



— BUREAU OF —
RECLAMATION

National Environmental Policy Act Finding of No Significant Impact

**Kalaeloa Seawater Desalination Project
Honolulu Board of Water Supply, Oahu, Hawaii**



Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



— BUREAU OF —
RECLAMATION

**National Environmental Policy Act (NEPA)
Finding of No Significant Impact**

No. 22-SCAO-035-FONSI

Kalaeloa Seawater Desalination Project
Honolulu, Hawaii

The Bureau of Reclamation (Reclamation) is authorized to participate in the design, planning, and construction of the Kalaeloa Seawater Desalination Facility on Oahu, Hawaii. The project will produce 1.7 million gallons per day (mgd) of potable water, with potential future expansions to a 5 mgd capacity. The project was selected for funding through the Bipartisan Infrastructure Law and annual appropriations.

Based on our review of an Environmental Impact Statement (EIS) for the Kalaeloa Seawater Desalination Facility prepared by the Honolulu Board of Water Supply under the Hawaii Environmental Policy Act, we have determined that the financial assistance does not constitute a major federal action which would significantly affect the quality of the human environment within the meaning of Section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA). Accordingly, preparation of a NEPA environmental impact statement is not required.

Recommended: _____ Date: _____
Doug McPherson, Environmental Protection Specialist

Reviewed By: _____ Date: _____
Alex Soubannarath, Regional Title XVI Coordinator

Approved: _____ Date: _____
John E. Simes, Jr., Area Manager
Southern California Area Office

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The Honolulu Board of Water Supply plans to build a seawater desalination facility in Campbell Industrial Park within the Ewa District on the island of Oahu, Hawaii. The Kalaeloa Seawater Desalination Facility will produce an initial capacity of 1.7 million gallons per day (mgd) of potable water with provisions for future expansions to 5 mgd.

The Bureau of Reclamation is authorized to participate in the design, planning and construction of the project. A feasibility study was approved on June 3, 2021, meeting the requirements in Reclamation Manual Directives and Standards WTR 11-01. The Honolulu Board of Water Supply applied for financial assistance under Funding Opportunity Announcement No. R23AS00463 – *WaterSMART: Title XVI Congressionally Authorized Water Reclamation and Reuse Projects for Fiscal Years 2023 and 2024*.

The project is also approved for a federal loan from the Environmental Protection Agency (EPA) under the Water Infrastructure Finance and Innovation Act. A loan application under the Drinking Water State Revolving Fund (DWSRF),¹ administered by the Hawaii State Department of Health, is pending.

PURPOSE AND NEED

The Honolulu Board of Water Supply currently relies on groundwater for all of Oahu's municipal water supply. Seawater desalination was selected as a long-range sustainable water supply option to help meet the large increase in demand as the Ewa District grows. Desalination is considered an essential tool to stretch limited water supplies within the Hawaiian Islands. Desalination projects develop and supplement municipal and irrigation water supplies through treatment of ocean or brackish water, providing a local supply, enhancing flexibility during shortages, and diversifying supply portfolios.

Ewa is the designated secondary urban center for Oahu by the directed growth policies of the City and County of Honolulu's Oahu General Plan. Groundwater in the Project area is predominantly pumped from the Ewa-Kunia aquifer system area. The aquifer is fully permitted to its sustainable yield of 16 MGD. The Ewa-Kunia aquifer is vulnerable to contamination from human activity, increasing population, commercial and industrial water demands, and adverse climatic conditions, which could decrease the sustainable yield to as low as 7 MGD by the year 2100. Using desalinated water during and after periods of drought with a parallel reduction in groundwater pumping will allow the aquifer to stabilize and be replenished.

The Kalaeloa desalination facility will decrease reliance on groundwater by integrating desalinated ocean water with the existing local water supply portfolio. The facility will produce 1.7 MGD of potable water and will be designed, built, and commissioned with provisions to expand to 5 MGD. The goal is to provide high quality sustainable potable water to meet the water needs of the Ewa District during periods of drought for climate change resilience, and to reduce water transfers from Central Oahu to Ewa.

AUTHORITY

The Hawaii Water Resources Act of 2005 (Public Law 109-70) amended the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI of Public Law 102-575). In cooperation with the Board of Water Supply, City and County of Honolulu, the Secretary of the Interior is authorized to participate in the design, planning, and construction of facilities in Kalaeloa to desalinate and distribute seawater for direct potable use within the service area of the board. [1638(a)(1), 43 USC 390h-20].

PROJECT DESCRIPTION

The Kalaeloa Seawater Desalination Facility is proposed on a 20-acre vacant lot in the Campbell Industrial Park at 91-447 Olai Street (TMK 9-1-031:028). The property was conveyed to the Honolulu Board of Water Supply for use as a seawater desalination plant under the Base Realignment and Closure process for the disposal and reuse of Naval Air Station Barbers Point.

¹ The DWSRF program is partially funded by a capitalization grant from the EPA.

The Kalaeloa Seawater Desalination Facility will include administration and treatment buildings, source water wells, a reservoir storage tank, transmission main, injection wells for brine disposal, with grading, drainage, roads, parking, utilities, fencing, landscaping, and security systems. An aerobic wastewater system and leach field (network of small-diameter underground perforated pipes) for domestic wastewater treatment is planned adjacent to the facility. The facility will include an education area, native plant landscaping, and space for visitors available to the community.

Two on-site source wells in the basalt aquifer at depths of 1,600 feet and 2,100 feet will draw 4 mgd from a saltwater source equivalent to seawater salinity. Two underground injection wells, 300 feet deep, will be installed along Olai Street to dispose of 2.3 mgd of brine concentrate into the caprock formation above the source wells. The action area includes utility and access corridors through parcels TMK 9-1-031: 001 and 9-1-031:008 to connect with the existing water distribution system in Kalaeloa Boulevard.

Electric supply will be provided by the Hawaiian Electric Company. It may be feasible to supply sufficient power for the 1.7 mgd facility without constructing a new substation by using an extension of the existing 12-kVA power supply down Olai Street and onto the project site. A new higher rated 46-kVA power supply transmission line and substation may be required for the full build-out 5 mgd capacity project.

ADOPTION OF EXISTING ENVIRONMENTAL DOCUMENT

NEPA requires review of a proposed Federal action to determine its impact on the human environment. Council on Environmental Quality (CEQ) regulations direct Federal agencies to cooperate with State and local agencies to the extent possible to reduce duplication between NEPA and State and local requirements (40 CFR 1506.2). Department of Interior regulations for implementing NEPA encourage tiering of environmental documents and provide for adoption of existing environmental documents if, upon evaluation by a responsible official, it is found to comply with relevant provisions of the CEQ regulations.

An EIS was prepared for the Kalaeloa Seawater Desalination Project under the Hawaii Environmental Policy Act in September 2008. Reclamation staff reviewed the EIS and concluded that it adequately identifies and discloses the reasonably foreseeable environmental effects of the action. We adopt the document in accordance with regulations for implementing NEPA promulgated by the CEQ at 40 CFR 1506.3 and by the Department of the Interior at 43 CFR 46.320(a).

SUMMARY OF FINDINGS

The EIS concluded that the project will not result in any unavoidable significant impacts. Design features and mitigation measures were proposed to avoid or minimize environmental effects. The EIS addressed Location and Topography, Land Use, Geology, Soils, Climate, Air Quality, Water Resources, Natural Hazards, Biological Resources, Cultural Resources, Archeological Resources, Visual Resources, Socioeconomic Environment, Traffic, Noise, Utilities, and cumulative impacts.

Construction of the facility will involve grading, filling, removal of vegetation and the actual construction of the facility itself. Noise, odors, and dust will be associated with the construction. Disposal wells will inject backflush water, brine, and membrane cleaning solution into the Lower Caprock Aquifer. The project may contain volatile and/or toxic chemicals needed for operation and maintenance of the plant. Construction of the facility may impact known cultural resources and archaeological sites in the area.

OTHER FEDERAL CONSIDERATIONS

Clean Air Act

The island of Oahu and the State of Hawaii is in attainment for all national ambient air quality standards. No Clean Air Act conformity determination is required.

Clean Water Act

No jurisdictional waters are within the project action area. The East Kapolei Drainage Canal is located along the eastern boundary of the project area and will not be affected by the project.

Stormwater currently sheet flows across the project site north to south and discharges into the Pacific Ocean. The proposed stormwater management will route the stormwater to on-site infiltration trenches to control, contain and percolate stormwater locally. Stormwater detention will be through a detention pond which will be the focal point of the Visitor Education Park. A stormwater management plan will be prepared prior to commencement of the stormwater management system.

National Pollutant Discharge Elimination System (NPDES)

The project contractor will comply with the NPDES *General Construction Stormwater Permit* during construction and will comply with the NPDES *Municipal Industrial Stormwater Permit and Best Management Practices* during project operation.

Endangered Species Act

No threatened or endangered species have been found in the action area. The project site is significantly disturbed with ground scraping, introduced vegetation, and limited if any undisturbed area, mostly due to its urban location contiguous to intense industrial uses and a former military airfield. Two species of concern, the maiapilo (*Capparis sandwichiana*) and naio (*Myoporum sandwicense* var. *stellatum*), do occur on the site. Both species are excellent candidates for landscaping and will likely form part of the landscaping used for the facility along with other native lowland species.

The entire 20-acre parcel is within critical habitat "Oahu - Lowland Dry - Unit 09" (77 FR 57647, September 18, 2012). The critical habitat unit totals 37 acres and extends across the East Kapolei Drainage Canal to include part of the Kalaeloa Unit of the Pearl Harbor National Wildlife Refuge. The unoccupied habitat is considered essential for the recovery of 3 listed plant species native to Oahu: Ewa Plains Akoko (*Euphorbia skottsbergii* var. *skottsbergii*), Round-leaved Chaff-flower (*Achyranthes splendens* var. *rotundata*), and *Euphorbia celastroides* var. *kaenana*.

The proposed action will develop 5 acres of critical habitat in the northeast corner of the parcel. The balance of the parcel (15 acres) will remain available to support conservation of the 3 listed Oahu plant species and 13 additional listed plant species from other islands that require similar habitat.

National Historic Preservation Act

Three historic properties were identified within the project area. Two resources (a burial site and a habitation complex) will be avoided and a preservation plan will be prepared. The third resource is a pit cave (sinkhole) complex that extends throughout the parcel. Due to the ubiquitous nature of pit caves within the parcel, full avoidance of impacts to this resource is not possible.

Archaeological monitoring (a form of data recovery) is proposed to document and mitigate impact. A portion of the resource will be preserved to allow future paleoenvironmental study. A finding of adverse effect on a historic property does not necessarily require an EIS under NEPA. [36 CFR 800.8(a)(1)]

Sole Source Aquifers

The project is within the Southern Oahu Basal Aquifer, designated a sole source aquifer by the EPA, on the edge of the aquifer near the ocean in an area where the groundwater is too salty for drinking. The project is proposed with deep wells in the Basalt Aquifer for saltwater extraction and shallower injection wells for brine disposal into the lower Caprock Aquifer. The lower Caprock is not a sole source aquifer.

Underground Injection Control

The Honolulu Board of Water Supply has applied under the Hawaii State Underground Injection Control Program. The EPA maintains an Underground Injection Well Registration database. The Board of Water Supply will register the injection well with the EPA inventory program.

Migratory Bird Treaty Act

Two species of migratory shorebirds were noted. Pacific golden-plover (*Pluvialis fulva*) winter in Hawaii and migrate to Alaska for breeding in April. Plovers are likely to be seen between August and April. Wandering Tattler (*Heteroscelus incanus*) have been observed foraging along canal and shoreline. No seabirds were observed during the field survey. There is no suitable nesting habitat within the project site.

Wetlands

There are no wetlands in the action area. The East Kapolei Drainage Canal is located along the eastern boundary of the project area. No impacts to the drainage channel are expected. Best Management Practices will be implemented to prevent erosion and runoff into the channel during construction.

Floodplain

The project is within the “Zone D” flood zone and is within the tsunami inundation zone. “Zone D” is an area in which flood hazards are undetermined. Coastal areas to the south and west of the project site are designated “Zone AE” and have base flood elevations ranging from 6 feet to 9 feet above mean sea level. These coastal areas are defined as “Special Flood Hazard Areas Inundated by 100-year Flood” and are concentrated along the shoreline.

The project area is within the tsunami evacuation area on Oahu Civil Defense Agency Map #17-Kahe Point to Ewa Beach. The evacuation zone extends from the shoreline mauka to Olai Street. Evacuation to the nearest public shelter or designated refuge area at Makakilo Elementary School will be necessary. All structures will be constructed to comply with flood zone and tsunami zone building code requirements; however, none of the buildings will be “steel and/or concrete six or more stories in height” due to the FAA height limit in the area. The buildings will not provide adequate protection from a tsunami.

Socioeconomic Resources

The project will not have significant social or economic effects. No housing or people will be displaced. No communities will be divided. No effects to public health and safety were identified. The desalinated water supply will replace other constrained water supplies and is not a significant growth-inducing impact.

The proposed desalination facility will have no direct impact on the population or demographics of the Ewa and Honolulu areas. The facility will not likely have indirect impacts on population growth. The facility development will increase the water supply in the BWS system by about 3 percent and will contribute to an adequate water supply for planned and approved development of Ewa and other leeward areas. The project will result in the creation of temporary construction jobs and permanent facility operation jobs.

