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RECEIVED
COMMISSION ON WATER
RESOURCE MANAGEMENT
2023 MAR 10 PM 3:49

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OUR REFERENCE NO.:
070359-00001

March 7, 2023

VIA HAND DELIVERY AND VIA EMAIL AT DLNR.CWRM@HAWAII.GOV

M. Kaleo Manuel, Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
1151 Punchbowl St., # 227
Honolulu, HI 96813

Re: Ground Water Use Permit for the Ukumehame Water Association, Inc.

Dear Deputy Manuel:

We represent Ukumehame Water Association, Inc. ("Applicant") in connection with the enclosed application (the "Application") for a Ground Water Use Permit for ground water use in the Ukumehame Aquifer System in the Lahaina Aquifer Sector. Applicant is a Hawaii non-profit whose members are the owners of lots within the Ukumehame Agricultural Subdivision (the "Subdivision"). The Subdivision's water needs are currently being met via a water system that includes two active ground water wells. As indicated in the Application, it is anticipated that additional wells will be drilled as the Subdivision's water needs increases. The Application covers these existing and new uses.

Applicant is requesting the use of ground water solely for domestic and irrigation uses. The Declaration of Policy section, Hawaii Revised Statutes §174-2(c) states that the Water Code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for various purposes including domestic and irrigation uses. Further, as noted in the Application, the sustainable yield for the Ukumehame Aquifer Sector Area is 2.0 mgd. The Subdivision's estimated existing and new ground water demand (for both domestic and irrigation use) is approximately 0.7852 mgd, or 39.3% of the area's sustainable yield.

For these, and other reasons more fully described in the Application, Applicant's requested ground water use is consistent with planning in this area, including the Maui County Water Use and Development Plan. If you should have any questions or require further

M. Kaleo Manuel, Deputy Director

March 7, 2023

Page 2

information on any of the foregoing or the attached, please feel free to contact myself at [REDACTED] and (808) 523-2536.

Sincerely,

A handwritten signature in black ink, appearing to read 'Avery C. Matro', with a long horizontal line extending to the right.

Avery C. Matro

Enclosure

4888-0435-0292.3.070359-00001



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
APPLICATION FOR GROUND WATER USE PERMIT

For Official Use Only:
COMMISSION ON WATER
RESOURCE MANAGEMENT
2023 MAR 10 PM 3:49

FORM GWUPA

- ☒ New Use
☐ Modification of WUP No. _____
☒ Existing Use

For detailed instructions on filling out this application form completely, refer to the attached instructions. Incomplete applications will not be accepted for processing.

APPLICANT INFORMATION										
1. APPLICANT INFORMATION					2. SOURCE LANDOWNER INFORMATION					
Name/Company Ukumehame Water Association, Inc.			Contact Person Daniel Byron		Name/Company Ukumehame Water Association, Inc.			Contact Person Daniel Byron		
Mailing Address 468 N. Camden Drive, Suite 300, Beverly Hills, CA 90210					Mailing Address 468 N. Camden Drive, Suite 300, Beverly Hills, CA 90210					
Phone (323) 528-6493		Fax		E-mail		Phone (323) 528-6493		Fax		
SOURCE INFORMATION										
3. ISLAND Maui										
4. AQUIFER SYSTEM AREA Ukumehame					4A. SUSTAINABLE YIELD FOR ITEM 4 MGD 2.00 MGD					
5. SOURCE INFORMATION Attach additional sheets, if necessary.										
Well Number (if known)	Well Name	Existing or Proposed?	TMK				Flowmeter installed?			
2835-002 2003	Sugar Way 1	Existing	4	-	8	-	002	:	119	<input type="checkbox"/> Yes, date installed ____ / ____ / ____ <input type="checkbox"/> No
2835-003 2004	Sugar Way 2	Existing	4	-	8	-	002	:	119	<input type="checkbox"/> Yes, date installed ____ / ____ / ____ <input type="checkbox"/> No
4835-004 2005	Ukumehame 3	Existing	4	-	8	-	002	:	119	<input type="checkbox"/> Yes, date installed ____ / ____ / ____ <input type="checkbox"/> No
	Unnamed Proposed Well	Proposed	4	-	8	-	002	:	102	<input type="checkbox"/> Yes, date installed ____ / ____ / ____ <input type="checkbox"/> No
	Unnamed Proposed Well	Proposed	4	-	8	-	002	:	102	<input type="checkbox"/> Yes, date installed ____ / ____ / ____ <input type="checkbox"/> No
				-		-		:		<input type="checkbox"/> Yes, date installed ____ / ____ / ____ <input type="checkbox"/> No
USE INFORMATION										
6. TOTAL QUANTITY OF WATER REQUESTED: In the space below, enter total from Box M in Item 11 (Table 1) of this application. gallons per day, averaged over 1 year 785,163.2 gpd										
7. USE: <input checked="" type="checkbox"/> Agriculture <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Industrial Check all that apply. <input checked="" type="checkbox"/> Irrigation <input type="checkbox"/> Military <input type="checkbox"/> Municipal										
8. LOCATION OF WATER USE: Show the location of the use on a map, attached as a .pdf to this application. See Item 11 (Table 1, column B) of this application.										
Note 2: Signing below indicates that the signatories understand and affirm that the information provided on this application is accurate and true to the best of their knowledge. Further, the signatories understand that: (1) if necessary, further information may be required before the application is considered complete; (2) if a water use permit is granted by the Commission, this permit is subject to any existing legal uses, changes in sustainable yields and instream flow standards, reserved uses as defined by the Commission, and Hawaiian Home Lands' future uses; and (3) the applicant is responsible for paying the public notice fees associated with this application. Additionally, as stated in Note 1, above, HRS § 174C-51(1) the landowner shall be the joint applicant in the event the applicant is a lessee, licensee, developer or any person with a terminable interest or estate in the land that is the water source of the permitted water.										
9. APPLICANT					10. SOURCE LANDOWNER/JOINT APPLICANT (if applicable)					
Signature					Signature					
DANIEL F. BYRON II					DANIEL F. BYRON II					
MARCH 2, 2023					MARCH 2, 2023					
Print Name					Print Name					
Date					Date					

USE INFORMATION

11. TABLE 1: LAND USE CONSISTENCY (Attach additional copies, if necessary.)

LAND USE CONSISTENCY						EFFICIENCY OF USE			
A	B	C	D	E	F	G	H	I	J
PURPOSE / WATER USE CATEGORY (See the Instructions for water use category descriptions.)	TMK FOR LOCATION OF USE ATTACH THE FOLLOWING: <ul style="list-style-type: none">Property tax map, showing location of use referenced to established property boundaries.Photograph of the area of use.	STATE LAND USE DISTRICT	CDUP REQUIRED? Check the appropriate box, and write in the date approved, if applicable.	COUNTY ZONING CODE	SMAP REQUIRED? Check the appropriate box, and write in the date approved, if applicable.	UNITS OR NET ACREAGE	GPD/UNIT or GPD/ACRE	QUANTITY OF USE (GPD)	JUSTIFICATION FOR QUANTITY OF WATER REQUESTED (If applicable, attach additional sheets showing how the quantity was calculated.) For irrigation uses, fill in Table 2.
USES THAT REQUIRE POTABLE (DRINKING) WATER									
See attached Table	zone sector plat parcel	Agricultural	<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No	AG	<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No	333.853			
11. Table 1 Land Use	zone sector plat parcel		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No				
Consistency and Efficiency	zone sector plat parcel		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No				
	zone sector plat parcel		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No				
TOTAL POTABLE USE								K	GPD
USES THAT DO NOT REQUIRE POTABLE WATER									
	zone sector plat parcel		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No				
	zone sector plat parcel		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No				
	zone sector plat parcel		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No				
	zone sector plat parcel		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No		<input type="checkbox"/> Yes, date approved: / / <input type="checkbox"/> Yes, not acquired <input type="checkbox"/> No				
TOTAL NON-POTABLE USE								L	GPD
TOTAL QUANTITY OF WATER REQUESTED (sum of total potable use and total non-potable use) =								M	GPD

Please explain if there are any limitations (e.g., legal, contractual) on the proposed water use(s) described in Table 1. Ref. HRS § 174C-51(5).

USE INFORMATION (continued)

12. TABLE 2: AGRICULTURE/IRRIGATION INFORMATION
List all crops that will be grown, including landscape and golf course irrigation uses. Copy Table 2 and attach additional sheets to complete your list, if necessary.

A	B	C	D	E	F	G	H	I
TMK FOR LOCATION OF USE ATTACH THE FOLLOWING: <ul style="list-style-type: none">Property tax map with an outline around the area of each irrigation use listed in this table.Photograph of the area of each use.	CROP	TOTAL ACREAGE	NET IRRIGATED ACREAGE	BEGIN GROWTH PERIOD (month)	END GROWTH PERIOD (month)	IRRIGATION SYSTEM (refer to instructions)	IRRIGATION PRACTICE (refer to instructions)	COMMENTS (Continue comments below, if more space is needed.)
____ - ____ - ____ : ____ zone sector plat parcel	Diversified agriculture							
____ - ____ - ____ : ____ zone sector plat parcel								
____ - ____ - ____ : ____ zone sector plat parcel								
____ - ____ - ____ : ____ zone sector plat parcel								
____ - ____ - ____ : ____ zone sector plat parcel								
____ - ____ - ____ : ____ zone sector plat parcel								
____ - ____ - ____ : ____ zone sector plat parcel								
____ - ____ - ____ : ____ zone sector plat parcel								
____ - ____ - ____ : ____ zone sector plat parcel								
____ - ____ - ____ : ____ zone sector plat parcel								

Comments (continued from Column I). Please clearly indicate the crop (i.e., the row in table) these comments relate to.

