



HAWAII WATER SERVICE

P.O. Box 384809

Waikoloa, HI 96738 Tel: (877) 886-7784 toll-free

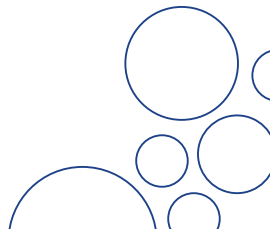
Appendix 3. Table 3: Alternative Analysis

	A. Analysis of potable alternatives	B. Analysis of Non-Potable Alternatives
Municipal Sources	The primary water source for the Ka'anapali area are nine potable water wells. There is a possibility of an interconnect with the County of Maui but this option would need to be explored for feasibility.	County of Maui uses ditch water as a source of supply and water is treated at the Mahinahina Water Treatment Plant. In order to use this supply, Hawaii Water and County of Maui would need to construct an interconnect between the two systems.
Wastewater Reuse	Hawaii Water is not aware of any direct or indirect potable reuse projects in West Maui. the nearest wastewater treatment plant to the Kaanapali service area is the Lahaina Wastewater treatment plant, approximately 2 miles to the north. If direct or indirect potable reuse became available as an option, a transmission system would need to be constructed for the source to be viable.	Recycled water is being used in the Kaanapali service area for golf course irrigation. Maui County is currently working on a recycled water project to bring additional R-1 water to the Kaanapali area from the Lahaina Wastewater treatment plant. Hawaii Water and the County of Maui have had high level discussions about using additional R-1 water in the service area to reduce potable water use.
Ditch System	The Honokohau ditch feeds water to the Maui County Mahinahina water treatment plant. Any excess water continues down the stream. To the Kaanapali area. Raw water from the ditch is not suitable for potable use. A water treatment plant would need to be constructed in order to use water from the ditch. A feasibility study has not been completed due to the likely high capital costs associated with the construction of a water treatment plant.	Excess water passing by the Maui County Mahinahina water treatment plant is used by KLMC for irrigation. Water flowing in the stream beyond the plant is irregular and could not be relied upon for uses beyond KLMC.
Desalinization	While desalinization is an option, it is not feasible for Hawaii Water to explore due to the small customer base in Kapalua and Kaanapali. However, Hawaii Water is aware that Maui County has commissioned a consultant to deliver a desalinization feasibility study. Hawaii Water would be open to a partnership	No feasibility studies have been completed for desalinized non-potable water. One alternative for non-potable use is brackish water wells. This is common for irrigation and other non-potable uses where appropriate.



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	with the County if desalinization is feasible.	
Surface Water	There are no surface water options other than Honokohau Stream, which has already been discussed.	There are no surface water options other than Honokohau Stream, which has already been discussed.
Other		





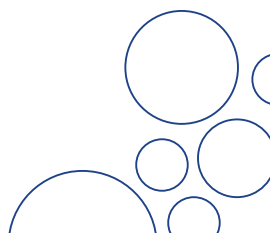
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Appendix 4. Public Interest.

Municipal water service is in the public interest because it ensures the health and safety of the Kaanapali community. According to 174C-2(C) municipal and public water supply are in the public interest. Hawaii Water takes care to ensure water losses are minimized and that water is used economically in the community. Additionally, Hawaii Water operates the potable water wells in such a manner that minimizes environmental impact and preserves the proper ecological balance and scenic beauty.





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Appendix 5. Ka Pa’Akai Analysis

A. Please provide the identity and scope of cultural, historical, and natural resources in which traditional and customary Native Hawaiian rights are exercised in the area.

Kapalua is a coastal land area in West Maui located approximately 3 miles north of Lahaina Town along Honoapi’ilani Highway. It straddles the boarder of the Lahaina and Kaanapali moku and includes Honokowai, Mo’omoku, Hanaka’o’o, Kahua, and Kapunakea ahupua’a.¹ The area was very sacred to ancient Hawaiians as the landmark Pu’u Keka’a is situated here.² It was known as a leina a ka ‘uhane (“leaping off spot of the spirit”).³ Today, the Ka’anapali area is a mostly resort development. The Kipuka data base⁴ has little information about the characteristics of the Kaanapali area.