Environmental Justice

No impacts relevant to Environmental Justice were identified. Implementation of the project has no potential to result in disproportionate and adverse human health or environmental effects on communities with environmental justice concerns. The project is in Blockgroup 150039803001, which has no residents.

The project site is designated for industrial use. Campbell Park has intensive industrial uses including an oil processing/storage facility, other energy facilities, utility service, operations, and manufacturing. There are no residential neighborhoods of any economic level within a 2-mile radius of the project site.

The state of Hawaii has a people of color population of 74% and a low-income population of 21%. Honolulu County has a people of color population of 82% and a low-income population of 20%. Native Hawaiians continue to be more economically disadvantaged, with lower incomes, higher rates of assistance receipt, and higher poverty rates than other residents of Hawaii. The project site is adjacent to Tract Number 15003008502, considered disadvantaged.

The project may provide water to areas belonging to the Department of Hawaiian Home Lands (DHHL), established in 1920 by Prince Kūhiō and the U.S. Congress. The DHHL mission is to manage and develop raw land for use by qualified beneficiaries, facilitate land leases, and to develop and maintain self-sufficient and healthy communities on homestead land. The economic well-being of DHHL lessee households in Hawaii is lower than that of the State as a whole, and lessees are much more likely to be among the low- and moderate-income households of Hawaii. The DHHL owns and manages 823 acres, about 2 percent of the land within the Ewa Development Plan District. DHHL has developed 403 homes in the East Kapolei Region and plans to construct an additional 1,457 homes over the next 5 to 10 years.

The Department of the Interior Office of Native Hawaiian Relations is working to establish a program to help build capacity within the Native Hawaiian Community to increase resilience to climate change. The Native Hawaiian Climate Resilience Program aims to enhance the Native Hawaiian Community's ability to cope with the effects of climate change by taking actions, responding, or evolving in ways that maintain its integrity and identity while maintaining its capacity for adaptation, learning, and transformation.

Wild and Scenic Rivers

No wild and scenic rivers are designated in the State of Hawaii. Four Oahu waterways are on the National Rivers Inventory, three on the windward side and one on the North Shore. None are in the project area.

Coastal Zone Management Act

The project is within the Hawaii coastal zone. The Title XVI funding program is not included on Hawaii's Listed Federal Actions. The financial assistance from the Bureau of Reclamation does not trigger a Coastal Zone Management Act federal consistency review.

Coastal Barrier Resources Act

The federal expenditure will not encourage development or modification of coastal barriers. The project is not within any units of the Coastal Barrier Resources System. The Coastal Barrier Resources Act applies on the Atlantic, Gulf, and Great Lakes coasts. No system units are located in the Hawaiian islands.

Safe Drinking Water Act

The Honolulu Board of Water Supply has applied to the Hawaii State Department of Health, Safe Drinking Water Branch for an injection well permit and Source Water Use Approval.

Airports

The site is subject to Federal Aviation Administration easements 540 and 541 due to airstrips of the former Barbers Point Naval Air Station, just to the east. Buildings cannot exceed 45 feet on the east side and 65 feet on the west side of the project site. The desalination structures are designed for a maximum height not to exceed 32 feet anywhere on the property.

AGENCY CONSULTATION AND COORDINATION

Fish and Wildlife Service

On March 22, 2024, the Southern California Area Office requested initiation of formal consultation with the Pacific Islands Fish and Wildlife Office under section 7 of the ESA for effects to critical habitat designated Oahu - Lowland Dry - Unit 09.

Hawaii State Historic Preservation Officer (SHPO)

On March 22, 2024, pursuant to section 106 of the National Historic Preservation Act and implementing regulations at 36 CFR 800, the Southern California Area Office submitted a finding of "adverse effect" to the Hawaii State Historic Preservation Officer and asked for concurrence with the finding.

Environmental Protection Agency

A sole source aquifer checklist was submitted to EPA Region 9. The Board of Water Supply will register the injection well with the EPA.

Federal Aviation Administration

The Board of Water Supply will submit Form 7470-1 Notice of Proposed Construction or Alteration form airspace evaluation.

Department of the Navy

The Navy released a Final EIS for the Disposal and Reuse of Naval Air Station Barbers Point in February 1999. The EIS concluded that the transfer of former Naval Air Station Barbers Point would not have a significant impact on the existing environment or on public health and safety. The record of decision was signed by the Deputy Assistant Secretary of the Navy on June 17, 1999 (64 FR 35132), specifically including the land transfer for the desalination facility.

Department of Health and Human Services

The Navy assigned 42 acres in the southwest corner of the Barbers Point Naval Air Station to the Department of Health and Human Services for subsequent conveyance to the City and County of Honolulu for public health use as a seawater desalinization plant. The Department of Health and Human Services completed the conveyance on April 5, 2001. No environmental impact statement was required.

State of Hawaii, Office of Planning and Sustainable Development

Bureau of Reclamation staff contacted Hawaii coastal zone management program staff and were advised that no Coastal Zone Management Act consistency certification was required.

ENVIRONMENTAL COMMITMENTS

No additional environmental commitments are required by the Bureau of Reclamation.

REFERENCES

Final Environmental Impact Statement for the Proposed Kalaeloa Desalination Facility, City and County of Honolulu Board of Water Supply, Oceanit Laboratories, Inc. 2008.
https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2008-11-08-OA-FEIS-Acceptance-Kalaeloa-Desalination-Facility.pdf

ATTACHMENTS

SHPO NHPA section 106 consultation letter
FWS ESA section 7 initiation request
EPA sole source aquifer checklist



United States Department of the Interior



BUREAU OF RECLAMATION
Southern California Area Office
27226 Via Industria, Suite A
Temecula, CA 92590

IN REPLY REFER TO:
LCB-2631
2.1.1.04

MAR 22 2024

State Historic Preservation Officer
Department of Land and Natural Resources
Kakuhihewa Building
601 Kamokila Boulevard, Suite 555
Kapolei, Hawai'i 96707

Subject: Determination Request Pursuant to Section 106, National Historic Preservation Act, Regarding the Proposed BWS Kalaeloa Seawater Desalination Facility Project at Kalaeloa, O'ahu, Hawai'i

The United States Bureau of Reclamation (Reclamation) is providing funding for the Honolulu Board of Water Supply (BWS) to construct the new Kalaeloa Seawater Desalination Facility project in Kalaeloa, O'ahu, Hawai'i. The proposed project may also receive federal funding from the Environmental Protection Agency's Water Infrastructure Finance and Innovation Act and Drinking Water State Revolving Fund programs.

The project will be carried out with federal financial assistance and is considered an undertaking, as defined in Section 301 of the National Historic Preservation Act (NHPA), as amended. The EPA has designated Reclamation as the lead agency for Section 106 compliance. We previously authorized the BWS as our delegated non-federal entity to initiate consultation with the Hawai'i State Historic Preservation Department (SHPD), Native Hawaiian Organizations, and other consulting parties.

BWS submitted a "*Draft Archaeological Inventory Survey (AIS) Report for the Kalaeloa Seawater Desalination Facility Project Honouliuli Ahupua'a, 'Ewa District, O'ahu, TMKs: (1) 9-1-031:001 (por.), 028, and 'Ōla'i Street Right-of-Way*" by Cultural Surveys Hawai'i, Inc., (Kailua, Hawai'i), September 2023 for SHPD review. Based on the draft AIS, and pursuant to Section 106 of the NHPA and implementing regulations at 36 CFR 800, we are consulting with your office on our finding of "*adverse effect.*" We request your concurrence with this finding.

Description and Location of the Undertaking

The area of potential effect (APE) is comprised of the entirety of Tax Map Key (TMK) parcel (1) 9-1-031: 028 and a portion of TMK parcel (1) 9-1-031:001. TMK parcel (1) 9-1-031: 028 is approximately 23 acres within the southeast coastal portion of Campbell Industrial Park at Barbers Point. The proposed facility will be located on the northeastern portion of the BWS-owned parcel. The project APE is depicted in the enclosed figure. A portion of State-owned parcel TMK (1) 9-1-031:001 will serve as a corridor to construct utility lines and injection wells.

The undertaking will include construction of a 1.7 million gallons per day reverse osmosis treatment facility, an administrative office, and roads for access. Space has been designated for

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ARIZONA, CALIFORNIA*, NEVADA*

* PARTIAL

Hawai'i State Historic Preservation Officer
Kalaeloa Seawater Desalination Facility

potential future plant expansion. An aerobic wastewater system and leach field (network of small-diameter underground perforated pipes) for domestic wastewater treatment is planned adjacent to the facility.

Off-site utility and accessory construction will also take place. Along 'Ōla'i Street, underground water lines as well as overhead power lines will be installed. Two underground injection wells are planned along 'Ōla'i Street and will be used to dispose of brine concentrate from the reverse osmosis process.

Preliminary design plans are enclosed.

Methodology Employed for the Identification of Historic Properties

A burial report (Kawachi 1990) dated 2 February 1990 was completed for State Inventory of Historic Places (SIHP) # 50-80-12-4209, human remains, near the eastern edge of the APE.

An archaeological inventory survey (AIS) investigation (Sinoto and Titchenal 2002) was previously conducted for this project in 2002. The AIS covered TMK: [1] 9-1-031: 028 in its entirety; however, the off-site improvements were not covered. The State Historic Preservation Department (SHPD) reviewed and requested revisions of the AIS report in a 16 January 2003 letter to Sinoto Consulting (Log No.: 31433, Doc. No.: 0212SC09). There is no indication that the revisions were completed, nor the AIS accepted.

In 2018, an archaeological literature review and field inspection (LRFI) report (Belluomini *et al.* 2018) was completed to support the project's historic preservation and environmental review compliance. Subsequently, a new AIS investigation (Welser *et al.* 2023-draft) was conducted and submitted to SHPD to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) §6E-8 and Hawai'i Administrative Rules (HAR) §13-275. The draft AIS was prepared to fulfill the requirements of HAR §13-276 and was conducted to identify, document, and assess significance of any historic properties. The AIS was performed in accordance with an AIS testing strategy prepared and submitted to the SHPD on 5 February 2020. The AIS strategy that was submitted is based on discussions with SHPD regarding the appropriate level of AIS survey and testing for the project.

The project and the results of the LRFI were presented in a meeting with SHPD on 13 August 2018. Community consultation and a site visit prior to making any determination for future archaeological work was SHPD's recommendation. Representatives of SHPD, BWS, and Cultural Surveys Hawai'i conducted a site visit on 29 August 2018.

Consultation letters of the current project were sent on 1 June and 12 July 2019 to NHOs, cultural descendants and other individuals connected to the area. The project was presented at the 14 August 2019 meeting of the O'ahu Island Burial Council by the BWS.

A meeting was conducted with SHPD on 21 November 2019 regarding the proposed AIS testing strategy.

Hawai'i State Historic Preservation Officer
Kalaeloa Seawater Desalination Facility

A meeting was conducted with SHPD on 29 June 2021 to present the findings of the AIS prior to submission to SHPD. BWS notified SHPD that the project would potentially receive federal funding through Reclamation.

Section 106 consultation letters were sent to NHOs in a letter dated 19 September 2022.

A public notice soliciting comments pursuant to Section 106 of the NHPA was published in the Honolulu Star-Advertiser on 10 October 2022.

The BWS initiated Section 106 consultation and submitted the project APE to SHPD in a letter dated 13 October 2022.

Identification of Historic Properties and Evaluation of Historical Significance

Three historic resources were previously identified in the Sinoto and Titchenal (2002) AIS and the current draft AIS (Welser, *et. al.* 2023) within the APE. We have determined that all three resources are eligible for listing on the National Register of Historic Places.

SIHP # 50-80-12-4209, human remains, is eligible under Criterion D (that have yielded or may be likely to yield, information important in history or prehistory). The historic property possesses integrity of location, design, materials, feeling and association. This evaluation is based on the property's potential to yield information about traditional Hawaiian burial practices and the historic property's traditional significance to Native Hawaiians.

SIHP # 50-80-12-6373, habitation complex, is eligible under Criterion D (that have yielded or may be likely to yield, information important in history or prehistory). The historic property possesses integrity of location and materials. This evaluation is based on the historic property's potential to yield information about habitation patterns and overall utilization of the Kalaeloa area, and of Honouliuli Ahupua'a.

SIHP # 50-80-12-6375, pit cave (sinkhole) complex, is eligible under Criterion D (that have yielded or may be likely to yield, information important in history or prehistory). The historic property possesses integrity of location and materials. This evaluation is based on the historic property's potential to yield information about the paleontological environment of Honouliuli, including extinct bird species, as well as about any traditional Hawaiian utilization of the area.

Effects Determination

Preservation through avoidance is proposed for the entirety of SIHP #s -6373 and -4209.

The proposed action will require construction that will result in the grading/filling and building of structures or installation of equipment over a portion of SIHP# -6375. Due to the ubiquitous nature of pit caves within the APE, full avoidance of impacts to this resource is not possible. Archaeological monitoring (a form of data recovery) is also proposed for the undertaking to further document and mitigate impact to SIHP # -6375. An archaeological monitoring plan meeting the requirements of HAR §13-279-4 will be prepared for SHPD for review and acceptance. In addition, a representative portion of SIHP # -6375 within the APE is proposed to be preserved to allow for future paleoenvironmental study.

Hawai'i State Historic Preservation Officer
Kalaeloa Seawater Desalination Facility

A preservation plan will be prepared for SHPD review and acceptance addressing SIHP #s -4209 and -6373, and a portion of SIHP # -6375. The representative portion of SIHP # -6375 to be preserved will be determined in consultation with SHPD and other interested parties.

