are two project areas, one is located within the Kihei Wastewater Reclamation Facility that will include the proposed replacement of an existing pipeline segment, while the second project area is located within Monsanto Company lands and is where the proposed location will be for the 1 MG water storage tank (Figures 3 through 8).

The project area soils are classified by the USDA as "Waiakoa extremely stony silty clay loam" (Foote et al. 1972). These soils form on smooth, low uplands, and stones cover 3 to 15 percent of the ground surface. In most areas where this soil occurs, approximately 50 percent of the surface layer has been eroded. Because of this erosion, bedrock is very common on the surface, rendering soil depths nil. Runoff levels are average, and the erosion hazard is severe. For these reasons, soils in the project area are generally only good for pastureland and wildlife habitat. Low bedrock outcrops are commonly associated with these soils, and cultivation is usually impractical unless the stones are removed (Foote et al. 1972:127).

Coastal Kīhei, in general, is classified as a '*Kiawe* and Lowland Shrubs' vegetation zone, and common, local plants include: *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena glauca*), finger grass, and *pili* grass, (the latter is a native species) (Armstrong 1983).

Annual rainfall in the project area ranges between 22 and 33 centimeters annually and is the lowest on Maui, making this region one of the driest in the Hawaiian Islands archipelago (Armstrong 1983). At the time of the present survey, the subject parcel was exceptionally dry, consistent with a period of prolonged drought in the area.

Figure 3: Photograph of Proposed 1 MG Tank (Adjacent to Existing 1 MG Tank) Project Area. View to Northwest.

Figure 4: Photograph of Project Area and Existing 1 MG Water Tank Infrastructure. View to Northeast.

Figure 5: Photograph of Project Area for Pipeline Replacement at the Kihei Wastewater Reclamation Facility. View to Southeast.

Figure 6: Photograph of Project Area for Pipeline Replacement at the Kihei Wastewater Reclamation Facility. View to Northwest.

Figure 7: Photograph of Project Area for Pipeline Replacement at the Kihei Wastewater Reclamation Facility. View to West.

Figure 8: Photograph of Existing Infrastructure within the Project Area for Pipeline Replacement at the Kihei Wastewater Reclamation Facility. View to West.

PREVIOUS ARCHAEOLOGICAL RESEARCH

Work by Cordy (1977) in the Kīhei area resulted in a pre-Contact settlement model that divides the landscape into three environmental zones: coastal, transitional/barren, and inland. The current project area falls into the transitional/barren zone, which refers to "the slopes back of the coast with less than 30 inches of rainfall" (Cordy 1977:4). This barren zone is viewed as relatively marginal for permanent habitation because of its dryness, rocky soils, and dearth of natural resources. In general, archaeological surveys in the barren zone around Kīhei have confirmed these earlier suppositions about land use as there was very little evidence of pre-Contact Native Hawaiian settlement.

Cox (1976) surveyed near the project area along the corridor of the Pi`ilani Highway and failed to notice a single site or significant feature. Kirch (1985) examined similar geographic settings to the south (towards Makena) and also failed to find any evidence of traditional Native Hawaiian activities in the barren zone. In fact, as Kennedy (1986) observes, this settlement pattern of avoiding the barren zone probably continued from ancient times through the early historic period as Land Commission Awards (LCA) were issued for land situated in the further upland reaches.

Within the two phases of the Pi`ilani Residential Community, four archaeological studies have been conducted. Cordy (1977) and Donham (1989 and 1990) documented a total of 23 sites including wall segments, small structures, cairns, historic structures, enclosures and agricultural features. The surface features were interpreted as traditional Hawaiian (with the exception of the concrete structure remnants) related to temporary habitation and agricultural pursuits. Based on similar findings in leeward East Maui, it was suggested that the "features within the survey area postdate c. AD 1500" (Donham, 1990:15).

Kennedy (1986) conducted an archaeological reconnaissance of the entire 150.032 acres of the then-proposed Maui Research and Technology Park (TMK: 2-2-02, since changed to 2-2- 24), situated 3 km north of the project area. Kennedy's study, which did not include subsurface testing (excavation), concluded that no archaeological sites or features were located within the proposed site.

Hammatt and Shideler (1989) conducted work across Pi`ilani Highway west of the proposed Kīhei Regional Park area between the highway and the coast. This project led to

the identification of a historic ranch site, possible burials, a C-shaped structure, and a midden scatter.

Hammatt and Shideler (1992) also conducted an inventory survey in the *makai* portion of Kama`ole Ahupua`a and documented a disturbed traditional Hawaiian site. As noted by Hammatt and Shideler (1992:10), "what is particularly striking in the many archaeological reports on Kīhei is the general paucity of sites within the transitional or barren zone."

Theresa Donham conducted an archaeological reconnaissance of the Haleakala Greens Subdivision area (Hibbard 1994). She identified a low, circular rock mound, a historical site with multiple features on the crest of a prominent ridge, a linear rock mound or wall remnant, a rock- filled terrace outlined with a low, rock wall, and other modifications along a rock outcrop. Shell midden was observed on the surface inside an enclosure.

Chaffee *et al*. (1997) conducted an Archaeological Inventory Survey, including subsurface testing (excavation), of a portion of the Maui Research and Technology Park, within the area investigated by Kennedy (1986). Three sites consisting of ten archaeological features were identified. The features included remnant terraces, stone alignments, a mound, and a modified outcrop. All of the sites were interpreted as agricultural in function with the exception of a rock mound that may have functioned as a religious feature.

Mayberry and Haun (1998) conducted a survey south of the present project area. This work led to the identification of 33 sites consisting of at least 69 features, these interpreted as agricultural, habitation, and military structures.

McGerty *et al.* (2000) surveyed fifteen selected areas within the Elleair Maui Golf Club, and identified five archaeological sites (State Site Nos. 50-50-10-5043, -5044, -5045, -5046, and -5047) containing a total of seven surface features. The surface features were interpreted as agricultural terraces, perhaps dating from the pre-Contact period, and C-shaped rock formations (fighting positions) built during World War II training. Ten excavation units placed within these features yielded no cultural material.

McDermott (2001) conducted an archaeological inventory survey for a retention basin adjacent to the project area on the south side of Waipuilani Gulch. In total, four

historic properties were located within the project area and three additional located just outside the parcel. The sites consisted of stone cairns, modified outcrop enclosures, terraces, stone mounds and alignments. The sites were thought to be traditional Hawaiian temporary habitations or ancillary features associated with the habitations. McDermott states that site densities are typically quite low within the "barren zone" with multiple studies having been conducted on large parcels (Kennedy 1986, Watanabe 1987, Hammatt and Shideler 2000) that did not lead to the identification of any pre-Contact sites. However, military sites related to World War II training exercises have been previously documented in the area (McGerty *et al*. 2000), these sites often consisting of low, short alignments or walls. The few radiocarbon dates acquired from the area indicate definitive use of the landscape in later prehistory c. A.D. 1500 to 1600+.

Tome and Dega (2002) conducted an Inventory Survey on a 3.142-acre parcel located approximately 400 m inland from the Kama`ole coastline where one traditional archaeological site, four surface midden scatters, and a basalt alignment were identified. Interpretations of the survey reflected that the property had been utilized as a single-use site due to absence of subsurface cultural material from 14 stratigraphic trenches excavated on the parcel. Like this project, most of the ones mentioned above occurred just to the west of coastal sand deposits in what is commonly known as the "Barren Zone". However, while some archaeological surveys were productive, there were those along the coast that were not. Namely, Calis' (2001) Inventory Survey directly in sandy sediment along Kamaole did not lead to the documentation of occupation or burials.

Tome and Dega (2002) also conducted an Archaeological Inventory Survey along the northeastern flank of the Elleair Maui Golf Club property. They identified a historical ranching corral and a short agricultural wall, collectively designated State Site No. 50-50-10-5233. No other structures or subsurface deposits were identified. No traditional Native Hawaiian sites or features were identified. Another Inventory Survey along the southern flank of the Elleair Maui Golf Course (Dega 2003) failed to yield any archaeological or historical site or features.

A more recent Inventory Survey (Dega and Tome 2003) conducted in Kīhei Town also failed to yield significant deposits or burials in sandy substrate. Recent exceptions to this rule have been seen in Waiakoa Ahupua`a (Hamada-Takatani Subdivision at TMK: 3-9-006:40) where a fairly large number of burials and possible burials have been identified (Rotunno- Hazuka n.d.).

Monahan (2003) conducted an Archaeological Inventory Survey, including subsurface testing (excavation), of a 28.737-acre portion of the Maui Research and Technology Park, also within the area investigated by Kennedy (1986), situated immediately upslope (*mauka*) of Lot No. 1-B. Other than one surface feature—a small arrangement of stacked boulders interpreted as a 'push pile,' this survey yielded no evidence of historic or prehistoric significance.

Monahan (2004) also surveyed a 56 acre parcel located near Elleair Golf Course. Four surface features, consisting of stacked basalt stones, were identified and recorded as individual sites. Three of these sites were interpreted as traditional Hawaiian temporary habitation and work areas. Unfortunately two of the sites failed to yield datable materials and the other returned a modern radiocarbon date (0+/- 50 BP).

Shefcheck, *et al* (2008) conducted an Archaeological Inventory Survey of 516 acres of land in Ka`ono`lulu Ranch which included a portion of the present project area. Forty new archaeological sites were identified and recorded during this work. Of the forty sites recorded during this work, eight are associated with pre-Contact activities. These pre-Contact sites consisted of temporary rock shelters with petroglyph components, enclosures, platforms, a mound and a wall. Historic sites found during this work pertained to agriculture and military training activities.

An Archaeological Inventory Survey was conducted by Perzinski and Dega (2010) in association with the construction of the Kihei High School in Kīhei, Ka`ono`ulu, Kōheo 1 & 2 and Waiohuli Ahupua`a, Wailuku and Makawao District, Island of Maui, Hawai`i. Fieldwork was conducted in 2009 and the report being accepted in 2010. One site was documented during the study: SIHP No.: 50-50-10-6393. Site -6393 is a complex of eight (8) features located in the northeastern portion of the project area. The site is located on a relatively level portion of the project area, approximately 300 m from Pi`ilani Highway at an elevation of 20 m A.M.S.L. The eight features consist of a series of low mounds and one alignment constructed of basalt cobbles and boulders. Based on site type, site morphology, lack of cultural deposits, and location, the site and its component features were interpreted as being associated with the historic period ranching activities.

In all, no archaeological sites have previously been identified within or directly adjacent to the project area.

FIELD INSPECTION

A field inspection of the area of potential effect/project area was conducted on January 7th, 2016, by SCS archaeologist Nicole Andricci, B.A., under the supervision of M. Dega, Ph.D. (Principal Investigator). The pedestrian survey consisted of walking 3 m transects over the entirety of the project area, and taking notes on the landscape, natural materials, and any other observations of interesting, particularly previous and modern land use.

