

NEIL ABERCROMBIE  
Governor



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RUSSELL S. KOKUBUN  
Chairperson, Board of Agriculture

SCOTT E. ENRIGHT  
Deputy to the Chairperson

September 11, 2012

Director  
Office of Environmental Quality Control  
Department of Health, State of Hawai'i  
235 S. Beretania Street, Room 702  
Honolulu, Hawai'i 96813

RECEIVED  
12 SEP 12 P2:26  
OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

Dear Director:

With this letter, the State of Hawai'i Department of Agriculture hereby transmits the draft environmental assessment and anticipated finding of no significant impact (DEA-AFONSI) for the continued use of the MIS situated at several parcels in central and west Moloka'i, on the island of Moloka'i for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, two copies of the DEA-AFONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact the State of Hawai'i Department of Agriculture at 808-973-9473.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Kau", is written over a horizontal line.

Brian Kau, P.E.  
Administrator and Chief Engineer  
Agricultural Resource Management Division

Enclosures

C: Applicant



**APPLICANT ACTIONS  
SECTION 343-5(C), HRS  
PUBLICATION FORM (JULY 2012 REVISION)**

**Project Name:** Draft Environmental Assessment for the Continued use of the MIS  
**Island:** Island of Moloka'i  
**District:** Ho'olehua, Maunaloa, Pāpōhaku  
**TMK:** several parcels  
**Permits:** N/A  
**Approving Agency:** State of Hawai'i Department of Agriculture, 1428 King Street,  
Honolulu, HI 96814, Brian Kau, 808.973.9560  
**Applicant:** Molokai Properties Limited, 1003 Bishop Street Suite 1170, Honolulu, HI 96813,  
Nancy Schmiker, 808.534.9509  
**Consultant:** Environet, Inc. 1286 Queen Emma Street, Honolulu, HI 96813, Colette Sakoda,  
808.833.2225

**Status (check one only):**

- ☒ **DEA-AFNSI** Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)); a 30-day comment period ensues upon publication in the periodic bulletin.
- ☐ **FEA-FONSI** Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)); no comment period ensues upon publication in the periodic bulletin.
- ☐ **FEA-EISPN** Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)); a 30-day consultation period ensues upon publication in the periodic bulletin.
- ☐ **Act 172-12 EISPN** Submit the approving agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
- ☐ **DEIS** The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)); a 45-day comment period ensues upon publication in the periodic bulletin.
- ☐ **FEIS** The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)); no comment period ensues upon publication in the periodic bulletin.
- ☐ **Section 11-200-23 Determination** The approving agency simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the applicant. No comment period ensues upon publication in the periodic bulletin.
- ☐ **Statutory hammer Acceptance** The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it failed to timely make a determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and that the applicant's FEIS is deemed accepted as a matter of law.
- ☐ **Section 11-200-27 Determination** The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.
- ☐ **Withdrawal (explain)**

**Summary** (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page):

MPL is in the process of renewing its transmission agreement with the HDOA for the use of the MIS to continue transporting irrigation water from Well 17 to MPL customers in western Moloka'i. MPL must conduct a HRS Chapter 343 EA to evaluate the potential environmental impacts associated with the restoration of the transmission agreement. With the expiration of the original lease agreement dated July 1975, the current need for a new lease agreement between MPL and HDOA is now subject to HRS Chapter 343 environmental review. The Attorney General's office issued an opinion dated September 4, 2007 that MPL conduct an EA, pursuant to the provisions of HRS Chapter 343, was required before the HDOA could enter into negotiations on a new transmission agreement for use of the MIS by MPL.

The Proposed Action is the reinstatement of an agreement between the HDOA and MPL to continue transportation of Well 17 water through the MIS. MPL's allocated water amount is 1.018 mgd and will continue to operate with this permitted amount. MPL is proposing to continue to lease six miles of the MIS and space in the Kualapu'u Reservoir.

**DRAFT**  
**ENVIRONMENTAL ASSESSMENT**

**Moloka'i Properties Limited MIS Project**  
**Moloka'i, Hawai'i**

September 2012

This Document is prepared pursuant to Chapter 343, Hawai'i Revised Statutes

**The Applicant:**

Moloka'i Properties, Ltd.