OTHER PERTINENT INFORMATION

13. TABLE 3: ALTERNATIVES ANALYSIS

	A. Analysis of <i>potable</i> alternatives Attach additional sheets if necessary.	B. Analysis of <i>non-potable</i> alternatives Attach additional sheets if necessary.
Municipal sources	There are no municipal systems in the vicinity of Ukumehame. If there were any, they would also be subject to the Water Management Area.	
Wastewater reuse	There is no municipal wastewater system in the vicinity. Each of the homes to be built on the 45- agricultural lots will have Individual Wastewater Systems (consistent with Department of Health requirements). Incorporating a wastewater reuse at this limited scale is cost prohibitive.	
Ditch system	There is a perennial stream through the Ukumehame Agricultural Subdivision and diversions from that stream above the project. Consistent with Maui's WUDP that called for a "revised strategy," both the Domestic and Irrigation and agricultural needs will be addressed through "groundwater use from existing wells." With this permit, Ukumehame Water Association will use only groundwater; this will mean all existing diversions would be for lo'i kalo use.	
Desalinization	Desalinization is cost prohibitive based on the scale of the Ukumehame Water Association water system, that serves only 45-agricultural lots and their associated farms.	
Surface water	There is a perennial stream through the Ukumehame Agricultural Subdivision and diversions from that stream above the project. Consistent with Maui's WUDP that called for a "revised strategy," both the Domestic and Irrigation and agricultural needs will be addressed through "groundwater use from existing wells." With this permit, Ukumehame Water Association will use only groundwater; this will mean all existing diversions would be for lo'i kalo use.	
Other		

14. PUBLIC INTEREST

§174C-2(C), HRS states: *The state water code shall be liberally interpreted to***[a]** *obtain maximum beneficial use of the waters of the State for purposes such as domestic uses, aquaculture uses, irrigation and other agricultural uses, power development, and commercial and industrial uses. However,* **[b]***adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. Such objectives are declared to be in the public interest.*

Explain how the use in your application is consistent with items **[a]** and **[b]** above.

See attached file, 14. Public Interest

15. 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 this area.

See attached file, 15. Ka Paakai Analysis - a; b; & c.

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

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

OTHER PERTINENT INFORMATION

16. INTERFERENCE WITH THE RIGHTS OF THE DEPARTMENT OF HAWAIIAN HOME LANDS
Explain how the use of water will not interfere with the rights of the Department of Hawaiian Home Lands, as provided in section 221 of the Hawaiian Homes Commission Act.

See attached file, 16. Interference With Rights of DHHL

17. INTERFERENCE WITH ANY EXISTING LEGAL USES
Explain how the use of water will not interfere with any other existing legal use(s) of water.

See attached file, 17. Interference With Any Existing Legal Uses

18. EFFICIENCY

☐ If a water conservation plan was prepared, please attach to this application.

☐ If no water conservation plan was prepared, please explain how your use of water will be as efficient as possible.

19. PUBLIC WATER SYSTEM INFORMATION

Check the appropriate box or boxes.

☐ PUC-Regulated Private System / ☒ Non-PUC-Regulated Private System / ☐ Not a Public Water System

☐ Intended dedication to Honolulu Board of Water Supply or to County of Maui, Department of Water Supply.

☐ If a Level-1 validated AWWA water loss audit was completed, please attach.

20. CHAPTER 343

This project proposes:

☐ Use of state or county lands, or use of state or county funds

☐ Use within a state conservation district

☐ Use within a shoreline setback area

☐ Use within a national or Hawaii registered historic site

☐ Use within the Waikiki Special District

☐ The construction, expansion or modification of helicopter facility

☐ A wastewater treatment unit

☐ Waste-to-energy facility

☐ Landfill

☐ Oil refinery

☐ Power-generating facility

☒ None of the above 11 items

21. TABLE 4: 12-MONTH AVERAGE CALCULATION AS OF THE DATE OF DESIGNATION. FOR EXISTING USES ONLY.

MM/YY	AVERAGE DAILY PUMPAGE FOR THE MONTH (GALLONS PER DAY)	Check one per row			
		Metered	Estimated	Active but unknown	Inactive
See attached file	21 Table 4 12-month	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Average Calculation -	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Existing Uses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table 1 - Ukumehame Water Association Inc.
Existing and Proposed Water Demand

TMK PARCEL	GROSS AREA Each Farm Parcel (acres)	OWNERSHIP	"Domestic" Water Demand (600 gpd per farm dwelling - 2-farm dwellings per lot) (gpd) (2* 600)	"Irrigation" & "Agriculture" Water Demand (3,400 gallons per acre per day) (for Diversified Agriculture) (80% of land area in Ag use) (gpd) (Land Area * .80 * 3,400)
(2) 4-8-002:009	9.160		1200	24,915
(2) 4-8-002:074	8.731		1200	23,748
(2) 4-8-002:075	7.785		1200	21,175
(2) 4-8-002:076	4.352		1200	11,837
(2) 4-8-002:077	3.771		1200	10,257
(2) 4-8-002:078	4.274		1200	11,625
(2) 4-8-002:079	4.180		1200	11,370
(2) 4-8-002:080	3.261		1200	8,870
(2) 4-8-002:081	3.221		1200	8,761
(2) 4-8-002:082	3.094		1200	8,416
(2) 4-8-002:090	3.881		1200	10,556
(2) 4-8-002:083	2.632		1200	7,159
(2) 4-8-002:084	3.067		1200	8,342
(2) 4-8-002:085	3.049		1200	8,293
(2) 4-8-002:086	3.048		1200	8,291
(2) 4-8-002:087	3.182		1200	8,655
(2) 4-8-002:088	2.791		1200	7,592
(2) 4-8-002:089	3.097		1200	8,424
(2) 4-8-002:091	7.986		1200	21,722
(2) 4-8-002:092	12.274		1200	33,385
(2) 4-8-002:093	10.506		1200	28,576
(2) 4-8-002:094	5.365		1200	14,593
(2) 4-8-002:095	5.393		1200	14,669
(2) 4-8-002:096	3.559		1200	9,680
(2) 4-8-002:097	4.971		1200	13,521
(2) 4-8-002:098	7.253		1200	19,728
(2) 4-8-002:099	4.662		1200	12,681
(2) 4-8-002:100	4.464		1200	12,142
(2) 4-8-002:101	3.633		1200	9,882
(2) 4-8-002:102	4.029		1200	10,959
(2) 4-8-002:103	3.808		1200	10,358
(2) 4-8-002:104	7.846		1200	21,341
(2) 4-8-002:105	7.498		1200	20,395
(2) 4-8-002:106	7.499		1200	20,397
(2) 4-8-002:107	7.407		1200	20,147
(2) 4-8-002:108	13.276		1200	36,111
(2) 4-8-002:109	6.358		1200	17,294
(2) 4-8-002:110	5.000		1200	13,600
(2) 4-8-002:111	5.000		1200	13,600
(2) 4-8-002:112	5.000		1200	13,600
(2) 4-8-002:113	6.597		1200	17,944
(2) 4-8-002:114	11.003		1200	29,928
(2) 4-8-002:115	12.768		1200	34,729
(2) 4-8-002:116	7.342		1200	19,970
(2) 4-8-002:117	11.737		1200	31,925
	268.810		54000	731,163
			(45 * 2 * 600)	Sum of ((Each Parcel Land Area) * .80 * 3,400)
(2) 4-8-002:118 (River Corridor Parcel)	63.823 but less Exclusions is 55.887			
(2) 4-8-002:120 (Road Parcel)	3.027			
(2) 4-8-002:121 (Road Parcel)	5.156			
(2) 4-8-002:119 (Well Lot)	0.973			

All parcels are in the Agricultural Land Use District; no CDUP is required; County Zoning is Agriculture (AG); Unit Demands are noted (600 gpd for household and 3,400 gad for Irrigation/Agriculture uses); Irrigation/Agriculture use is Diversified Agriculture

14. Public Interest

Chapter 174C The State Water Code states:

§174C-2 Declaration of policy.

- (c) The state water code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as **domestic uses**, aquaculture uses, **irrigation and other agricultural uses**, power development, and commercial and industrial uses. However, adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. Such objectives are declared to be in the public interest. (emphasis added)

§174C-3 Definitions. As used in this chapter, unless the context otherwise requires:

“Authorized planned use” means the use or projected use of water by a development that has received the proper state land use designation and county development plan/community plan approvals.

“Domestic use” means any use of water for individual personal needs and for household purposes such as drinking, bathing, heating, cooking, noncommercial gardening, and sanitation.

“Reasonable-beneficial use” means the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is both reasonable and consistent with the state and county land use plans and the public interest.

“Sustainable yield” means the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by the commission.

Ukumehame **Water Association’s** water use is for Domestic, Irrigation and Agriculture purposes.

The Surface and Ground Water Management Area Designation Findings of Fact Report states, “In **Waiāhole, the Hawai’i Supreme Court** ‘recognize[d] domestic water use as a purpose of the state water resources trust.” (page 26) As noted in the statements in Chapter 174C The State Water Code, irrigation and other agricultural uses are also a purpose of the state water resources.