The project areas are located at the Kihei Wastewater Reclamation Facility (replacement of pipeline segment) and within Monsanto Company lands (1.0 MG water storage tank placement). No historic properties were observed on the ground surface, which itself had been heavily modified through time (mechanical grading and use). Portions of the project area also consist of a contemporary built environment, as observed in the above photographs. Given the shallow nature of soils in this area, as well as the above noted landscape modifications, there seemed little possibility that historic properties would occur in subsurface contexts.

RECOMMENDATIONS

No historic properties were identified during the Archaeological Field Inspection. The project area has been subjected to extensive prior ground disturbance. Based on the absence of historic properties, as well as the extensive ground disturbance in the project area, a formal Inventory Survey of the property is not recommended. An Archaeological Monitoring Plan (AMP) for this project has been submitted to the State Historic Preservation Division (SHPD) for formal review (Dagher and Dega 2016).

APPENDIX B

Consulted Parties
Letters Received and Responses

Lynn Malinger

From: Paahana, Jessie K POH <Jessie.K.Paahana@usace.army.mil>
Sent: Friday, April 22, 2016 8:46 AM
To: Lynn Malinger
Subject: POH-2016-00037 Early Consultation Request for the South Maui Recycled Water System Expansion Project, 2nd 1.0 MG Tank and Pipeline Improvements

Good Morning, Ms. Malinger:

You requested comments on the subject project in preparation of a draft EA. No information was included regarding wetlands or other potential waters of the U.S. e.g. streams, canals, etc. Please be advised that Section 10 of the Rivers and Harbors Act of 1899 requires that a Department of the Army (DA) permit be obtained for certain structures or work in or affecting navigable waters of the United States, prior to conducting the work (33 U.S.C. 403). Section 404 of the Clean Water Act requires that a DA permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including wetlands and navigable waters of the U.S, prior to conducting the work (33 U.S.C. 1344).

If you would like substantive comments from this agency, please provide information regarding potential waters of the U.S. including wetlands. For your information, should the proposed pipeline improvements cross a water of the U.S. and result in the discharge of fill material into a water of the U.S., a permit will be required. Likewise, should the construction of the 2nd 1.0 MG tank result in the discharge of fill material into a water of the U.S., a permit will be required.

Your project has been assigned DA file number POH-2016-00037. Please reference this number in all future correspondence with this office concerning this project.

Mahalo,
Jessie

Jessie K Paahana, Biologist
Honolulu District, US Army Corps of Engineers Regulatory Office Building 230 Fort Shafter, Hawaii 96858-5440
ph: 808.835.4107

For more information regarding the Regulatory Program at the Honolulu District, please visit our website at http://www.poh.usace.army.mil/Missions/Regulatory.aspx. Please direct all general inquiries to the Regulatory Office central email account at CEPOH-RO@usace.army.mil or via phone at (808) 835-4303.

You are encouraged to provide comments on your experience with the Honolulu District Regulatory Office by accessing our web-based customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

June 6, 2016

Ms. Jessie Paahana, Biologist
U.S. Army Corps of Engineers
Honolulu District, Regulatory Branch
Building 230
Fort Shafter, Hawaii 96858-5440

SUBJECT: POH-2016-00037 Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Ms. Paahana:

Thank you for your correspondence dated April 22, 2016 providing early consultation comments on the subject project. We offer the following in response to the comments provided.

The scope of the proposed project includes work within the existing Kihei Wastewater Reclamation Facility (WWRF) and within the existing tank site parcel. Upgrade of approximately 400 feet of existing 14-inch recycled water line to 18-inch recycled water line is within the grounds of the existing Kihei WWRF. Construction of a second 1.0 MG recycled water storage tank and appurtenances is adjacent to the existing tank.

The Waimahaihai Stream, an intermittent stream, is expected to be the receiving water for storm water runoff from the Kihei WWRF and tank site. Best Management Practices for erosion control and storm water quality will be implemented during construction and observed in the final site design.

There are no wetlands or other potential waters of the U.S. within the existing Kihei WWRF or existing tank site, and project work does not involve work in, over, or under waters of the United States. There are no structures or work in or affecting navigable waters of the U.S. or activities that would involve discharge of dredged and/or fill material into wetlands and navigable waters of the U.S. As such, we respectfully request concurrence that a Department of the Army permit is not needed for this project.

We appreciate the input provided by your department and will transmit a copy of the Draft EA when published for review and comment. Should you have any questions, please feel free to contact me at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Lynn Malinger, P.E.

cc: Joanie Gushiken, County of Maui, DEM-WWRD

DAVID Y. IGE
GOVERNOR
STATE OF HAWAII

SHAN S. TSUTSUI
LT. GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

February 18, 2016

Lynn Malinger
Fukunaga & Associates, Inc.
1357 Kapi'olani Boulevard, Suite 1530
Honolulu, Hawai'i 96817

Dear Ms. Lynn Malinger:

Subject: Early Consultation Request; South Maui Recycled Water System Expansion Projects; 2nd 1.0 MG Tank and Pipeline Improvements, Job No. WW15-01.

Mahalo nui for your request for early consultation with the Department of Hawaiian Home Lands (DHHL) on the Wastewater Reclamation Division, County of Maui (WWRD) proposal to expand their South Maui Recycled Water System. DHHL reviewed your February 1, 2016 request for early consultation and provides the following information and comments.

Background

DHHL assesses its interests in water development by considering its legal rights, duties, and privileges related to water and its projected needs for water resources, including R-1 water. Our water needs are determined primarily based on information contained in documents in our planning system.

DHHL utilizes a three-tiered planning system to guide development and management of its land holdings for the benefit of current and future beneficiaries. The planning system includes an over-arching General Plan, followed by a second tier of Strategic Program Plans and Island Plans (which includes the Maui Island Plan (MIP) and the Water Policy Plan (WPP)[1]), followed again by Regional and Development Plans in the third

[1] *See* Hawaiian Homes Commission Water Policy Plan, adopted July 22, 2014 *available at:* http://dhhl.hawaii.gov/wp-content/uploads/2013/09/HHC-Water-Policy-Plan-140722.pdf.

tier. These plans are available on the Planning Office pages of the DHHL website.

Specific to this region, DHHL holds over 23,000 acres in South Maui in its Kahikinui, Kalihi/Kanahena, and ʻĀhihi tracts. MIP at1-10. These properties are geographically remote with limited infrastructure and public services, and receive little annual rainfall, varying from 20 inches in makai areas of the region to 50 inches in the mauka regions. MIP at 7-1. No existing water service extends to these properties, with the exception of a substandard Maui County Department of Water Supply (DWS) water line extending to the Kalihi/Kanahena tract. MIP at 7-1.

Comment #1: More specific notice of the proposed action's relevance to DHHL interests would improve effectiveness of consultation with DHHL.

While early consultation is appreciated, the general lack of detail in your letter about the availability of any of this water to DHHL (or, alternately, the availability of potable water to DHHL through the use of this alternate source) limits our ability to comment on the proposal. Our ability to properly offer comments would assisted by your specifically addressing possible intersections between the proposed action and DHHL's landholdings, plans, and prospective interests in the proposed project area. We note that the Hawai`i environmental review law, HRS Chapter 343, contains clear language requiring that EAs examine the impacts of proposed actions on Hawaiian rights, including those of DHHL.

Comment #2: Expansion of recycled water systems accords with portions of DHHL's Water Policy Plan (approved July 22, 2014).

DHHL considers water resource protection as one of its interests under its WPP. According to County documents, we understand that two of the future properties to be served by the proposed expansion include Maui Sunset and the Kauhale Makai, which currently utilize brackish water (30,000 GPD and 17,000 GPD, respectively) for needs that could be met through R-1 waters. Wastewater Reclamation Division, Dep't Envt'l Management & Dep't Water Supply, Maui County, *South Maui R-1 Recycled Water Verification Study*, at 9 (Dec. 2009). Reducing removal of brackish water from the nearshore areas, such as where Maui Sunset and Kauhale Makai are located, has been linked to the

improved integrity of groundwater aquifers and the health of coastal ecosystems. See Oki, D.S., Gingerich, S.B., and Whitehead, R.L., "Hawai'i", in *Ground Water Atlas of the United States, Segment 13, Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands: U.S. Geological Survey Hydrologic Investigations Atlas* 730-N, p. N12-N22, N36 (1999). DHHL beneficiaries include native Hawaiian traditional and customary cultural practitioners, whose practices include nearshore gathering, fishing, and other practices. Inclusions of information about prospective, positive significant impacts on nearshore coastal areas and groundwater aquifers in the Environmental Assessment would further assist in assessing the impacts of WWRD's proposal on DHHL interests.

Comment #3: *The proposed project should be assessed in relationship to the Maui County Water Use and Development Plan being updated now.*

DHHL has been participating in early consultation meetings with the County Department of Water Supply as they prepare to update the Water Use and Development Plan for the island. In the first two meetings, a strong desire of stakeholders to see an increase in recycled water use in this region has emerged. The scale and service area for these improvements should be informed by and evaluated against the emerging goals in this parallel planning process.

Conclusion

Mahalo nui for WWRD's request for early consultation on the proposed South Maui Recycled Water System Expansion Projects. Please direct any questions to me at (808) 620-9501, or your staff may contact Kaleo Manuel in our Planning Office at (808) 620-9485 or at Kaleo.L.Manuel@hawaii.gov.

Aloha,

Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

June 6, 2016

Ms. Jobie Masagatani, Chairperson
State of Hawaii
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaii 96805

SUBJECT: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Ms. Masagatani:

Thank you for your letter dated February 18, 2016 providing early consultation comments on the subject project. We offer the following information in response to the comments provided.

Comment #1: *More specific notice of the proposed action's relevance to DHHL interest would improve effectiveness of consultation with DHHL.*

As indicated in the preconsultation request, the purpose of the proposed project is to improve the operational reliability of the existing South Maui Recycled Water Distribution System and includes construction of a new 1.0 MG recycled water storage tank and appurtenances adjacent to the existing tank; new electric service and security lighting at the tank site; upgrade of approximately 400 feet of existing 14-inch recycled water line to 18-inch and replacement of the existing effluent pump station flow meter at the Kihei Wastewater Reclamation Facility (WWRF).

WWRD is committed to the reuse program, which is consistent with State and County plans and policies, including the Maui County Code of Ordinances Chapter 20.30 – Use of Reclaimed Water. WWRD has developed the recycled water distribution system in the core area around the Kihei WWRF and continues to explore reuse expansion opportunities. Please refer to the figure transmitted with the initial request for preconsultation which shows the recycled water system service area. Of the DHHL Tracts in the South Maui area identified in your letter, the nearest DHHL Tract appears to be the Kalihi/Kanahena Tract, which is about 3 miles south of the County's wastewater collection system service area and over 6 miles south of the current recycled water system service area. In developing plans for expansion, WWRD must consider the impact of infrastructure and maintenance costs with the quantity of resource available and magnitude of demands to be served. Based on the *2009 South Maui R-1 Recycled Water Verification Study*, it appears that DHHL lands are beyond the optimal service area. However, also consistent with State and county plans and policies, the EA will discuss the importance of recycled water as a valuable alternative water resource that can be used to meet non-potable water demands, potential demands that might otherwise use potable water.

