



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
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STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

March 15, 2022
Honolulu, Hawai'i

Reservations of Ground Water for Department of Hawaiian Home Lands
From the Aquifer System Areas: Kamiloloa (40301), Kawela (40302), Pālā'au (40202), and
'Ualapu'e (40303), Island of Moloka'i, for use on Hawaiian Home Lands in
'Ualapu'e, Kapa'akea, Makakupa'ia, Kamiloloa, and Kalama'ula, Moloka'i

SUMMARY OF REQUEST

Staff requests that the Commission on Water Resource Management (Commission) approve requested ground water reservations by rule (Petition) for the Department of Hawaiian Homelands (DHHL) to meet their foreseeable future ground water needs from the designated groundwater management areas of Kamiloloa, Kawela, Pālā'au, and 'Ualapu'e aquifer system areas on the Island of Moloka'i. This groundwater will be used in the 'Ualapu'e, Kapa'akea, Makakupa'ia, Kamiloloa, and Kalama'ula Hawaiian Home Lands areas. The DHHL petition for water reservation is attached as Exhibit A.

LOCATION

The location of the proposed DHHL homestead lot developments (future demand areas) are shown in the attached map. The aquifer systems where the requested groundwater reservation is also shown on the map. In some cases the demand areas are outside of the aquifer system areas that the proposed reservation demands are. See location map, Exhibit B.

BACKGROUND

Department of Hawaiian Home Lands sent the Commission a memorandum dated June 20, 2020 responding to the Commission's notification that Maui Department of Water Supply filed an application for a water use permit for the 'Ualapu'e Shaft in the 'Ualapu'e Aquifer System, Moloka'i. In the memorandum DHHL requested a reservation of 0.850 million gallons per day (mgd) (this reservation amount was later amended to 0.855 mgd) of groundwater from the 'Ualapu'e Aquifer System. This reservation was for DHHL's proposed 175 homestead lots at 'Ualapu'e on a 376-acre parcel.

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Commission staff subsequently inquired if DHHL would like to seek other Moloka‘i reservations with the ‘Ualapu‘e reservation request to consolidate rulemaking procedures on approved reservations. DHHL agreed and informed Commission staff that they would be holding beneficiary consultation on Moloka‘i. On May 5, 2021, DHHL held a virtual beneficiary consultation meeting on proposed requests for groundwater on Moloka‘i. On July 19, 2021, the Hawaiian Homes Commission approved DHHL staff’s requested groundwater reservations for Moloka‘i, which is summarized in Table 1. The DHHL followed up with a memorandum to the Commission dated January 3, 2022, petitioning for new ground water reservations by rule on the island of Moloka‘i.

Table 1. DHHL Reservation Request

DHHL Tract	Reservation Request (MGD)	Aquifer System Area
Kapa‘akea Makakupa‘ia Kamiloloa	0.1716	Kawela 40302
Kapa‘akea Makakupa‘ia Kamiloloa	1.0	Kamiloloa 40301
Kalama‘ula	0.0342	Kawela 40302
Kalama‘ula	0.0378	Kawela 40302
Kalama‘ula	0.530	Pālā‘au 40202
‘Ualapu‘e	0.855	‘Ualapu‘e 40303

mgd=million gallons per day

Summary of DHHL’s groundwater reservation request by aquifer system area:

Kawela – 0.2436 mgd
 Kamiloloa – 1.000 mgd
 Pālā‘au – 0.530 mgd
 ‘Ualapu‘e – 0.855 mgd
TOTAL – 2.6286 mgd

A more detailed breakdown of the reservation request by location, use acreage, number of units, and calculated demands is shown on Table 2.

