



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'  
DEPARTMENT OF LAND AND NATURAL RESOURCES | KA 'OIHANA KUMUWAIWAI 'ĀINA  
**COMMISSION ON WATER RESOURCE MANAGEMENT | KE KAHUWAI PONO**  
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STAFF SUBMITTAL

COMMISSION ON WATER RESOURCE MANAGEMENT

December 19, 2023  
Honolulu, Hawai'i

Requesting Authority for the Deputy Director to Enter into a Memorandum of Agreement Between the Hawai'i Department of Land and Natural Resources, Division of State Parks and the Commission on Water Resource Management to the Installation of a Deep Monitor Well at Hāpuna Beach State Recreation Area, South Kohala, Hawai'i Island

SUMMARY OF REQUEST

That the Commission on Water Resource Management (Commission) authorize the Deputy Director to enter into a Memorandum of Agreement (MOA) with the State of Hawai'i Department of Land and Natural Resources (DLNR) Division of State Parks (State Parks) to allow the installation of a Deep Monitor Well (DMW) into the Waimea Aquifer System Area (ASYA) within the Hāpuna Beach Recreation Area.

This staff submittal is a request to enter into a MOA with State Parks and not a request for a permit approval or other Commission approval. The proposed DMW is an observation well and not a production well, nor is it an exploratory source development well. The DLNR Engineering Division will assist the Commission with the design and construction of the DMW project and apply for any required permits and approvals.

Commission staff presented an earlier submittal for this action at its September 19, 2023, regular meeting. The Commission received public testimony and decided to defer the action. This is a re-submittal with additional information that clarifies the purpose of this action and is modified to address concerns raised by the Commission and public testimony during the September 19, 2023, Commission meeting. Most significantly, this DMW is not designed to, and will not penetrate, a potential confined deep freshwater aquifer below the basal aquifer in this area.

MEMORANDUM OF AGREEMENT

The proposed MOA, attached as Exhibit 1, between the Commission and State Parks lists the terms and conditions of the agreement as executed. The MOA shall be executed as of the date of Commission approval for this submittal. The MOA will remain in effect for ten (10) years after which it is renewable at the option of all Parties. The Agreement may be reviewed every five (5)

years to assess the condition of the well and well site to ensure that the conditions of this MOA are being followed. A record of the evaluation will be appended to the agreement. This Agreement may be modified at any time by mutual agreement of all Parties. Modifications shall be in writing executed by the authorized officer representing the Commission and State Parks respectively.

The DLNR Engineering Division will assist Commission staff in the design and construction of the DMW within the Hāpuna Beach Recreation Area. Engineering Division will be the applicant on permit applications, including the Well Construction Permit, and obtain any other required approvals.