As a safeguard and anticipatory preventative action, the State Water Code (HRS Chapter 174C), as one of the criteria for Water Management Area designation, states,

- (1) Whether an increase in water use or authorized planned use may cause the maximum rate of withdrawal from the ground water source to reach ninety per cent of the sustainable yield of

the proposed ground water management area [§174C-44 Ground water criteria for designation]

The State Water Code goes on to state,

Notwithstanding an imminent designation of a ground water management area conditioned on a rise in the rate of ground water withdrawal to a level of ninety per cent of the area's sustainable yield, the commission, when such level reaches the eighty per cent level of the sustainable yield, may invite the participation of water users in the affected area to an informational hearing for the purposes of assessing the ground water situation and devising mitigative measures.

The Commission on Water Resource Management (CWRM) issues Water Use Permits that provide for the protection of public trust purposes and allow for maximum reasonable-beneficial use of water resources, while ensuring that the integrity of the resource is not threatened.

So, indicators of potential impacts to the water resource are when water withdrawal reaches levels of 80% and 90% of Sustainable Yield. This suggests that withdrawals below these thresholds would not be “impairing the utility or quality of the water source as determined by the commission”.

In the June 8, 2022 Surface and Ground Water Management Area Designation Findings of Fact Report (Table 13, page 47), the Sustainable Yield of the Ukumehame Aquifer System is 2 million gallons per day (MGD). The 2021 Moving Average of actual use was 0.065 MGD; the Authorized Planned Use (APU) was 1.08 MGD. This indicates an Existing and APU of 1.145 MGD; this represents 57% of Sustainable Yield.

There is a perennial stream through the Ukumehame Agricultural Subdivision and diversions from that stream above the Ukumehame Agricultural Subdivision.

Consistent with Maui’s Water Use and Development Plan (Maui WUDP) that called for a “revised strategy,” both the Domestic and Irrigation needs will be addressed through “groundwater use from existing wells.” With this permit, Ukumehame Water Association will use only groundwater; this will mean all existing surface water diversions would be for lo’i kalo use. In order to meet future demand, additional wells will be needed.

Domestic Water Demand Estimates for Ukumehame Farm Dwellings

A number of different documents come up with the same water demand estimate for Domestic (Farm Dwelling) uses:

Maui Water Use and Development Plan (Single Family or Duplex)

South Shore: 1,000 gpd
North Shore: 600 gpd

Na Wai Eha Findings of Fact, Conclusions of Law and Decision & Order

“...the typical residential customer’s indoor and outdoor use of 600 gpd ...” (page 290)

“... domestic cultivation will be limited to approximately 1.0 acre at the rate of 2,500 gad
...” (p 290)

The estimated planning-level water demand for Domestic Use at Ukumehame in this application is 600 gpd per Farm Dwelling.

Irrigation Water Demand Estimates for Ukumehame Diversified Agriculture

The Constitution of the State of Hawai‘i, Article XI - Conservation, Control and Development of Resources - Agricultural Lands - Section 3 states,

The State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands.

The 2019 Agricultural Water Use and Development Plan (Ag WUDP) notes **“diversified agriculture was typically defined as agricultural crops other than sugarcane and pineapple. However, as there are no large sugarcane growers in the state today and only one large pineapple farm, that definition of diversified agriculture is outdated. Therefore, in [the Ag WUDP], ‘diversified agriculture’ encompasses all agricultural crops in the State of Hawai‘i.”** (page 10)

The anticipated and planning-level agricultural activity at Ukumehame is expected to be Diversified Agriculture.

Estimated Water Demand Noted in Agricultural Water Use and Development Plan

The Ag WUDP “revisit[ed] the recommended water demand estimate for diversified agriculture. The analysis considers metered irrigation water data from farming areas throughout the state and historic water demand.” (page 190)

That plan noted that the analysis of water demand for Diversified Agriculture found three average water demand rates. **“The average water demand rate of these three (3) data sets is 3,946 gpd/day. Therefore, it is recommended that the planning-level water demand rate is 3,900 gpd/day at the farm meter”.** (page 191)

Estimated Water Demand Noted in Na Wai Eha Contested Case

In the Conclusions of Law portion of the Na Wai Eha Contested Case Findings Of Fact, Conclusions Of Law, and Decision & Order (filed June 28, 2021) concluded,

“The Commission [on Water Resource Management, CWRM] therefore does not adopt a higher amount for small farmers versus larger farmers but instead adopts the lesser amount, 2,500 gad, as the maximum irrigation requirement for both large- and small-scale agriculture of all types of crops, including nurseries, orchards, and golf courses.”

“Applicants seeking lesser amounts will not have their permits increased to the maximum requirement of 2,500 gad, and applicants seeking larger amounts will be permitted at the maximum of 2,500 gad, except when the larger requests are justified.” (page 274)

Irrigation Supplements Existing Rainfall

It should be noted that an area’s rainfall will provide water for the crops; irrigation water applied by farmers will be in addition to the area’s rainfall. This is reinforced by the Maui WUDP; and, as noted, rainfall differs by area. As noted by NOAA.

“An island’s windward side faces the prevailing, or trade, winds, whereas the island’s leeward side faces away from the wind, sheltered from prevailing winds by hills and mountains. As trade winds blow across the ocean, they pick up moist air from the water.”

“Once the damp air makes landfall on an island, it ascends hills and mountains to form condensation, clouds, and precipitation. As the air moves to the other side of the island, it warms up and dries out. Thus, an island’s windward side is wetter and more verdant than its drier leeward side. Meteorologists call this contrast the orographic effect.” (NOAA National Ocean Service)

This is illustrated and evident in the University of Hawai’i’s information noted in their on-line Rain Atlas:

Area	Mean Annual Rainfall
Ukumehame (Leeward)	13.36 in
Waihe’e (Windward)	34.23 in
Waiehu (Windward)	31.32 in
Wailuku (Windward)	29.93 in
Waikapu (Windward)	23.12 in

Estimated Water Demand Noted in Maui Island Water Use and Development Plan

The Maui Island Water Use and Development Plan (Maui WUDP), adopted in 2022, states, “Generally, agricultural use can be categorized into diversified agriculture and kalo cultivation, with the following water use rates:”

Table ES.3 Water Use Rates for Diversified Agriculture and Lo'i Kalo

Agricultural Activity	Water Use Rate (gpd/acre)	Type of Water Coefficient
Diversified Agriculture	2,500 for wetter areas 3,400 for drier areas	Average per acre water use for Diversified Agriculture activities (Does not include irrigation system water losses)
Lo'i Kalo	100,000 to 300,000 15,000 to 40,000	Per acre water inflow into lo'i kalo system Consumptive use

Source: Diversified Agriculture – CWRM Waiahole Ditch Case, State Agricultural Water Use & Development Plan. Lo'i Kalo - CWRM Na Wai 'Eha and East Maui Streams Contested Cases

The Maui WUDP notes that the prior (2002) Standard for Average water demand was 5,000 gal/acre but that plan adjusted the Standard to 3,400 gal/acre. (page 191)

Note that the Maui WUDP estimated Diversified Agriculture in windward (wetter areas) estimates irrigation water demand is 2,500 gad (identical to the conclusions in the Na Wai Eha Contested Case (which also addressed farms on the windward (wetter) side).

However, for ‘drier areas’ (such as the leeward side of West Maui Mountain, such as Ukumehame), the estimated irrigation water demand for Diversified Agriculture is 3,400 gad.

3,400 gad will be used in the estimated planning-level water demand for Diversified Agriculture and personal cultivation around each of the Farm Dwellings at Ukumehame.

Present and Future Water Use by Ukumehame Water Association

While the property has been subdivided into 45 individual farm lots, at this time, only a handful of them have farm dwellings and or farm activity on them.

The present Domestic water system is made up of two groundwater wells. The following is the actual pumping for the past 12-months (June 2021 through May 2022):

	Ukumehame – Sugar Way 2	Ukumehame 3
Average:	1,152,554 gallons (0.038 MGD)	1,222,445 gallons (0.040 MGD)

Uses on each lot may vary, but as a planning-level approach for existing and future water demand, the overall water system demand is based on the following parameters:

- 45 Agriculture parcels
- 2 Farm Dwellings on each Agricultural parcel
- 80% of each of the Agricultural parcels is usable for Agricultural Farming (this estimated usable farm area per parcel is due to Domestic uses, driveway, farm access roads, topographic conditions, buffer, etc)

Recent estimates indicate that the Existing and Planned water demands for the 45-lot Ukumehame Agricultural Subdivision (which has approximately 200-usable acres overall for agriculture use on the lots) are broken down as:

Estimated Average Daily Water Demand

Domestic	54,000 gpd (Daily Demand) for 90 farm dwellings (main and one accessory farm dwellings per lot/farm) at 600 gpd average daily demand per dwelling (based on the Maui WUDP estimate for residential) (45 * 2 * 600)
Irrigation	731,162 gpd (Daily Demand) for the estimated Diversified Agriculture Irrigation. Per parcel: Farm area = Parcel land area times 80% (estimated usable farm area per parcel due to Domestic uses, driveway, farm access roads, topographic conditions), times 3,400 gallons per acre per day) (based on the Maui Water Use and Development Plan “for drier areas” (page 13)) Sum of ((Each Parcel Land Area) * .80 * 3,400)
Total	785,163 gpd (Say 0.7852 MGD) (39.3% of Sustainable Yield)

Water Quality

As noted in the April 14, 2022 **‘Position’** letter from the Department of Health (DOH) to CWRM on the prospect of designating the Lahaina Aquifer Sector a Water Management Area,

The Water Code in Hawaii Revised Statutes (HRS), Chapter 174C, specifies that CWRM can designate an area as a WMA to establish administrative control over the withdrawals and diversions of water if the water resources may be threatened by existing or proposed withdrawals or diversions of water. ...