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Table 2. DHHL Reservation Request by Area, Use, and Calculated Demand

DHHL Tract	Use	Acreage	Units	Rate	Units	Calculated Demand (mgd)
Kapa‘akea Makakupa‘ia Kamiloloa	Residential	264	286	600	gpd/unit	0.172
Kapa‘akea Makakupa‘ia Kamiloloa	General Agriculture	2165		2,500	gad	5.413
Kalama‘ula	Residential	88	57	600	gpd/unit	0.034
Kalama‘ula	Subsistence Agriculture (Residential)	212	63	600	gpd/unit	0.038
Kalama‘ula	Subsistence Agriculture	212		2,500	gad	0.530
‘Ualapu‘e	Residential		175	600	gpd/unit	0.105
‘Ualapu‘e	Subsistence Agriculture	300		2,500	gad	0.750

mgd=million gallons per day

gpd=gallons per day

gad=gallons per acre per day

LEGAL AUTHORITY

The State Water Code provides for reservations of water in both designated and non-designated water management areas. In designated areas, water reservations may be made pursuant to §174C-49(d), Hawaii Revised Statutes (HRS), which states:

The commission, by rule, may reserve water in such locations and quantities and for such seasons of the year as in its judgment may be necessary. Such reservations shall be subject to periodic review and revision in the light of changed conditions; provided that all presently existing legal uses of water shall be protected.

Hawai‘i Administrative Rules Subchapter 6, Reservations of Water, §13-171-60, provides further guidance for water reservations in water management areas:

- (a) *As provided in HRS §174C-49(d), the commission, by rule, may reserve water in such locations and quantities and for such seasons of the year as in its judgment may be necessary.*
- (b) *The commission shall adopt within this subchapter specific reservations of water in water management areas in such quantities as are deemed necessary for purposes which are consistent with the public interest, including the provision of water for current and foreseeable development and use of Hawaiian home lands pursuant to section 221 of the Hawaiian Homes Commission Act and HRS §174C-101(a).*

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- (c) *Proceedings for the establishment of a reservation of water resources within a designated water management area by the commission may be initiated:*
 - (1) *Upon recommendation by the chairperson; or*
 - (2) *Upon written petition to the commission by any interested person with proper standing.*
- (d) *Reserved water shall not be allocated from water management areas by the commission except upon application for a water use permit by the party, or parties, for whom the water was reserved.*
- (e) *All reservations shall be subject to periodic review and revision in light of changed conditions.*

§174C-101(a), HRS, also authorizes water reservations for DHHL, whether or not the area has been designated a water management area:

Decisions of the commission on water resource management relating to the planning for, regulation, management, and conservation of water resources in the State shall, to the extent applicable and consistent with other legal requirements and authority, incorporate and protect adequate reserves of water for current and foreseeable development and use of Hawaiian home lands as set forth in section 221 of the Hawaiian Homes Commission Act.

EXISTING WATER RESERVATIONS

Thus far, the Commission has established a total of 28 groundwater and surface water reservations for DHHL in both designated and non-designated water management areas across the State of Hawai'i. Table 3 shows the existing DHHL water reservations, pursuant to §174C-49(d), HRS, and §174C-101(a), HRS.

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Table 3. Existing DHHL Water Reservations

Island	Hydrologic Unit*	Effective Date	Current Reservation (mgd)
Kaua'i	Wailua ASYA	9/18/18	0.708
	Anahola ASYA	9/18/18	1.470
	Kekaha ASYA	9/18/18	0.336
	Makaweli ASYA	9/18/18	0.405
	Waimea SWHU	6/20/17	6.903
	Wailua SWHU	10/16/18	0.513
O'ahu	Waipahu-Waiawa ASYA	2/18/94	1.724
	Waimānalo ASYA	2/18/94	0.124
Lāna'i	Leeward ASYA	9/18/18	0.067
Moloka'i	Kualapu'u ASYA	6/10/95; 7/20/21	2.677
Maui	Honokōwai ASYA	9/18/18	0.770
	Kama'ole ASYA	9/18/18	2.547
	Ke'anae ASYA	9/18/18	0.003
	Kawaipapa ASYA	9/18/18	0.118
	Luala'iula ASYA	9/18/18	0.063
	Honokōhau SWHU	5/18/21	2.000
Hawai'i	Keauhou ASYA	8/17/15	3.398
	Hawi ASYA	9/18/18	0.148
	Māhukona ASYA	9/18/18	3.014
	Honoka'a ASYA	9/18/18	0.396
	Hakalau ASYA	9/18/18	0.083
	Onomea ASYA	9/18/18	0.250
	Hilo ASYA	9/18/18	0.492
	Kea'au ASYA	9/18/18	1.336
	'Ōla'a ASYA	9/18/18	0.025
	Nā'ālehu ASYA	9/18/18	0.185
	Pāhoa ASYA	9/18/18	0.660
	Wailuku SWHU	3/17/20	1.600
TOTAL			32.015