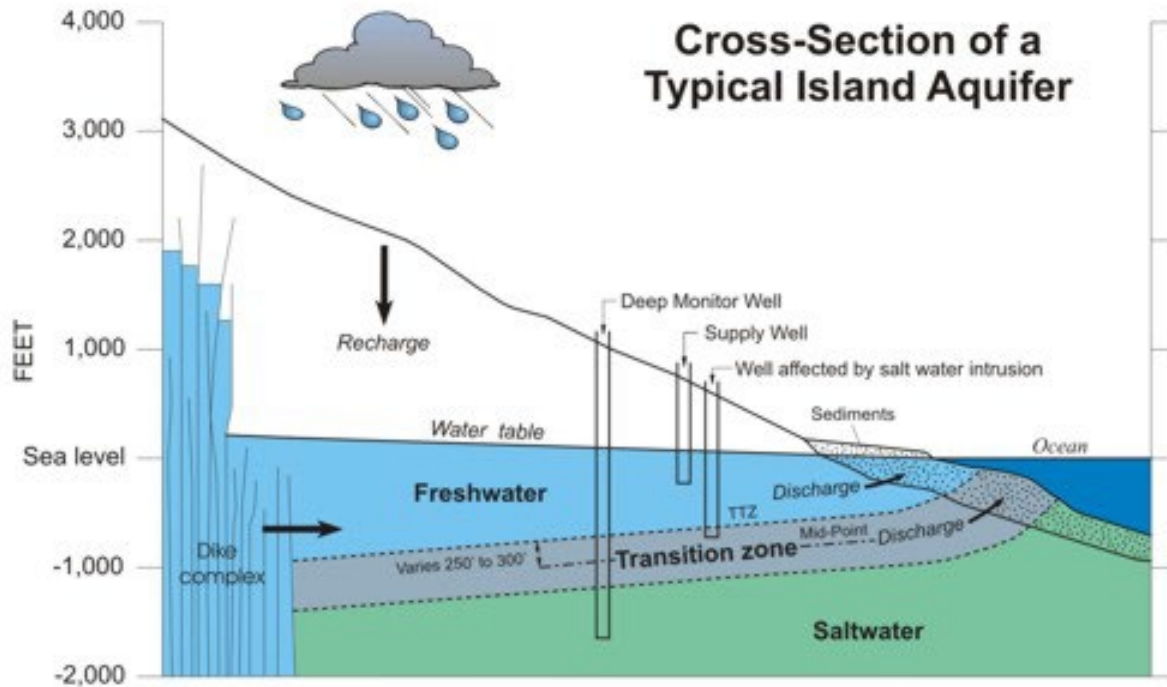
### PURPOSE OF THE DEEP MONITOR WELL

The purpose of installing the DMW is to monitor the Waimea ASYA and collect data to assess the current and long-term aquifer conditions that affect water availability based on the location between the Kohala and Mauna Kea basalts in the coastal portion of the Waimea ASYA. The Commission will conduct quarterly visits to collect data and maintain the well and the well site. There are currently no deep monitoring wells in the Waimea ASYA. It is challenging for the Commission to manage a resource intelligently and responsibly without having information and data on the resource.

The following outlines the goals and objectives of the DMW project:

- Installation of a deep monitor well in the Waimea ASYA
- Collection of geologic data from the Waimea ASYA basal aquifer
- Collection of vertical hydrologic profile properties in the Waimea ASYA basal aquifer
- Collection of water levels in the Waimea ASYA basal aquifer
- Clarification of the extent and boundaries of the Waimea ASYA basal aquifer
- Enhancement of the Commission's West Hawai'i quarterly ground water data collection network

It is important to note that there is a possibility that a confined deep fresh water aquifer may exist below the basal aquifer at the proposed site. Commission staff and the well construction contractors will closely monitor the progress of the well drilling and frequently measure/sample water conductivity (proxy for chloride concentration) during drilling. When water at the bottom of the well borehole reaches chloride concentrations equal to seawater, further drilling will cease and the appropriate well casing(s) will be installed to allow Commission staff to effectively monitor the vertical profile of the basal aquifer. The figure below shows a typical DMW in a basal aquifer.



## GROUNDWATER MONITORING PRIORITIES

There are 114 aquifer system areas (ASYA) across the State of Hawai‘i. An ideal monitoring network would have three deep monitor wells in each ASYA – one each at the high, middle, and low elevations within each ASYA to allow for monitoring a transect of the aquifer’s vertical profile. The Commission maintains only 13 deep monitor wells and 24 water level observation wells statewide, with a need for many more deep monitor wells and water level wells across Hawai‘i. Recognizing the dire need for improved monitoring, the Commission/DLNR Chairperson has prioritized deep monitoring wells as part of the DLNR executive CIP budget request to the Hawai‘i Legislature for the past several years.

On March 15, 2016, the Commission approved a joint funding agreement with the U.S. Geological Survey (USGS) to evaluate water-resource monitoring needs in Hawai‘i. In 2020, USGS published Scientific Investigations Report 2020-5115, *Water Resource Management Monitoring Needs, State of Hawai‘i*<sup>1</sup>. The purpose of a comprehensive (rainfall, stream flow and ground water) hydrologic monitoring network is twofold: (1) resource-management for tracking water and land-use change effects on water resources, and (2) monitoring the effects of climate change on water resources in Hawai‘i. The figure<sup>2</sup> from the USGS report below shows the proposed monitor well locations for the island of Hawai‘i.

<sup>1</sup> Cheng, C.L., Izuka, S.K., Kennedy, J.J., Frazier, A.G., and Giambelluca, T.W., 2021, Water-resource management monitoring needs, State of Hawai‘i: U.S. Geological Survey Scientific Investigations Report 2020-5115, 114 p., <https://doi.org/10.3133/sir20205115>.

<sup>2</sup> Ibid, Figure ES-3

**Figure ES3.** Maps showing the groundwater-resource monitoring program for the Hawaiian Islands of Kaua'i, O'ahu, Moloka'i, Maui, Lāna'i, and Hawai'i. White background indicates aquifer systems that are not prioritized.