Due to the unavoidable impacts to a portion of SIHP # -6375, we have determined that the undertaking will result in an adverse effect pursuant to 36 CFR 800.5(d)(2). We look forward to continuing consultation in accordance with 36 CFR 800.6 to resolve this adverse effect. A draft Treatment Plan and Memorandum of Agreement are being developed for SHPD review.

Discovery Clause

If any districts, sites, buildings, structures, or objects not included in this consultation are discovered, activities will cease in the vicinity of the previously unidentified resource. The stipulations at 36 CFR 800.13(b) will be satisfied before activities resume.

Amendment Clause

This consultation is only for the undertaking described above. If the APE changes, we will reinitiate consultation under 36 CFR Part 800. No ground-disturbing activities will proceed until our consultation obligations are completed.

If you have any questions or require further information, please contact Justin DeMaio, Regional Archaeologist of our Lower Colorado Basin Region, at jdemaio@usbr.gov or 702-293-8359.

Sincerely,



John E. Simes, Jr.
Area Manager

Enclosure



United States Department of the Interior



BUREAU OF RECLAMATION
Southern California Area Office
27226 Via Industria, Suite A
Temecula, CA 92590

IN REPLY REFER TO:

SCAO-2000
2.2.1.06

MAR 22 2024

Memorandum

To: Field Supervisor
Pacific Islands Fish and Wildlife Office
ATTN: Jiny Kim, Supervisory Fish and Wildlife Biologist

From: John E. Simes, Jr.
Area Manager

Subject: Kalaeloa Seawater Desalination Facility, Oahu, Hawaii (Project Code: 2022-0090026)

The Bureau of Reclamation is providing financial assistance to the Honolulu Board of Water Supply (BWS) for the Kalaeloa Seawater Desalination Facility. The action area is designated critical habitat under the Endangered Species Act (ESA). We are requesting formal consultation under ESA section 7(a)(2) and regulations for interagency cooperation at 50 CFR part 402.

Please find the attached "*Biological resources survey for Kalaeloa Seawater Desalination Facility, Honouliuli Ahupuaa Ewa District, Oahu*" by AECOS Inc., Kaneohe, Hawaii, June 23, 2023.

AUTHORITY

The Hawaii Water Resources Act of 2005 (Public Law 109-70) amended the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI of Public Law 102-575). In cooperation with the Honolulu BWS, the Secretary of the Interior is authorized to participate in the design, planning, and construction of facilities in Kalaeloa to desalinate and distribute seawater for direct potable use within the BWS service area. [43 USC 390h-20(a)(1)].

The project is also approved for a federal loan from the Environmental Protection Agency (EPA) under the Water Infrastructure Finance and Innovation Act (WIFIA) [33 USC 3901-3915]. A loan application under the Drinking Water State Revolving Fund (DWSRF),¹ administered by the Hawaii State Department of Health (DOH), is pending.

¹ The DWSRF program is partially funded by a capitalization grant from the EPA. Issuance of DWSRF funds is considered equivalent to a federal action. The EPA has delegated responsibility to the State DOH for carrying out the requirements of the ESA.

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ARIZONA, CALIFORNIA*, NEVADA*

* PARTIAL

DESCRIPTION OF THE PROPOSED ACTION

The federal actions provide financial assistance for a new 1.7 million-gallon per day (mgd) reverse osmosis (RO) seawater desalination facility, with potential future expansion to 5 mgd capacity. Source water for desalination will be provided from basalt aquifer wells. Injection wells will be used for brine concentrate disposal into the caprock formation above the source wells.

Purpose of the action

The desalination plant is needed to provide potable water to the Ewa area, designated as Oahu's secondary urban center by state and city ordinance. The desalination plant can convert seawater to drinking water and provide a reliable source of drinking quality water for domestic and industrial use. The desalination site is centralized in the vicinity of the second city of Kapolei to the north, Campbell Industrial Park to the west, and the Barber's Point Naval Air Station reuse area to the east.

Demand for fresh water from the Ewa system is approaching capacity. The district's population is expected to grow by about 30 percent, or 50,000 people, by 2040. The seawater desalination plant will supplement ongoing efforts to encourage conservation, use recycled water for non-potable water demands, and leverage brackish and saline aquifer supplies where possible.

The Kalaeloa Seawater Desalination Facility will produce high-quality drinking water for local customers, diversify Oahu's freshwater production sources and improve Hawaii's water resilience to climate change. The facility will provide a high-quality local water supply that is drought-proof, sustainable, enhances resilience to climate change, and reduces water transfers from Central Oahu.

Duration and timing

The targeted operational start date for the Kalaeloa Seawater Desalination Facility is 2027.

Location

The Kalaeloa Seawater Desalination Facility is proposed on a 20-acre vacant lot in the Campbell Industrial Park at 91-447 Olai Street (TMK 9-1-031:028). The property was conveyed to BWS for use as a seawater desalination plant under the Base Realignment and Closure (BRAC) process for the disposal and reuse of Naval Air Station Barbers Point. The action area includes utility and access corridors through parcels TMK 9-1-031: 001 and 9-1-031:008 to connect with the existing BWS distribution system in Kalaeloa Boulevard.

Specific components of the action

The Kalaeloa Seawater Desalination Facility will include administration and treatment buildings, source water wells, a reservoir storage tank, transmission main, injection wells for brine disposal, with grading, drainage, roads, parking, utilities, fencing, landscaping, and security systems. An aerobic wastewater system and leach field (network of small-diameter underground perforated pipes) for domestic wastewater treatment is planned adjacent to the facility.

Facility structures will be designed with materials such as masonry split face, poured in place rough concrete, and a tile roof. The structures will meet the code requirements for separation, accessibility and means of egress and ingress, and accommodations of the existing topographic conditions. A six-foot high chain link fence will enclose the site. The facility will include an education area and space for visitors available to the community.

Two on-site source wells will draw from the basalt aquifer at a depth of 1,600 feet and will draw about 4 mgd from a saltwater source equivalent to seawater salinity. Two underground injection wells, 300 feet deep, will be installed along Olai Street to dispose of 2.3 mgd of brine concentrate into the caprock formation above the source wells.

Maps, drawings, blueprints, or similar schematics

Preliminary site plans are attached.

Other available information

A floral and faunal survey was conducted in February 2002 in support of a State Environmental Impact Statement.

DESCRIPTION OF AREAS AFFECTED BY THE FEDERAL ACTION

TMK 9-1-31:028 is a 20-acre vacant parcel that consists of mostly invasive kiawe (*Prosopis pallida*) forest on limestone karst. Central portions of the property have been previously cleared and graded. The area is separated from the Kalaeloa Unit of the Pearl Harbor National Wildlife Refuge by the East Kapolei Drainage Canal and is surrounded by undeveloped land with grassland (former pastureland) to the west. Two vegetation types were identified on the project site: kiawe forest, and open scrub. Portions of the site are covered by kiawe forest on karst, and more recently disturbed areas support open scrub vegetation.

The substrate underlying the kiawe forest area is weathered coralline reef formed when sea levels were higher. Kiawe trees average 20 to 30 feet tall and form a closed canopy forest. Understory vegetation is sparse and consists of scattered patches of plants where the canopy is not dense. Open scrub vegetation type occurs on areas which have been disturbed. The substrate in these areas is crushed coral with a thin layer of soil or organic material. In some areas the substrate is sandy. There are also large piles of sand, likely dredge material or side cast from the canal. In the open scrub area, there are open patches of grasses and weeds with scattered young kiawe trees.

Most inventoried plants are introduced or alien species. Seven indigenous natives were observed: 'aki'aki (*Sporobolus virginicus*), 'ākulikuli (*Sesuvium portulacastrum*), kīpūkai (*Heliotropium currasavicum*), hoary abutilon (*Abutilon incanum*), 'ilima (*Sida fallax*), 'uhaloa (*Waltheria indica*), and pōpolo (*Solanum americanum*). Three endemic species – maiapilo (*Capparis sandwichiana*), naio (*Myoporum sandwicense* var. *stellatum*), and kūpala (*Sicyos pachycarpus*) – and two early Polynesian introductions 'ihi'ae (*Oxalis corniculata*) and noni (*Morinda citrifolia*) – were recorded. The remaining species are non-native (alien) species that have been naturalized or are ornamentals. No plant species proposed for listing or listed as endangered or threatened under either federal or State of Hawaii endangered species statutes were recorded.

LISTED SPECIES AND CRITICAL HABITAT IN THE ACTION AREA

No threatened or endangered species have been found in the action area. The entire 20-acre action area is within critical habitat designated Oahu - Lowland Dry - Unit 09. The critical habitat unit totals 37 acres and extends across the East Kapolei Drainage Canal to include part of the Kalaeloa Unit of the Pearl Harbor National Wildlife Refuge.

EFFECTS OF THE ACTION AND ANALYSIS OF CUMULATIVE EFFECTS

The proposed action may affect Oahu - Lowland Dry - Unit 09 critical habitat. Construction of the Kalaeloa Seawater Desalination Facility will develop approximately 5 acres of the 20-acre action area, representing about 14% of the 37-acre critical habitat unit. Portions of the action area will also be used for temporary staging/stockpiling areas during construction.

No cumulative effects have been identified. If the project capacity is increased in the future, the expanded 5 mgd facility can likely be contained within the 5-acre footprint of the 1.7 mgd facility.

Bureau of Reclamation staff believe that the proposed action will not alter the physical or biological features to an extent that appreciably reduces the conservation value of the critical habitat unit. The affected critical habitat unit will remain functional and will retain biological and physical features that make the critical habitat unit suitable for future habitat restoration to serve its intended conservation role.

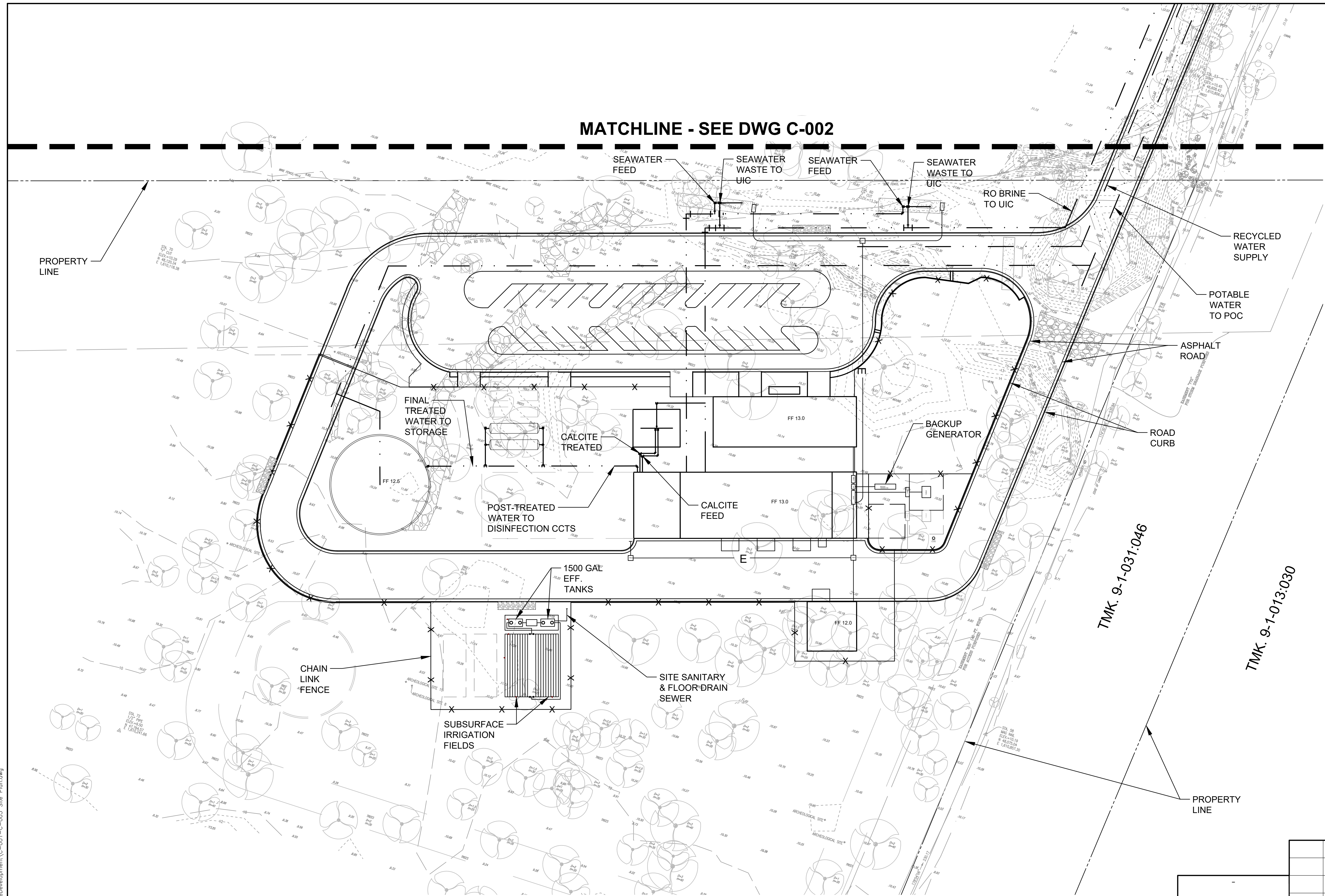
It is our understanding that the applicant's obligation is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat. Bureau of Reclamation staff believe that the applicant has met this obligation by limiting project impacts to a small corner of their property.