* ASYA= Aquifer System Area; SWHU = Surface Water Hydrologic Unit

CONSISTENCY WITH THE HAWAII WATER PLAN

Water Resource Protection Plan 2019 Update (WRPP) – This Petition reservation request is consistent with the Commission’s WRPP, which includes a priority task (Task 2.3.4) to establish additional water reservations for the DHHL. Table H-17 in WRPP Appendix H summarizes DHHL projected demands to 2031, which is taken from the 2017 State Water Projects Plan and forms the basis for DHLL reservation requests.

State Water Projects Plan (SWPP) – This Petition reservation request is not consistent with the SWWP 2020 Update, which incorporates the SWPP 2017 Update (DHHL projects only) findings. In the SWPP 2017 Update, demands not anticipated to be developed in the 20-year planning window (at the time the plan was written) were not assigned a water development strategy and were shown as placeholders in the Appendix tables for year 2031. These unanticipated demands were based on lands classified as General Agriculture under DHHL’s land use designations. In the SWPP, agriculture non-potable water demands were calculated using a unit rate of 3,400 gad, from the 2004 Agricultural Water Use and Development Plan update. This Petition uses 2,500 gad to calculate agricultural demands. This Petition reservation request also differs fundamentally with the SWPP on the proposed source/strategy of water to meet the projected demands. In the SWPP, agricultural (non-potable) demands are planned to be supplied by surface water (streams), however, the Petition agricultural (non-potable) demands would be supplied by groundwater (wells).

Flexibility is built into the projections of future State water use, as noted in the State Water Projects Plan, DHHL 2017, Conclusions and Recommendations 7): *The CWRM is the State's decision making body for water resource management. The scope of the SWPP (State Water Projects Plan) is to collect data on the projected water consumption, current allocations, and identify known potential resources for the State of Hawai‘i. The SWPP report will not be the governing document for the allocation of water, however, the SWPP will serve as the CWRM's primary resource and will support all decision making.*

Moloka‘i Island Water Use and Development Plan – the Moloka‘i Island Water Use and Development Plan, which would account for current and future DHHL water reservations, is currently being developed by the Maui Department of Water Supply with the estimated completion in 2024. The 1990 Maui County Water Use and Development Plan, has a brief discussion on future DHHL water needs: domestic demands (from DHHL Ho‘olehua potable system) of a minimum of 1.5 mgd from the Kualapu‘u Aquifer by year 2010 and another 1.5 mgd for Kalama‘ula development irrigation demand from the Kualapu‘u Aquifer system if no other water source is available; total agricultural demands of 7.29 mgd from unidentified sources by year 2010. The 1990 WUDP notes that the Hawai‘i Department of Agriculture’s Moloka‘i Irrigation System is “subject to a preference to the Hawaiian Homes Commission and lessees of the Act pursuant to Section 168-4, HRS...” The Lana‘i Island WUDP was adopted by the Commission in August 2012 and the Maui Island WUDP was adopted by the Maui County Council in February 2022. The Molokai WUDP is now under development. Due to the myriad changes regarding water on Moloka‘i since 1990, the current SWPP and forthcoming Molokai Island WUDP would most accurately reflect the future water demands by DHHL projects.

CONSISTENCY WITH DHHL PLANS

This analysis supplements the consistency with other State and County land use plan's analysis, because DHHL is not subject to State and County land use laws and has their own planning system.

DHHL General Plan (2002) – This Petition is consistent with the goals and objectives of the DHHL General Plan and would advance the implementation of several stated objectives.

DHHL Water Policy Plan (2014) – This Petition is consistent with the DHHL Water Policy Plan. The Petition cites Water Policy Plan to “[d]evelop, manage, and steward water in a manner that balances cost, efficiency measures, and Public Trust uses in the short and long term.”