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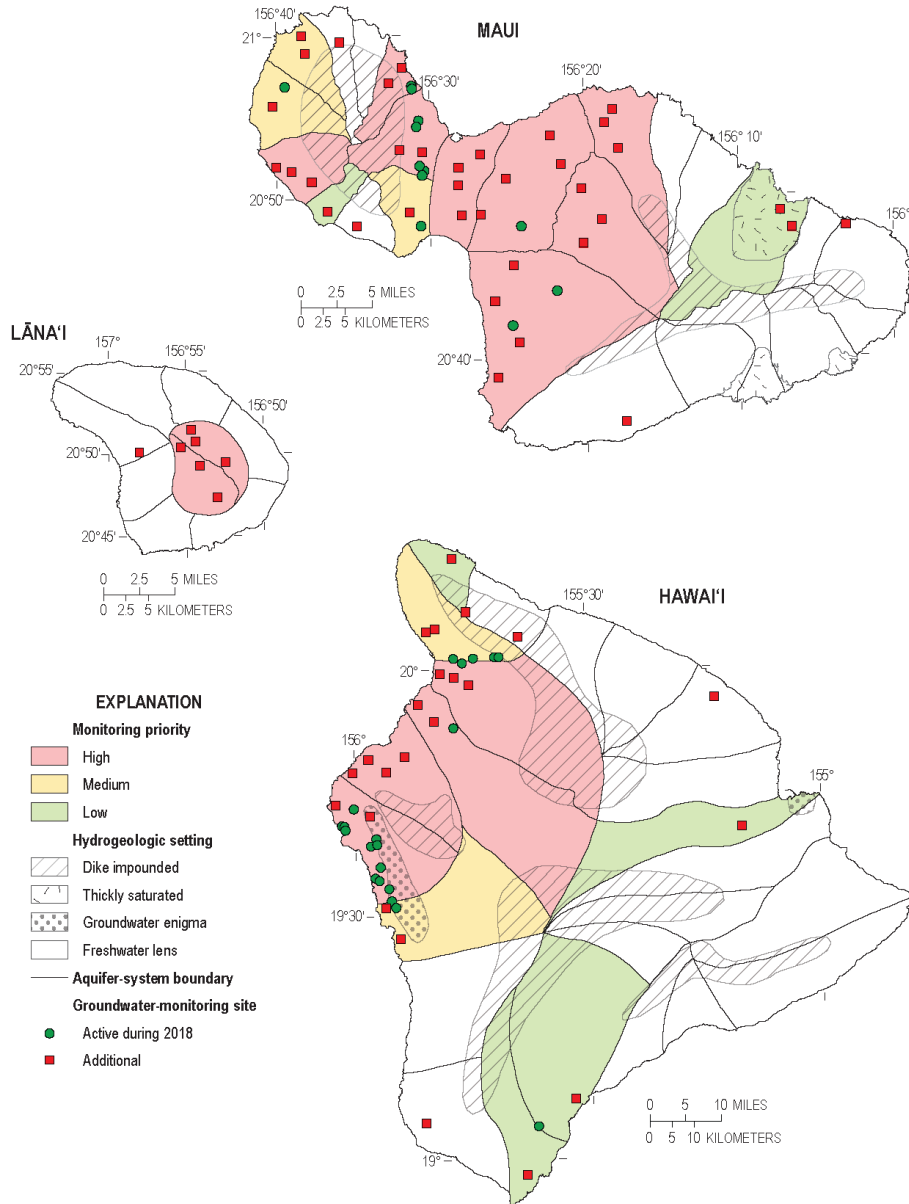
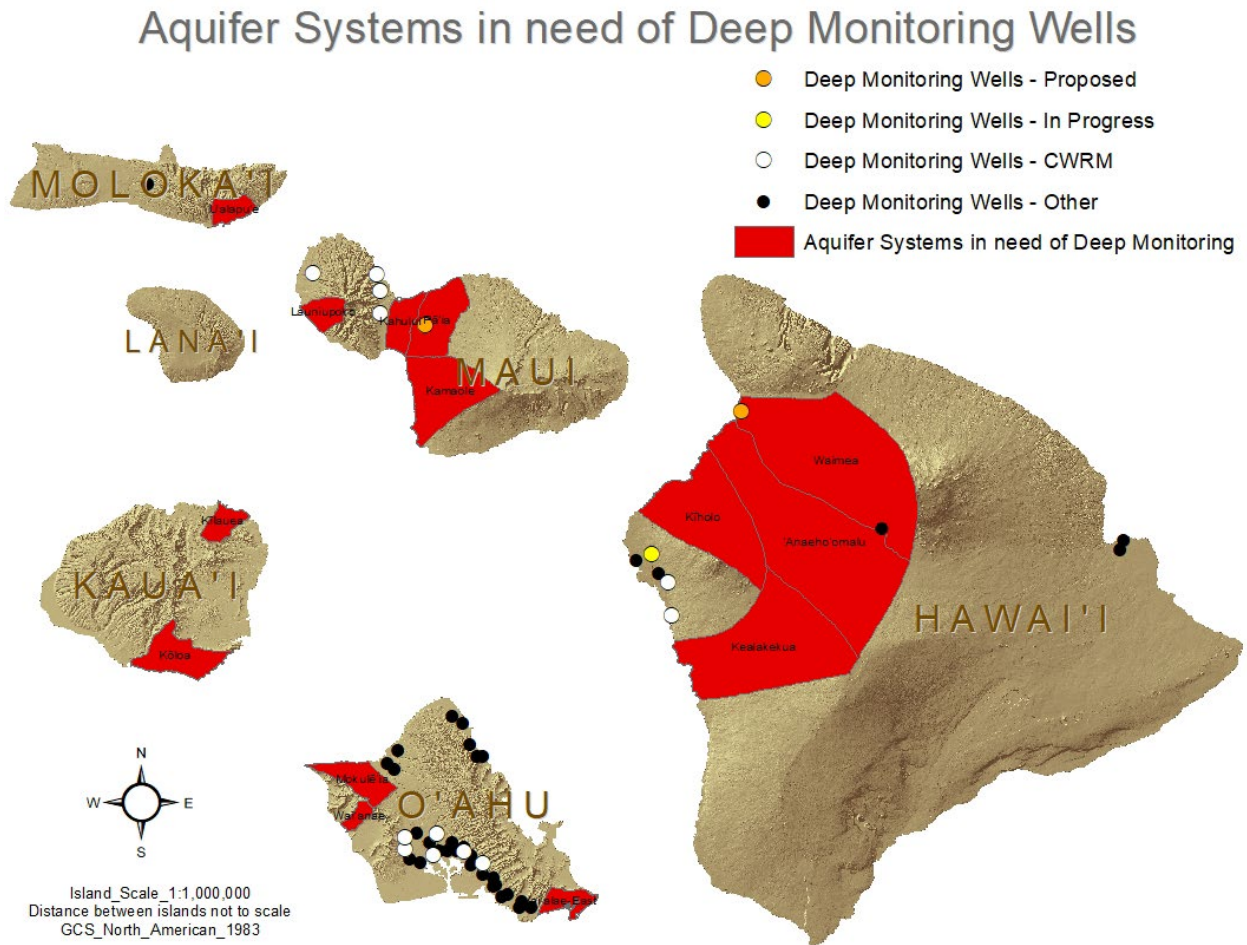