We appreciate the involvement and advice provided to date by Pacific Islands Fish and Wildlife Office staff. If you have questions or need any additional information to initiate formal consultation, please contact Doug McPherson of my staff at (951) 695-5314 or e-mail: dmcpherson@usbr.gov.

Attachment

cc: Elizabeth Lang, Environmental Scientist
WIFIA Management Division
U.S. Environmental Protection Agency
Mailcode 4201T
1200 Pennsylvania Avenue NW
Washington, DC 20460

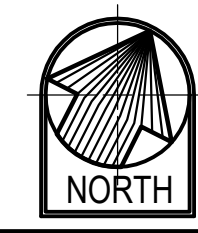
MATCHLINE - SEE DWG C-002



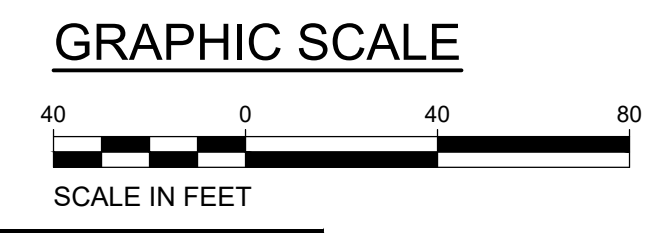
LEGEND
 - - - - - PROPERTY LINE
 -X-X-X-X- CHAIN LINK FENCE

TMK. 9-1-031:046

TMK. 9-1-013:030



SITE PLAN - 2
 SCALE: 1"=40'



60% DESIGN SUBMITTAL

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
BOARD OF WATER SUPPLY CITY AND COUNTY OF HONOLULU				
JOB # KALAELOA SEAWATER DESALINATION FACILITY ON-SITE DEVELOPMENT KAPOLEI, OAHU, HAWAII				
SITE PLAN - 2				
APPROVED: _____ <small>MANAGER AND CHIEF ENGINEER, BOARD OF WATER SUPPLY</small>			DATE: NOVEMBER 2023	
DRAWN BY: HP/JT		ENGINEER: _____		CHECKED BY: _____
FIELD BOOK NO. _____		SCALE: _____		SHEET VALUE OF _____ SHEETS

BOWERS + KUBOTA
 PLANNING • CIVIL ENGINEERING
 ARCHITECTURAL DESIGN
 LANDSCAPE ARCHITECTURE
 ENVIRONMENTAL SERVICES
 CONSTRUCTION MANAGEMENT
 PROJECT MANAGEMENT
 BOWERS + KUBOTA CONSULTING, INC.
 2153 NORTH KING STREET, SUITE 200
 HONOLULU, HAWAII 96819
 T: 808.521.5361 • F: 808.538.7819

DATE: XXXX/2023
 DRAWN BY: XXX
 DESIGN ENGR: XXX
 PRINC ENGR: XXX

KALAELOA DESALCO LLC
 OAHU, HAWAII

Approved By: _____
 Title: _____

Date: _____

KALAELOA
 DESALCO LLC

DRAWING NO. **C-003**

Signature _____
 Expiration Date of the License: 04.30.2024

Wed, 06 Dec 2023 11:36am
 T:\BWS\ASDA\23A0066003_Graphics\CAD\Sheets\SiteDevelopment\C-001-C-003_Site_Plan.dwg
 Xref: G:\BDO\ON-SITE.dwg; V:\TOP\ON-SITE.dwg; C:\SITE\ON-SITE.dwg; CUTLON\ON-SITE.dwg
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Biological resources survey for Kalaeloa Seawater Desalination Facility, Honouliuli Ahupua‘a ‘Ewa District, O‘ahu

June 23, 2023

DRAFT

AECOS No. 1769

Carmen Hoyt, Gioconda Lopez, and Eric Guinther

AECOS Inc.

45-939 Kamehameha Highway Suite 104

Kāne‘ohe, Hawai‘i 96744

Phone: (808) 234-7770 Fax: (808) 234-7775 Email: Carmen@aecos.com

Introduction

In order to meet growing demand on O‘ahu for potable water, the City and County of Honolulu, Board of Water Supply (BWS) proposes to develop a seawater reverse osmosis facility in Honouliuli Ahupua‘a, ‘Ewa District, O‘ahu, Hawai‘i. BWS has contracted The Limtiaco Consulting Group (TLCG) with drafting plans for the construction of a desalination plant, an administrative office, roads, and a wastewater leach field (the “Project;” Figure 1). Underground water lines and overhead power lines will be installed along the ‘Ōla‘i Street Right-of-Way (R-o-W), east of Kalaeloa Boulevard. Additionally, BWS is considering the installation of ground-mounted solar panels as well as underground injection wells on the site. TLCG has subcontracted AECOS to conduct a biological resource assessment of the Project area (Figure 2). This report presents our findings¹.

Site Description

The Project site, located on the southeast coastal portion of Campbell Industrial Park at Barber’s Point, is 8.5 hectares (21 acres) and encompasses Tax Map Keys (TMKs) 9-1-031:001 (por.), 028, and 008, the ‘Ōla‘i Street R-o-W (see Figure 3). The land is mostly undeveloped *kiawe* (*Prosopis pallida*) forest on limestone karst, but central portions of the property have been previously

¹ Report prepared for The Limtiaco Consulting Group and intended to become part of the public record by incorporation into an EA for the subject project.



Figure 3. The ‘Ōla‘i Street Right-of-Way.

cleared and graded (Figure 4). The area is separated from the Kalaeloa Unit of the Pearl Harbor National Wildlife Refuge (PHNWR) to the East Kapolei Drainage Canal (Figure 5), and it is surrounded by undeveloped land except on the western side, which is grassland (former pastureland).

Flora and fauna surveys in the Project area were conducted 21 years ago by Bruner (2002) and Char (2002). Any significant changes from these previous observations are discussed here.

Methods

Botanical Survey

AECOS botanists Eric Guinther and Gioconda Lopez surveyed the Project site on April 20, 2023. Plant species were identified as they were encountered during a wandering transect that covered the Project area. Notes on the abundance of species were kept for reporting a rough qualitative sense of each species. Species names follow *Manual of the Flowering plants of Hawai‘i* (Wagner, Herbst, & Sohmer, 1990; Wagner & Herbst, 1999) for native and naturalized



Figure 4. A monitoring well located within a central portion of the property that has been previously cleared and graded.



Figure 5. The East Drainage Canal separates the Project site from the Pearl Harbor National Wildlife Refuge to its east.

flowering plants and *A Tropical Garden Flora* (Staples & Herbst, 2005) for ornamental and agricultural plants. More recent name changes for naturalized plant species follow Imada (2019).

Avian Survey

Four avian count stations were established by AECOS biologist Bryson Luke on April 20, 2023. A single six-minute avian point-count was made at each station. Observations were accomplished with the aid of Leica 8 X 42 binoculars and by listening for vocalizations. Avian counts were conducted during the early morning hours when birds are most active. Time not spent at point-count stations was used to search the area for species and habitats not detected during the point-counts and any additional species observed are listed as “incidental sightings.” Despite heavy rain overnight, weather conditions were good, with no rain, low cloud cover, and light variable winds. Avian phylogenetic order and nomenclature used in this report follows the 62nd supplement to the AOS *Check-List of North and Middle American Birds* (Chesser et al., 2020, 2021).

Mammalian Survey

A list was made of all mammals encountered during the survey. Indicators of mammalian presence, such as tracks, scat, and other sign were noted. Mammalian phylogenetic order and nomenclature follow *Mammal Species of the World* (Wilson and Reeder, 2005).

Results

Vegetation

Most of the Project site is *kiawe* (*Prosopis pallida*) forest on karst (Figure 6), with scattered open areas where the forest has been cleared for placement of several monitoring wells, and is open grassland on the western portion.

Flora

A listing of plants recorded during the survey is presented in Table 1 and shows a total of 81 species. Seven indigenous natives were observed: ‘aki‘aki (*Sporobolus virginicus*), ‘ākulikuli (*Sesuvium portulacastrum*), kīpūkai (*Heliotropium currasavicum*), hoary abutilon (*Abutilon incanum*), `ilima (*Sida fallax*), ‘uhaloa (*Waltheria indica*), and pōpolo (*Solanum americanum*). Three



Figure 6. The Project site is mostly *kiawe* forest (top) on limestone karst (bottom).

endemic species—*maiapilo* (*Capparis sandwichiana*), *naio* (*Myoporum sandwicense* var. *stellatum*), and *kūpala* (*Sicyos pachycarpus*)—and two early Polynesian introductions—*‘ihi’ae* (*Oxalis corniculata*) and *noni* (*Morinda citrifolia*)—were recorded. The remaining 69 species are non-native (alien) species that have been naturalized or are ornamentals.

Table 1. Listing of plants observed at the Project site in Honouliuli Ahupua‘a, ‘Ewa District.

Species listed by family	Common name	Status	Abundance	Notes
<i>FLOWERING PLANTS</i>				
MONOCOTS				
POACEAE				
<i>Bothriochloa pertusa</i> (L.) A. Camus	pitted beardgrass	Nat	U	
<i>Axonopus compressus</i> (Sw.) P. Beauv.	brd-lf carpet grass	Nat	R	<2>
<i>Cenchrus ciliaris</i> L.	buffelgrass	Nat	AA	<3>
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	Nat	C	<3>
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Nat	U	<3>
<i>Cynodon x magennisii</i> Hurcomb	Bermuda hybrid	Orn	O	<2>
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass	Nat	R	
<i>Eragrostis amabilis</i> (L.) Wight & Arnott	Japanese lovegrass	Nat	R	
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	Nat	O	<3>
<i>Megathrysus maximus</i> (Jacq.) B.K. Simon & W.L. Jacobs	Guinea grass	Nat	C	
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	Nat	O	<3>
<i>Setaria verticillata</i> (L.) P. Beauv.	bristly foxtail	Nat	C	<3>
<i>Sporobolus diandrus</i> (Retz.) P. Beauv.	Indian dropseed	Nat	O	
<i>Sporobolus pyramidatus</i> (Lam.) Hitch.	rat-tail grass	Nat	R	<3>
<i>Sporobolus virginicus</i> (L.) Kunth	<i>‘aki’aki</i>	Ind	R	
<i>FLOWERING PLANTS</i>				
MAGNOLIIDS				
LAURACEAE				
<i>Cassytha filiformis</i> L.	<i>kauna’oa pehu</i>	Nat	R	

Table 1 (continued).

Species listed by family	Common name	Status	Abundance	Notes
<i>FLOWERING PLANTS</i>				
EUDICOTS				
AIZOACEAE				
<i>Asystasia gangetica</i> (L.) T. Anderson	Chinese violet	Nat	C	<3>
<i>Trianthema portulacastrum</i> L.	---	Nat	O	
<i>Sesuvium portulacastrum</i> (L.) L.	'ākulikuli	Ind	U	<3>
AMARANTHACEAE				
<i>Achyranthes aspera</i> L.	---	Nat	O	
<i>Alternanthera pungens</i> Kunth	khaki weed	Nat	C	
<i>Amaranthus lividus polygonoides</i> (Moq.) Probst	---	Nat	O	
ANACARDIACEAE				
<i>Schinus terebinthifolius</i> Raddi	Christmas berry	Nat	R	<3>
APOCYNACEAE				
<i>Nerium oleander</i> L.	oleander	Orn	R	<2>
ASCLEPIADACEAE				
<i>Stapelia gigantea</i> N. E. Brown	giant toad plant	Nat	R	
ASTERACEAE (COMPOSITAE)				
<i>Ageratum conyzoides</i> L.	<i>maile hohono</i>	Nat	O	
<i>Bidens pilosa</i> L.	<i>kī</i>	Nat	C	<3>
<i>Conyza canadensis</i> (L.) Cronquist	horseweed	Nat	U	
<i>Flaveria trinerva</i> (Spreng.) C. Mohr	---	Nat	U	
<i>Emilia fosbergii</i> Nicolson	Flora's paintbrush	Nat	R	<2>
<i>Lactuca serriola</i> L.	prickly lettuce	Nat	U	<3>
<i>Pluchea carolinensis</i> (Jacq.) G. Don	sourbush	Nat	U	<3>
<i>Pluchea indica</i> (L.) Less.	Indian fleabane	Nat	C	<3>
<i>Pluchea x fosbergii</i> Cooperr. & Galang	---	Nat	R	
<i>Sonchus oleraceus</i> L.	<i>pua'ele</i>	Nat	O	<3>
<i>Sphagneticola trilobata</i> L.	wedelia	Nat	R	<2>
<i>Tridax procumbans</i> L.	coat buttons	Nat	U	<3>
<i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	golden crown-beard	Nat	C	<3>

Table 1 (continued).