The DOH is specifically tasked to evaluate whether Condition (2) is met. [(2) There is an actual or threatened water quality degradation as determined by the department of health [emphasis added by DOH]. ...

DOH reviewed drinking water contamination data contained in the Safe Drinking Water Information System (SDWIS) contaminant database as well as the chloride concentrations reported to CWRM for drinking water wells for the period from 2010 through 2021.

DOH found water quality issues within the Lahaina Aquifer Sector, but overwhelmingly these problems are from legacy contamination and will not be made worse by increased groundwater withdrawals or water diversions. ...

DOH concluded its ‘Position’ statement saying,

DOH’s assessment of the need for WMA designation for the Lahaina Aquifer Sector is that criteria are not met for five (5) of the six (6) aquifer systems in this sector. However, WMA designation is appropriate for the **Honokōwai** Aquifer System. The chloride data from wells in the **Honokōwai** Aquifer System do indicate withdrawals in this groundwater body are approaching the maximum that can be sustained without degradation of this resource.

While several other Lahaina Aquifer Systems were called out in the DOH ‘Position’ statement, Ukumehame was not noted as an example that “exceeded” contaminant levels or was identified as an aquifer of “concern”.

The Ukumehame Aquifer System is not mentioned in the DOH Water Quality Plan (Final, 2019) as an **aquifer of “concern”**.

Traditional & Cultural Resources and Instream Use

Ukumehame Water Association is and will only be using groundwater for Domestic and Irrigation uses.

Per a USGS website, a USGS Stream gauge is located 0.5 mi upstream from the Ukumehame Gulch diversion intake, 0.68 mi northeast of the Ukumehame Reservoirs, 1.4 mi southeast of Olowalu Stream diversion intake, and 2 mi northwest of Ukumehame Beach State Park. The elevation of the gauge is 400 feet above mean sea level.

“The Ukumehame Gulch diversion intake is located at an altitude of 240 ft, about 0.5 mi downstream from the measurement site. The diversion captures some of the flow in the stream and the remainder flows over the diversion dam downstream. A smaller diversion intake (for taro use) is located about 0.3 mi downstream from the measurement site.”

<https://streamstatsags.cr.usgs.gov/gagePages/html/16647000.htm>

Per the CWRM Instream Flow Standard Assessment Report for Hydrologic Unit 6004, Ukumehame,

Instream Flow Standards

Under the State Water Code (Code), Chapter 174C, Hawaii Revised Statutes (HRS), the Commission on Water Resource Management (Commission) has the responsibility of establishing IFS on a stream-by-stream basis whenever necessary to protect the public interest in the waters of the State. Early in its history, the Commission recognized the complexity of establishing IFS for **the State’s estimated 376 perennial streams and instead set interim IFS at “status quo” levels.** These interim IFS were defined as the amount of water flowing in each stream (with consideration for the natural variability in stream flow and conditions) at the time the administrative rules governing them were adopted in 1988 and 1989. (page 2)

The Code provides for a process to amend an interim IFS in order to protect the public interest pending the establishment of a permanent IFS. The Code, at §174C-71(2), describes this process **including the role of the Commission to “weigh the importance of the present or potential instream values with the importance of the present or potential uses of water for noninstream purposes, including the economic impact of restricting such uses.”** (page 3)

Under the State Water Code, the conveyance of irrigation and domestic water supplies to downstream points of diversion is included as one of nine listed instream uses. The thought of a stream as a conveyance mechanism for noninstream purposes almost seems contrary to the concept of instream flow standards. However, the inclusion of this instream use is intended to ensure the availability of water to all those who may have a legally protected right to the water flowing in a stream. Of particular importance in this section is the diversion of surface water for domestic purposes. In its August 2000 decision on the Waiahole Ditch Combined Contested Case Hearing, the Hawaii Supreme Court identified domestic water use of the general public, particularly drinking water, as one of, ultimately, four trust purposes. (page 65)

The maintenance of instream flows is important to the protection of traditional and customary Hawaiian rights, as they relate to the maintenance of stream resources (e.g., hihiwai, opae, oopu) for gathering, recreation, and the cultivation of taro. Article XII, Section 7 of the State Constitution **addresses traditional and customary rights: “The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua’a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.”** Case notes listed in this section indicate, **“Native Hawaiian rights protected** by this section may extend **beyond the ahupua’a in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner. 73 H.578, 837 P.2d 1247.”** (page 66)

Taro cultivation is addressed in this section of the report as well as the next section, 13.0 Noninstream Uses. This is because instream flow standards take into account both social and scientific information. For sociological and cultural purposes, taro cultivation can be considered

an instream use as part of the **“protection of traditional and customary Hawaiian rights,”** that is specifically listed as an instream use in the Water Code. Taro cultivation can also be considered a noninstream use since it removes water from a stream (even if water from taro loi is later returned to the stream). (page 66)

Under the State Water Code, noninstream uses are defined as “water that is diverted or removed from its stream channel...and includes the use of stream water outside of the channel for domestic, agricultural, and industrial purposes.” Article XI, Section 3 of the State Constitution states: “The State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally sustainable lands.” Water is crucial to agriculture and agricultural sustainability. Article XI, Section 3 also states, **“Lands identified by the State as important agricultural lands needed to fulfill the purposes above shall not be reclassified by the State or rezoned by its political subdivisions without meeting the standards and criteria established by the legislature and approved by a two-thirds vote of the body responsible for the reclassification or rezoning action. [Add Const Con 1978 and election Nov 7, 1978].”** (page 79)

Another component in the assessment of traditional and customary Hawaiian rights is the presence of Department of Hawaiian Home Lands (DHHL) parcels within the surface water hydrologic unit. The mission of DHHL is to effectively manage the Hawaiian Home Lands trust and to develop and deliver land to native Hawaiians (PBR Hawaii, 2004). In June 2004, DHHL published the Muai [sic] Island Plan which served to examine infrastructure needs, provide development cost estimates, and identify priority areas for homestead development. Of the more than 31,000 acres of DHHL land on the island of Maui, no parcels occur within or nearby the Ukumehame hydrologic unit. (page 75)

The definitions in the report include,

Instream Flow Standard. A quantity of flow of water or depth of water which is required to be present at a specific location in a stream system at certain specified times of the year to protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses.

Instream use. Beneficial uses of stream water for significant purposes which are located in the stream and which are achieved by leaving the water in the stream. Instream uses include, but are not limited to:

- (1) Maintenance of fish and wildlife habitats;
- (2) Outdoor recreational activities;
- (3) Maintenance of ecosystems such as estuaries, wetlands, and stream vegetation;
- (4) Aesthetic values such as waterfalls and scenic waterways;
- (5) Navigation;
- (6) Instream hydropower generation;
- (7) Maintenance of water quality;
- (8) The conveyance of irrigation and domestic water supplies to downstream points of diversion; and
- (9) The protection of traditional and customary Hawaiian rights. (page 6)

The report identified lo'i kalo in Ukumehame:

In the Ukumehame hydrologic unit, taro is currently grown in two areas: one fed by the Kaakau Auwai consisting of three complexes with 16 loi in total; and one area fed by the main Ukumehame Ditch of two complexes with two loi each (four loi total). (page 74)

“Currently, there are two ditches/auwais that remove water from the Ukumehame Stream with some water from each returned to the streams: the Rodriguez auwai and the primary Ukumehame plantation ditch. The Kaakau auwai diverts approximately 0.16 mgd at an elevation of 300 ft to feed an extensive loi complex”. (page 79)

The CWRM website notes the following for the Instream Flow Standard: Hydrologic Unit of Ukumehame (6004):

Instream Flow Standard		
CFS	MGD	Location / Notes
4.5	2.9	Ukumehame Stream, below the main Ukumehame Stream diversion near an altitude of 220 feet. At least 0.20 cfs (0.13 mgd) must be supplied for taro lo'i from diversion 960.6. (https://dlnr.hawaii.gov/cwrmsurfacewater/ifs/maui/6004-ukumehame/)

DLNR’s website with CWRM News Releases, May 21, 2018, reported that “Instream values for four West Maui streams are now protected following a decision yesterday by the Hawai’i Commission on Water Resource Management (CWRM).” With respect to Ukumehame, that reporting stated,

The streams are Ukumehame, Olowalu, Launiupoko and **Kaua’ula. In addition to recognizing** traditional and customary rights such as mauka-to-makai flows, the gathering of native species and taro cultivation, the Commission decision will serve to protect fish habitat, ecosystem services, aesthetic and recreational values, and water quality.