Figure ES3. —Continued

Given the large number of recommended ground water monitoring sites, Commission staff further prioritized the locations of deep monitor wells in the short-term based on the current pumping rates compared to sustainable yield, future growth with increased demand expectations, and whether there was an extant deep monitor well in the ASYA. The Waimea DMW location was chosen for the next monitor well due to the lack of a deep monitor well and the expectation of growth and increased ground water demand in the Waimea ASYA. There is also some uncertainty about the extent and boundaries of the Waimea ASYA, where crucial information gathered from a DMW may help to clarify. The Hawai'i Department of Water Supply will be updating the Waimea ASYA portion of their Water Use and Development Plan, which will further refine the estimates of future potable water demand from the area. The map below shows the priority aquifers for future deep monitor well construction.



EXISTING COMMISSION DEEP MONITOR WELLS IN WEST HAWAII'I

Keopu Deep Monitor Well

In 2001, the Commission completed construction of the Keopu DMW in Keauhou-Kona, West Hawai'i Island. This well encountered a confined deep fresh water aquifer below sea level at approximately 215 feet below sea level, further drilling revealed possible other deep confined aquifers. This water was under artesian pressure and water flowed up the borehole and entered the basal aquifer above. This was unexpected and the well contractor attempted to remedy the problem. However, the contractor was not able to completely seal off the upwelling of freshwater from the confined deep aquifer into the basal aquifer. In 2016 the Commission was able to secure funding to complete the proper sealing-off of the confined deep fresh water upwelling.