Species listed by family	Common name	Status	Abundance	Notes
BORAGINACEAE				
<i>Heliotropium currasavicum</i> L.	<i>kīpūkai</i>	Ind	U	<3>
<i>Heliotropium procumbens</i> Mill.	---	Nat	O	<3>
CAPPARACEAE				
<i>Capparis sandwichiana</i> DC.	<i>maiapilo</i>	End	U	
CARYOPHYLLACEAE				
<i>Spergularia marina</i> (L.) Griseb.	sand spurry	Nat	R	
CHENOPODIACEAE				
<i>Atriplex semibaccata</i> R. Br.	Australian saltbush	Nat	C	
<i>Atriplex suberecta</i> Verd.	---	Nat	C	<3>
<i>Chenopodium murale</i> L.	<i>'aheahea</i>	Nat	C	<3>
CONVOLVULACEAE				
<i>Ipomoea obscura</i> (L.) Ker-Gawl	---	Nat	R	<3>
<i>Merremia aegyptia</i> (L.) Urb.	hairy merremia	Nat	R	<2>
CUCURBITACEAE				
<i>Cucumis dipsaceus</i> Ehrenb. ex Spach	teasel gourd	Nat	R	
<i>Sicyos pachycarpus</i> Hook. & Arnott	<i>kūpala</i>	End	R	<1>
EUPHORBIACEAE				
<i>Euphorbia hirta</i> L.	garden spurge	Nat	U	<3>
<i>Euphorbia prostrata</i> Aiton	prostrate spurge	Nat	R	<2>
FABACEAE				
<i>Desmanthus pernambucanus</i> (L.) Thellung	virgate mimosa	Nat	R	<3>
<i>Leucaena leucocephala</i> (Lam.) de Wit	<i>koa haole</i>	Nat	A	<3>
<i>Macroptilium atropurpureum</i> (DC.) Urb.	---	Nat	R	<2>
<i>Pithecelobium dulce</i> (Roxb.) Benth.	<i>'opiuma</i>	Nat	R	<2>
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	<i>kiawe</i>	Nat	AA	<3>
LAMIACEAE				
<i>Leonotis nepetifolia</i> (L.) R. Br.	lion's ear	Nat	U	<2>
MALVACEAE				
<i>Abutilon incanum</i> (Link) Sweet	hoary abutilon	Ind	U	<3>
<i>Abutilon grandifolium</i> (Willd.) Sweet	hairy abutilon	Nat	R	<3>
<i>Malva parviflora</i> L.	cheese weed	Nat	U	<3>

Table 1 (continued).

Species listed by family	Common name	Status	Abundance	Notes
MALVACEAE (cont.)				
<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	Nat	C	<3>
<i>Sida ciliaris</i> L.	---	Nat	U	<3>
<i>Sida fallax</i> Walp.	'ilima, 'ilima papa	Ind	R	<2>
<i>Sida rhombifolia</i> L.	---	Nat	R	
<i>Sida spinosa</i> L.	prickly sida	Nat	R	<3>
<i>Sidastrum micranthum</i> (A. St.-Hil.) Fryxell	---	Nat	R	
<i>Waltheria indica</i> L.	'uhaloa	Ind	A	<3>
MORACEAE				
<i>Ficus microcarpa</i> L. Fil.	Chinese banyan	Nat	R	<2>
MYOPORACEAE				
<i>Myoporum sandwicense</i> var. <i>stellatum</i> G. L. Webster	naio	End	A	
NYCTAGINACEAE				
<i>Boerhavia coccinea</i> Mill.	false alena	Nat	R	<2>
<i>Bougainvillea spectabilis</i> Wild.	bougainvillea	Orn	-	<2>
OXALIDACEAE				
<i>Oxalis corniculata</i> L.	yellow wood sorrel, 'ihi'ae	Pol	U	
PASSIFLORACEAE				
<i>Passiflora foetida</i> L.	love-in-a-mist	Nat	R	
<i>Passiflora suberosa</i> L.	huehue haole	Nat	U	
POLYGONACEAE				
<i>Coccoloba uvifera</i> (L.) L.	sea grape	Orn	-	<2>
PORTULACACEAE				
<i>Portulaca oleracea</i> L.	pigweed	Nat	U	<3>
RUBIACEAE				
<i>Morinda citrifolia</i> L.	noni	Pol	R	
SOLANACEAE				
<i>Nicotiana glauca</i> R.C. Graham	tree tobacco	Nat	R	
<i>Solanum americanum</i> Mill.	pōpolo	Ind	U	<3>
<i>Solanum lycopersicum</i> var. <i>cerasiforme</i> (Duval) Spooner, G.J. Anderson, & R.K. Jansen	cherry tomato	Nat	U	<3>
VERBENACEAE				
<i>Stachytarpheta australis</i> Jacq.	vervain	Nat	R	<2>

Table 1 (continued).

Legend to Table 1

STATUS = distributional status for the Hawaiian Islands:

End - endemic; native to Hawaii and found naturally nowhere else.

Ind - indigenous; native to Hawai'i, but not unique to the Hawaiian Islands.

Nat - naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of the Cook Expedition in 1778, and well-established outside of cultivation.

Orn - exotic, ornamental or cultivated; plant not naturalized (not well established outside of cultivation).

Pol - Polynesian introduction before 1778.

ABUNDANCE = occurrence ratings for plants by area:

R - Rare seen in only one or perhaps two or three times.

U - Uncommon seen at most in several locations.

O - Occasional seen with some regularity.

C - Common observed numerous times during the survey.

A - Abundant found in large numbers; may be locally dominant.

AA - Very abundant abundant and dominant; defining vegetation type.

NOTES:

<1> Plant a juvenile or lacking flowers or fruit; identification therefore uncertain.

<2> Plant recorded only aslong 'Ōla'i Street R-o-W.

<3> Plant recorded in both 'Ōla'i Street R-o-W elsewhere in the Project area.

Avian Fauna

A total of 120 individual birds of 13 species representing 9 different families were recorded from four count stations at the Project site (Table 2). Six additional species were observed outside of the timed counts and listed as incidental observations, including two indigenous species—*ae'o* or Hawaiian Black-necked Stilt (*Himantopus Mexicanus knudseni*) and *'auku'u* or Black-crowned Night-Heron (*Nycticorax nycticorax*)—and one indigenous, migratory species *kōlea* or Pacific Golden-Plover (*Pluvialis fulva*). The remaining three incidental sightings were non-native species: Eurasian skylark (*Alauda arvensis*), Red-whiskered Bulbul (*Pycnonotus jocosus*), and Northern Mockingbird (*Mimus polyglottos*).

**Table 2. Avian species detected at the Project site
in Honouliuli Ahupua'a, 'Ewa District.**

Common Name	ORDER FAMILY <i>Species</i>	Status	Relative Abundance
	GALLIFORMES		
	PHASIANIDAE		
Gray Francolin	<i>Francolinus pondicerianus</i>	NN	1.8
	COLUMBIFORMES		
	COLUMBIDAE		
Spotted Dove	<i>Streptopelia chinensis</i>	NN	1.5
Zebra Dove	<i>Geopelia striata</i>	NN	1
	CHARADRIIFORMES		
	RECURVIROSTRIDAE		
Hawaiian Black-necked Stilt, <i>ae'o</i>	<i>Himantopus Mexicanus</i> <i>knudseni</i>	I	†
	CHARADRIIDAE		
Pacific Golden-Plover, <i>kōlea</i>	<i>Pluvialis fulva</i>	IM	†
	PELECANIFORMES		
	ARDEIDAE		
Black-crowned Night- Heron, <i>'auku'u</i>	<i>Nycticorax nycticorax</i>	I	†
	PASSERIFORMES		
	ALAUDIDAE		
Eurasian Skylark	<i>Alauda arvensis</i>	NN	†
	PYCNONOTIDAE		
Red-vented Bulbul	<i>Pycnonotus cafer</i>	NN	1.3
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	NN	†
	ZOSTEROPIDAE		
Warbling White-eye	<i>Zosterops japonicus</i>	NN	4.5
	MIMIDAE		
Northern Mockingbird	<i>Mimus polyglottos</i>	NN	†
	MUSCICAPIDAE		
White-rumped Shama	<i>Copsychus malabaricus</i>	NN	0.5

Table 2 (continued).

Common Name	ORDER	Status	Relative Abundance
	FAMILY <i>Species</i>		
	ESTRILDIDAE		
Common Waxbill	<i>Estrilda astrild</i>	NN	4
African Silverbill	<i>Euodice cantans</i>	NN	7.8
Java Sparrow	<i>Padda oryzivora</i>	NN	0.3
	FRINGILLIDAE		
House Finch	<i>Haemorhous mexicanus</i>	NN	2.3
	CARDINALIDAE		
Northern Cardinal	<i>Cardinalis cardinalis</i>	NN	2
	THRAUPIDAE		
Red-crested Cardinal	<i>Paroaria coronata</i>	NN	2.8
Saffron Finch	<i>Sicalis flaveola</i>	NN	0.5

Legend to Table 2

Status:**I = Indigenous****IM = Indigenous, migratory species.**

NN = Naturalized, non-native species (introduced).

Relative Abundance: Species count / number of point-count stations (n=4).

† = Incidental observation, observed outside the timed count.

Avian diversity and densities were in keeping with the *kiawe* forest at the site. The three most abundant species—Common Waxbill (*Estrilda astrild*), Warbling White-eye (*Zosterops japonicus*), and African Silverbill (*Euodice cantans*)—account for 54% of all birds recorded during station counts. All the species recorded during station counts are non-native (alien) species, naturalized in the Hawaiian Islands.

Mammals

We observed domestic dog (*Canis lupis familiaris*), domestic cat (*Felis catus*), and small Asian mongoose (*Herpestes javanicus*) during our survey.

Discussion and Recommendations

Recommendations presented here are partly based on U.S. Fish and Wildlife Service Animal Avoidance and Minimization Measures (USFWS-PIFWO, 2022a,b). Implementation of the recommendations (provided below as bulleted items) by the contractor during construction in the areas will minimize impacts to listed species to the maximum extent practicable.

The USFWS Information for Planning and Consultation (IPaC), pursuant to Section 7 of the Endangered Species Act, fulfills the requirement for Federal agencies to “request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action.” The IPaC species list for the Project area, generated on May 2, 2023, lists 18 federally listed threatened or endangered species, consisting of one mammal, eight birds, one reptile, and eight flowering plants (USFWS, nd-b) and is included here as Attachment A.

Floral Resources

Of a total of 81 species recorded in the survey area, 69 (85%) are non-native, two (2.5%) are early Polynesian introductions, and 10 (12.5%) are native. None of the IPaC species potentially occurring in the survey area was observed. Considering the native species, three species are endemics, native to the Hawaiian Islands and found naturally nowhere else. These are *naio* (*Myoporum sandwicense* var. *stellatum*), *maiapilo* (*Capparis sandwichiana*), and *kūpala* (*Sicyos pachycarpus*). Only a few *kūpala* plants were observed. This species typically is most abundant in the wet season, the vines withering back to perennial rootstocks in the dry season. The small number present in May in an area where this species should be fairly abundant, is a concern.

No plant species proposed for listing or listed as endangered or threatened under either federal or state of Hawai‘i endangered species statutes (HDLNR, 1998; USFWS, nd-b) were recorded during the course of our survey. However, the *naio* variety, *stellatum* (as *Myoporum stellatum* in Char, 2002), is found only in this part of the ‘Ewa Plain and should be treated as worthy of conservation status. *Maiapilo* is listed as “vulnerable” by the IUCN (Caraway, 2020).

Our results did not significantly differ from those of Char (2002). While Char listed *maiapilo* as locally abundant, we found it to be uncommon. Generally, we observed less cheese weed (*Malva parviflora*), *Achyranthes aspera*, ‘*ahaehea* (*Chenopodium murale*), Australian saltbush (*Atriplex semibaccata*), and *kauna’oa pehu* (*Cassytha filiformis*). Char acknowledged *naio* (*Myoporum*

stellatum) as a species of concern due to its endemic nature on the 'Ewa Plain. We observed this species in abundance, but we would repeat the recommendation of Char & Associates to incorporate it, along with *maiapilo*, into the landscaping of the property to the extent possible.

Avian Resources

Seabirds

Protected night-flying seabirds include Hawaiian Petrel (*Pterodroma sandwichensis*), Wedge-tailed Shearwater (*Ardenna pacifica*), Newell's Shearwater (*Puffinus newelli*), Band-rumped Storm-petrel (*Hydrobates castro*), and Short-tailed Albatross (*Phoebastria albatrus*). Hawaiian Petrel, Newell's Shearwater, and Band-rumped Storm-petrel nest in high-elevation mountainous habitat; Hawaiian Petrel and Newell's Shearwater have recently been detected on the Island of O'ahu (Young et al. 2019). Short-tailed Albatross (*Phoebastria albatrus*) have not been detected on any of the main Hawaiian Islands, though there is one nesting pair on Midway Atoll (USFWS, 2020). In the summer and fall, nocturnally flying seabirds (especially fledglings) transiting to the sea from inland locations can become disoriented by exterior lighting. When disoriented, seabirds can collide with man-made structures or the ground. If not killed outright, dazed or injured birds are easy targets of opportunity for feral mammals (Podolsky et al., 1998; Ainley et al., 2001; Day et al., 2003). The primary cause of mortality in both Hawaiian Petrel and Newell's Shearwater is predation by alien mammalian species at the nesting colonies (Ainley et al., 2001). Collision with man-made structures is considered the second most significant cause of mortality of these seabirds in Hawai'i.

- Deleterious impacts to transiting seabirds can be avoided if construction occurs during daylight hours only and all outdoor lighting installed for the Project or associated construction activities be fully "dark sky compliant" (HDLNR-DOFAW, 2016).

White Tern (*Gygis alba*), or *manu o Kū*, is an indigenous seabird listed as threatened under State of Hawai'i endangered species statute, HRS 195D (HDLNR, 2015). No individuals of White Tern were observed during this survey. In the main Hawaiian Islands, the majority of White Tern population is found in central urban and suburban Honolulu, with a known breeding range extending from Niu Valley to Hickam Air Force Base (VanderWerf and Downs, 2018). White Tern nesting at the Project site is doubtful, as the Project is well outside of the species known range.