DHHL Moloka‘i Island Plan (2005) – This Petition is generally consistent with the DHHL Moloka‘i Island Plan, which provides recommendations for future uses of DHHL land holdings on Moloka‘i to meet the needs of its beneficiaries, with particular focus on the next 20 years. The plan also assigned DHHL land use designations to its Moloka‘i lands, which are used in the Petition to calculate water demands based on standardized unit demand rates. ‘Ualapu‘e, Kapa‘akea, Makakupa‘ia, Kamiloloa, and Kalama‘ula are named as areas for residential and agricultural land use development the Moloka‘i Island Plan and the acreage associated with the Petition is consistent with the Moloka‘i Island Plan land use designations. However, there is one inconsistency to note:

‘Ualapu‘e - The number of residential units in the Petition (175) is greater than the number of Moloka‘i Island Plan planned residential units (74). The agricultural land use designation for 300/299 acres in the Petition is Subsistence Agriculture, compared with General Agriculture in the Moloka‘i Island Plan. The number of residential units were subsequently increased to 175 in the DHHL Moloka‘i Regional Plan.

DHHL Moloka‘i Regional Plan (2019) – This Petition is consistent with the DHHL Moloka‘i Regional Plan. The ‘Ualapu‘e Kuleana Homestead Project and Cultural Resource Management Plan is identified as a priority project in the DHHL Moloka‘i Regional Plan. The ‘Ualapu‘e project description describes the plan for 175 homestead lots. It also describes a 376+ acre parcel designated as General Agriculture, Special District and Community use by DHHL and another 13+ acres are zoned as Residential and General Agriculture by DHHL. Both parcels are identified by their respective TMKs. The two other DHHL tracts in the Petition: Kapa‘akea, Makakupa‘ia, and Kamiloloa and Kalama‘ula are also mentioned in the Moloka‘i Regional Plan with ‘Ualapu‘e and Kapa‘akea, Makakupa‘ia, and Kamiloloa named as priorities for residential development. The amount of water required and water sources for these developments are not identified in the DHHL Moloka‘i Regional Plan.

METHOD OF CALCULATING WATER DEMANDS

The Petition uses two water demand unit rates for three land use types.

1. Residential – 600 gallons/day/unit. This is based on the County of Maui Department of Water Supply’s domestic consumption guidelines.

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2. Subsistence Agriculture – 2,500 gallons/acre/day cited by DHHL to the MDWS domestic consumption guidelines (MDWS domestic consumption guideline for agriculture is actually 5,000 gallons/acre/day).
3. General Agriculture – 2,500 gallons/acre/day cited by DHHL to the MDWS domestic consumption guidelines (MDWS domestic consumption guideline for agriculture is actually 5,000 gallons/acre/day).

It is interesting to note that the agricultural water demands in the SWPP use a demand unit rate of 3,400 gallons/acre/day (gad) while the Petition uses 2,500 gad to calculate reservation demands. The result is that agricultural water demand in this Petition is less than the SWPP on a per acre basis. In correspondence with DHHL, their petitioned request for 2,500 gad recognizes the limited water resources in the area and is the agency's attempt to balance its needs with other public trust uses of water.

In light of possible reduced rainfall and increasing air temperatures due to climate change, DHHL's agriculture reservation request based on 2,500 gad may not be sufficient to meet future agricultural needs and could be refined with current tools. One way of estimating irrigation demands is to use the Commission's Irrigation Water Requirement Estimation Decision Support System (IWREDSS) while employing a reduced rainfall dataset to simulate a future with less precipitation. DHHL may petition the Commission for a modification of their reservation request should conditions change in the future.

IMPLICATIONS OF WATER RESERVATIONS

Public Trust Purposes – The State recognizes four public trust purposes:

- Maintenance of waters in their natural state;
- Domestic water use of the general public, particularly drinking water;
- The exercise of Native Hawaiian traditional and customary rights; and
- Reservations of water for Hawaiian Home Lands.

As competition for water increases and climate change threatens the reliability of available water supplies, the Commission must carefully consider and weigh any impacts of water withdrawals on the public trust purposes, which must be protected while balancing reasonable and beneficial uses. The DHHL reservations of water is one of the four public trust purposes of water affirmed by the Hawai'i Supreme Court. There is no priority among these four public trust uses so it is important to evaluate any impacts the exercise of one may have on the others. This evaluation has not been completed for the groundwater reservation requests in this Petition. Staff recommends that this evaluation be conducted at the time of permitting – when DHHL applies for water use permits to implement their water reservations.