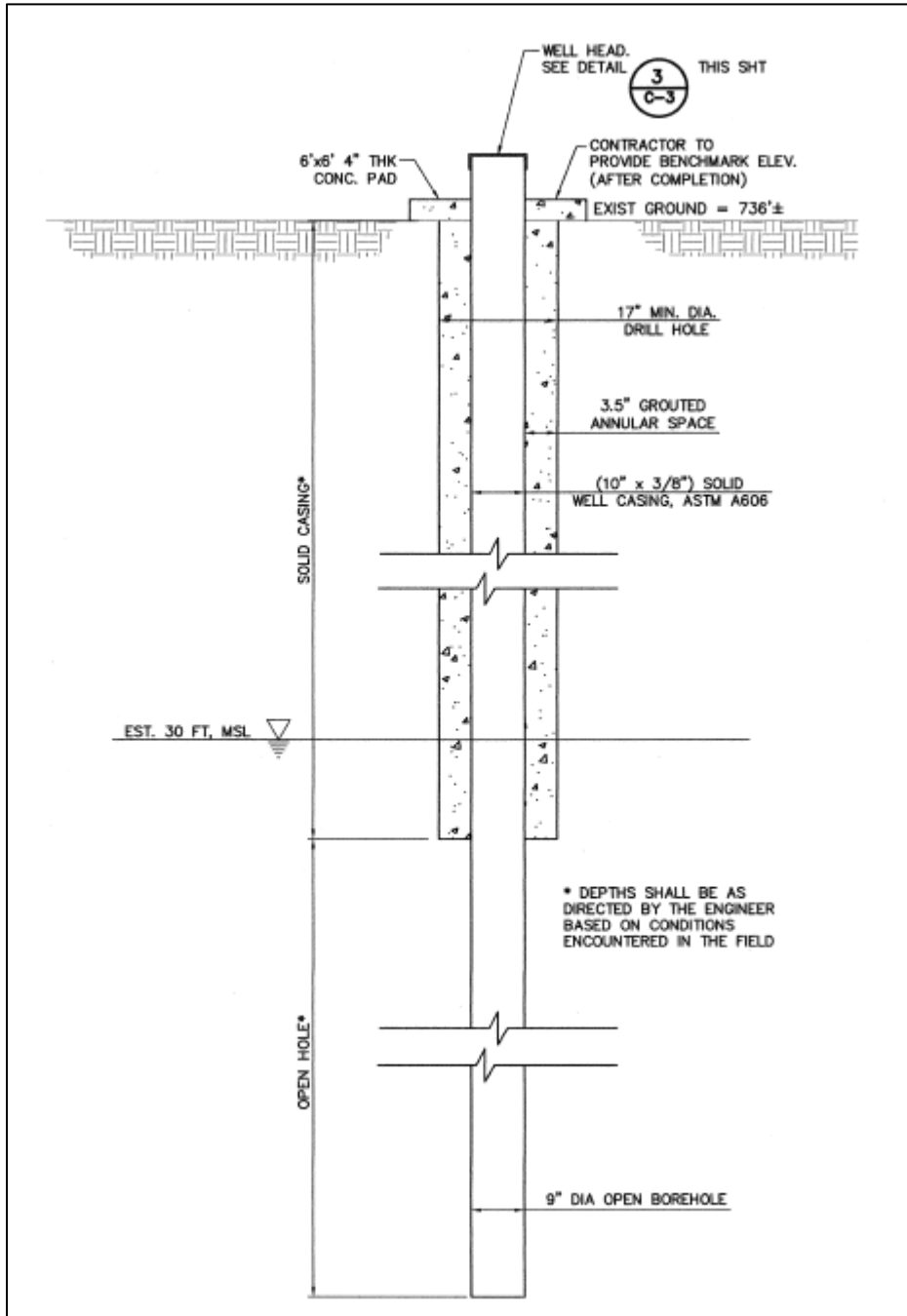
#### Kaloko Deep Monitor Well

In 2021 the Commission completed construction of the Kaloko DMW in Keauhou-Kona, West Hawai'i Island. During construction, a confined deep fresh aquifer was discovered and this water began flowing up to the basal aquifer above. While the discovery of a confined deep fresh aquifer was not unexpected, the contractor was not able to completely seal off the upwelling and expended all the contract funds. Commission staff is currently working with Engineering Division to quickly execute a contract to seal-off the flow. This contract is expected to be executed in early 2024.

#### DEEP MONITOR WELL DESIGN

The design of the proposed Waimea DMW will be a standard deep monitor well design. The total depth of the well is not expected to exceed 400' below the ground surface and will not continue into any confined deep freshwater aquifer below. A 10" diameter solid casing will be installed to a depth below the water table with a 9" diameter open borehole to the bottom of the well. Perforated casing may be installed below the solid casing to prevent borehole cave-ins due to unconsolidated subsurface geology. Depths of the casing(s) and open hole shall be as directed by Commission staff and project engineer based on conditions encountered in the field. See the figure below for a typical deep monitor well.

### Typical Deep Monitor Well Plan



### LEGAL AUTHORITY

The authority for this MOA/collaboration is established in the State Water Code 174C-5(4), Hawai'i Revised Statutes:

*(The Commission) May contract and cooperate with the various agencies of the federal government and with state and local administrative and governmental agencies or private persons.*

### CONSISTENCY WITH THE HAWAI‘I WATER PLAN

The proposed MOA will allow the Commission to accomplish its goals identified in the Water Resource Protection Plan (WRPP).