**Accepting Authority:**

The State of Hawai'i Department of Agriculture





**DRAFT**  
**ENVIRONMENTAL ASSESSMENT**

**Moloka'i Properties Limited MIS Project**  
**Moloka'i, Hawai'i**

**Environet Project No.: 1052-001**

**Prepared by:**  
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1286 Queen Emma Street  
Honolulu, Hawai'i 96813  
808-833-2225

**Prepared for:**  
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**Applicant:**  
  
Moloka'i Properties Limited

**Accepting Authority:**  
  
The State of Hawai'i Department of Agriculture  
1428 S. King Street  
Honolulu, Hawai'i 96814

September 2012



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Appendix C-1	Pre-assessment Consultation Letters
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Appendix D	Cultural Impact Assessment
Appendix E	Archaeological Assessment
Appendix F	Infrastructure and Utilities Study

## ***Acronyms and Abbreviations***

ALISH	Agricultural Lands of Importance to the State of Hawai‘i
BMPs	Best management practices
BuRec	Bureau of Reclamation
CBMLUP	Community-Based Master Land Use Plan
CIA	Cultural Impact Assessment
Cl-	Chloride
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
COM	County of Maui
CPE	Community Planning and Engineering
CPP	Countywide Policy Plan
CWRM	Commission on Water Resource Management
CZM	Coastal Zone Management
dbA	decibel
DHHL	State of Hawai‘i Department of Hawaiian Home Lands
DLNR	State of Hawai‘i Department of Land and Natural Resources
DOH	State of Hawai‘i Department of Health
DOT	Department of Transportation
DOWALD	Division of Water and Land Development
DWS	County of Maui, Department of Water Supply
EA	Environmental Assessment
EAL	Environmental Action Level
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRMS	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
ft	feet
ft/d	feet per day
gpd	gallons per day
gpm	gallons per minute
HAR	Hawai‘i Administrative Rules
HDOA	State of Hawai‘i Department of Agriculture
HIA	Hawai‘i Irrigation Authority
HP	Horsepower
hr	hour
HRS	Hawai‘i Revised Statutes
HSC	Hawai‘i Supreme Court
HWA	Hawai‘i Water Authority
in	inches
in/yr	inches per year
KMI	Kukui (Moloka‘i) Inc.
KWLLC	Kaluako‘i Water LLC
L1UBHh	wetland lake
LHSFNA	Laborer’s Health Safety Fund of North America
LUC	State of Hawai‘i Land Use Commission
LUCMEC	State of Hawai‘i Land Use Commission Moloka‘i Enterprise Community
mgd	million gallons per day
mg/kg	milligrams per kilogram

mg/L	milligrams per liter
mi	mile
MIS	Moloka'i Irrigation System
mph	miles per hour
MPL	Moloka'i Properties Limited
MPU	Molokai Public Utilities
MR	Moloka'i Ranch
msl	mean sea level
NEPA	National Environmental Protection Act
NFA	No Further Action
NGDC	National Geophysical Data Center
NO <sub>x</sub>	Oxides of Nitrogen
NPS	National Park Service
NRCS	Natural Resources Conservation Service
OEQC	Office of Environmental Quality Control
PM	Particulate Matter
ppm	parts per million
ppt	parts per trillion
PUBHh	freshwater pond wetlands
PUC	State of Hawai'i Public Utilities Commission
SDWA	Safe Drinking Water Act
SHWB	Solid and Hazardous Waste Branch
SMA	Special Management Area
SO <sub>x</sub>	Oxides of Sulfur
SO <sub>2</sub>	Sulfur Dioxide
sq. mi.	square miles
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VOCs	volatile organic compounds
°	degrees
°F	degrees Fahrenheit
%	percent

## Executive Summary

This Environmental Assessment (EA) was conducted to assess potential environmental effects for the proposed restoration of an agreement between the State of Hawai‘i Department of Agriculture (HDOA) and Moloka‘i Properties Limited (MPL) for continued use of the State-operated Moloka‘i Irrigation System (MIS) to transport water to the west end users. The EA was prepared for MPL to identify, document and address potential environmental impacts associated with the Proposed Action. The EA examines a No Action Alternative, a Proposed Action Alternative and Future Action Alternatives defined as follows:

- Alternative I – No Action Alternative: MPL would cease use of the MIS, cutting water supply to Moloka‘i west side communities and businesses.
- Alternative II – Proposed Action Alternative: Restoration of an agreement which would allow for the continued transportation of water from Well 17 through the State-operated MIS to the west end of Moloka‘i. This agreement is vital as it is currently the only means of providing water to Moloka‘i west side communities and businesses.
- Alternative IIIA – Future Action Alternative: Development of a pipeline to connect Well 17 to the west end of Moloka‘i through State of Hawai‘i Department of Hawaiian Home Lands (DHHL) lands.
- Alternative IIIB – Future Action Alternative: Development of a pipeline to connect from Well 17 to the west end of Moloka‘i through MPL, the State of Hawai‘i and Monsanto lands, bypassing DHHL lands.
- Alternative IIIC – Future Action Alternative: Construction of a desalination plant and two deep groundwater wells that will draw brackish water from the west end aquifers and service the west end of Moloka‘i. Well 17 water will not be used in this scenario.

Alternatives IIIA, IIIB, and IIIC may take, at a minimum, ten years to commence. A supplemental EA may be required to pursue Alternatives IIIA, IIIB, or IIIC. In the interim, MPL is reliant on the MIS to provide water to residences and businesses currently situated on the west end of Moloka‘i.