At its July 20, 2021 monthly meeting, on Submittal Item B2 (Approval of DHHL Water Use Permit Modification and Reduction in Reservation on Molokai), the Commission discussed the uncertainty of the current aquifer sustainable yields on Molokai and how the impacts of climate change could affect aquifer recharge and sustainable yield in the future. Lengthy public testimony expressed concerns on how groundwater withdrawals may affect groundwater dependent

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ecosystems and traditional and customary practices, replenishment of the aquifer, water neutrality and offsets, permit conditions imposed upon DHHL, along with the findings in the USGS Scientific Investigation Report on Numerical Simulation of Groundwater Availability in Central Moloka‘i. The matters of reevaluating sustainable yield, that don’t explicitly account for the needs of groundwater dependent ecosystems, would certainly need to be addressed at the time of permitting of this Petition’s requested reservations. Per DHHL correspondence, spreading out the proposed reservation requests across different aquifer sectors seeks to reduce impacts to groundwater withdrawal on particular ground water dependent ecosystems. Any Commission reservations of water are subject to periodic review and revision by the Commission in light of changed conditions pursuant to §13-171-60(e), HRS.

Use of Potable Groundwater for Non-potable Demands – The Commission’s policy is to promote the highest and best use of water by matching the quality of the water source to the quality of the water needed. This is generally interpreted as using surface water (or other appropriate alternatives) for non-potable uses and using groundwater for potable uses. However, where there are no feasible sources of non-potable water sources available, the Commission has allowed the use of groundwater for non-potable uses. Portions of DHHL’s Petition is requesting the reservation of groundwater for future DHHL agricultural (non-potable) demands on Moloka‘i. The SWPP departs from this by specifying all non-potable sources for the agricultural demands on Moloka‘i and identifies the surface water hydrologic units supplying their respective demands. No analysis was provided by DHHL on whether the planned surface water was available or not. The streams listed in the SWPP are Kalua‘aha, Kahananui, Kamiloloa, Kaunakakai and Waikolu. There is no streamflow data for any of these streams except for Kaunakakai and Waikolu. Further staff investigation to determine if Waikolu Stream (through the Moloka‘i Irrigation System) is an available or feasible source of water for the future Kalama‘ula demands in the Petition will be discussed in the IIFS process.

The Petition does not consider any alternative supply source strategies to meet the proposed agricultural demands. In follow up correspondence with DHHL, they identified that the MIS and the Molokai Mountain Water System could potentially be an alternative water source to some degree. In that same correspondence, securing water from MIS has not always been successful with the Department of Agriculture. The Petition does note that there will be a need for an onsite wastewater treatment facility for the Kapa‘akea, Makakupa‘ia, and Kamiloloa area to support the existing and future residential lots. The County of Maui’s Kaunakakai Wastewater Reclamation Facility previously produced recycled water which was used for Hawai‘i Department of Transportation highway landscape irrigation. This practice has ceased because of the high cost of treatment to make the recycled water suitable for irrigation.

Climate Change - Some global climate models are favoring decreased future rainfall in many areas in Hawai‘i, which may result in decreased aquifer recharge and a reduction in sustainable yield. While other climate models show increased future Hawaiian rainfall, the precautionary principle compels the Commission to consider a future with less available water. It is not fully understood where and how aquifer recharge and sustainable yield may change based on future rainfall estimates. A forthcoming report from the U.S. Geological Survey estimating future recharge based on global climate models will be used by the Commission to evaluate current aquifer sustainable yields.

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After approving water reservations, the Commission may review any reservation should changing conditions warrant this action. The modification of sustainable yields may trigger a review of reservations. The Commission may also impose permit conditions when DHHL applies for its water use permits to advance the concept of water neutrality, implement water offsets, and ensure protection of groundwater dependent ecosystems.

Water Availability in Aquifer System Areas – There is available allocation from each of the aquifer system areas supplying the Petition’s reservation requests except for the Pālā’au aquifer system area. Table 4 summarizes groundwater availability in the affected aquifer systems. Exhibit C lists current water use permits in the affected aquifer system areas, which includes brackish and caprock wells but excludes saltwater wells.