Task 1.8.1 of the WRPP 2019 Update refers to the goal of constructing new deep monitoring wells in critical aquifers to gather and utilize data to identify impacts from pumpage, climate and land use changes, fresh water sustainable yields, and monitor recharge trends. The purpose of installing the monitoring well is to monitor the health of the Waimea ASYA by collecting geologic and hydrologic data. Any new information found on the hydrogeology in the area will help to improve the Commission’s comprehensive statewide ground water monitoring plan and develop policies for previously unmanaged resources.

### KA PA‘AKAI ANALYSIS

A Ka Pa‘akai analysis is not required for the approval of a memorandum of agreement between two sister State agencies. However, a Ka Pa‘akai analysis will be required during the permitting process for the proposed DMW.

In *Ka Pa‘akai O Ka‘aina v. Land Use Commission*<sup>3</sup>, the Hawai‘i Supreme Court recognized that the State has an obligation to protect Hawaiian traditional and customary practices to the extent feasible, and that the proponent of an action must show sufficient evidence that these types of practices are protected, if they exist in the location in question. This “Ka Pa‘akai framework” was created by the Court “to help ensure the enforcement of traditional and customary native Hawaiian rights while reasonably accommodating competing private development interests.” The Commission is obligated to conduct a “Ka Pa‘akai analysis” of a proposed action requiring CWRM approval independent of the entity proposing the action. This analysis should be used to inform any decision on the impact of the proposed action on traditional and customary practices.

Consequently, the Court required an assessment of the following:

(1) “the identity and scope of ‘valued cultural, historical, or natural resources’ in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;”

(2) “the extent to which those resources -- including traditional and customary native Hawaiian rights -- will be affected or impaired by the proposed action;”

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<sup>3</sup> 94 Hawai‘i 31, 7 P.3d 1068 (2000)



(3) “the feasible action, if any, to be taken...to reasonably protect native Hawaiian rights if they are found to exist.”

Commission staff will be responsible for the Ka Pa‘akai analysis of this project during the permitting process.

ENVIRONMENTAL REVIEW CHAPTER 343, HAWAII REVISED STATUTES

This proposed action, the approval for execution of a memorandum of agreement, is a continuing administrative activity listed in the Comprehensive Exemption List for the State of Hawaii Commission on Water Resource Management concurred with by the Environmental Council on January 5, 2021. This action, the approval for the execution of a memorandum of agreement, is covered under Exemption Class 8, Part 1 activities.

*7. Actions that are intended to maintain or support the sustainability and management of water resources under the jurisdiction of the Commission, including regulation compliance, resources and environmental monitoring, debris or property removal, and other administrative and management measures.*

As such, the proposed action in this staff submittal, the approval for execution of a memorandum of agreement, is exempt from the application of HRS Chapter 343. Activities under Part 1 do not require an exemption notice.

RECOMMENDATION

Staff recommends that the Commission:

1. Authorize the Deputy Director to enter into a Memorandum of Agreement with Division of State Parks to allow the installation of a Deep Monitoring Well within the Hāpuna Beach Recreation Area.
2. Authorize the Deputy Director to make amendments to the Memorandum of Agreement.

The terms of this Memorandum of Agreement and any amendments will be subject to the availability of funding, permit approvals, and any contracts that would require the approval of the Attorney General’s Office.

Ola i ka wai,



M. KALEO MANUEL  
Acting Deputy Director

Exhibits

1. Draft DMW Memorandum of Agreement (MOA)

APPROVED FOR SUBMITTAL

A handwritten signature in black ink, appearing to be 'Dawn N. S. Chang', with a stylized, looped initial 'D' and a horizontal line extending to the right.

DAWN N. S. CHANG  
Chairperson

**MEMORANDUM OF AGREEMENT  
BETWEEN THE  
STATE OF HAWAI‘I  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF STATE PARKS AND  
THE COMMISSION ON WATER RESOURCE MANAGEMENT  
REGARDING INSTALLATION AND MAINTENANCE OF  
MONITORING WELL AND RELATED FEATURES AT  
HĀPUNA BEACH STATE RECREATION AREA, SOUTH KOHALA, HAWAI‘I ISLAND**

This agreement is made the \_\_\_\_\_ day of \_\_\_\_\_, 202\_, by and between the State of Hawai‘i, Department of Land and Natural Resources, Commission on Water Resource Management, hereinafter referred to as the “Commission,” and the State of Hawai‘i, Department of Land and Natural Resources, Division of State Parks, hereinafter referred to as “State Parks.” The Commission and State Parks are jointly referred to as the “Parties.”