The Ka Pa’Akai analysis requires the applicant (Hawaii Water) to provide the identity, and scope of cultural, historical, and natural resources in which traditional and customary Native Hawaiian rights are exercised in the area. HRS Section 7-1 specifically protects the right to gather, although that right is limited to the enumerated items, including materials primarily used for constructing a house or starting a fire. It protects the rights of persons who lawfully occupy a kuleana parcel or are lawful tenants of an ahupua’a to, among other things, gather “firewood, house timber, aho cord, thatch or ti leaf” for private, non-commercial use, as well as their rights to “drinking water, and running water, and the right of way.”⁵ For Native Hawaiians, traditional and customary practices are inextricably intertwined with ‘āina (land). Native Hawaiians’ cultural and spiritual identity derives from their relationship with ‘āina: ‘āina is part of their ‘ohana, and accordingly, traditional Hawaiian customs and practices emphasize respect and care for ‘āina and surrounding resources. Native practitioners continually reaffirm their knowledge of ‘āina and its resources through the exercise of traditional and customary gathering, hunting, and fishing practices for subsistence, cultural, and religious purposes.⁶

¹ [Ahupuaa Maui.pdf \(hawaii.gov\)](#).

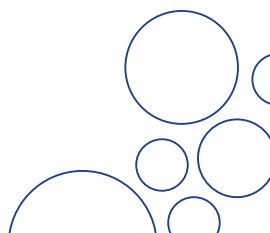
² James, V. 2018. Ancient Sites of Maui, Molokai, and Lanai. Honolulu: Mutual Publishing.

³ Id.

⁴ [Native Hawaiian Community Profiles \(kipukadatabase.com\)](#).

⁵ HRS § 7-1 (2005).

⁶ https://luc.hawaii.gov/wp-content/uploads/2022/06/3.-NH-Traditional-and-Customary-Practices_Summary_June-2022.pdf





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The Bishop Museum Anthropology Department Hawaiian Archaeological Survey (HAS) is a searchable database which contains information from each site in Hawaii excavated by Bishop Museum archaeologists.⁷ The data base was filtered for Maui, Honokowai, Mo'omoku, Hanaka'o'o, Kahua, and Kapunakea ahupua'a. Each archaeological site was reviewed for artifacts that were identified and documented. A table of the findings is presented below. A hyperlink to each site is included for ease of review and reference.

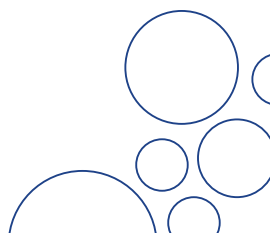
BPBM Site Number	Project Number	Ahupua'a	Key Findings
50-Ma-D08-001	90	Honokowai	Honokowai Petroglyphs
50-Ma-D08-002	90 141	Honokowai	a cluster of house sites
50-Ma-D07-001	90	Hanakaoo	Hanakaoo Grindstones
50-Ma-D07-002	90	Kekaa Hanakaoo	Kekaa Point Petroglyphs
50-Ma-D07-003	90	Hanakaoo	Leina-a-ka-uhane (Jumping off place of souls.)
50-Ma-D07-004	255	Hanakaoo	Burials

Hui O Wa'a Kaulua, is an organization dedicated to developing and conducting model educational programs using voyaging to excite and challenge students and their communities to learn about, respect, and care for the natural and social environment.

B. Identify the extent to which those resources, including traditional and customary Native Hawaiian Rights, will be affected or impaired by the proposed action.

The Honokowai, Mo'omoku, Hanaka'o'o, Kahua, and Kapunakea ahupua'a have a rich history which has been carefully documented by Bishop Museum archaeologists (see response to A). The proposed action of groundwater designation and the subsequent application for a ground water use permit would have no impact to traditional and customary Native Hawaiian Rights for several reasons: 1) ground water designation would ensure access to water; 2) historical sites have been carefully documented and protected to prevent decline in their

⁷ [Hawaiian Archaeological Survey \(bishopmuseum.org\)](http://hawaiianarchaeologicalsurvey(bishopmuseum.org)).





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condition; and 3) designation does not change the current action of groundwater pumpage.

1) Ground water designation would ensure access to water.

HRS § 7-1 contains specific language as to what people are entitled to. Specifically, “the people shall also have a right to drinking water, and running water, and the right of way.”⁸ Ground water use application for a municipality would ensure that people have access to drinking water and running water. It is a municipality’s responsibility to ensure the community has safe drinking water and to protect public health. By granting the application for a groundwater use permit, CRWM is ensuring the people in the community have access to drinking water and running water.

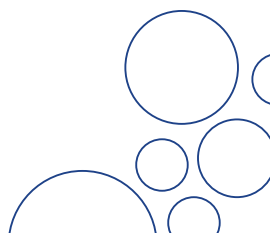
2) Historical sites have been carefully documented and protected to prevent decline in their condition.