Comment #2: *Expansion of recycled water systems accords with portions of DHHL's Water Policy Plan (approved July 22, 2014.)*

Duly noted.

Comment #3: *The proposed project should be assessed in relationship to the Maui County Water Use and Development Plan being updated now.*

The proposed project supports the increased use of recycled water in this region. WWRD is in communication with the Department of Water and will continue to provide information in support of the WUDP update process.

We appreciate the input provided by your office and will transmit a copy of the Draft EA when published for review and comment. Should you have any questions, please feel free to contact me at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Lynn Malinger, P.E.

cc: Joanie Gushiken, County of Maui, DEM-WWRD

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
EMD/CWB

02050PNN.16

February 25, 2016

Ms. Lynn Malinger, P.E.
Fukunaga and Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Ms. Malinger:

SUBJECT: Comments on the Early Consultation Request for the South Maui Recycled Water System Expansion Project, Second 1-MG Tank and Pipeline Improvements, Job No. WW15-01 Kihei, Island of Maui, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated February 1, 2016, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf.

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

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

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

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

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

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

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and HAR, Chapter 11-54.

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

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

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like

community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

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

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

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

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

If you have any questions, please visit our website at:
http://health.hawaii.gov/cwb, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

NN:ak

c: DOH-EPO [via e-mail Noella.Narimatsu@doh.hawaii.gov only]

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

June 6, 2016

Mr. Alec Wong, Chief
State of Hawaii
Department of Health
Clean Water Branch
919 Ala Moana Boulevard, Room 301
Honolulu, Hawaii 96814

SUBJECT: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Mr. Wong:

Thank you for your letter dated February 25, 2016 providing early consultation comments on the subject project. We offer the following in response to the comments.

1. The Department of Health (DOH) Water Quality Standards Classifications Map indicates that the project is within an inland area with an Inland Classification of "Class 2 streams & waterbodies." The Waimahaihai Stream is the closest receiving water for stormwater runoff from the project sites. In order to meet the requirements of the antidegradation policy HAR, Section 11-54-1.1, protect the designated uses of Class 2 waters as defined in HAR, Section 11-54-3, and meet the water quality criteria as defined in HAR, Section 11-54-4 through 11-54-8, Best Management Practices (BMP) for erosion control and storm water quality will be implemented during construction and observed in the final site design.

2. In compliance with HAR, Chapter 11-55, a National Pollution Discharge Elimination System (NPDES) General Permit will be obtained for the project in the event it is determined that construction activities will disturb more than one acre.

3. The proposed project does not involve work in, over, or under waters of the United States. Army permitting requirements do not apply to this project, and a request for concurrence with this determination has been made.

4. It is noted that all discharges related to the project construction or operation activities must comply with the State Water Quality Standards.

5. The State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters is acknowledged. Project planning will consider the issues mentioned, as applicable. For example, low impact

development (LID) techniques such as detention facilities, limiting impervious surfaces, and reducing driveway and roadway widths will be considered.

We appreciate the input provided by your office and will transmit a copy of the Draft EA when published for review and comment. Should you have any questions, please feel free to contact me at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Lynn Malinger, P.E.

cc: Joanie Gushiken, County of Maui, DEM-WWRD

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 16-047

March 3, 2016

Ms. Lynn Malinger, P.E.
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814
Email: lmalinger@fukunagaengineers.com

Dear Ms. Malinger:

SUBJECT: Early Consultation (EC) for South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
TMK: 2-2-002:075, 2-2-24:010

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your EC to our office on February 4, 2016. Thank you for allowing us to review and comment on the proposed project. The EC was routed to the District Health Office on Maui, the Clean Water, Wastewater, and Safe Drinking Water Branches. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

EPO suggests you review guidance maps and viewers available on the Environmental Planning GIS website: http://health.hawaii.gov/epo/egis.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

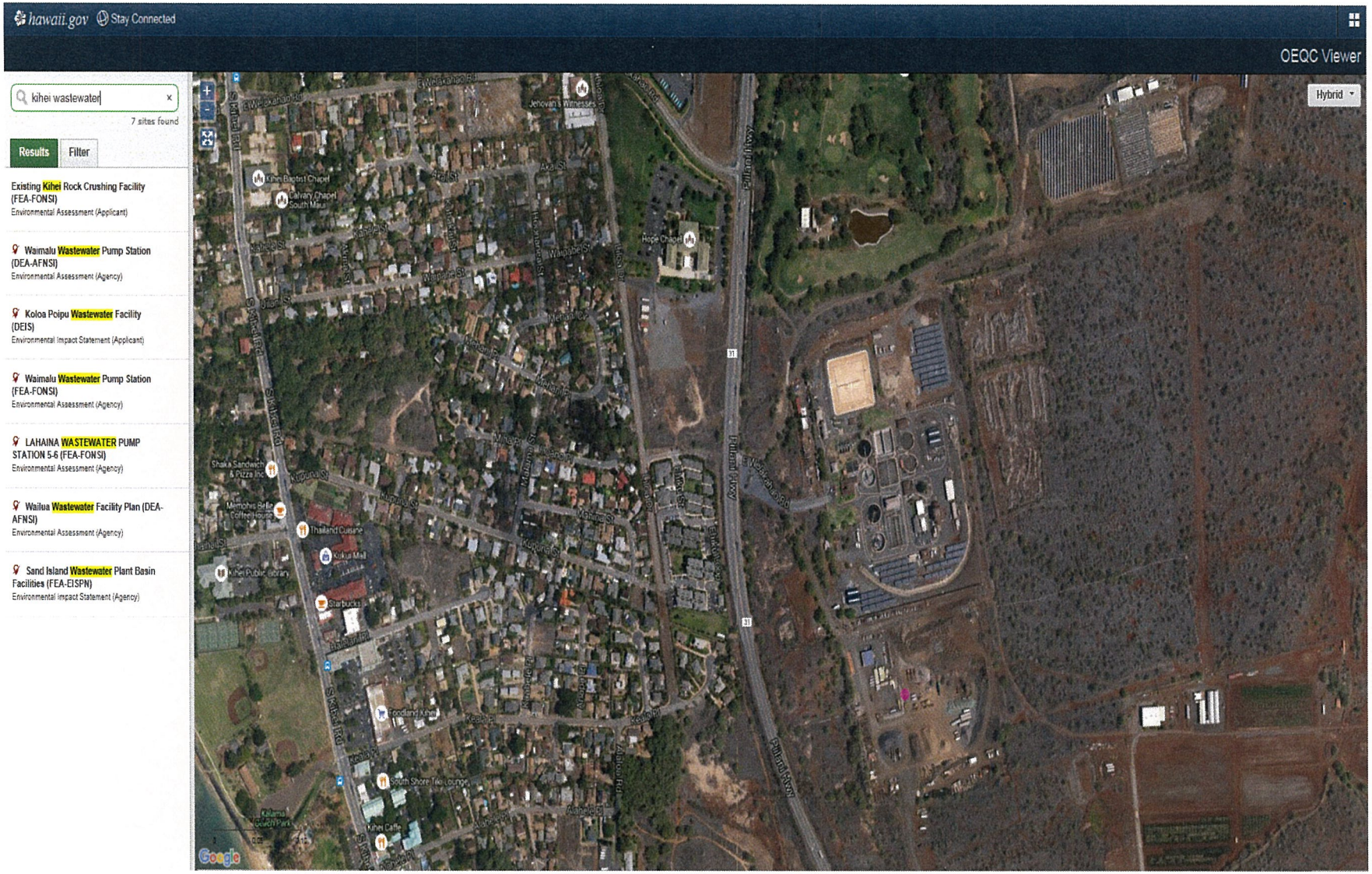
Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

LM:nn

Attachments: OEQC viewer - http://eha-web.doh.hawaii.gov/oeqc-viewer
U.S. EPA EJSCREEN Map 2 page report - http://www2.epa.gov/ejscreen

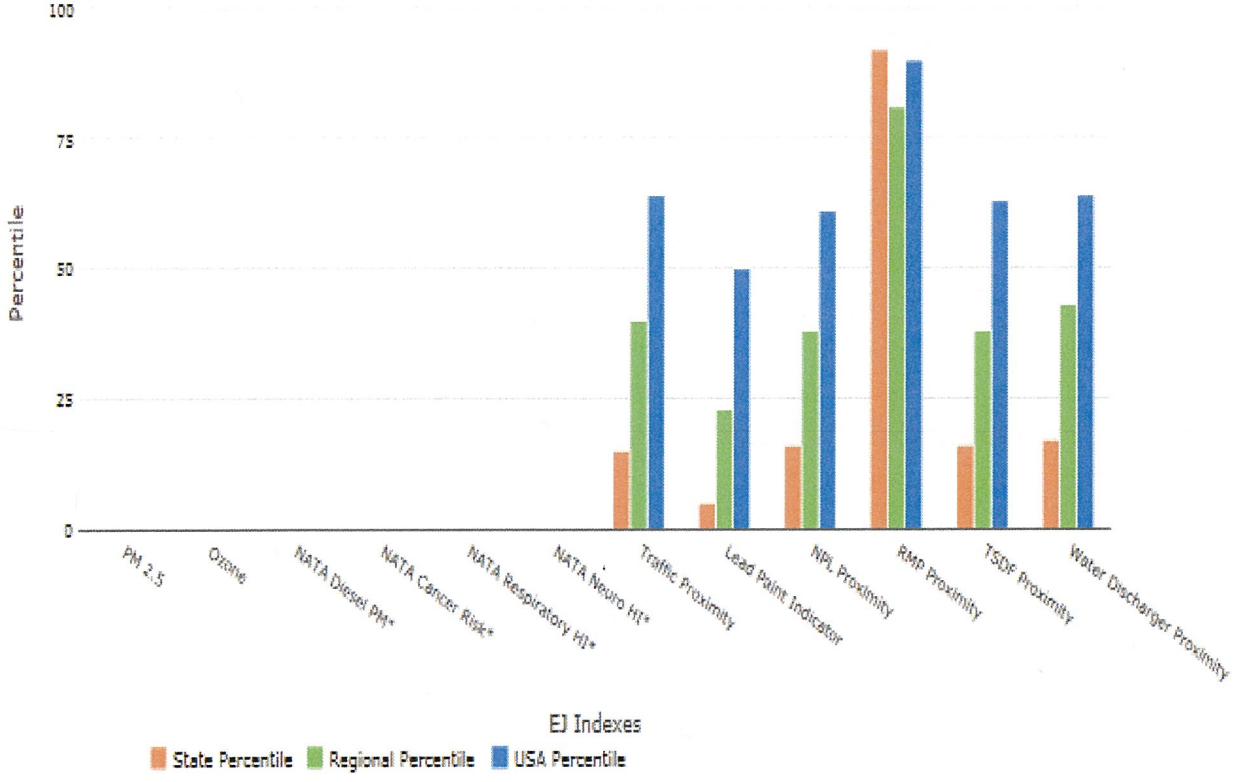
c: DOH: DHO Maui, CWB, WWB, SDWB {via email only}


hawaii.gov
Stay Connected
OEQC Viewer
kihei wastewater
7 sites found
Results
Filter
Existing Kihei Rock Crushing Facility (FEA-FONSI)
Environmental Assessment (Applicant)
Waimalu Wastewater Pump Station (DEA-AFNSI)
Environmental Assessment (Agency)
Koloa Poipu Wastewater Facility (DEIS)
Environmental Impact Statement (Applicant)
Waimalu Wastewater Pump Station (FEA-FONSI)
Environmental Assessment (Agency)
LAHAINA WASTEWATER PUMP STATION 5-6 (FEA-FONSI)
Environmental Assessment (Agency)
Wailua Wastewater Facility Plan (DEA-AFNSI)
Environmental Assessment (Agency)
Sand Island Wastewater Plant Basin Facilities (FEA-EISPN)
Environmental Impact Statement (Agency)
Hybrid
Google