Like Bruner (2002), we only recorded non-native species during our timed counts. However, we observed two indigenous species as incidentals: the *ae'o* or Hawaiian Black-necked Stilt (*Himantopus Mexicanus knudseni*) and 'auku'u or Black-crowned Night-Heron (*Nycticorax nycticorax*). Like Bruner, we recorded the indigenous, migratory species *kōlea* or Pacific Golden-Plover (*Pluvialis fulva*) in the Project area, though we did not observe Wandering Tattler (*Heteroscelus incanus*) that was seen by Bruner.

Mammalian Resources

Domestic dog (*Canis lupis familiaris*), domestic cat (*Felis catus*), and small Asian mongoose (*Herpestes javanicus*) were sighted during the survey. It is likely that feral pig and any of the four alien Muridae (rats and mice) currently established on the Island of O'ahu, utilize the Project to some extent. Besides our inclusion of domestic dog, we recorded the same mammals observed by Bruner (2002). With the exception of the endangered Hawaiian hoary bat, all terrestrial mammals are alien species detrimental to native Hawaiian ecosystems.

Hawaiian Hoary Bat

It is possible that the native Hawaiian hoary bat or 'ōpe'ape'a (*Lasiurus cinereus semotus*) uses resources within the Project vicinity. The species is solitary and rare but with a wide spread distribution on O'ahu. The principal potential impact of the Project to bats would occur when site vegetation is cleared and grubbed.

This species of bat uses multiple roosts within a home territory (Bonaccorso, 2015), so the disturbance associated with removal of any particular tree would be minimal. However, an exception would be during the pupping season, when a female bat carrying a pup may be unable to rapidly vacate a roost tree that is being felled; or, an unattended pup is unable to flee a tree that is being felled. The following mitigation measures are recommended.

- Potential adverse impacts to Hawaiian hoary bat can be avoided or minimized by not clearing woody vegetation taller than 15 ft (4.6 m) between June 1 and September 15, the bat pupping season.
- Do not use barbed wire for any fencing.

Other Resources of Potential Concern

Marine Resources

While the Project site is not immediately adjacent to the marine shoreline, the drainage canal along the eastern border of the property connects to the Pacific Ocean. No construction or activities of any kind are proposed for the canal, but it is important to note that we observed several *honu*, or Green Sea Turtles (*Chelonia mydas*), swimming in this feature. The Central North Pacific Distinct Population Segment (DPS) of the Green Sea Turtle is listed as Threatened (USFWS, 2016b), and potential impacts of the Project on this species include contaminant and nutrient runoff as well as disorientation by lights.

- Remove any project-related debris, trash, or equipment from the beach or dune if not actively being used. Do not stockpile project-related materials in the intertidal zone, reef flats, or stream channels.
- Avoid night-time work during the nesting and hatching season. Inland areas visible from the beach should be sufficiently dark to allow for successful navigation to the ocean. Minimize the use of lighting and shield all project-related lights so the light is not visible from any beach. If lights can't be fully shielded or if headlights must be used, fully enclose the light source with light filtering tape or filters.

Critical Habitat

Federal critical habitat established for 16 listed species, designated "Lowland Dry" habitat ("Unit 9"; USFWS, 2012), extends into the Project area (see Figure 7; USFWS, nd-a). These species are shown in Attachment A (IPaC list) under the Critical Habitat section. The primary constituent elements (PCEs) for this critical habitat are outlined in Table 3. In the table, PCEs that match the Project site based on our observations are shown in bold type. Elevation above sea level at the project site is negligible, and the nearest climate normal station, "EWA KALAELOA AP," reports an average of 353 mm (13.9 in) of rain a year from a 30-year average (1991-2020; NOAA-NCEI, 2021). The mapped soil type is coral outcrop (CR; USDA-NCRS, 2022), a well-drained calcareous substratum that also meets a unique soil type for *Euphorbia (Chamaesyce) skottsbergii* var. *skottsbergii*. Our survey revealed that the site supports viable populations of the following native plant genera: *Myoporum*, *Sesuvium*, *Sicyos*, *Sida*, *Sporobolus*, and *Waltheria*. However, none of the 16 species included in critical habitat designation for the unit (USFWS, 2012, 2016a, and 2018) were observed during our survey of the Project site.

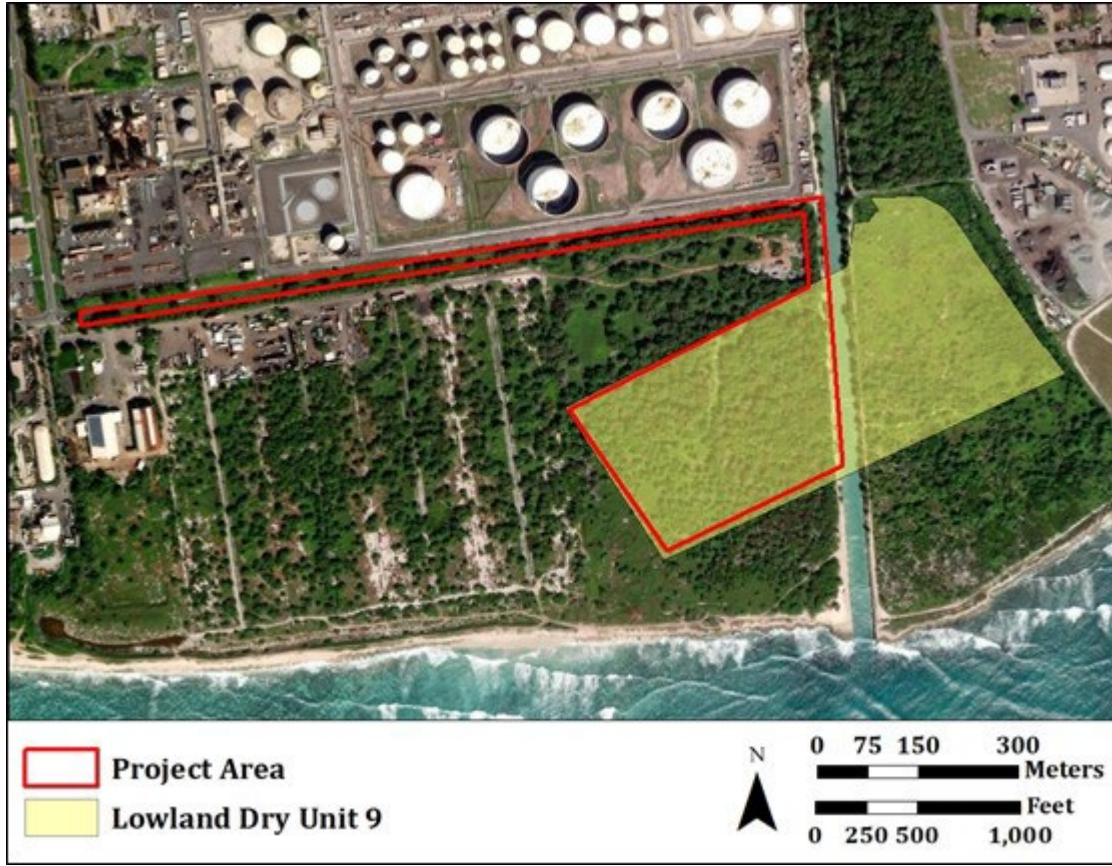


Figure 7. Critical habitat (yellow) overlap on the Project area (outlined in red).

Immediately adjacent on the south to Unit 9 and the Project site is another critical habitat designated “Unit 15 Oahu-Coastal” habitat. The karst substratum occupying much of the southeastern half of the Project site fits better, in terms of PCEs, with this critical habitat unit, so we have included it in Table 3. The species for which this unit is designated critical habitat for our included in the IPaC list in Attachment A.

The list of species provided by IPaC is not an indication that any of the species actually occurs here. USFWS designates critical habitat and IPaC lists species based on real or imagined historical distributions and on the likelihood that a species might occur, not that it presently does. The ESA protects extant species; critical habitat protects an environment with potential habitat characteristics (the PCEs) for one or more listed species. Our survey is conducted with these species in mind and, whereas a negative result is not proof that a particular species has no individuals present within the survey area, it provides strong indication that such is the case.

Table 3. Primary constituent elements (PCEs) for the Lowland Dry and Coastal ecosystem units; adapted from USFWS (2012).

		Lowland Dry	Coastal
Elevation		< 1,000 m (3,300 ft)	< 300 m (980 ft)
Annual Precipitation		< 1,300 cm (50 in)	<50 cm (20 in)
Substrate		Weathered silty loams to stony clay, rocky ledges , little-weathered lava	Well-drained calcareous , talus slopes; weathered clay soils; ephemeral pools; mudflats
Capable of Supporting Viable Populations of Native Plant Genera	Canopy	<i>Diospyros</i> , <i>Myoporum</i> , <i>Pleomele</i> , <i>Santalum</i> , <i>Sapindus</i> ,	<i>Hibiscus</i> , <i>Myoporum</i> , <i>Santalum</i> , <i>Scaevola</i>
	Subcanopy	<i>Chamaesyce</i> , <i>Dodonaea</i> , <i>Leptecophylla</i> , <i>Osteomeles</i> , <i>Psydrax</i> , <i>Scaevola</i> , <i>Wikstroemia</i> ,	<i>Gossypium</i> , <i>Sida</i> , <i>Vitex</i>
	Understory	<i>Alyxia</i> , <i>Artemisia</i> , <i>Bidens</i> , <i>Chenopodium</i> , <i>Nephrolepis</i> , <i>Peperomia</i> , <i>Plumbago</i> , <i>Sicyos</i> , <i>Sida</i> , <i>Waltheria</i>	<i>Eragrostis</i> , <i>Jacquemontia</i> , <i>Lyceum</i> , <i>Nama</i> , <i>Sesuvium</i> , <i>Sporobolus</i> , <i>Vigna</i>

Bold items are items present at the Project site.

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Attachment A: USFWS IPaC Species list for the Kalaeloa Desalination Project site (USFWS, nd-c).

Species	Common Name	Status	Critical Habitat	Notes
MAMMALS				
<i>Lasiurus cinereus semotus</i>	Hawaiian Hoary Bat	Endangered	Critical habitat has not been designated for this species.	May forage within Project area and roost in trees. Not observed in survey. See text for avoidance and minimization measures.
BIRDS				
<i>Anas wyvilliana</i>	<i>Koloa</i> , Hawaiian Duck	Endangered	Critical habitat has not been designated for this species.	Other than on Kaua'i, most Hawaiian Duck observed are Hawaiian Duck-Mallard hybrids (USFWS, 2011; USFWS-PIFWO, 2013), which are not protected under ESA on Oahu. Not observed in survey. No habitat present for this species.
<i>Fulica alai</i> ¹	Hawaiian Coot	Endangered	Critical habitat has not been designated for this species.	Not observed in survey. No habitat present for this species.
<i>Gallinula galeata sandvicensis</i>	Hawaiian Common Gallinule	Endangered	Critical habitat has not been designated for this species.	Not observed in survey. No habitat present for this species.
<i>Himantopus mexicanus knudseni</i>	Hawaiian Stilt	Endangered	Critical habitat has not been designated for this species.	Not observed in survey. No habitat present for this species.

¹ The Hawaiian Coot, formerly a sub-species of the American Coot (*Fulica americana alai*) was elevated to full species (*Fulica alai*) status in 1993 by the American Ornithological Union (AOU).

Species	Common Name	Status	Critical Habitat	Notes
<i>Loxops coccineus</i>	Hawai'i Akepa	Endangered	Critical habitat has not been designated for this species.	A forest bird found only on the Island of Hawai'i. Not observed in survey.
<i>Hydrobatis castro</i> ²	Akeake, Band-rumped Storm-petrel	Endangered	Critical habitat has not been designated for this species.	Hawai'i DPS forages throughout the Pacific Ocean; no nesting sites confirmed on O'ahu. Not observed in survey. May fly over during nesting season. No habitat present for this species.
<i>Pterodroma sandwichensis</i>	Hawaiian Petrel	Endangered	Critical habitat has not been designated for this species.	May fly over during nesting season. Not observed in survey. No habitat present for this species.
<i>Puffinus newelli</i> ³	Newell's Shearwater	Threatened	Critical habitat has not been designated for this species.	May fly over during nesting season. Not observed in survey. No habitat present for this species.
<i>Phoebastria albatrus</i>	Short-tailed Albatross	Endangered	Critical habitat has not been designated for this species.	Only one breeding pair is known on Midway Atoll. Not found on any of the main Hawaiian Islands. Not observed in survey.

² The scientific name of this species was changed from *Oceanodroma castro* to *Hydrobatis castro* by the AOU in 2019 (Chesser et. al. 2019).

³ The common and scientific name of this species were changed from *Puffinus auricularis newelli* by the AOU to Newell's Shearwater (*Puffinus newelli*) in 2015 (Chesser et. al., 2015).