The decision is the first staff-initiated interim instream flow standard since 1988 and was the result of two years of stream measurements, data analysis, mapping and public engagement by **the CWRM staff. “Farmers cultivating small taro patches downstream literally had to beg for water that was being diverted upstream for other agricultural and landscaping irrigation,” explained Commission Chair Suzanne Case. “With sugar cane plantations and mills no longer a consideration this is certainly the time to re-balance, to ensure all rightful users of West Maui’s water supply share this precious resource.”**

The interim instream flow standards recommended by CWRM staff and adopted by the Commission are:

Ukumehame Stream - at least 2.9 million gallons per day below the plantation diversion, ensuring at least 600,000 gallons per day for taro farmers, At least 45,000 per day is available for agriculture and 4,000 gallons per day for landscaping at least 50% of the time with surface water.
[\(https://dlnr.hawaii.gov/blog/2018/03/21/nr18-040/\)](https://dlnr.hawaii.gov/blog/2018/03/21/nr18-040/)

Existing Groundwater Wells

Ukumehame Water Association presently has two operating wells (6-3835-003, Sugar Way 2; 6-4835-004, Ukumehame 3). (6-2835-002, Sugar Way 1 is not presently functional, but may be used in the future.) The average monthly total pumpage from each well over the last 12-months (June 2021 through May 2022) has been 0.038 MGD and 0.048 MGD – total is 0.086 MGD).

Initial Need

As noted in the Draft Findings of Fact Report for Ground and Surface Water Management Area Designation (April 21, 2022), the elevations for the two existing wells under the operation and control of the Ukumehame Water Association for the Ukumehame Agricultural Subdivision are:

State Well No.	Well Name	Ground Elevation
6-4835-003	Sugar Way 2	63.51-feet (and draws from the basal aquifer below)
6-4835-004	Ukumehame 3	61.97-feet (and draws from the basal aquifer below)

Potential Future Groundwater Wells

Given the very modest current and foreseeable potable and irrigation use, as an initial step, the plan is to add a 3rd 40 gpm well on parcel :102, lot 30 in the Ukumehame Agricultural Subdivision.

When needed, based on increasing water use and/or salinity response in the three potable wells, add a large capacity well and 2nd storage tank (the 2nd storage tank should be located adjacent to the existing tank). There are two possible sites for the large capacity (about 500 gpm well, or 720,000 gpd (0.72 MGD).

- 1. TMK 4-8-02:118 (part of the ‘River Corridor Parcel’)
- 2. TMK 4-8-02:102 (Lot 30) (probable site)

Each of the proposed well sites are under 200-feet in elevation, and they would be drawing from the basal aquifer below.

Stream Diversions for Lo’i Kalo Are at a Higher Elevation Than the Existing and Planned Wells

The stream diversions are at elevations ranging from approximately 220-foot to approximately 300-foot elevation; the existing groundwater wells are in the vicinity of 60-feet to 65-feet and the proposed wells will be just under 200-feet. The wells tap into the basal groundwater aquifer just above sea level.

Because the groundwater withdrawals are at elevations significantly lower than the diversions that serve the lo’i, the groundwater withdrawals do not impact the availability of water going into the lo’i or the quality of water in the stream.

In addition, the recent (2018) Instream Flow Standards for Ukumehame Stream serve “to protect the public interest in the waters of the State”, consistent with the responsibilities noted in the State Water Code (Code), Chapter 174C, Hawaii Revised Statutes (HRS).

As noted in The Surface and Ground Water Management Area Designation Findings of Fact Report, “Interim IFS on nine streams [including Ukumehame] were established to protect the various instream

uses of water, including habitat for native aquatic biota, recreational value, and traditional and customary practices of Native Hawaiians.”

That Report also stated, “The Hawai’i Supreme Court also held that the Commission ‘has an affirmative duty under the public trust to protect and promote instream trust uses.’” The maintenance of instream flows is important to the protection of traditional and customary Hawaiian rights. So, there are additional safeguards that serve to protect the traditional and customary practices and Native Hawaiian rights.

All of these actions serve to protect the traditional and customary practices and Native Hawaiian rights and instream uses.

Ukumehame is Consistent with Public Interest Concerns states in Chapter 174C The State Water Code

The uses at Ukumehame Agricultural Subdivision are consistent with the Policy and Definitions of Chapter 174C The State Water Code – they are for Domestic Use and Irrigation; the existing and proposed estimated average daily Domestic and Irrigation water demands of the Ukumehame Agricultural Subdivision is 40.0% of Sustainable Yield. Ukumehame is not an Aquifer System that is of stated concern by the Department of Health. The existing and planned groundwater withdrawals will not impact the diversions on the stream, stream flow or the quality of water in the stream.

15. 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 this area.

Archaeological Sites

During an archaeological review of the project site, 17 historic sites were identified including a cattle wall and two cane irrigation ditches; **the remaining 14 sites include Ukumehame heiau, Hiki‘i heiau, the Lindsey family cemetery, precontact agricultural terraces, and several examples of habitation sites, 2 with burial features and 1 with petroglyphs.**

Lo‘i Kalo

E. S. Craighill Handy in *The Hawaiian Planter* stated that in the Lahaina region there are taro terraces from “Honokohau to Ukumehame”. **Specific to Ukumehame**, he stated,

Ukumehame. Above the Pioneer Plantation reservoirs, terraces cover the flatland just below the entrance to Ukumehame Canyon. Only a few of these are now under cultivation. The upper terraces have been long abandoned, and those just above the reservoirs are only half used—that half unsuccessfully, because of insufficient water for flooding. The terraces used to extend well down over the land below the valley, but, with the exception of one tiny taro plantation standing like an island in the midst of the cane, all vestiges of the ancient cultivation have been plowed under. This is excellent wet taro soil. (page 103)

In *Native Planters of Old Hawaii*, Handy, Handy and Pukui stated, with respect to Lahaina,

Southeastward along the coast from the ali‘i settlement were a number of areas where dispersed populations grew taro, sweet potato, breadfruit and coconut on slopes below and in the sides of valleys which had streams with constant flow. All this area, like that around and above Lahaina, is now sugar-cane land. (page 492)

The CWRM Instream Flow Standard Assessment Report for Hydrologic Unit 6004, Ukumehame, states, “In the mid to low reaches along the stream there are cultivated taro loi.” (page 2)

That report further notes, “The maintenance of instream flows is important to the protection of traditional and customary Hawaiian rights, as they relate to the maintenance of stream resources (e.g., hihiwai, opae, oopu) for gathering, recreation, and the cultivation of taro.” (page 66) It further states,

Taro cultivation can also be considered a noninstream use since it removes water from a stream (even if water from taro loi is later returned to the stream). It could be argued that for scientific analysis, taro cultivation is an instream use since taro loi provide habitat for stream biota, but because the water is physically taken out of the stream, it is also a noninstream use. Another way to look at the approach of indentifying taro cultivation as both instream and noninstream uses is that when the Commission addresses taro cultivation as an instream use, it is generally in the context of traditional and customary Hawaiian rights; whereas when the Commission addresses taro cultivation as a noninstream use, it is approaching the issue from the aspects of agriculture and water use. (page 66)

The preferred method of wetland taro cultivation, where terrain and access to water permitted, was the construction of loi (flooded terraces) and loi complexes. These terraces traditionally received stream water via carefully engineered open channels called auwai. The auwai carried water, sometimes great distances, from the stream to the loi via gravity flow. In a system of multiple loi, water may either be fed to individual loi through separate little ditches if possible, or in the case of steeper slopes, water would overflow and drain from one loi to the next. Outflow from the loi may eventually be returned to the stream. (pages 71 & 72)

“Ukumehame had extensive terraces below its canyon, some of which were still planted with taro in 1934 these terrace systems used to extend well down below the canyon.” (page 74, quoted from Native Planters, Handy, Handy and Pukui, page 492)

In the Ukumehame hydrologic unit, taro is currently grown in two areas: one fed by the Kaakau Auwai consisting of three complexes with 16 loi in total; and one area fed by the main Ukumehame Ditch of two complexes with two loi each (four loi total). (page 74)

“Currently, there are two ditches/auwais that remove water from the Ukumehame Stream with some water from each returned to the streams: the Rodriguez auwai and the primary Ukumehame plantation ditch. The Kaakau auwai diverts approximately 0.16 mgd at an elevation of 300 ft to feed an extensive loi complex”. (page 79)

The Maui Cultural Lands website notes that,

“Maui Cultural Lands, Inc. (MCL) is a grassroots land trust organization. Our mission is to stabilize, protect and restore Hawaiian cultural resources—and the success of our efforts depends upon volunteers like you!”

Edwin “Ed” Robert Naleilehua Lindsey Jr. and his wife Puanani established Maui Cultural Lands as a nonprofit organization in February 2002. A Native Hawaiian and lifelong school teacher, Uncle Ed had the goal of bringing in the people of Maui—both residents and visitors—to help with the restoration of Honokowai Valley. [They also have a program in Ukumehame.]

Since Ed’s passing in 2009, Puanani and Ed’s eldest son, Edwin “Ekolu” Lindsey III, carry on the work of Ed’s legacy.