Table 4. Comparison of Proposed Reservations with Available Sustainable Yields

Aquifer System Area	Aquifer Sustainable Yield (mgd)	Reservation Request (mgd)	Current WUP Allocation (no salt)	Available Allocation (mgd)	12/2021 12-MAV (mgd)	Max 12-MAV (2010-2021)
Kawela	5.000	0.2436	0.814	4.186	0.454	0.484
Kamiloloa	3.000	1.000	0.211	2.789	0.016	0.095
Pālā’au	2.000	0.530	1.567	0.433	0.244	0.902
‘Ualapu’e	8.000	0.855	0.250	7.750	0.327	0.389

The groundwater reservation request from Pālā’au aquifer system area is to serve future agricultural demands in the Kalama’ula area. Note that in the SWPP, the Moloka’i Irrigation System (surface water) was identified to meet the non-potable water demand for Kalama’ula, but in addition to the discussion above, the system’s capacity and infrastructure may limit that as a practicable alternative, and will be further analyzed in the establishment of Interim Instream Flow Standards.

While the current permit allocations total 1.567 million gallons per day (mgd), the reported 12-month moving average (12-MAV) withdrawals from the Pālā’au aquifer system area was 0.244 (mgd) at the end of 2021. The maximum 12-MAV over the past 10-years was 0.902 mgd. Further analysis for partial or total nonuse is warranted considering the difference between actual use and permitted use. In addition, all permits are subject to the rights of DHHL, whether or not the condition is explicitly stated in the permit (HRS 174C-49(e)).

Although approval of DHHL’s requested reservation amount will push the allocations of water above the sustainable yield by 97,000 gallons per day, staff’s recommendation for revocation and modifications of permits for partial or total non-use should bring the total permitted uses, that more accurately aligns with actual withdrawals, below the sustainable yield of 2.0 mgd.

ENVIRONMENTAL REVIEW

Hawaii Revised Statutes (HRS) Chapter 343 is not triggered by the proposed water reservations because the proposal does not meet applicability requirements pursuant to Chapter §343-5.

RECOMMENDATION

Staff recommends that the Commission:

1. Approve DHHL request for reservations of water for the amounts, places and purposes as shown in the following Table 5:

Table 5. Recommended DHHL Reservation Approval

DHHL Tract	Reservation Request (mgd)	Aquifer System Area/SWHU	DHHL Land Use Designation
Kapa‘akea Makakupa‘ia Kamiloloa	0.1716	Kawela 40302	Residential
Kapa‘akea Makakupa‘ia Kamiloloa	1.000	Kamiloloa 40301	General Agriculture
Kalama‘ula	0.0342	Kawela 40302	Residential
Kalama‘ula	0.0378	Kawela 40302	Residential
Kalama‘ula	0.530	Pālā‘au 40202	Subsistence Agriculture
‘Ualapu‘e	0.105	‘Ualapu‘e 40303	Residential
‘Ualapu‘e	0.750	‘Ualapu‘e 40303	Subsistence Agriculture

Summary of DHHL groundwater reservation by aquifer system area:

Kawela (40302) – 0.2436 mgd groundwater

Kamiloloa (40301) – 1.000 mgd groundwater

Pālā‘au (40202) – 0.433 mgd groundwater

‘Ualapu‘e (40303) – 0.855 mgd groundwater

TOTAL – 2.5316 mgd

2. Authorize staff to begin the rulemaking process for these and other DHHL reservations pursuant to §13-171-60, HAR
3. Direct staff to review the existing Water User Permits in the Pālā‘au Hydrologic Unit for partial or total nonuse for a period of four continuous years or more (HRS 171-58 (4)) to reduce unused permitted amounts to keep existing pumping, permitted allocations, and reservations below the Sustainable Yield.

Ola i ka wai,

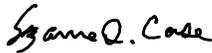


M. KALEO MANUEL
Deputy Director

EXHIBITS:

- Exhibit A – DHHL petition for reservation
- Exhibit B – Maps showing location of the proposed DHHL homestead development and aquifer systems
- Exhibit C – List of water use permits on Molokai

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE
Chairperson