1 mile Ring Centered at 20.736122,-156.445958
HAWAII, EPA Region 9
Approximate Population: 5558

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA Diesel PM*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	15	40	64
EJ Index for Lead Paint Indicator	5	23	50
EJ Index for NPL Proximity	16	38	61
EJ Index for RMP Proximity	92	81	90
EJ Index for TSDF Proximity	16	38	63
EJ Index for Water Discharger Proximity	17	43	64

EJ Index for the Selected Area Compared to All People's Block Groups in the State/Region/US



This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

March 3, 2016

Digitized Point

1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

Selected Variables	Raw data	State Average	%ile in State	EPA Region Average	%ile in EPA Region	USA Average	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.85	N/A	9.78	N/A
Ozone (ppb)	N/A	N/A	N/A	49.7	N/A	46.1	N/A
NATA Diesel PM (µg/m³)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Air Toxics Cancer Risk (risk per MM)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily traffic count/distance to road)	14	280	17	190	15	110	28
Lead Paint Indicator (% pre-1960s housing)	0.052	0.17	35	0.25	35	0.3	25
NPL Proximity (site count/km distance)	0.0053	0.092	17	0.11	5	0.096	1
RMP Proximity (facility count/km distance)	1.3	0.18	98	0.41	93	0.31	96
TSDF Proximity (facility count/km distance)	0.0057	0.092	18	0.12	2	0.054	12
Water Discharger Proximity (count/km)	0.053	0.33	13	0.19	15	0.25	13
Demographic Indicators							
Demographic Index	39%	51%	14	46%	42	35%	64
Minority Population	48%	77%	9	57%	40	36%	68
Low Income Population	31%	25%	67	35%	49	34%	50
Linguistically Isolated Population	4%	6%	53	9%	38	5%	66
Population with Less Than High School Education	9%	10%	58	18%	39	14%	44
Population under Age 5	7%	6%	66	7%	57	7%	62
Population over Age 64	11%	14%	33	12%	54	13%	43

*The National-Scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 dataset is made available. The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: http:// www.epa.gov/ttn/atw/natamain/index.html.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

LUD – 2 2 2 002 075 Early Cons South
Maui Recycled Water System-ID2632

February 12, 2016

Ms. Lynn Malinger, P.E.
Fukunaga & Associates, Inc.
1357 Kapiolani Blvd. Suite 1530
Honolulu, Hawaii 96814

Dear Ms. Malinger:

Subject: Early Consultation Request, South Maui Recycled Water System Expansion Project, 2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW 15-01
Using 480 Welakahao Road, Kihei, Maui 96753
TMK (2) 2-2-002: 075

Thank you for allowing us the opportunity to provide comments on the above subject project.

We have the following information to offer.

The subject project shall comply with applicable provisions of Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems", and the Department of Health's Reuse Guidelines, Volumes 1 and 2, dated January 2014.

Should you have any questions, please contact Mark Tomomitsu at 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM/MST:lmj

c: Ms. Laura McIntyre, DOH-Environmental Planning Office, via email
Mr. Roland Tejano, DOH-WWB's Maui Staff, via email
Ms. Joannie Gushiken, County of Maui, DEM-WWRD

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H..
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, HAWAII 96793-3378

March 4, 2016

Ms. Lynn Malinger, P.E.
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Ms. Malinger:

Subject: Early Consultation Request, South Maui Recycled Water System Expansion Project, 2nd 1.0 MG Tank and Pipeline Improvements Job No. WW15-01

Thank you for the opportunity to review this project. We have the following comments to offer:

National Pollutant Discharge Elimination System (NPDES) permit coverage may be required for this project. The Clean Water Branch should be contacted at 808 586-4309.

It is strongly recommended that the Standard Comments found at the Department's website: http://health.hawaii.gov/epo/home/landuse-planning-review-program/ be reviewed and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please contact me at patricia.kitkowski@doh.hawaii.gov or 808 984-8230.

Sincerely,

Patti Kitkowski
District Environmental Health Program Chief

c EPO

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 25, 2016

Fukunaga & Associates, Inc.
Attention: Ms. Lynn Malinger, P.E.
1357 Kapiolani Blvd., Suite 1530
Honolulu, Hawaii 96814

via email: lmalinger@fukunagaengineers.com

Dear Ms. Malinger:

SUBJECT: Early Consultation Request for South Maui Recycled Water System Expansion Project; 2nd 1.0 MG Tank and Pipeline Improvements

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (a) Engineering Division and (b) Commission on Water Resource Management on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 4, 2015

'16 FEB 05 PM 02:16 ENGINEERING RECEIVED LAND DIVISION

2016 FEB 18 AM 11:04 DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

MEMORANDUM

TO: FR'.

DLNR Agencies:
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
_X_Commission on Water Resource Management
___ Office of Conservation & Coastal Lands
_X_Land Division – Maui District
_X_Historic Preservation

TO'.

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation Request for South Maui Recycled Water System Expansion Project; 2nd 1.0 MG Tank and Pipeline Improvements
LOCATION: Kula / Kihei, S. Maui; Island of Maui; TMK: (2) 2-2-002:075 & 2-2-024:010
APPLICANT: County of Maui, Wastewater Reclamation Division

Transmitted for your review and comment is information on the above referenced *project.* Please submit any comments by **February 24, 2016**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print Name: Carty S. Chang, Chief Engineer
Date: 2/16/16

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
REF: Early Consultation South Maui Recycled Water System Expansion Project; 2nd 1.0MG Tank and Pipeline Improvements
Maui.006

COMMENTS

( ) We confirm that the parcel/project site, according to the Flood Insurance Rate Map (FIRM), is located in Zones X. The National Flood Insurance Program does not regulate developments within Zones X.

(X) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program does not regulate developments within Zones X.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project site must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Carter Romero (Acting) at (808) 961-8943 of the County of Hawaii, Department of Public Works.
( ) Ms. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.
( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

_____

( ) Other: _____

_____

Should you have any questions, please call Mr. Rodney Shiraishi of the Planning Branch at 587-0258.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 2/12/14

Flood Hazard Assessment Report

www.hawaiinfip.org

S Maui Recycled WtrSys 2

Property Information

COUNTY:	MAUI
TMK NO:	(2) 2-2-024:010
WATERSHED:	HAPAPA
PARCEL ADDRESS:	480 PIILANI HWY KIHEI, HI 96753

Notes:

Flood Hazard Information

FIRM INDEX DATE:	NOVEMBER 04, 2015
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL:	1500030588G
PANEL EFFECTIVE DATE:	NOVEMBER 04, 2015

THIS PROPERTY IS WITHIN A TSUNAMI EVACUTION ZONE: NO
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

N

0 200 400 ft

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND
(Note: legend does not correspond with NFHL)

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

	Zone A: No BFE determined.
	Zone AE: BFE determined.
	Zone AH: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
	Zone AO: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
	Zone V: Coastal flood zone with velocity hazard (wave action); no BFE determined.
	Zone VE: Coastal flood zone with velocity hazard (wave action); BFE determined.
	Zone AEF: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

	Zone XS (X shaded): Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
	Zone X: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

	Zone D: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase apply, but coverage is available in participating communities.

Flood Hazard Assessment Report

www.hawaiinfip.org

S Maui Recycled Wtr Sys 1

Property Information

COUNTY: MAUI

TMK NO: (2) 2-2-002:075

WATERSHED: HAPAPA

PARCEL ADDRESS: KIHEI
KIHEI, HI 96753

Notes:

Flood Hazard Information

FIRM INDEX DATE: NOVEMBER 04, 2015

LETTER OF MAP CHANGE(S): NONE

FEMA FIRM PANEL: 1500030588G

PANEL EFFECTIVE DATE: NOVEMBER 04, 2015

THIS PROPERTY IS WITHIN A TSUNAMI EVACUTION ZONE: NO
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

0 100 200 ft

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND
(Note: legend does not correspond with NFHL)

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

	Zone A: No BFE determined.
	Zone AE: BFE determined.
	Zone AH: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
	Zone AO: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
	Zone V: Coastal flood zone with velocity hazard (wave action); no BFE determined.
	Zone VE: Coastal flood zone with velocity hazard (wave action); BFE determined.
	Zone AEF: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

	Zone XS (X shaded): Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
	Zone X: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

	Zone D: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase apply, but coverage is available in participating communities.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 4, 2015

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
_X_ Commission on Water Resource Management
___ Office of Conservation & Coastal Lands
_X_ Land Division – Maui District
_X_ Historic Preservation

RECEIVED
LAND DIVISION
2016 FEB 25 AM 3:09
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation Request for South Maui Recycled Water System Expansion Project; 2nd 1.0 MG Tank and Pipeline Improvements
LOCATION: Kula / Kihei, S. Maui; Island of Maui; TMK: (2) 2-2-002:075 & 2-2-024:010
APPLICANT: County of Maui, Wastewater Reclamation Division

Transmitted for your review and comment is information on the above referenced *project.* Please submit any comments by **February 24, 2016**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(x) Comments are attached.

Signed: /s/ Jeffrey T. Pearson, P.E.

Print Name: Deputy Director
Date: February 23, 2016

cc: Central Files

FILE ID: RFD. 4325.6
13800

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

February 23, 2016

REF: RFD.4325.6

TO: Mr. Russell Tsuji, Administrator
Land Division Oahu, DLNR-LD

FROM: Jeffrey T. Pearson, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: Early Consultation Request for South Maui Recycled Water System Expansion Project; 2nd 1.0 MG Tank and Pipeline Improvements

FILE NO.: RFD.4325.6
TMK NO.: (2) 2-2-002:075 & 2-2-024:010

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://dlnr.hawaii.gov/cwrm.

Our comments related to water resources are checked off below.

[X] 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

[ ] 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

[ ] 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EAP as having high water efficiency can be found at http://www.epa.gov/watersense.

[ ] 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

[ ] 6. We recommend the use of alternative water sources, wherever practicable.

[ ] 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program.