Pu’u Keka’a is an example of a culturally significant site that is preserved for the practice of Native Hawaiian activities. The approval of a groundwater use application would have no impact on the continued protection and preservation of Pu’u Keka’a.

3) Designation does not change the current practice of groundwater pumpage.

The Kaanapali wells are discretely located mauka of Honoapi’ilani Highway. A map of the well locations is shown for reference. Water is pumped wells P-4, P-5, P-5A, and P-6 across the Honokowai Valley via a 16” transmission siphon. This water is then joined with water pumped from wells P-1, P-2, P-3 and Hahakea. Water is eventually fed to a 1.5 million gallon (MG) tank which then gravity feeds to other storage tanks in the service area. The current operation of the wells has no impact on traditional and customary Native Hawaiian Rights.

⁸ HRS § 7-1 (2005).





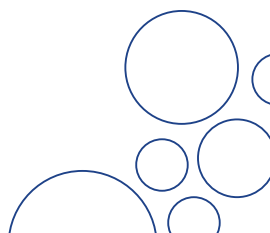
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Map of Kaanapali Potable Wells.

C. What feasible action, if any, could be taken to reasonably protect Native Hawaiian Rights?

In the context of groundwater designation and the application for a ground water use permit, all current actions protect and promote Native Hawaiian Rights. Specifically, designation ensures the community has access to drinking water and running water, as required by HRS § 7-1. Hawaii Water commits to managing the water resource so as not to have the opposite effect. The active management of water loss, conservation, and minimal impact operations promotes the preservation of Native Hawaiian Rights.

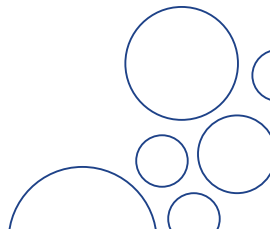




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Appendix 6 Interference with the Rights of the Department of Hawaiian Home Lands

Hawaii Water is aware of DHHL's Leiali'i-Honokowai Regional Plan for West Maui. The use of water in the Kaanapali area will not interfere with the rights of the Department of Hawaiian Homelands as provided in section 221. The Leiali'i-Honokowai project would draw from the Honokowai aquifer along with wells serving the Kaanapali service area. DHHL has an approved water reservation of 770,000 GPD in the Honokowai aquifer. In the 12 months preceding designation, pumpage from the wells serving the Kaanapali service area was approximately 3.9 MGD (see appendix 9). This leaves 2.1 MGD for DHHL's project.





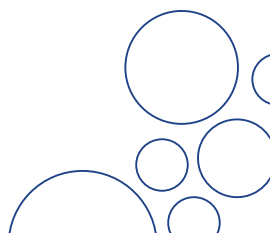
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Appendix 7. Efficiency

Hawaii Water participates in annual water loss audits pursuant to AWWA M36 standards. The audit is a level 1 validation. Hawaii Water actively responds to water leaks, proactively and routinely changes meters according to AWWA M6 standards. Hawaii Water has completed a conservation master plan for the Kaanapali service area which sets specific goals and standards to reduce water use. A copy of the master plan is attached.





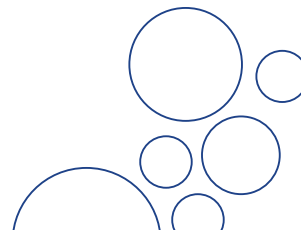
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Appendix 9. Table 4: 12-Month Average Calculation as of the Date of Designation for Existing Uses.

MM/YY	P1	P2	P3	P4	P5	P-5A	P6	Honokowai	Hahakea	Days	Average Daily Pumpage for the Month (GPD)
Sep-21	12,672,000	0	22,545,000	10,732,000	38,243,000	19,884,000	11,526,000	0	5,062,000	30	4,022,133
Oct-21	13,817,000	0	23,208,000	7,227,000	37,509,000	19,033,000	9,251,000	0	7,661,000	31	3,796,968
Nov-21	13,846,000	0	24,912,000	17,900,000	41,396,000	17,132,000	6,260,000	0	6,322,000	30	4,258,933
Dec-21	12,402,000	2,733,000	22,712,000	11,439,000	39,106,000	17,133,000	3,034,000	0	2,819,000	31	3,592,839
Jan-22	11,713,000	333,000	19,990,000	14,318,000	39,278,000	14,055,000	7,539,000	0	1,873,000	31	3,519,323
Feb-22	10,471,000	303,000	20,847,000	16,769,000	15,175,000	33,292,000	6,529,000	0	26,000	28	3,693,286
Mar-22	15,412,000	2,651,000	22,000,000	17,500,000	17,827,000	34,474,000	8,282,000	0	3,978,000	31	3,939,484
Apr-22	11,614,000	2,836,800	17,189,000	18,816,000	28,176,600	17,491,950	6,734,880	0	2,324,000	30	3,506,108
May-22	14,378,000	2,884,320	21,473,000	20,226,000	30,535,740	19,939,500	10,860,480	0	7,784,800	31	4,131,672
Jun-22	14,124,000	1,572,480	22,465,000	19,807,000	29,494,830	18,780,300	11,491,200	0	5,635,000	30	4,112,327
Jul-22	13,796,000	3,006,720	21,500,000	18,442,000	29,127,900	17,800,650	6,929,280	0	7,305,000	31	3,803,469
Aug-22	10,831,000	12,624,400	24,431,000	21,981,000	31,139,220	19,854,450	9,246,960	0	6,028,000	31	4,391,485