**WITNESSETH**

WHEREAS, the Commission proposes to install a monitoring well at Hāpuna Beach State Recreation Area (SRA) for the purpose of monitoring the health of the Waimea Aquifer System and to collect data to assess the current and long-term aquifer conditions that affect water availability based on the location between the Kohala and Mauna Kea basalts in the coastal portion of the Waimea aquifer; and

WHEREAS, the Department of Land and Natural Resources (DLNR), Division of State Parks has management jurisdiction over Hāpuna Beach State Recreation Area (SRA) where the well site is proposed as shown in Attachments 1 and 2, and the 526-acre park site is under the requirements of the Land and Water Conservation Fund (LWCF) program based on State Parks prior use of these federal grant funds for prior park development; and

WHEREAS, the Commission and State Parks have agreed upon a location for the monitoring well that is adjacent to the maintenance baseyard which will avoid any direct impacts to outdoor recreation, view corridors, and historic properties; and

WHEREAS, the monitoring well will be set within a 4-foot square concrete slab and enclosed within a 10-foot square fenced area to deter vandalism as shown in Attachment 3 and the Commission shall select fencing materials and styles that blend in with the surrounding environment and may implement landscaping subject to State Parks approval; and

WHEREAS, the Commission will monitor the well and well site on at least a quarterly basis and maintain the monitoring well and related features in a safe and attractive manner and will respond promptly if notified by State Parks that vandalism or other damage has occurred; and

WHEREAS, the Commission will not proceed with the installation until all required permits and approvals have been obtained from the County of Hawai‘i, Department of Health, the State Historic Preservation Division (SHPD), and State Parks; and

WHEREAS, the Commission and State Parks have agreed that there will be no transfer of land right or easements from State Parks that would trigger a conversion under the LWCF requirements; and

WHEREAS, the Commission will consider the installation of interpretive signs or other educational materials to inform the public about the well and its value for monitoring the Waimea Aquifer upon review and approval of the materials by State Parks; and

WHEREAS, the Commission intends to utilize the monitoring well in perpetuity, but the Commission and State Parks will revisit this Memorandum of Agreement (MOA) every 5 years to assess the condition of the well and well site to ensure that the conditions of this MOA are being followed; and

WHEREAS, should the Commission determine that the well site is no longer needed, the Commission shall be responsible for the proper sealing, abandonment, and removing of all the above-ground features including the concrete slab and fencing;

NOW, THEREFORE, the above parties agree to the construction of a monitoring well adjacent to the maintenance baseyard within Hāpuna Beach SRA for a mutual benefit of monitoring the quality of the Waimea Aquifer as an indicator of the water resources and coastal health. Specifically, it is contemplated by the parties that the Commission shall conduct the following work subject to the review and approval of plans and designs by State Parks:

- 1) Install the monitoring well within a 4-foot concrete slab and enclose the well site within a 10-foot square fenced area.
- 2) Maintain the well and well site including the fencing and any landscaping in a safe and attractive manner.
- 3) Conduct quarterly visits to collect data, monitor the well and well site, and take any necessary action to correct any damage or vandalism. This includes removal of graffiti, replacement of rusted or corroded fencing material, replacement of interpretive signs if vandalized or deteriorated, and litter pick-up on a regular basis and in a timely manner. Other maintenance responsibilities may be identified over the term of this agreement and mutually agreed to by the Parties.
- 4) Install and maintain interpretive signs or educational materials at the well site to inform the public about the purpose and value of the well.
- 5) The State shall be responsible for damage or personal injury resulting from acts or omissions of state employees while acting within the scope of their employment to the extent that the State's liability for such damage or injury has been determined by a court or otherwise agreed to by the State. The State shall pay for such damages and injury to the extent that funds have been authorized and appropriated by the Legislature for such purpose, and the funds have been allocated by the executive budget process.

## II. Term, Evaluation and Modification

- A. *Term.* This instrument is executed as of the last date shown below which shall be the commencement date. This instrument will remain in effect for ten (10) years after which it is renewable at the option of the Parties.
- B. *Evaluation.* This Agreement may be reviewed, evaluated, and updated at any time. A record of the evaluation will be appended to the agreement.
- C. *Modification.* This Agreement may be modified at any time by mutual agreement of the Parties. Modifications shall be in writing executed by the authorized officer representing the Commission and State Parks respectively.