Maui Cultural Lands has a program to restore the lo’i kalo at Ukumehame. As noted on their website, “Progress & Objectives: The ancient lo’i have been partially restored; however much work remains to be done. Lo’i kalo require constant, diligent attention in weeding, planting and harvesting. With more hands, the lo’i can be returned to their original state and thriving production.” (<https://mauiculturallands.org>)

- b. Identify the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.**

Archaeological Sites

When the Ukumehame Agricultural Subdivision was being proposed, the archaeological report for the project noted, **“Fourteen sites are to be preserved in the project area. Five of these fourteen sites to be**

preserved are addressed in the Burial Treatment Plan (accepted by SHPD/DLNR). Ten of the fourteen sites to be preserved [were] addressed in [the] preservation plan. One of the fourteen sites to be preserved is addressed in both plans due to a non-burial component, within the project area, that is to be preserved and the site **is therefore addressed in this document as well as the Burial Treatment Plan.**"

As part of the Preservation Plan, the sites are preserved in place and buffer zones are established around each. Likewise, for the four identified probable human burial sites, all were preserved in place and **"permanent buffer zone wherein no further construction or land alterations of any kind can occur"** were established. The associated Burial Treatment Plan was accepted by SHPD/DLNR and unanimously approved by Maui / Lānaʻi Islands Burial Council.

Given that historical and burial sites are preserved, buffers have been established and the Preservation Plan calls for ongoing preservation in place, there are adequate protection measures in place to protect these resources. In addition, roads have been built in the Ukumehame Agricultural Subdivision that have improved access for families or practitioners to get to the sites.

Loʻi Kalo

Per a USGS website, a USGS Stream gauge is located 0.5 mi upstream from the Ukumehame Gulch diversion intake, 0.68 mi northeast of the Ukumehame Reservoirs, 1.4 mi southeast of Olowalu Stream diversion intake, and 2 mi northwest of Ukumehame Beach State Park. The elevation of the gauge is 400 feet above mean sea level.

"The Ukumehame Gulch diversion intake is located at an altitude of 240 ft, about 0.5 mi downstream from the measurement site. The diversion captures some of the flow in the stream and the remainder flows over the diversion dam downstream. A smaller diversion intake (for taro use) is located about 0.3 mi downstream from the measurement site."

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Per the CWRM Instream Flow Standard Assessment Report for Hydrologic Unit 6004, Ukumehame,

Instream Flow Standards

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Under the State Water Code, noninstream uses are defined as “water that is diverted or removed from its stream channel...and includes the use of stream water outside of the channel for domestic, agricultural, and industrial purposes.” Article XI, Section 3 of the State Constitution states: **“The State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally sustainable lands.”** Water is crucial to agriculture and agricultural sustainability. Article XI, Section 3 also states, **“Lands identified by the State as important agricultural lands needed to fulfill the purposes above shall not be reclassified by the State or rezoned by its political subdivisions without meeting the standards and criteria established by the legislature and approved by a two-thirds vote of the body responsible for the reclassification or rezoning action. [Add Const Con 1978 and election Nov 7, 1978].”** (page 79)

Another component in the assessment of traditional and customary Hawaiian rights is the presence of Department of Hawaiian Home Lands (DHHL) parcels within the surface water hydrologic unit. The mission of DHHL is to effectively manage the Hawaiian Home Lands trust and to develop and deliver land to native Hawaiians (PBR Hawaii, 2004). In June 2004, DHHL published the Muai [sic] Island Plan which served to examine infrastructure needs, provide development cost estimates, and identify priority areas for homestead development. Of the more than 31,000

acres of DHHL land on the island of Maui, no parcels occur within or nearby the Ukumehame hydrologic unit. (page 75)

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Instream use. Beneficial uses of stream water for significant purposes which are located in the stream and which are achieved by leaving the water in the stream. Instream uses include, but are not limited to:

- (1) Maintenance of fish and wildlife habitats;
- (2) Outdoor recreational activities;
- (3) Maintenance of ecosystems such as estuaries, wetlands, and stream vegetation;
- (4) Aesthetic values such as waterfalls and scenic waterways;
- (5) Navigation;
- (6) Instream hydropower generation;
- (7) Maintenance of water quality;
- (8) The conveyance of irrigation and domestic water supplies to downstream points of diversion; and
- (9) The protection of traditional and customary Hawaiian rights. (page 6)

The report identified lo’i kalo in Ukumehame:

In the Ukumehame hydrologic unit, taro is currently grown in two areas: one fed by the Kaakau Auwai consisting of three complexes with 16 loi in total; and one area fed by the main Ukumehame Ditch of two complexes with two loi each (four loi total). (page 74)

“Currently, there are two ditches/auwais that remove water from the Ukumehame Stream with some water from each returned to the streams: the Rodriguez auwai and the primary Ukumehame plantation ditch. The Kaakau auwai diverts approximately 0.16 mgd at an elevation of 300 ft to feed an extensive loi complex”. (page 79)

The CWRM website notes the following for the Instream Flow Standard: Hydrologic Unit of Ukumehame (6004):

Instream Flow Standard		
CFS	MGD	Location / Notes
4.5	2.9	Ukumehame Stream, below the main Ukumehame Stream diversion near an altitude of 220 feet. At least 0.20 cfs (0.13 mgd) must be supplied for taro lo’i from diversion 960.6. (https://dlnr.hawaii.gov/cwrmsurfacewater/ifs/maui/6004-ukumehame/)

DLNR’s website with CWRM News Releases, May 21, 2018, reported that “Instream values for four West Maui streams are now protected following a decision yesterday by the Hawai’i Commission on Water Resource Management (CWRM).” With respect to Ukumehame, that reporting stated,

The streams are Ukumehame, Olowalu, Launiupoko and Kaua‘ula. In addition to recognizing traditional and customary rights such as mauka-to-makai flows, the gathering of native species and taro cultivation, the Commission decision will serve to protect fish habitat, ecosystem services, aesthetic and recreational values, and water quality.

The decision is the first staff-initiated interim instream flow standard since 1988 and was the result of two years of stream measurements, data analysis, mapping and public engagement by the CWRM staff. **“Farmers cultivating small taro patches downstream literally had to beg for water that was being diverted upstream for other agricultural and landscaping irrigation,” explained Commission Chair Suzanne Case. “With sugar cane plantations and mills no longer a consideration this is certainly the time to re-balance, to ensure all rightful users of West Maui’s water supply share this precious resource.”**

The interim instream flow standards recommended by CWRM staff and adopted by the Commission are:

Ukumehame Stream - at least 2.9 million gallons per day below the plantation diversion, ensuring at least 600,000 gallons per day for taro farmers, At least 45,000 per day is available for agriculture and 4,000 gallons per day for landscaping at least 50% of the time with surface water. (<https://dlnr.hawaii.gov/blog/2018/03/21/nr18-040/>)

Existing Groundwater Wells

Ukumehame Water Association presently has two operating wells (6-3835-003, Sugar Way 2; 6-4835-004, Ukumehame 3). (6-2835-002, Sugar Way 1 is not presently functional, but may be used in the future.) The average monthly total pumpage from each well over the last 12-months (June 2021 through May 2022) has been 0.038 MGD and 0.048 MGD – total is 0.086 MGD).

Initial Need

As noted in the Draft Findings of Fact Report for Ground and Surface Water Management Area Designation (April 21, 2022), the elevations for the two existing operating wells under the operation and control of the Ukumehame Water Association for the Ukumehame Agricultural Subdivision are:

State Well No.	Well Name	Ground Elevation
6-4835-003	Sugar Way 2	63-feet (and draws from the basal aquifer below)
6-4835-004	Ukumehame 3	61-feet (and draws from the basal aquifer below)

Potential Future Groundwater Wells

Given the very modest current and foreseeable potable and irrigation use, as an initial step, the plan is to add a 3rd 40 gpm well on parcel :102, lot 30 in the Ukumehame Agricultural Subdivision.

When needed, based on increasing water use and/or salinity response in the three potable wells, add a large capacity well and 2nd storage tank (the 2nd storage tank should be located adjacent to the existing tank). There are two possible sites for the large capacity (about 500 gpm well, or 720,000 gpd (0.72 MGD).

- 1. TMK 4-8-02:118 (part of the ‘River Corridor Parcel’)
- 2. TMK 4-8-02:102 (Lot 30) (probable site)

Each of the proposed well sites are under 200-feet in elevation, and they would be drawing from the basal aquifer below.

Stream Diversions for Lo'i Kalo Are at a Higher Elevation Than the Existing and Planned Wells

The stream diversions are at elevations ranging from approximately 220-foot to approximately 300-foot elevation; the existing groundwater wells are in the vicinity of 60-feet to 65-feet and the proposed large capacity well will be just under 200-feet. The wells tap into the basal groundwater aquifer just above sea level.

Because the groundwater withdrawals are at elevations significantly lower than the diversions that serve **the lo'i, the groundwater withdrawals do not impact the availability of water going into the lo'i or the quality of water in the stream.**

In addition, the recent (2018) Instream Flow Standards for **Ukumehame Stream** serve "to protect the public interest in the waters of the State", **consistent with the responsibilities noted in the State Water Code (Code), Chapter 174C, Hawaii Revised Statutes (HRS).**

As noted in The Surface and Ground Water Management Area Designation Findings of Fact Report, "Interim IFS on nine streams [including Ukumehame] were established to protect the various instream uses of water, including habitat for native aquatic biota, recreational value, and traditional and customary practices of Native Hawaiians."

That Report also stated, "**The Hawai'i Supreme Court** also held that the Commission 'has an affirmative duty under the public trust to protect and promote instream trust uses.'" The maintenance of instream flows is important to the protection of traditional and customary Hawaiian rights. So, there are additional safeguards that serve to protect the traditional and customary practices and Native Hawaiian rights.

All of these actions serve to protect the traditional and customary practices and Native Hawaiian rights.