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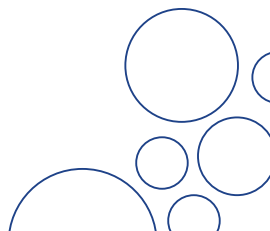
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Appendix 10. Photos of source and meters.



P1 Well Head

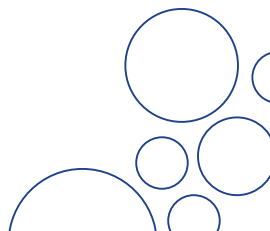




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P-1 Flow Meter

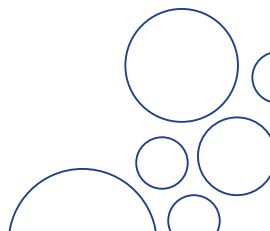




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P-2 Well Head

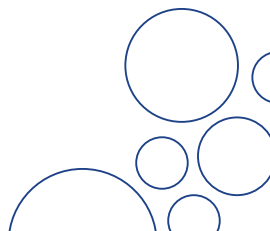




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P-2 Flow Meter

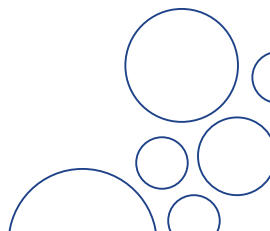




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P-3 Well Head

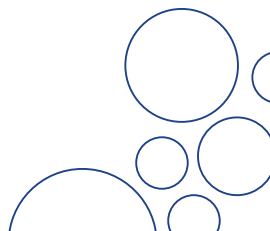




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P-3 Flow Meter





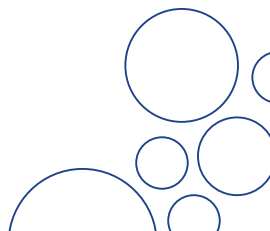
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P-4 Well Head



P-4 Flow Meter





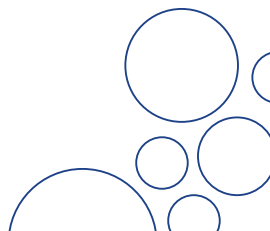
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P-5 Flow Meter



P-5 Well Head





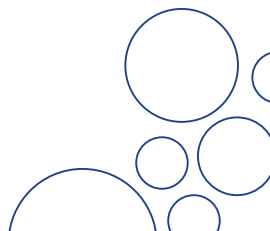
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P-5A Well Head



P-5A Flow Meter





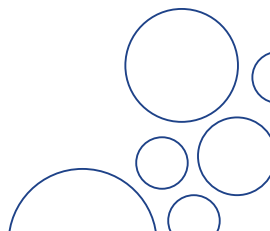
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P-6 Well Head



P-6 Flow Meter

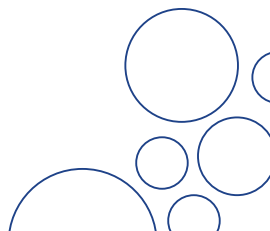




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Hahakea Well Head

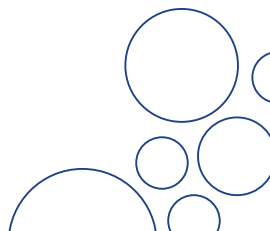




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Hahakea Flow Meter.

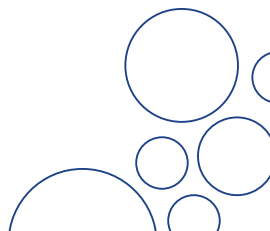




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Honokowai B Flow Meter





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Honokowai B Well Head