[ ] 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at

http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf.

☐ 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 11. A Well Construction Permit(s) is (are) are required before the commencement of any well construction work.

☐ 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 14. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a steam channel.

☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.

☐ 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☐ OTHER:

If you have any questions, please contact Lenore Ohye of the Commission staff at 587-0216.

DAVID Y. IGE
GOVERNOR

CRAIG K. HIRAI
EXECUTIVE DIRECTOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

IN REPLY REFER TO:

16:PEO/08

February 22, 2016

Ms. Lynn Malinger, P.E.
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Ms. Malinger:

Re: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Thank you for seeking our comments for the preparation of a draft Environmental Assessment for the proposed South Maui Recycled Water System Expansion Project. We have no housing-related comments to offer at this time.

Sincerely,

Craig K. Hirai
Executive Director

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

DAVID Y. IGE
GOVERNOR

SCOTT GLENN
INTERIM DIRECTOR

DEPARTMENT OF HEALTH, STATE OF HAWAI'I
235 South Beretania Street, Suite 702, Honolulu, HI 96813

Phone: (808) 586-4185
Email: oeqchawaii@doh.hawaii.gov

February 19, 2016

Fukunaga & Associates, Inc.
Attn: Lynn Malinger, P.E
1357 Kapiolani Blvd, Suite 1530
Honolulu, Hawai'i 96814

Dear Ms. Malinger,

SUBJECT: Early Consultation Request for South Maui Recycled Water System Expansion, Maui, Hawai'i

The Office of Environmental Quality Control (OEQC) has reviewed your February 1, 2016 letter about the proposed action and offers the following comments for your consideration.

OEQC commends the expansion of a water conservation project. Based on the information provided, OEQC recommends the incorporation of low impact development strategies. The project would increase the area of impervious surfaces, and mitigation measures such as pavers or pervious pavements would help groundwater recharge in the area and decrease storm water runoff. OEQC endorses factoring climate change into this and all future projects. Changing weather patterns in the Pacific are projected to result in increased tropical storm activity and localized rainfall severity, likely producing periodic extreme downpours that may exceed the project's design standards. OEQC recommends that the project's infrastructure and storm water run-off mitigation measures consider these projected weather events.

Thank you for your role in Hawai'i's environmental review process and for the opportunity to comment at this early stage of this project. If you have any questions please consult our website at http://health.hawaii.gov/oeqc or contact our office at (808) 586-4185.

Sincerely,

Scott Glenn, Interim Director

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD16/7750

February 19, 2016

Lynn Malinger, P.E.
Fukunaga & Associates, Inc.
1357 Kapi'olani Blvd., Suite 1530
Honolulu, Hawai'i 96814

Re: Comments on Early Consultation Request, South Maui Recycled Water System Expansion Project, 2nd 1.0 MG Tank and Pipeline Improvements; Job No. WW15-01
Kēōkea Ahupua'a, Kula Moku, Maui Mokupuni
Tax Map Key (2) 2-2-002:075 and 2-2-024:010

Aloha e Ms. Malinger:

The Office of Hawaiian Affairs (OHA) is in receipt of your letter dated February 1, 2016 and an enclosed map. The County of Maui, Waste Water Reclamation Division is proposing the South Maui Recycled Water System Expansion Project ("project") and is soliciting comments in preparation of a draft environmental assessment (EA). The proposed project includes constructing a second 1.0 million gallon (MG) storage tank and appurtenances adjacent to an existing 1.0 MG tank, providing new electrical service from an existing overhead line, upgrading approximately 400 feet of an existing 14-inch water line to an 18-inch water line, replacing the pump station flow meter, and providing a new meter vault. The purpose of the project is to increase the availability of recycled, potable water for current and future users and decrease the use of injection wells for effluent disposal.

At this time, OHA does not have substantive comments regarding the project and believes that the project, if implemented as described in your letter, has the potential to have a beneficial impact on our beneficiaries in the area serviced by recycled water system. We look forward to reviewing the draft EA.

Mahalo for contacting us during the early phases of the planning process and providing us the opportunity to comment on the proposed project. If you have any questions, please contact Teresa Kaneakua at (808) 594-0227 or teresak@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:tk

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, Hawai'i 96817

OFFICE OF PLANNING
STATE OF HAWAII

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

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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

Ref. No. P-15046

February 17, 2016

Ms. Lynn Malinger, P.E.
Project Manager
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Ms. Malinger:

Subject: Early Consultation Request for the South Maui Recycled Water System Expansion Project, 2nd 1.0 MG Tank and Pipeline Improvements, Job. No. WW15-01; TMK's: (2) 2-2-002:075 and 2-2-024:010

Thank you for the opportunity to provide comments on this early consultation request for the South Maui recycled water system expansion project, located in Kihei, Maui. The pre-consultation review material was transmitted to our office by letter dated February 1, 2016.

It is our understanding that the County of Maui, Wastewater Reclamation Division proposes a more robust system, from what is currently in place that will accommodate the increase in recycled water demands during the summer months, provide redundancy and greater reliability, and allow for an increase in the number of recycled water customers on the island of Maui. The project seeks to increase the available potable water for current and future users and decrease the use of injection wells for effluent disposal.

The project calls for the construction of a second 1.0 million gallon recycled water storage and tank appurtenances. The tank dimensions would be similar to the existing tank, which is approximately 20 feet high and 100 feet in diameter. It will also upgrade approximately 400 feet of existing 14-inch recycled water line to an 18-inch recycled water line, replace the effluent pump station flow meter, and provide a new meter vault at the Kihei Wastewater Reclamation Facility.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to the Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics; this project must demonstrate that it is consistent with a number of State environmental, social, and economic goals and policies for land use and housing

development. OP provides technical assistance to State and county agencies in administering the statewide planning system in Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, policies, and priority guidelines for growth, development, and the allocation of resources throughout the State in areas of state interest, including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

The Draft Environmental Assessment (Draft EA) should include an analysis that addresses whether the proposed project conforms to or is in conflict with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan.

2. The coastal zone management (CZM) area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" see HRS § 205A-1 (definition of "coastal zone management area").

   HRS Chapter 205A requires all State and county agencies to enforce the CZM objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2. The assessment on compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343. These objectives and policies include recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

3. It appears that some of the reuse lines emanating from the wastewater reclamation facility and the proposed storage tank location cross into the Special Management Area (SMA) delineated by the County of Maui, Department of Planning and may be subject to SMA permitting. Please consult with said agency to make a determination whether this project will require a SMA permit.

4. Pursuant to HAR § 11-200-10(6) – identification and summary of impacts and alternatives considered; in order to ensure that the coastline and water resources near South Maui remain protected, the negative effects of stormwater inundation ensuing from development activities should be evaluated in the Draft EA. The project area appears to be located in an open, but developed area. The community of Kihei, which is adjacent to this project, is heavily urbanized and has an extensive network of drainage infrastructure. The area surrounding the Kihei Wastewater Reclamation Facility, and the proposed storage tank, is dry shrub land and trees. During heavy storm events, the area up slope of Kihei can transport sediment, land-based pollutants, and toxicant-load contributions to the nearshore waters of the South Maui.

The Draft EA should examine potential benefits and/or negative impacts resulting from this project on coastal and marine resources. Issues that may be examined in the Draft EA include, but are not limited to, project site characteristics in relation to erosion controls on flood prone areas, undeveloped open spaces, and the absorption characteristics of the soil. Furthermore, it should differentiate between the existing permeable surfaces versus hardened surfaces in the area. These items, as well as the marine water quality classification, should be considered when developing mitigation measures to protect the coastal ecosystem.

The enclosed map of this project, as well as resources available to us, indicate that the Kihei Wastewater Reclamation Facility is located nearly one mile from the coastline. The project site is located within the State Land Use Agriculture District.

The Draft EA should examine the cumulative impact on coastal resources from land-based polluted runoff and sediment loss. It should take into account any of the natural features in the area, undeveloped open spaces, down-sloping topography, hardened non-permeable surfaces that have a cumulative effect on the volume and speed of storm runoff, and soil absorption rates.

OP has a number of resources available to assist in the development of projects which ensure sediment and stormwater control on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep land-based pollutants and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for this project. These three evaluative tools that should be used during the design process include:

- Hawaii Watershed Guidance provides direction on mitigation strategies in urban areas that will safeguard Hawaii's watersheds and implement watershed plans http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf

- Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf

- Low Impact Development (LID), A Practitioners Guide covers a range of structural best management practices (BMP's) for stormwater control

management, roadway development, and urban layout that minimizes negative environmental impacts
http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

If you have any questions regarding this comment letter, please contact Josh Hekekia of our office at (808) 587-2845.

Sincerely,

Leo R. Asuncion
Director

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

June 6, 2016

Mr. Leo Asuncion, Director
State of Hawaii
Office of Planning
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Attention: Mr. Josh Hekekia

SUBJECT: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Mr. Asuncion:

Thank you for your correspondence dated February 17, 2016 providing early consultation comments on the subject project. We offer the following in response to the comments provided.

Comment 1: *The Draft Environmental Assessment (Draft EA) should include an analysis that addresses whether the proposed project conforms to or is in conflict with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan.*

The Draft EA will assess the Hawaii State Plan objectives and policies relevant to the proposed project. The proposed project is consistent with the goals, objectives, policies and priority guidelines listed in the Hawaii State Plan. The proposed project will improve the existing South Maui Recycled Water Distribution System, which will support existing use and future additional use of non-potable water to meet non-potable water demands, such as irrigation, which might otherwise use potable water. Further, additional reuse will decrease effluent disposal through injection wells. Therefore, the proposed project will promote the proper management of Hawaii's water resources by reclaiming a valuable water resource and allowing its use as an alternative to potable water so that water is put to its best and highest use; i.e. potable water left available for drinking water purposes.

Comment 2: *HRS Chapter 205A requires all State and county agencies to enforce the Coastal Management Zone (CZM) objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS §205A-2.*

An assessment of the CZM objectives and policies will be included in the Draft EA.

Comment 3: *It appears that some of the reuse lines emanating from the wastewater reclamation facility and the proposed storage tank location cross into the Special Management Area (SMA) delineated by the County of Maui, Department of Planning and may be subject to SMA permitting. Please consult with said agency to make a determination whether this project will require an SMA permit.*

The reuse lines emanating from the wastewater reclamation facility are existing lines. The proposed project areas, Kihei WWRF and tank site, are located outside of the SMA delineated by the County of Maui, Department of Planning and have been confirmed as such by the Environmental Planning Section.

Comment 4: *Pursuant to HAR §11-200-10(6) – identification and summary of impacts and alternatives considered; in order to ensure that the coastline and water resources near South Maui remain protected, the negative effects of stormwater inundation ensuing from development activities should be evaluated in the Draft EA.*

The Draft EA should examine potential benefits and/or negative impacts resulting from this project on coastal and marine resources.

The Draft EA should examine the cumulative impact on coastal resources from land-based polluted runoff and sediment loss. It should take into account any of the natural features in the area, undeveloped open spaces, down-sloping topography, hardened non-permeable surfaces that have a cumulative effect on the volume and speed of storm runoff, and soil absorption rates.