Species	Common Name	Status	Critical Habitat	Notes
REPTILES				
<i>Chelonia mydas</i>	Green Sea Turtle	Threatened	Critical habitat has not been designated for this species.	Central North Pacific DPS found in shallow waters inside reefs, bays, and inlets. Observed outside of Project area. See text for avoidance and minimization measures.
PLANTS				
<i>Achyranthes splendens</i> var. <i>rotundata</i>	Round-leaved Chaff-flower	Endangered	Overlaps Project site.	Currently only found on O‘ahu. Occurs in the Kalaeloa Unit of the Pearl Harbor National Wildlife Refuge Complex (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Euphorbia celastroides</i> var. <i>kaenana</i>	‘Akoko	Endangered	Overlaps Project site.	Occurs in coastal dry shrubland on windward talus slopes (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Euphorbia skottsbergii</i> var. <i>skottsbergii</i>	‘Akoko	Endangered	Overlaps Project site.	Occurs in coastal dry shrublands with calcareous substrate or thin soil pockets on ‘Ewa Plain, O‘ahu (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Portulaca villosa</i>	<i>Ihi</i>	Endangered	Critical habitat has not been designated for this species.	Occurs in dry, rocky, clay, lava, or coralline reef sites. Currently found on Moloka‘i, Maui, Kahoolawe, and Hawai‘i Island. Not observed in survey.

Species	Common Name	Status	Critical Habitat	Notes
<i>Pseudognaphalium sandwicense</i> var. <i>molokaiense</i>	'Ena'ena	Endangered	Critical habitat has not been designated for this species.	Historically found on O'ahu, currently only found on Moloka'i and the northwest coast of Maui. Not observed in survey.
<i>Scaevola coriacea</i>	Dwarf Naupaka	Endangered	Critical habitat has not been designated for this species.	Historically found on O'ahu, currently only found on Moloka'i and Maui. Not observed in survey.
<i>Sesbania tomentosa</i>	Ohai	Endangered	Critical habitat has not been designated for this species.	Found on sandy beaches, dunes, or pond margins. Commonly occurs in coastal dry shrublands or mixed coastal dry cliffs. Not observed in survey.
<i>Solanum nelsonii</i>	Pōpolo	Endangered	Critical habitat has not been designated for this species.	Typically grows on coral rubble or sand in coastal sites. Currently only found on Hawai'i Island and Moloka'i. Not observed in survey.
CRITICAL HABITAT – Lowland Dry				
<i>Achyranthes splendens</i> var. <i>rotundata</i>	Round-leaved Chaff-flower	Endangered	Overlaps Project site.	Only found on O'ahu. Occurs in the Kalaeloa Unit of the Pearl Harbor National Wildlife Refuge Complex (77 FR 57647, Sep. 18, 2012). Not observed in survey.

Species	Common Name	Status	Critical Habitat	Notes
<i>Bidens amplexans</i>	<i>K'oko'olau</i>	Endangered	Overlaps Project site.	Found on cliffs and talus slopes in lowland dry shrubland dominated by <i>alahee</i> (<i>Psydrax odorata</i>), <i>naio</i> (<i>Myoporum sandwicense</i>), and <i>ilima</i> (<i>Sida fallax</i>). Currently found on northwestern (windward) side of Waianae Range (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Bonamia menziesii</i>	No common name	Endangered	Overlaps Project site.	Occurs in dry and mesic to wet forest with <i>koa</i> (<i>Acacia koa</i>), <i>lama</i> (<i>Diospyros spp.</i>), and Hawaiian heather (<i>Leptecophylla tameiameia</i> ; 81 FR 17789, Mar. 30, 2016). Not observed in survey.
<i>Euphorbia celastroides</i> var. <i>kaenana</i>	<i>'Akoko</i>	Endangered	Overlaps Project site.	Occurs in coastal dry shrubland on windward talus slopes (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Euphorbia haeleeleana</i>	<i>'Akoko</i>	Endangered	Overlaps Project site.	Occurs in dry to mesic <i>Ionomea</i> (<i>Sapindus oahuensis</i>)- <i>wiliwili</i> (<i>Erythrina sandwicensis</i>)- <i>ohe ohe</i> (<i>Polyscias sandwicensis</i>)- <i>lama</i> (<i>Diospyros sp.</i>) forest (77 FR 57647, Sep. 18, 2012). Not observed in survey.

Species	Common Name	Status	Critical Habitat	Notes
<i>Euphorbia skottsbergii</i> var. <i>skottsbergii</i>	'Akoko	Endangered	Overlaps Project site.	Occurs in coastal dry shrublands with calcareous substrate or thin soil pockets on 'Ewa Plain, O'ahu (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Gouania meyenii</i>	No common name	Endangered	Overlaps Project site.	Occurs on moderate to steep slopes in dry or mesic shrubland and lowland forest. Currently found in Makaha (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Gouania vitifolia</i>	No common name	Endangered	Overlaps Project site.	Occurs on dry, rocky ridges and slopes in dry shrubland or dry to mesic forest. Currently found on the slopes of Waianae Kai Ridge (81 FR 17789, Mar. 30, 2016). Not observed in survey.
<i>Hibiscus brackenridgei</i>	Ma'o Hau Hele	Endangered	Overlaps Project site.	<i>Hibiscus brackenridgei</i> ssp. <i>Mokuleianus</i> occurs in the Waianae Range (81 FR 17789, Mar. 30, 2016). Not observed in survey.
<i>Isodendrion pyriform</i>	Wahine Noho Kula	Endangered	Overlaps Project site.	Occurs in dry to mesic forests at low elevations. Currently only found on Hawai'i Island (83 FR 42362, Aug. 20, 2018). Not observed in survey.
<i>Melanthera tenuifolia</i>	Nehe	Endangered	Overlaps Project site.	Occurs only in the Waianae mountains on O'ahu (77 FR 57647, Sep. 18, 2012). Not observed in survey.

Species	Common Name	Status	Critical Habitat	Notes
<i>Neraudia angulata</i>	No common name	Endangered	Overlaps Project site.	Occurs on slopes, ledges, or gulches in diverse mesic forest dominated by <i>lama</i> (<i>Diospyros spp.</i>). Currently found in the Waianae mountains (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Nototrichium humile</i>	<i>Kulu'i</i>	Endangered	Overlaps Project site.	Occurs on cliff faces, gulches, or steep slopes in remnants of open dry forest. Currently found at Makaha, Punapohaku, Makua, and Kahanahaiki (81 FR 17789, Mar. 30, 2016). Not observed in survey.
<i>Schiedea hookeri</i>	No common name	Endangered	Overlaps Project site.	Usually found in diverse mesic or dry lowland forest. Currently found in the Waianae Range (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Schiedea kealiae</i>	<i>Ma'oli'oli</i>	Endangered	Overlaps Project site.	Found on steep slopes and cliff faces and bases in dry remnant <i>Erythrina sandwicensis</i> forest. Currently found in the Waianae Range (77 FR 57647, Sep. 18, 2012). Not observed in survey.
<i>Spermolepis hawaiiensis</i>	No common name	Endangered	Overlaps Project site.	Typically grows on steep to vertical cliffs or at the base of cliffs and ridges in coastal dry cliff vegetation (81 FR 17789, Mar. 30, 2016). Not observed in survey.



United States Department of the Interior



BUREAU OF RECLAMATION
Southern California Area Office
27226 Via Industria, Suite A
Temecula, CA 92590

IN REPLY REFER TO:
LCB-2631
2.1.1.04

JUN 20 2023

Elise Nord
Groundwater Protection Section
USEPA Region 9 (WTR 4-2)
75 Hawthorne St
San Francisco, CA 94105

Subject: Kalealoha Ocean Desalination Facility, Oahu, Hawaii

Dear Elise Nord:

The Bureau of Reclamation is providing federal funds to the Honolulu Board of Water Supply for a proposed ocean desalination project on Oahu, Hawaii. The project site is located within the Southern Oahu Basal Aquifer, an EPA-designated sole source aquifer. A sole source aquifer information checklist is enclosed for your review.

The project includes deep intake wells in the Basalt Aquifer for saltwater extraction and a shallower injection well for brine disposal to the lower Caprock Aquifer. The injection well is subject to regulation by the Hawaii State Department of Health under their Underground Injection Control (UIC) program. The proposed project will not contaminate or endanger the sole source aquifer.

The Kalealoha desalination site is seaward (*makai*) of the State's "UIC Line." The underlying aquifer is not considered a drinking water source. The injection well will be registered with the Hawaii UIC program. Bureau of Reclamation staff conclude that the action appears to comply with federal UIC regulations: the injection well will be registered and will not contaminate underground sources of drinking water.

We appreciate the guidance provided by EPA staff. If you need additional information for the sole source aquifer review or for federal UIC program compliance, please contact Doug McPherson, Environmental Protection Specialist, at (951) 695-5314 or dmcpherson@usbr.gov.

Sincerely,

John E. Simes, Jr.
Area Manager

Enclosure

INTERIOR REGION 8 • LOWER COLORADO BASIN

ARIZONA, CALIFORNIA*, NEVADA*

* PARTIAL

cc: Barry Usagawa
Honolulu Board of Water Supply
630 S. Beretania St.
Honolulu, HI 96843-0001

Safe Drinking Water Branch
Environmental Management Division
Hawaii State Department of Health
2385 Waimano Home Road, Suite 110
Uluakupu Building 4
Pearl City, HI 96782-1400

Sole Source Aquifer Project Review Information

Responses to 1-14 below will assist the EPA's Sole Source Aquifer (SSA) Program in evaluating whether proposed projects have the potential to contaminate a sole source aquifer. EPA may request additional information as necessary.

1. Provide: location of project, map, and name of sole source aquifer.

The City and County of Honolulu Board of Water Supply (BWS) plans on constructing the proposed desalination treatment facility (Facility) on 20 acres of land it acquired from the Federal government's Department of Health (DOH) and Human Services, through a public conveyance in early 2000 as part of the Barber's Point Naval Base Realignment and Closure (BRAC) program. By building the facility at this location, BWS avoids having to spend funds purchasing land elsewhere (see Figure 1).

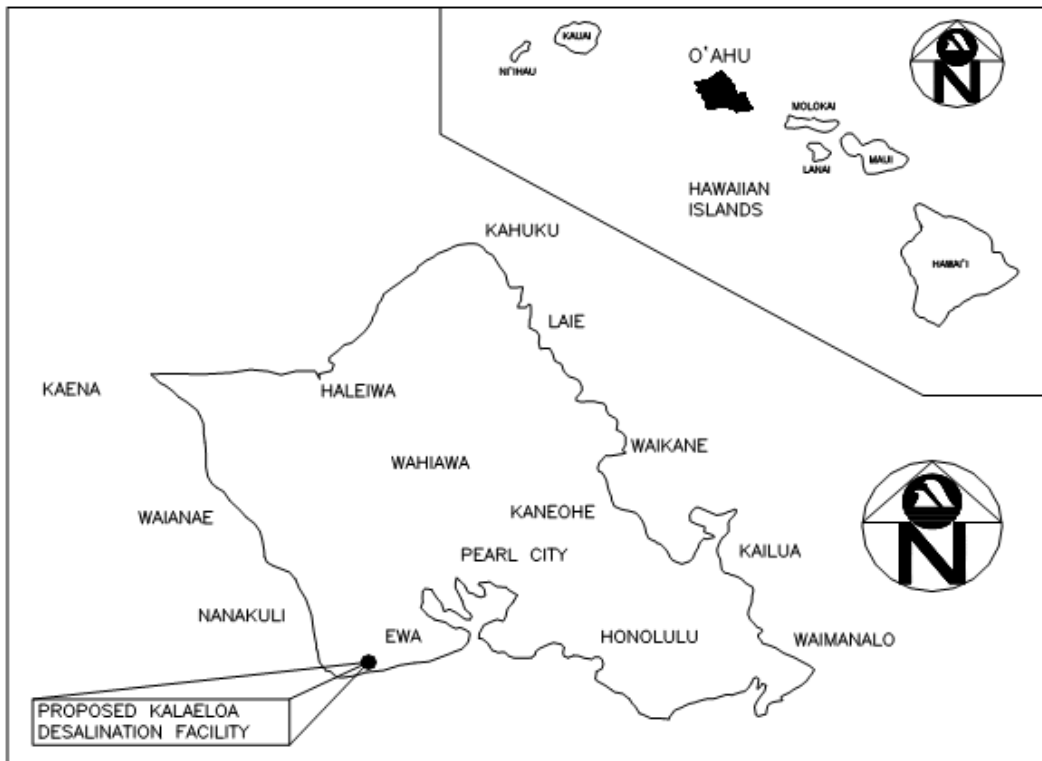


Figure 1. General location of the proposed Kalaeloa desalination facility

The proposed Project will be constructed within the Oahu Sole Source Aquifer (see Figure 2).