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

The Surface and Ground Water Management Area Designation Findings of Fact Report states,

Exercise of Traditional and Customary Native Hawaiian Rights and Practices

Traditional and customary Native Hawaiian rights (T&C rights) are protected at every level of the **law, including the constitution, statutes, and common law. The Hawai'i Supreme Court "has stressed that the rights of native Hawaiians are a matter of great public concern in Hawaii." Article XII, section 7 confers upon the Commission "the power to protect [Native Hawaiian] rights and to prevent any interference with the exercise of these rights." Article XII, § 7 correlatively "places an affirmative duty on the State and its agencies to preserve and protect traditional and customary native Hawaiian rights."**

The Hawai'i Supreme Court held that the "exercise of Native Hawaiian and traditional and customary rights" is a protected public trust purpose under the constitutional public trust, which the Commission has an affirmative duty to protect to the extent feasible. The Court reviewed the early law of the Hawaiian Kingdom and recognized the "specific objective of preserving the rights

of native tenants during the transition to a western system of **private property.**" The Court made clear its intention to uphold this **"original intent"** of the public trust.

The Code provides that protected T&C rights include, but are not limited to, **"the cultivation or propagation of taro on one's own kuleana and the gathering of hihiwai, opae, o'opu, limu, thatch, ti leaf, aho cord, and medicinal plants for subsistence, cultural, and religious purposes."** HRS § 174C-101(c). Additionally, HRS § 7-1 establishes the rights of tenants to gather certain enumerated items and also the **"right of drinking water, and running water, and the right of way."** HRS § 1-1 more broadly codifies the doctrine of custom as it applies in Hawai'i, protecting traditional and customary practices that were established by 1892. ...

As a summary: The maintenance of instream flows is important for the protection of T&C rights, **as they relate to the maintenance of stream (e.g., hihiwai, 'ōpae, 'o'opu) and riparian (vegetation)** resources for gathering, recreation within streams, the cultivation of kalo, and other subsistence, cultural, and religious purposes.

There is tremendous variability of instream and non-instream uses across and within the surface water hydrologic units in the Lahaina ASA. For example, one stream may support extensive taro cultivation while another may primarily support domestic and recreational uses. ...

Community members voiced grave concern over the lack of available stream water and **streamflow to cultivate lo'i kalo and to exercise traditional and customary Native Hawaiian** practices that rely on water in its natural state, mauka to makai flow, and healthy native stream fauna. The concerns raised are that established IIFS are not being met, water continues to be diverted and prioritized for off stream uses while protected instream uses and Kuleana families do not have sufficient amounts of water for T&C rights and practices.

Continuation of protections in the Preservation Plan for the historic and burial sites, including maintenance of buffers will serve to further protect these resources into the future.

Likewise, the continuation and maintenance of instream flows is important to the protection of traditional and customary Native Hawaiian rights. So, there are additional safeguards that serve to protect the traditional and customary practices Native Hawaiian rights. Groundwater withdrawals will not impact these.

Another significant issue is the commitment by the **Ukumehame Homeowners' and Water Associations** for the Ukumehame Agricultural Subdivision, with this permit, to only use groundwater for its Domestic and Irrigation needs. **This is consistent with Maui's WUDP that called for a "revised strategy" to meet irrigation and agricultural needs through "groundwater use from existing wells."** With this permit, Ukumehame Water Association will use only groundwater; this will mean all existing surface water diversions would be for lo'i kalo use.

16. Interference With The Rights Of The Department Of Hawaiian Home Lands

Per the CWRM Instream Flow Standard Assessment Report for Hydrologic Unit 6004, Ukumehame,

Another component in the assessment of traditional and customary Hawaiian rights is the presence of Department of Hawaiian Home Lands (DHHL) parcels within the surface water hydrologic unit. The mission of DHHL is to effectively manage the Hawaiian Home Lands trust and to develop and deliver land to native Hawaiians (PBR Hawaii, 2004). In June 2004, DHHL published the Muai [sic] Island Plan which served to examine infrastructure needs, provide development cost estimates, and identify priority areas for homestead development. Of the more than 31,000 acres of DHHL land on the island of Maui, no parcels occur within or nearby the Ukumehame hydrologic unit. (page 75)

Groundwater withdrawals by Ukumehame Water Association will not interfere with DHHL's properties.

17. Interference With Any Existing Legal Uses

In the June 8, 2022 Surface and Ground Water Management Area Designation Findings of Fact Report (Table 13, page 47), the Sustainable Yield of the Ukumehame Aquifer System is 2 million gallons per day (MGD).

Recent estimates indicate that the Existing and Planned water demands for the 45-lot Ukumehame Agricultural Subdivision (which has, overall, approximately 200-usable acres overall for agriculture use on the lots) are broken down as:

Estimated Average Daily Water Demand

Domestic	54,000 gpd (Daily Demand) for 90 farm dwellings (main and one accessory farm dwellings per lot/farm) at 600 gpd average daily demand per dwelling (based on the Maui WUDP estimate for residential) (45 * 2 * 600)
Irrigation	731,162 gpd (Daily Demand) for the estimated Diversified Agriculture Irrigation. Per parcel: Farm area = Parcel land area times 80% (estimated usable farm area per parcel due to Domestic uses, driveway, farm access roads, topographic conditions), times 3,400 gallons per acre per day) (based on the Maui Water Use and Development Plan “for drier areas” (page 13)) Sum of ((Each Parcel Land Area) * .80 * 3,400)
Total	785,163 gpd (Say 0.7852 MGD) (39.3% of Sustainable Yield)

Hawai'i Army National Guard Ukumehame Firing Range

The Hawai'i Army National Guard Ukumehame Firing Range is another groundwater well reportedly operating within the Ukumehame Aquifer System Area. The Final Environmental Assessment for the Ukumehame Firing Range states,

3.1.2 Well and Irrigation Development [page 3-4]
Seasonal rainfall variations at Ukumehame require that irrigation be provided for landscaped areas. A well with a maximum capacity of 100,000 gallons per day (gpd) will be developed on the southeast portion of the facility adjacent to the target berm at the 600-Meter Firing Range. The well water will be used to irrigate landscaped plants throughout the facility with a drip irrigation system and a temporary bladder storage units.

The objective of the irrigation system plan is to maintain ground cover and landscaping through the dry season. Wetland species planted within the 600-Meter Range will be supplied water on a year-round basis, as needed. The average amount of water pumped for irrigation will be approximately 12,500 gallons per day, or 375,000 gallons per month. Water supplied in this system will not be for human consumption. Potable water is brought to the facility during training exercises.

The existing and planned groundwater withdrawals by Ukumehame Water Association are estimated to be approximately 40.0% of Sustainable Yield; this withdrawal will not interfere with the Hawai'i Army National Guard Ukumehame Firing Range.

State-Owned Land in Ukumehame Aquifer System Area

The State of Hawai'i owns two large vacant parcels in the lower portion of Ukumehame that are on either side of the Ukumehame Agricultural Subdivision. They are,

TMK: (2) 4-8-002:002 216.073-acres

TMK: (2) 4-8-002:008 399.903-acres

"The primary purpose of the SWPP [State Water Projects Plan] is to provide a framework for planning and implementation of water development programs to meet projected water demands for State projects. The objective of the SWPP is to review current and future state water projects to ensure orderly authorization and development of the State's water resources."

The State Water Projects Plan (Update 2020) indicates that the potable demand to the year 2034 is "0 MGD" for potable water (page 8-25) from the Ukumehame Aquifer "0 MGD" for non-potable water (page 8-26). So, these parcels are not intended for development at least prior to 2034.

The State also owns land in the upper portion of the Ukumehame Aquifer. This land is part of the West Maui Forest Reserve and is in the Conservation Land Use District. It is not expected that any significant amount of water is needed or planned for this area.

The existing and planned groundwater withdrawals by Ukumehame Water Association are estimated to be approximately 40.0% of Sustainable Yield; this withdrawal will not interfere with neighboring State-owned properties.

Maui Island Plan (General Plan 2030)

The Maui Island Plan states, **"The West Maui community plan region is somewhat isolated from the rest of the island due to topography and limited highway access. The region has the fourth largest population with over 22,000 people in 2010, and the largest visitor population. The region has four distinct sub-regions: Ukumehame, Olowalu, Lahaina, and the band of urban settlements along the shoreline from Kā'anapali to Kapalua. A brief discussion of each sub-region is provided below:**

Ukumehame. Ukumehame is the southernmost settlement in the West Maui community plan region. It is a low-density agricultural subdivision that still contains vacant undeveloped lots. Today, the community consists of small agricultural lots with residential and small scale agricultural uses. The community is surrounded by fallow sugarcane fields and significant cultural resources. (page 8-54)

The plan does not indicate any significant change in use, other than continued use in agriculture and preservation of wetland areas.