Proposed construction at the Kihei WWRF is entirely within the developed portion of the existing facility, and disturbed surfaces from construction will be restored to their original conditions. Project improvements will not increase the quantity of storm water runoff, and post construction storm water runoff will continue to discharge into the existing onsite drainage structures and drainage features. Existing drainage features include drain inlets and grass landscaped areas.

Proposed construction at the tank site will include a paved perimeter road around the 1.0 MG recycled water tank sloped to direct storm water runoff westward to water quality facilities. In compliance with the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters, low impact development (LID) techniques such as detention facilities, limiting impervious surfaces, and reducing driveway and roadway widths will be considered.

We appreciate the input provided by your office and will transmit a copy of the Draft EA when published for review and comment. Should you have any questions, please feel free to contact me at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Lynn Malinger, P.E.

cc: Joanie Gushiken, County of Maui, DEM-WWRD

UNIVERSITY of HAWAI'I®
MĀNOA

Water Resources Research Center

February 23, 2016

Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, HI 96814

Ms. Lynn Malinger:

This is to acknowledge receipt of your letter for review of an Environmental Assessment.

Unfortunately, the Water Resources Research Center does not have the capacity to review the environmental impact statement at this time due to the faculty position vacancy.

While we continue to explore filling the current vacancy, the Center will exclude itself from commentary on this specific environmental assessment study.

Sincerely,

Darren T. Lerner, PhD
Interim Director

2540 Dole Street, Holmes Hall 283
Honolulu, Hawai'i 96822
Telephone: (808) 956-7847
Fax: (808) 956-5044

ALAN M. ARAKAWA
MAYOR

JEFFREY A. MURRAY
FIRE CHIEF

ROBERT M. SHIMADA
DEPUTY FIRE CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

313 MANEA PLACE . WAILUKU, HAWAII 96793
(808) 876-4690 . FAX (808) 244-1363

March 18, 2016

Fukunaga & Associates, Inc.
Attn: Lynn Malinger, P.E.
1357 Kapiolani Blvd, Suite 1530
Honolulu, HI 96814

Re: South Maui Recycled Water System Expansion Project Job NO WW15-01

Dear Lynn:

Thank you for the opportunity to comment on this subject. At this time, our office provides the following comments:

- Our office does not have any comments regarding the referenced subject.
- Our office does reserve the right to comment on the proposed project during the building permit review process if any permits for this project are routed to our office for review. At that time, fire department access, water supply for fire protection, and fire and life safety requirements will be addressed.

If there are any questions or comments, please feel free to contact me at (808) 876-4693.

Sincerely,

Paul Haake

Paul Haake
Captain, Fire Prevention Bureau

ALAN M. ARAKAWA
Mayor

KA'ALA BUENCONSEJO
Director

BRIANNE L. SAVAGE
Deputy Director

(808) 270-7230
FAX (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2F, Wailuku, Hawaii 96793

February 22, 2016

Ms. Lynn Malinger, P.E.
Fukunaga & Associates, Inc.
1357 Kapiolani Blvd., Suite 1530
Honolulu, HI 96814

Dear Ms. Malinger:

SUBJECT: Early Consultation Request for Proposed South Maui Recycled Water System Expansion Project, 2nd 1.0 MG Tank and Pipeline Improvements, Job No. WW15-01

Thank you for the opportunity to review and comment on the proposed South Maui Recycled Water System Improvements. The Department is in support of this project and would like to review the project as it develops. In accordance with the requirements of Chapter 343, Hawaii Revised Statutes (HRS) and Section 11-2-00-6, Hawaii Administrative Rules (HAR) please provide a copy of the Draft Environmental Assessment (EA).

Feel free to contact me or Robert Halvorson, Chief of Planning and Development, at 270-7931, should you have any questions.

Sincerely,

KA'ALA BUENCONSEJO
Director

c: Robert Halvorson, Chief of Planning and Development

KB:RH:do

ALAN M. ARAKAWA
Mayor

DAVID C. GOODE
Director

ROWENA M. DAGDAG-ANDAYA
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

GLEN A. UENO, P.E., P.L.S.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

Highways Division

March 10, 2016

Ms. Lynn Malinger, P.E.
FUKUNAGA & ASSOCIATES, INC.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Ms. Malinger:

SUBJECT: EARLY CONSULTATION REQUEST
SOUTH MAUI RECYCLED WATER SYSTEM EXPANSION
PROJECT 2ND 1.0 MG TANK AND PIPELINE IMPROVEMENTS;
JOB NO. WW15-01
TMK: (2) 2-2-002:075; 2-2-024:010

We reviewed your early consultation request and have no comments at this time.

If you have any questions regarding this memorandum, please call Rowena Dagdag-Andaya at (808) 270-7845.

Sincerely,

DAVID C. GOODE
Director of Public Works

DCG:RMDA:da
xc: Highways Division
Engineering Division
S:\DSA\Engr\CZM\Draft Comments\22002075_22024010_s_maui_recycled_wtr_exp_proj_ec.wpd

ALAN M. ARAKAWA
Mayor

DON MEDEIROS
Director

MARC I. TAKAMORI
Deputy Director

(808) 270-7511

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI
2145 Kaohu Street, Suite 102
Wailuku, Hawaii, USA 96793

February 23, 2016

Ms. Lynn Malinger
Fukunaga & Associates
1357 Kapiolani Blvd.
Suite 1530
Honolulu, HI 96814

Subject: South Maui Recycled Water System Expansion Project

Ms. Malinger,

Thank you for the opportunity to comment on this project. We have no comments to make regarding this project.

Please feel free to contact me if you have any questions.

Sincerely,

Don Medeiros
Director

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 26, 2016

Fukunaga & Associates, Inc.
Attn.: Lynne Malinger, P.E.
1357 Kapiolani Blvd., Ste. 1530
Honolulu, HI 96814

Dear Ms. Malinger:

RE: Early Consultation for a Draft Environmental Assessment (DEA)
South Maui Recycled Water System Expansion Project (additional 1.0 MG Tank and Pipeline Improvements) Kihei WWRF on TMK: (2) 2-2-024:010

Thank you for the opportunity to offer the following comments on the above referenced project. We understand that this project will double the recycled water storage capability and upgrading 14-inch with 18-inch recycled waterlines would accommodate the increase in demand during the summer months as well as provide greater reliability. The Department of Water Supply is pleased that the Wastewater Reclamation Division is pursuing this project and has no objection.

Pollution Prevention
In order to protect ground and surface waters, Best Management Practices (BMPs) designed to minimize infiltration and runoff should be noted in the DEA and implemented during construction, including:

- Properly install and maintain erosion control barriers such as silt fencing or straw bales.
- Disturb the smallest area possible.
- Apply biocides only during dry periods of low rainfall to minimize chemical run-off.
- Keep run-off on site.
- No construction or toxic materials or debris should be placed where it may enter the ocean. Debris should be disposed of outside the coastal zone.

Should you have any questions, please contact staff planner Marti Buckner at (808) 463-3104 or marti.buckner@co.maui.hi.us.

Sincerely,

Dave Taylor, P.E., Director
mlb
cc: DWS Engineering Division

"By Water All Things Find Life"

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

June 16, 2016

Mr. Dave Taylor, P.E., Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawaii 96793

Attention: Ms. Marti Buckner

SUBJECT: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Mr. Taylor:

Thank you for your correspondence dated February 26, 2016 in support of and providing early consultation comments on the subject project. Pollution prevention is of the upmost importance to the Wastewater Reclamation Division and proper Best Management Practices will be implemented.

We appreciate the input provided by your department and will transmit a copy of the Draft EA when published for review and comment. Should you have any questions or further comments, please feel free to contact me at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Lynn Malinger, P.E.

cc: Joanie Gushiken, County of Maui, DEM-WWRD

Lynn Malinger

From: Livit Callentine <Livit.Callentine@co.maui.hi.us>
Sent: Monday, March 07, 2016 3:59 PM
To: Lynn Malinger
Cc: Clayton Yoshida; Jeffrey Dack; Joanie Gushiken
Subject: Early Consultation for South Maui Recycled Water System Expansion Project (RFC 2016/0027)
Attachments: ZonFldConf_Rev12-13_WEB_20140108191131891 2.pdf

Aloha Ms. Malinger:

Thank you for the opportunity to provide comments during the early consultation phase of environmental review of the subject project. On behalf of the Department of Planning, we understand that the project consists of:

1. Firstly, construction of a second 1.0 million gallon recycled water storage tank and appurtenant structures adjacent to the existing tank, located at Maui TMK: 2-2-002:075. The tank dimensions are to be similar to the existing tank which is approximately 20 feet high and 100 feet in diameter. The existing 1.332 acre site is located approximately 0.5 miles mauka of the Kihei Wastewater Reclamation Facility (WWRF), and is owned by the County of Maui.

2. The second component of the project is to upgrade approximately 400 feet of the existing recycled water line from 14-inch to 18-inch, replace the effluent pump station flow meter, and provide a new meter vault at the Kihei WWRF, located at Maui TMK: 2-2-024:010.

Comments:

1. Neither TMK (2-2-002:075, 2-2-024:010) are located in the Special Management Area.

2. The land use designations on TMK: 2-2-024:010 were confirmed on January 14, 2016 as follows:
State Land Use: Agricultural District
County Zoning: Agricultural District
Kihei-Makena Community Plan: Public/Quasi-Public

3. The land use designations on TMK: 2-2-002:075 have not been confirmed. If you haven't already done so, we suggest you request zoning confirmation from the Zoning Administration and Enforcement Division. For your convenience, a blank form is attached.

Thank you for the opportunity to provide comments. Please include the Department of Planning in your distribution of the environmental assessment for further comments.

Sincerely,

Livit Callentine, AICP
Staff Planner
Environmental Planning Section | Department of Planning
County of Maui
2200 Main Street, Suite 619
Wailuku, HI 96793
Phone: (808) 270-5537
Fax: (808) 270-1775
livit.callentine@mauicounty.gov

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

June 6, 2016

Ms. Livit Callentine, Staff Planner
County of Maui
Department of Planning
2200 Main Street, Suite 619
Wailuku, Hawaii 96793

SUBJECT: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Ms. Callentine:

Thank you for your correspondence dated March 7, 2016 providing early consultation comments on the subject project.

Land use designation will be addressed in the Draft Environmental Assessment (EA). Regarding TMK: 2-2-002:075, the proposed site for the second 1.0 million gallon recycled water storage tank and appurtenances, the land use designations were confirmed on March 30, 2016 as follows:

State Land Use: Agriculture
County Zoning: Agriculture
Kihei-Makena Community Plan: Agriculture

We appreciate the input provided by your department and will transmit a copy of the Draft EA when published for review and comment. Should you have any questions or further comments, please feel free to contact me at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Lynn Malinger, P.E.

cc: Joanie Gushiken, County of Maui, DEM-WWRD

HALEAKALA RANCH
• EST. MAUI 1888 •

February 26, 2016

Lynn Malinger, P.E.
Fukunaga & Associates, Inc.
1357 Kapiolani Blvd., Suite 1530
Honolulu, HI 96814

Subject: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Ms. Malinger

Thank you for your letter dated February 1, 2016, requesting comments as part of the early consultation and data gathering process for the proposed South Maui Recycled Water System Expansion Project. It is our understanding that the project is intended to improve system redundancy and reliability allowing for an increase in the number of recycled water customers.