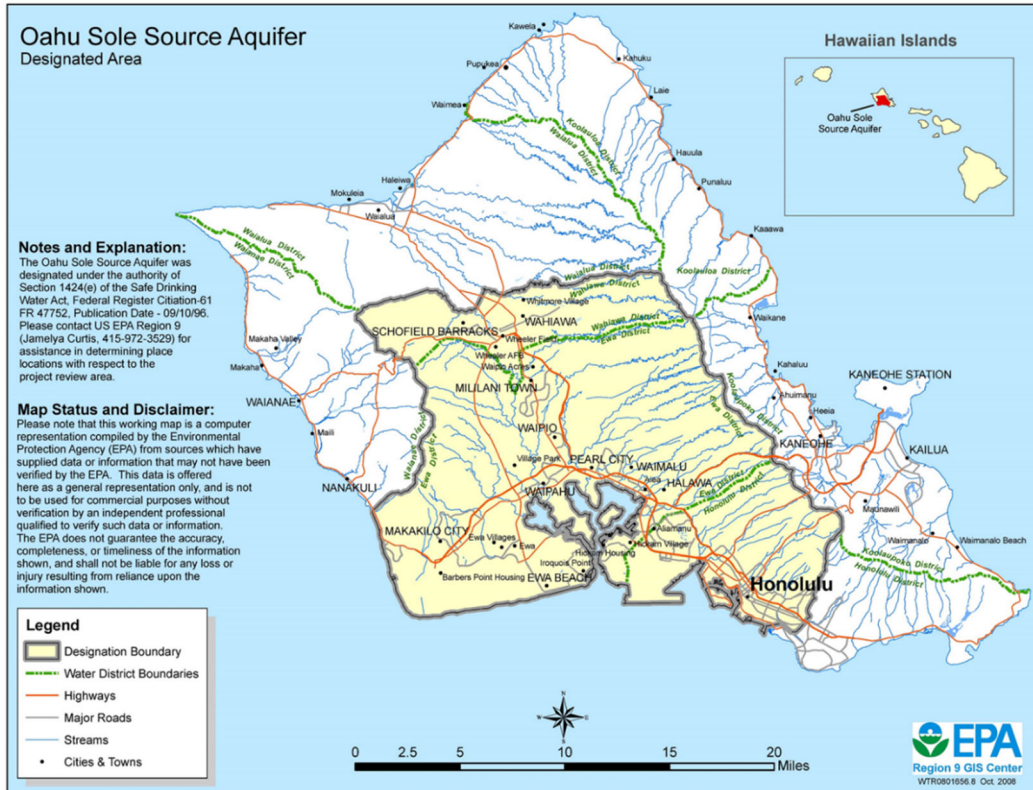


Figure 2. Oahu Sole Source Aquifer

The proposed Project is not expected to contaminate the Oahu Sole Source Aquifer. The Facility will draw source water from two deep (1,600 and 2,100 ft deep, respectively) basalt aquifer (BA) saltwater wells. These wells are located near the coastline and do not form part of the drinking water aquifer. The freshwater water aquifer exists in the central part of the island but does not extend to the coast. The boundary between non-drinking water aquifers and underground sources of drinking water is generally referred to as the Underground Injection Control line (UIC Line) (see Figure 3). The area below the UIC line is not considered a drinking water source and allows for the disposal of waste (permit is required). This boundary was established to protect the quality of Hawaii's underground sources of drinking water from chemical, physical, radioactive, and biological contamination.

The separation between the freshwater aquifer and the salt water along the coast is further displayed in Figure 4. The caprock basalt layer is highly restrictive and does not allow the freshwater aquifer from the central part of the island to leak into the coast. This caprock layer helps create a thick freshwater lens from which drinking water is pumped.

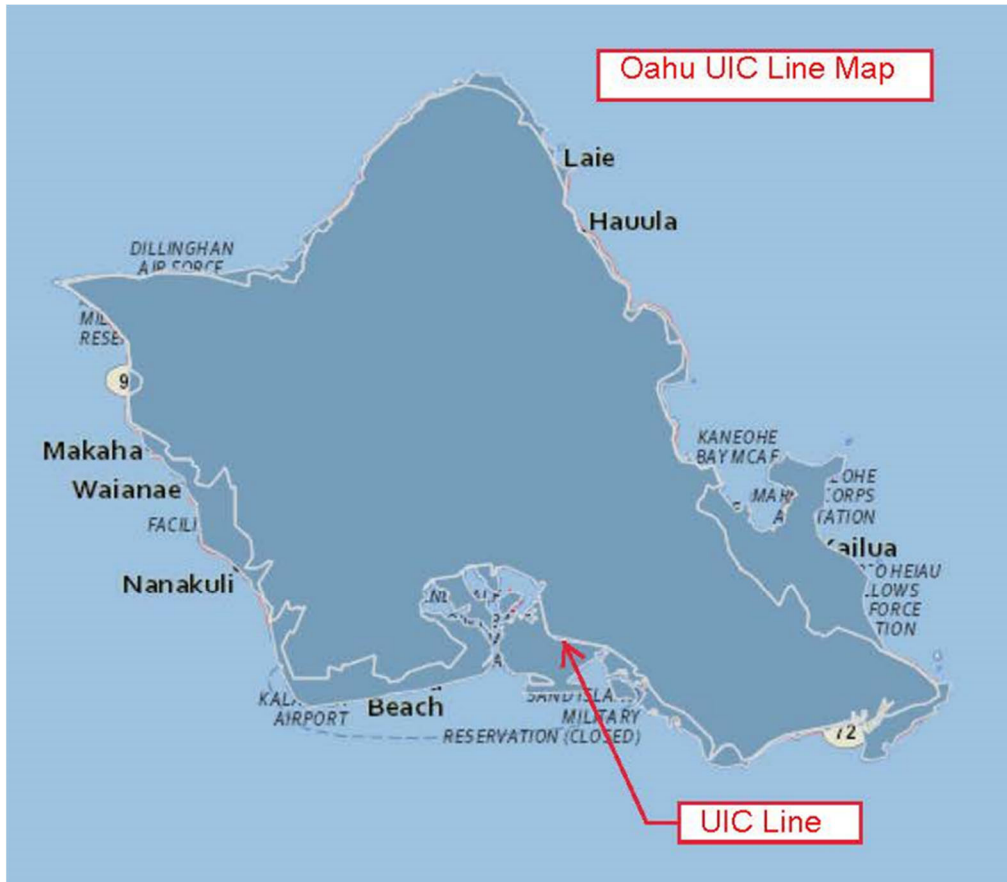


Figure 3. Oahu's Underground Injection Control Line

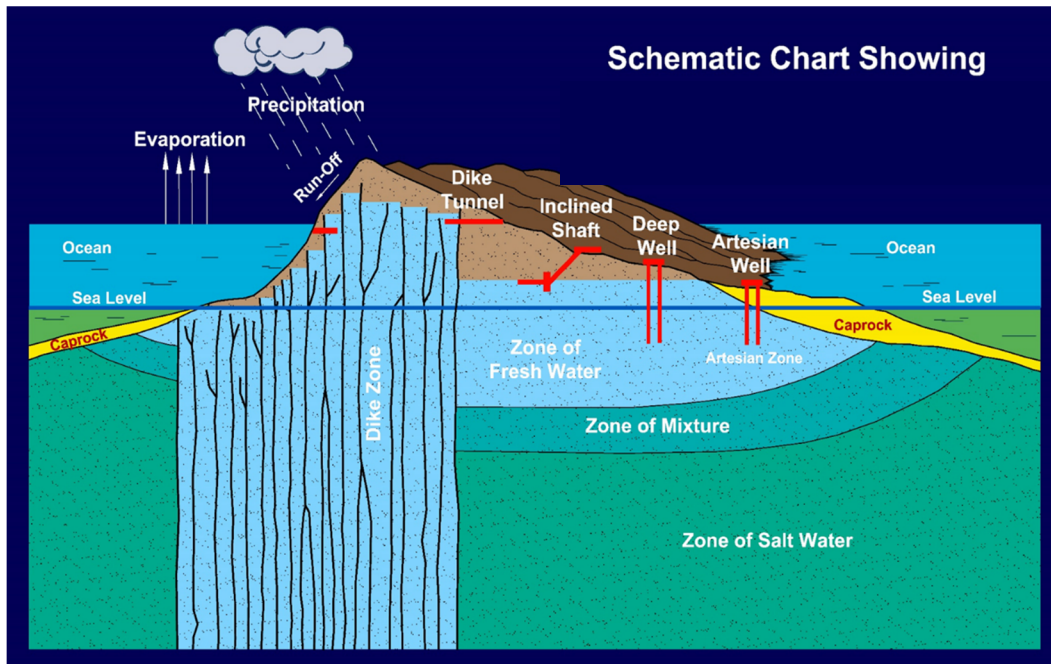


Figure 4. Cross-section of the water table and aquifers

2. Provide: project description and federal funding source (e.g., Federal Highway Administration, Housing and Urban Development etc.)

The proposed Facility will produce 1.7 million gallons per day (mgd) of potable water with provisions for future expansion to 5 mgd. The Project goal is to provide high quality sustainable potable water to meet the water needs of the Ewa District during periods of drought for climate change resilience, and to reduce water transfers from Central Oahu to Ewa. The entire Project will include administration and treatment buildings, source water wells, pretreatment facilities, RO facilities, post-treatment facilities, a water transmission main, brine disposal facilities (injection wells), domestic waste package system, and a future electrical transformer substation. A general site layout for the Facility is provided in Figure 5.



Figure 5. Kalaeloa desalination facility site layout

The Project will be funded using federal funds from Reclamation’s Title XVI Program, American Rescue Plan Act funds, loans from the Water Infrastructure Finance and Innovation Act, and BWS revenue from the sale of water to its customers.

3. Will the project result in any increase of impervious surface? If so, what is the area?

Yes, the new proposed Facility will likely pave approximately 40 percent of the 20 acre parcel that BWS acquired from the Federal government’s (DOH) and Human Services to construct the Facility at this location.

4. Provide: description of how storm water is currently treated on the project site.

Stormwater is currently not actively treated at the project site. Any stormwater entering the Project site likely percolates into the aquifer.

5. How will storm water be treated on this site during construction and after the project is complete?

No specific treatment plan for stormwater has been developed. It is expected that any stormwater runoff will continue to percolate into the aquifer. It is also important to note that the Facility will be constructed on the dry part of the island that tends to receive little rainfall.

6. Are there any underground storage tanks present or to be installed? Include details of such tanks.

No underground tanks are planned for the Project.

7. Will any liquid or solid waste be generated? If so how will it be disposed of?

Waste generated by the new proposed Facility will be disposed of via a new UIC well. The Project site currently houses an existing UIC well that accepts saltwater disposal for pump testing but will be converted into a monitoring well when the new UIC well is constructed. The new primary UIC well is anticipated to be designed and permitted to be capable of disposing of approximately 6,000 gallons per minute, a quantity sufficient to handle both the wastewater and concentrate produced from the initial 1.7 mgd facility and from the Facility at the full 5 mgd buildout. This new well is meant primarily to dispose of the RO concentrate generated by the new Facility. As stated previously, there is no freshwater lens at the location of the source and injection wells and therefore, concentrate injection is not expected to affect any freshwater lens aquifer. The UIC well will be approximately 300-ft deep and set into the lower caprock aquifer. The caprock aquifer is about 1,000 ft thick and hydraulically separate from the underlying saltwater basal formation. There is an impervious clay layer about 100 ft thick at the caprock – basalt contact that will prevent concentrate from entering the basalt formation avoiding recirculation of concentrate into the source wells. This area is a designated underground injection control zone where several injection wells are permitted for power plants and oil refineries. The location of the new UIC well has yet to be finalized.

8. What is the depth of excavation?

Source water for the new proposed Facility will be drawn from two deep (1,600 and 2,100 ft deep, respectively) BA saltwater wells. The UIC well will be approximately 300-ft deep and set into the lower caprock aquifer.

9. Are there any wells in the area that may provide direct routes for contaminants to access the aquifer and how close are they to the project?

No. while the Project site currently houses an existing UIC well, this well will be converted into a monitoring well when the new UIC well is constructed.

10. Are there any hazardous waste sites in the project area? Do any such waste sites have underground plumes with monitoring wells that may be disturbed? Include details.

No.

11. Are there any deep pilings that may provide access to the aquifer?

No.

12. Are Best Management Practices (BMPs) planned to address any possible risks or concerns?

Construction of the desalination facilities (including source and UIC wells) and the water distribution system will require excavation, stockpiling of removed soils, and placement of imported fill materials or reuse of excavated soils. It is expected that construction of the pipelines would primarily use open-trench techniques across open land and/or trenchless techniques in heavily travelled areas to minimize disruption. For both components, Standard BMPs would be implemented to minimize dust and sediment generation during construction.

13. Does the project include any improvements that may be beneficial to the aquifer, such as improvements to the wastewater treatment plan?

Yes. The proposed Project would offset groundwater pumping by delivering desalinated water as new supply to users that currently rely on groundwater. The Ewa-Kunia ASYA is fully permitted for freshwater and operating within its sustainable yield with no available supply for new groundwater sources. Note that prolonged drought conditions and other climatic events can impact sustainable yield. Supporting groundwater basin sustainability would also reduce groundwater pumping costs. These groundwater quality and groundwater basin improvements would be direct benefits to the region and indirect benefits of the proposed Project.

14. Is there any other information that could be helpful in determining if this project may have an affect on the aquifer?

The region has a heavy reliance on groundwater. Without the proposed Project, the reliance on groundwater would continue to increase, likely resulting in the need to develop more groundwater wells and accompanying water system infrastructure to keep up with projected demands in the region. Since the Ewa District has been designated as a secondary urban center for Oahu, these demands are expected to further increase leading to an incremental taxing of existing groundwater supplies. This presents an incremental risk during extended drought periods, where the lack of rainfall and increased groundwater pumping have led to reduced water levels in the area's aquifers, resulting in reduced groundwater storage and rising chlorides and seawater intrusion despite water conservation and reuse efforts.

It is also important to note that pumping groundwater is not inexpensive and presents its fair share of challenges due to legacy pesticide contamination from pineapple plantations. The well and granular activated carbon (GAC) treatment equipment is susceptible to failures, pumps have a relatively short pump life, and operation and maintenance is challenging and expensive. Desalination not only provides additional water supply; it allows a scale back of groundwater pumping post-drought which allows the aquifers to replenish faster.