III. Principal Contacts

The principal contacts for administering this Agreement are:

A. M. Kaleo Manuel, Deputy Director  
 Commission on Water Resource Management  
 Department of Land and Natural Resources  
 1151 Punchbowl Street, Room 227  
 Honolulu, HI 96813

B. Curt Cottrell, Administrator  
 Division of State Parks  
 Department of Land and Natural Resources  
 1151 Punchbowl Street, Room 310  
 Honolulu, Hawai'i 96813

**IN WITNESS WHEREOF**, the parties hereto have executed this Agreement as of the last date written below.

**COMMISSION ON WATER RESOURCE  
 MANAGEMENT**

**DIVISION OF STATE PARKS**

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: M. Kaleo Manuel

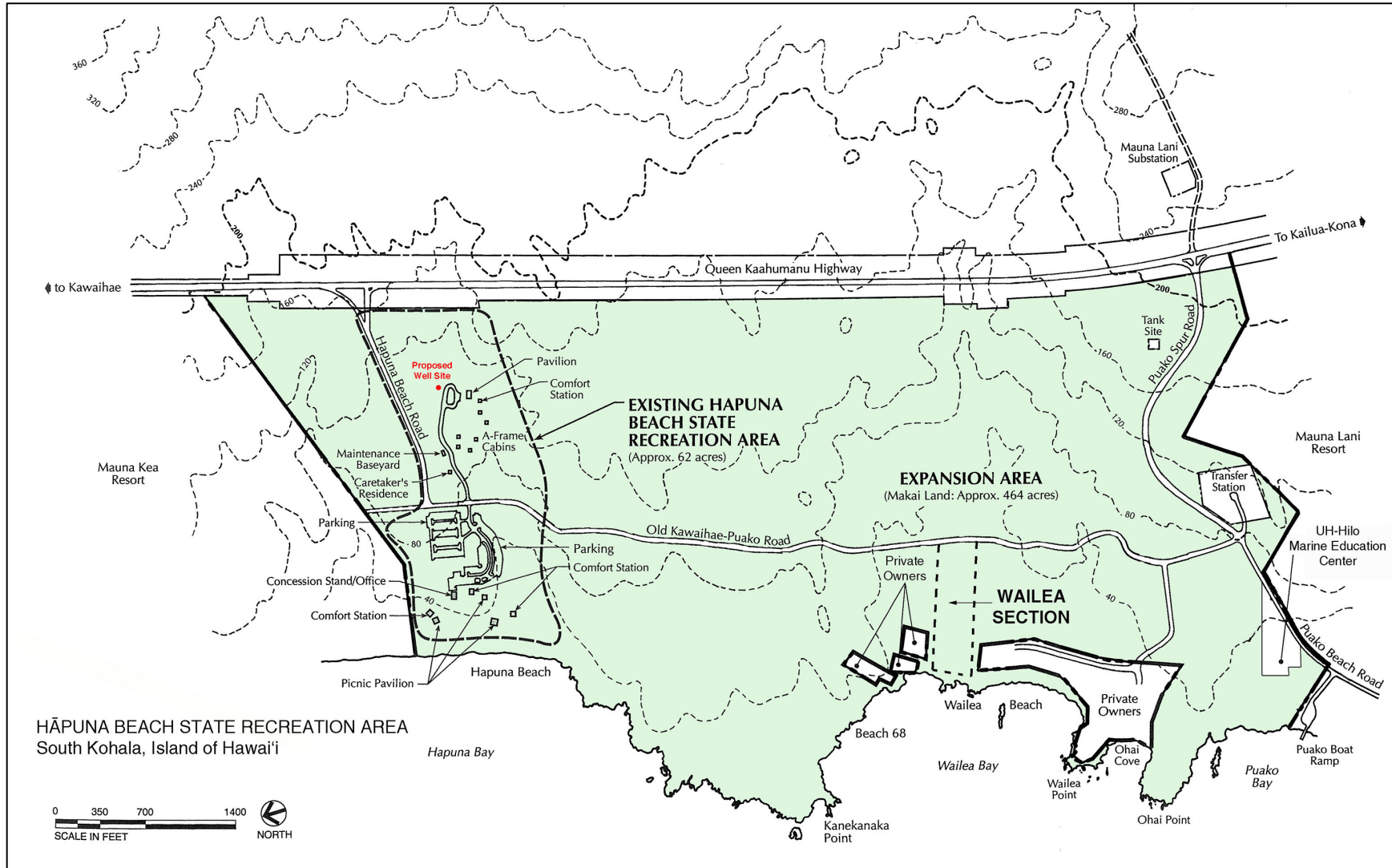
Name: Curt A. Cottrell

Title: Deputy Director

Title: Administrator

Date: \_\_\_\_\_

Date: \_\_\_\_\_



ATTACHMENT 1

Proposed location of the monitoring well to the east of the park maintenance baseyard within Hāpuna Beach SRA. This map also reflects the park boundaries and park area under LWCF requirements.





ATTACHMENT 2

Monitoring well site is located to the east of the maintenance baseyard and north of the cabin complex.





### ATTACHMENT 3

Example of a well set into a concrete slab and enclosed within a fenced area. A similar installation is proposed for the monitoring well at Hāpuna Beach SRA.