We are generally supportive of efforts to increase the use of recycled water in South Maui and the specific improvements outlined in your letter would appear to have no major direct impacts on Ranch lands or operations. We look forward to reviewing the more detailed description and analysis during the Draft Environmental Assessment review process. For now, we would like to provide information regarding potential future uses of recycled water in the area, both near and long term.

Haleakala Ranch Company (HRC) is the owner of TMK parcel (2) 2-2-002: 84, a 2,175 acre parcel adjacent to the Kihei Waste Water Reclamation Facility (WWRF). As shown on the service area map provided in with your letter, Kihei Compost LLC (formerly Maui Earth Compost) is a tenant on this parcel and is a current customer of the South Maui Recycled Water System. HRC is currently in the process of negotiating terms for a new tenant to utilize approximately 10 acres immediately mauka of the Kihei Compost site. It is anticipated that the new tenant will be requesting a new service connection in order to utilize recycled water. Preliminary estimates of usage would be up to 12,000 gpd on peak days, with approximately 5 peak days per month. Monthly usage totals would be up to 100,000 gallons. It is anticipated that the project would start full operations in approximately 1 year. A more detailed analysis of usage will be prepared as project plans are being refined over the next couple of months.

HRC also has interests in lands which are designated as part of the Maui Research and Technology Park (MRTP) Master Plan, including TMK (2) 2-2-002: 85. The MRTP Master Plan anticipates significant usage of recycled water over the long term build out of the project. A

detailed description of the project and anticipated recycled water needs can be found in the Final EIS for the project which can be downloaded from the OEQC web site.

Thank you again for the opportunity to provide comments on this project. Please do not hesitate to contact me, or our Land Planning Consultant, Mr. Rory Frampton, at (808) 298-4956 or rory@roryframpton.com, if you have any further questions.

Sincerely,

Don Young, President
Haleakala Ranch Company

cc: J. Scott Meidell
Rory Frampton

KCA
Kihei Community Association

"e malama pono"...dedicated to protecting,
sustaining and enhancing our 'āina, kai and 'ohana

February 7, 2016

Lynn Malinger, P.E.
1357 Kapiolani Blvd.
Suite 1530
Honolulu, HI 96814

RE: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW 15-01

Dear Lynn Mallinger:

We are in receipt of your February 1, letter requesting comments on the proposed South Maui Recycled Water System Project. You have asked for comments or concerns by KCA on or before February 26, 2016.

The proposed project described in your letter appears to expand your present Recycled Water System by the addition of the three major components. The first project is the addition of a second 1.0 MG recycled water storage tank similar to the existing storage tank. The second is providing new electrical service and providing safety lighting at the tank site. The third part of the project is upgrading 400 feet of 14-inch pipe to 18-inches and providing a replacement of the effluent pump station flow meter.

The purpose of the project is to being better able to accommodate recycled water demands in the summer months, provide redundancy and increase reliability, and to increase the number of recycled water customers. By additional use of the effluent there would be a decrease in the use of the injection wells.

While KCA has taken a supportive position on the use of recycled water in general, there are several concerns and issues that we feel should be addressed in your Draft Environmental Assessment (EA) on the R-1 program in general since this project supports the program. The comments are as follows:

It is our understanding that the treatment for R-1 water does not remove the heavy metals or the unused pharmaceuticals from the effluent. Since this R-1 product is planned to be used extensively going forward, please address the long term affect that this product has on the ground water.

Much of the R-1 irrigated property in South Maui is adjacent to the coastal waters. Since the Federal Clean Water Act does not allow this water to be discharge into the ocean, how can the County assure that no toxic material flows from this program into the coastal waters from the sandy soils?

The proposed users of the R-1 treated effluent for irrigation are in many cases residential areas where the effluent will be used immediately next to habitable areas. With the strong wind gusts in South Maui, there will be no way to eliminate ingestion of the effluent product by humans and pets. Would it be prudent to use the future expansion of R-1 water use further from the coastal waters and from the inhabitable areas and use it for agricultural or other use?

KCA is very interested in having a sound recycling program. While the three proposed main additions to this program do not in themselves have a major impact on the environment, they do support a program that should be evaluated to best serve the community.

Sincerely,

Mike Moran, President
Kihei Community Association

cc: Joanie Gushiken, County of Maui, DEM-WWRD

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

June 7, 2016

Mr. Michael Moran, President
Kihei Community Association
P.O. Box 662
Kihei, Hawaii 96753

SUBJECT: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Mr. Moran:

Thank you for your letter dated February 7, 2016 providing early consultation comments on the subject project. We offer the following in response to your comments.

Protection of public health and the environment is the focus of the County of Maui Wastewater Reclamation Division's (WWRD) mission. Maui County is committed to the reuse program, which is consistent with State and County land use plans and policies. The South Maui Recycled Water Distribution System has been delivering this valuable water resource to meet non-potable water needs in the area for nearly 20 years.

R-1 recycled water is the highest grade of recycled water which is treated and distributed in accordance with the State of Hawaii Department of Health (DOH) regulations. Recycled water can only be applied in approved areas as defined by the DOH; and end users must be trained and submit an application for approval by the County and DOH. The application defines best management practices (BMPs) to be implemented as well as other pertinent information. Detailed requirements can be found in the 2016 DOH Reuse Guidelines, which is available at the following website http://health.hawaii.gov/wastewater/home/reuse/.

Comment #1: *It is our understanding that the treatment for R-1 water does not remove the heavy metals or the unused pharmaceuticals from the effluent. Since this R-1 product is planned to be used extensively going forward, please address the long term effect that this product has on the ground water.*

State and Federal regulatory oversight provides a framework to ensure the safe use of recycled water covering treatment, distribution and use; and long-term negative impacts on ground water are not anticipated. Specific to your comment, the metal content of the effluent is very low (well below even the safe drinking water standards) to non-detectable. Similarly, the concentration of pharmaceuticals in recycled water are extremely low. For an in depth discussion, please refer to the attached publication by the Water Research Foundation entitled "Putting the Risk of Recycled Water into Perspective" which states the following:

> *...it could take anywhere from a few years to many millions of years of exposure to non-potable recycled water to reach the same exposure to PPCPs (Pharmaceuticals and Personal Care Products) that we get in a single day through routine activities.*

Further, Volume 2 of the 2016 DOH Reuse Guidelines requires that recycled water be applied at a rate appropriate to plant uptake and evapotranspiration rates, thereby reducing the potential for percolation of the recycled water to the ground water.

Comment #2: *Much of the R-1 irrigated property in South Maui is adjacent to the coastal waters. Since the Federal Clean Water Act does not allow this water to be discharged into the ocean, how can the County assure that no toxic material flows from this program into the coastal waters from the sandy soils?*

Recycled Water Projects must use BMPs to control runoff, such as applying recycled water at a rate appropriate to plant uptake and evapotranspiration rates, and not irrigating during rainy periods.

Comment #3: *The proposed users of the R-1 treated effluent for irrigation are in many cases residential areas where the effluent will be used immediately next to habitable areas. With the strong wind gusts in South Maui, there will be no way to eliminate ingestion of the effluent products by humans and pets. Would it be prudent to use the future expansion of R-1 water use further from the coastal waters and from the inhabitable areas and use it for agricultural or other use?*

Recycled Water Projects must use BMPs to minimize public contact with recycled water spray or mist. Design considerations include proper selection of sprinkler heads in publicly accessible areas; and protection of items such as drinking fountains, picnic tables, barbeques, and portable water coolers from exposure to recycled water or mist. Operational considerations include scheduling and limiting times of application when the chances of exposure are lowest (e.g. 11 pm to 3 am).

We appreciate the time you have taken to share your concerns and will transmit a copy of the Draft EA when published for review and comment. Should you have any questions, please feel free to contact me at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Lynn Malinger, P.E.

cc: Joanie Gushiken, County of Maui, DEM-WWRD

Recycled Water: How Safe is It?

A Publication from WateReuse Research Foundation

Putting the Risk of Recycled Water into Perspective

As water becomes a scarcer and more precious resource, many communities are making use of recycled water to address growing water demands and limited supplies. One of the hurdles to gaining public acceptance of recycled water projects is perceived human health risks.

Among the perceived risks is concern about the presence of trace concentrations of Pharmaceuticals and Personal Care Products (PPCPs) found in recycled water. But findings from a recent study indicate that, depending on the chemical and the exposure situation, it could take anywhere from a few years to many millions of years of exposure to non-potable recycled water to reach the same exposure to PPCPs that we get in a single day through routine activities.

An agricultural worker in a field irrigated with recycled water.

For example, the study concludes that an agricultural worker would have to toil for 16,000 years in a field irrigated with recycled water to receive the equivalent of a single dose of 17-beta estradiol (prescription hormone replacement). A child could play on a recycled-water-irrigated lawn for 110 million years before being exposed to the equivalent of one application of insect repellant (DEET). (For more results, see "What's the Risk?"on page 3).

To assist in communicating the relative health risks associated with two approved non-potable uses of recycled water, agricultural and landscape irrigation, the WateReuse Research Foundation and participating water agencies commissioned a risk assessment study of PPCPs commonly found in recycled water.

Out of the hundreds of PPCPs that can be detected in recycled water and the environment, a team of scientists identified 10 to include in the study. The selected chemicals include a variety of PPCPs, such as prescription drugs, over-the-counter drugs, household products, food additives and more. Some were chosen because of their associated health risks; others, because they are easily recognized. All are representative of the PPCPs found in recycled water.

To accomplish their task, the researchers studied four situations in which people might typically be exposed to recycled water used for landscape or agricultural irrigation:

- Child playing in a park or schoolyard
- Agricultural worker in the fields
- Landscaper worker maintaining lawns or shrubbery
- Golfer on the greens

These are called "exposure scenarios." These theoretical scenarios all occur in environments irrigated with recycled water. They provide estimates of how much water a person might be exposed to over a period of time. In each situation, the researchers used a high estimate, wherein the subject encounters far more water on a regular basis than would be typical in real world circumstances. This is purposely done to build extra margins of safety into the risk assessment findings.

continued on page 2…

What is Recycled Water and Why Do We Use It?

Through nature's cycles, all water on Earth is recycled water. But, typically, when we hear the term "recycled water" it means wastewater that is sent from our home or business through a pipeline system to a treatment facility where it is treated to a level consistent with its intended use or disposal method. It is then routed directly to a recycled water system for uses such as irrigation or industrial cooling.

Many communities use recycled water to irrigate parks and playgrounds.