West Maui Community Plan (2022)

The West Maui Community Plan notes, "The southern region includes the area extending from south of Puamana to the Pali, including the areas of Launiupoko, Olowalu, and Ukumehame. The area is primarily agriculture with an agricultural subdivision in Launiupoko and rural residential in Olowalu. Businesses are mostly limited to the rural village in Olowalu. State Conservation lands lie in the upper reaches of the

watershed, along a portion of Olowalu Stream, over the western half of the Pali, and along the shoreline. **Parks and open space are expanded throughout this area.” (page 112)**

“Subarea 4 has a population of 982 and covers 19,217 acres. This subarea has three distinct communities: Launiupoko, Olowalu, and Ukumehame. ... Ukumehame is the southernmost settlement in the region. Ukumehame is known for its gusty winds that blow from the uplands out to the sea. The waters of Ukumehame Gulch flow from Mauna Kahālāwai down through deep valleys. Here, ancient Hawaiians once maintained fertile green acres of lo’i kalo. The community consists of small agricultural lots with residential and small-scale agricultural uses surrounded by fallow sugarcane fields.” (page 92)

A policy of the plan is to “Preserve and protect the region’s cultural resources and traditional lifestyles, including agricultural pursuits, such as subsistence agriculture on lands owned by the State Department of Hawaiian Home Lands in Honokōwai and lo’i cultivation of Native Hawaiians in Honokōhau Valley, Kahoma Valley, Kaua’ula Valley, Olowalu, and Ukumehame.” (page 43)

There are a few private lots in the vicinity of the Ukumehame Agricultural Park. Due to County planning designations, the Ukumehame Agricultural Subdivision water use is not expected to interfere with these. **Likewise, the County’s Ukumehame Beach Park and other public use is on the makai side of Honoapiilani Highway that will not be impacted by the proposed groundwater use.**

Because of the lack of any immediate planned development in the area, there is no interference with existing or planned uses or properties that have existing legal use of water.

21. TABLE 4: 12-MONTH AVERAGE CALCULATION AS OF THE DATE OF DESIGNATION. FOR EXISTING USES ONLY.

Ukumehame-Sugar Way 1 (Inactive)			Ukumehame-Sugar Way 2 (Metered)		
End Date	Gallons	MGD	End Date	Gallons	MGD
6/30/2021	0	0	6/30/2021	829,648	0.028
7/31/2021	0	0	7/31/2021	1,177,215	0.038
8/31/2021	0	0	8/31/2021	1,575,000	0.051
9/30/2021	0	0	9/30/2021	1,433,000	0.048
10/31/2021	0	0	10/31/2021	1,593,300	0.051
11/30/2021	0	0	11/30/2021	1,407,200	0.047
12/31/2021	0	0	12/31/2021	774,200	0.025
1/31/2022	0	0	1/31/2022	864,400	0.028
2/28/2022	0	0	2/28/2022	1,251,969	0.045
3/31/2022	0	0	3/31/2022	1,212,435	0.039
4/30/2022	0	0	4/30/2022	861,110	0.029
5/31/2022	<u>0</u>	<u>0</u>	5/31/2022	<u>851,174</u>	<u>0.027</u>
Average	0	0.000	Average	1,152,554	0.038

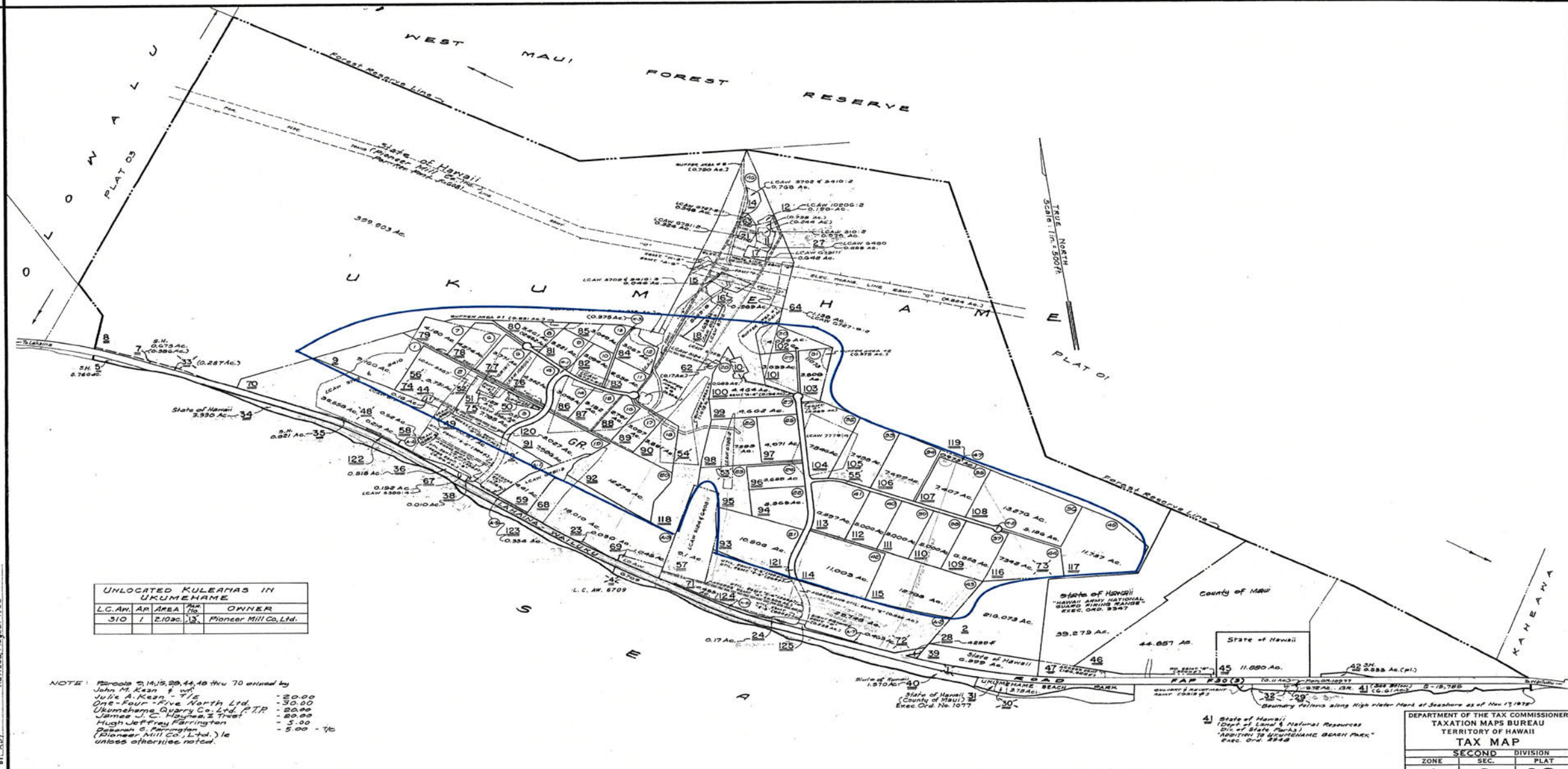
Ukumehame 3 (Metered)

End Date	Gallons	MGD
6/30/2021	829,648	0.028
7/31/2021	1,177,215	0.038
8/31/2021	1,576,197	0.051
9/30/2021	1,433,500	0.048
10/31/2021	1,593,415	0.051
11/30/2021	1,408,032	0.047
12/31/2021	774,349	0.025
1/31/2022	864,577	0.028
2/28/2022	1,490,191	0.053
3/31/2022	1,428,803	0.046
4/30/2022	1,069,203	0.036
5/31/2022	<u>1,024,206</u>	<u>0.033</u>
Average	1,222,445	0.040

Total

End Date	Gallons	MGD
6/30/2021	1,659,296	0.056
7/31/2021	2,354,430	0.076
8/31/2021	3,151,197	0.102
9/30/2021	2,866,500	0.096
10/31/2021	3,186,715	0.102
11/30/2021	2,815,232	0.094
12/31/2021	1,548,549	0.050
1/31/2022	1,728,977	0.056
2/28/2022	2,742,160	0.098
3/31/2022	2,641,238	0.085
4/30/2022	1,930,313	0.065
5/31/2022	<u>1,875,380</u>	<u>0.060</u>
Average	2,374,999	0.078

REVISED
JUN 13 1972
JUN 13 1972
JUN 13 1972
JUN 13 1972
JUN 13 1972



UNLOCATED KULEAIAS IN UKUMEHAME		
L.C. AREA	AREA	OWNER
310	1	2.10 AC. Pioneer Mill Co. Ltd.

NOTE: Parcels 2, 14, 15, 20, 44, 48 thru 70 owned by
John M. Keen & wife - 20.00
Julie A. Keen - 7.15
One-Four-Five North Ltd. - 30.00
Ukumehame Quarry Co. Ltd. & TR - 20.00
James J. C. Haynes, Trust - 20.00
Hugh Jeffrey Farrington - 5.00
Deborah S. Farrington (Pioneer Mill Co., Ltd.) is - 5.00 - 7.15
unless otherwise noted.

4) State of Hawaii
(Dept. of Land & Natural Resources
Div. of State Parks)
"ADDITION TO UKUMEHAME BEACH PARK"
Exec. Ord. 1994

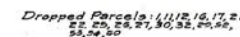
DEPARTMENT OF THE TAX COMMISSIONER TAXATION MAPS BUREAU TERRITORY OF HAWAII TAX MAP		
ZONE	SECOND	DIVISION
4	8	02
CONTAINING		PARCELS
SCALE: 1 IN. = 500 FT.		

DWG. NO. 2016 Revised
SOURCE: T.M.B. & Right-of-Way Map, FAP No. 150(3)
BY: RDT
Revised August 1952

PIONEER MILL PLTN CO. LTD., UKUMEHAME, LAHAINA, MAUI

Dropped Parcels: 1, 11, 12, 16, 17, 21,
22, 23, 24, 25, 26, 27, 30, 32, 33, 34,
35, 36, 37

SUBJECT TO CHANGE



PIONEER MILL PLTN CO. LTD., UKUMEHAME, LAHAINA, MAUI