There are various levels of treatment the water might undergo, including primary, secondary and tertiary. Recycled water that is used for landscape and agricultural irrigation is treated to a tertiary level, which includes disinfection.

Using precious drinking water for irrigation greatly increases demand and puts a tremendous strain on our limited water supplies, particularly during dry seasons.

In addition to irrigation applications, this highly-treated water has been approved by the federal government and many states for other uses including fire suppression, industrial processes and toilet flushing. Water that is not reused for a

continued on page 4…

PPCPs: A Fact of Everyday Life

Pharmaceuticals and Personal Care Products

While most organic and microbial material is removed from wastewater during the tertiary treatment process, studies have shown that trace concentrations of certain compounds, or chemicals, can be found in highly-treated recycled water. Many of the same compounds can also be found, in varying amounts, in drinking water and throughout the environment.

Some of these chemicals are grouped into a category known as Pharmaceuticals and Personal Care Products (PPCPs). As their name implies, these compounds are ingredients that can be found in every day products, such as soaps, cosmetics, household cleaners and over-the-counter or prescription medications. They enter the recycled water system with the products that get washed down our sinks, washing machines, dishwashers, and toilets.

The ability to detect these chemicals at very low levels has outpaced the ability to completely remove them from the environment. For example, a prescription antibiotic, sulfamethoxazole, has been found in recycled water at a concentration of 1.4 microgram per liter (ug/L). A microgram per liter is one part per billion, or the equivalent of a single sugar cube in an Olympic size swimming pool.

The risk assessment study highlighted in this publication sought to determine how much of these residual chemicals we are exposed to under specific recycled water usage scenarios and to communicate the potential health risks in a meaningful way.

For instance, though no more than 1.4 ug/L of sulfamethoxazole is measured in most recycled water, the acceptable, or safe, concentration for a golfer on a course irrigated with reused water is 190,000 ug/L. In simpler terms, it would take that golfer 1,100,000 years of playing twice a week to be exposed to the equivalent of a single dose of the antibiotic.

The study used measured levels of PPCPs from a report prepared by a science advisory panel for the California State Water Resources Control Board; the concentrations used in the study represent the 90th percentile of detected concentrations in both secondary- and tertiary-treated effluent, or among the highest measured levels from wastewater treatment plants in that state.

"Putting the Risk…" continued…

Using known concentrations of the 10 PPCPs studied, the research team was able to calculate potential health risks. They also compared exposure to PPCPs in recycled water to PPCP exposures from other sources, such as one dose of ibuprofen or one application of insect repellant.

The risk assessment findings are being used to foster open communications and promote informed public discussions about the relative health risks associated with the use of recycled water.

What is Risk Assessment?

Risk assessment is a process that examines the toxicity of a chemical and the potential exposure to that chemical in order to estimate the risk to human health. Risk is a combination of toxicity and exposure (Risk = Toxicity x Exposure). The risk assessment study discussed in this publication used the U.S. EPA risk assessment methodology, which includes assessing exposure, dose and characterization of risk.

Defining "Safe"

The idea of being "safe" is a relative concept. As individuals we make decisions about our own safety and the relative risks we are willing to take. As a society, we make collective decisions about safety and risk. These decisions weigh the risks against the benefits. Understanding those risks and benefits is fundamental to making sensible choices.

While scientists acknowledge that excess exposure to chemicals may pose health risks, our society as a whole sees benefit in using chemicals in controlled quantities to improve our lives. Therefore, "safe" or "acceptable" exposure levels are established for compounds that we come into contact with every day.

For the risk assessment study highlighted in this publication, acceptable concentrations of PPCPs were derived from Acceptable Daily Intake (ADI), which were in turn derived from chemical-specific information available in other existing studies.

For example, the acceptable daily intake for acetaminophen (Tylenol) is based on the therapeutic dose in combination with an additional factor for further protection of human health. The acceptable concentrations represent what can be present in recycled water and not exceed the ADI, based on the various exposure scenarios.

Next, the risk assessment team compared acceptable concentrations with actual concentrations of PPCPs found in recycled water. Actual concentrations are all considered "safe" and the comparison showed they are typically only a tiny fraction of acceptable concentrations.

For example, for a child on a playground irrigated with recycled water, the acceptable concentration of acetaminophen is 57,000 micrograms per liter, while the actual concentration detected in most recycled water is less than 0.55 micrograms per liter.

Viewed another way, actual concentrations

continued on page 4…

WHAT'S THE RISK?

A Comparison of Exposure to PPCPs from Recycled Water vs. Conventional Uses

This chart compares typical exposures to three Pharmaceuticals and Personal Care Products (PPCPs) — antidepressant, ibuprofen, hormone — with exposure to the same chemicals in recycled water under four different scenarios in which a person may come into contact with the water. For each scenario — child at play, agricultural worker, landscaper, and golfer — the chart shows how many years one could participate in that activity before reaching a single daily dose of the chemical from typical exposures.

Number of years of exposure to recycled water to equal conventional dose.

0 | 4,000 | 6,000 | 8,000 | 10,000 | 12,000 | 14,000 | 16,000 | 20,000 | 40,000 | 60,000 | 80,000 | 100,000 | 150,000 | 200,000 | 250,000

Fluoxetine =
One Dose Prozac

- 26,000 Years
- 83,000 Years
- 91,000 Years
- 220,000 Years

Ibuprofen =
One Advil Tablet

- 8,600 Years
- 26,000 Years
- 28,000 Years
- 67,000 Years

17-beta estradiol =
One Dose Hormone Replacement

- 5,000 Years
- 13,000 Years
- 16,000 Years
- 160,000 Years

KEY: Four common scenarios where people may come into contact with recycled water.

- Child at Play
- Ag Worker
- Land-scaper
- Golfer

FAQs

What are the most common uses for recycled water?

In California, agriculture accounts for approximately 50 percent of recycled water use while landscape irrigation accounts for about 20 percent. Recycled water has safely been used to irrigate public facilities such as school grounds, athletic fields, golf courses, parks and common areas of residential neighborhoods for many years. There have not been any reported cases of illness or allergies as a result of its use for landscape irrigation or agricultural uses. Other uses include industrial applications and groundwater recharge.

Is recycled water safe?

Tertiary-treated recycled water meets standards that allow it to be used for most non-drinking purposes. In California, the Regional Water Quality Control Board and State Department of Health Services have strict permitting and monitoring procedures to ensure the reliability of treatment processes and controlled use of recycled water. Disinfected tertiary-treated recycled water is virtually free from all pathogens, including viruses. Several long-term microbiological studies involving thousands of samples have confirmed that pathogens are reduced to non-detectable or insignificant levels in tertiary-treated recycled water.

How do PPCPs end up in recycled water?

The treatment process for wastewater is not designed to remove all the chemicals that become part of the waste stream through human consumption and excretion. Numerous studies have shown that residual amounts of PPCPs remain in treated wastewater at trace concentrations. PPCPs are believed to enter municipal wastewater through bathing, cleaning, laundry, and the disposal of unused pharmaceuticals and human waste.

Is there a treatment process that will remove pharmaceuticals?

The wastewater industry is investing millions of dollars to research the benefits of different treatment processes. Last year, one industry group undertook a study that compared the effectiveness of various treatment/removal processes for a variety of chemicals. The industry is currently conducting research to determine which processes are most effective in removing various chemical compounds, including pharmaceuticals.

How high are the concentrations of PPCPs in recycled water?

This depends on the level of treatment and the methods used by the wastewater treatment plant that produces your recycled water. Typically, trace levels of PPCPs in recycled water are found in the low microgram to low nanogram per liter range. The risk assessment study used the 90th percentile of measured occurrence data for secondary- and tertiary-treated recycled water presented in *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water; Recommendations of a Science Advisory Panel. Final Draft. Calif. State Water Resources Control Board, June 25, 2010.*

Do these concentrations pose a risk to children on playgrounds and in parks?

The risk assessment showed that measured concentrations of PPCPs in recycled water do not pose unacceptable risks to children on playgrounds and parks. To help us understand that the health risks from recycled water are minimal, we can compare the exposure of a child on a playground irrigated with recycled water containing trace amounts of a specific PPCP, such as a common antibiotic, against a more familiar exposure, such as an adult dose of that same antibiotic that one might get from the doctor's office. In this example, a child would have to play on a playground for one hour per week, six months a year, with constant contact with recycled water, for 1,900,000 years before being exposed to the equivalent of one dose of that antibiotic.

Is there a risk for landscapers or agricultural workers who come in contact with recycled water?

The relative risks due to exposure for these workers is greater than for a child on a playground, but the risks are still well within an acceptable range. For instance, assuming a landscape worker is exposed to recycled water for an entire 8-hour work day, it would take 69,000 years for that worker to receive the equivalent of one dose of a common antibiotic.

"Defining 'Safe'" continued…

of acetaminophen in recycled water are nearly 100,000 times less than the safe levels for that child on a playground.

The team used the 90th percentile of measured PPCP concentrations in secondary- and tertiary-treated recycled water from a study that surveyed wastewater treatment plants in California.

"What is Recycled Water" continued…

specific purpose is typically disposed of under strict guidelines set by federal and state agencies.

Most North American communities waste vast amounts of increasingly scarce drinking water to irrigate lawns, gardens, parks, school grounds, highway medians, commercial landscaping and golf courses. Large quantities of drinking water are also used to grow food crops and support other important agricultural activities.

Using precious drinking water for irrigation greatly increases demand and puts a tremendous strain on our limited water supplies, particularly during dry seasons.

Sometimes it is not just a community's water supply that is stressed by these demands. Flows in rivers and waterways can be impacted to the point that fish are unable to complete their reproductive cycles, thus endangering a species' ability to survive. Reduced flows in creeks and rivers can also increase the concentration of harmful pollutants, which adversely affects many aquatic species.

These are just a few of the reasons recycled water has become a highly valuable resource in many areas of the country.

Communities that take advantage of recycled water must adhere to strict health and safety guidelines that require routine testing. In the United States, recycled water has been safely used since 1929, with no known cases of illness or allergies as a result.

For more information, visit:
www.athirstyplanet.com

This research and public information project (WRF-09-07) was funded by the WateReuse Research Foundation and participating utilities.

Rev. 6/3/11 Printed on recycled paper

MONSANTO
HAWAII

Monsanto Company
2111 Piilani Hwy.
Kihei, HI 96753

March 4, 2016

Lynn Malinger, P.E.
Fukunaga & Associates
1357 Kapiolani Blvd., Suite 1530
Honolulu, HI 96814

Re: Early Consultation Request
South Maui Recycled Water System Expansion Project
2nd 1.0 MG Tank and Pipeline Improvements
Job No. WW15-01

Dear Ms. Malinger,

We are in receipt of your request for review of the above referenced project. Monsanto supports the improvements of the South Maui Recycled Water System as presented, including the new electrical service to be pulled from existing power lines located on our property. We believe these improvements will increase availability of R-1 water for the service area and provide redundancy in the existing system.

Sincerely,

Yarrow Flower
Land Asset Manager