This draft EA is not meant to justify review or perform an environmental review of the use of Well 17. Environmental impacts and resource concerns associated with the use of Well 17 will be addressed during the groundwater use permit application for the use of Well 17 after the environmental review process of the EA has been completed. This draft EA is solely for the purpose of proposing to restore an agreement between MPL and HDOA for the continued use of the MIS pipeline per the State of Hawai‘i Attorney General decision for a Chapter 343 Hawai‘i Revised Statutes environmental review. The environmental review process was triggered by the use of state property as the MIS is operated and owned by the HDOA.

The following provides the potentially impacted environments evaluated in this EA.

### Topography and Geology

Significant impacts to the topography or geology are not expected for any of the Alternatives. Under Alternatives I and II, the MIS is currently in place and would not require new construction that would affect the topography or geology. The proposed construction of new pipelines listed in Alternatives IIIA and IIIB would follow existing topography and would be installed below ground surface. Proposed construction under Alternative IIIC includes the installation of wells and a desalination plant. These



structures would be built on a site suitable for the proposed operation. No significant changes to topography or geology are expected.

#### Soils

No significant impacts are anticipated under Alternative II, the Proposed Action, or Alternative I, the No Action Alternative, as site conditions would remain the same. Potential adverse impacts could result due to construction activities related to Alternatives IIIA, IIIB, and IIIC. These impacts can be reduced to less than significant with the implementation of mitigative measures.

#### Fire Hazard

No significant impacts are anticipated under Alternative II, the Proposed Action, as site conditions would remain the same. Significant adverse impacts are anticipated under Alternative I. The current water transportation system would no longer be utilized, removing the availability of water for firefighting. Under Alternatives IIIA, IIIB, and IIIC, potentially significant adverse impacts to fire hazards related to construction activities are expected. These impacts can be reduced to insignificant levels with the implementation of fire safety practices and fire hazard awareness.

#### Natural Hazard

No significant impacts are expected from Alternatives I, II, IIIA, IIIB, and IIIC as presented.

#### Flora and Fauna

No significant impacts are anticipated from Alternatives I and II. Potentially significant adverse impacts were initially considered from construction activities associated with Alternatives IIIA, IIIB, and IIIC. Mitigative measures such as a flora/fauna survey performed during site selection and having a biological monitor on call/on site during construction can reduce these impacts to less than significant.

#### Wetlands

No significant impacts are anticipated under Alternative II, the Proposed Action, as site conditions would remain the same. Alternative I would not result in potentially significant impacts to wetlands as the wetlands are located outside of the project area and discontinued use of the MIS would not change current conditions of the wetlands identified. Potentially significant adverse impacts were initially considered for Alternatives IIIA, IIIB, and IIIC. Construction activities would loosen and disrupt soils, increasing the likelihood of runoff. Mitigative measures such as scheduling construction activities to avoid the rainy season or engineering controls (i.e., silt fencing) could reduce these impacts to less than significant.

#### Water Resources

No significant impacts are anticipated under Alternatives II, IIIA, IIIB. Negative impacts would potentially result from Alternative I as the emergency back up water from Well 17 and stored in the Kualapu'u Reservoir would be eliminated as it is part of the MIS. Potential beneficial impacts would result from Alternative IIIC as the desalination plant would allow for increased water quality of the water resources available on the west end of Moloka'i.

### Hazardous and Toxic Materials Considerations

No significant impacts are anticipated under Alternatives I and II. Potentially significant adverse impacts from construction activities related to Alternatives IIIA, IIIB, and IIIC were initially considered. Proper handling and storage of hazardous and toxic materials would reduce any impacts to less than significant levels.

### Climate and Air Quality

No significant impacts are anticipated under Alternative II, the Proposed Action, or Alternative I, the No Action Alternative, as site conditions would remain the same. Potentially significant adverse impacts from construction activities related to Alternatives IIIA, IIIB, and IIIC were initially considered. Dust suppression measures may be used to mitigate dust emissions to insignificant levels.

### Noise

No significant impacts are anticipated under Alternatives I and II. Potentially significant adverse impacts from construction activities related to Alternatives IIIA, IIIB, and IIIC were initially considered. A State of Hawai'i Department of Health (DOH) noise permit and sound barriers or other noise reducing measures, which may reduce elevated noise levels, would gain compliance with DOH Community Noise guidelines and reduce impacts to less than significant levels.

### Land Use Considerations and Zoning

No significant impacts are anticipated under Alternatives II, IIIA, IIIB, and IIIC. A direct negative impact to land use and zoning is anticipated from Alternative I. Beneficial uses of land (i.e., agriculture and conservation) in the west end of Moloka'i would cease. This impact would also be considered to be indirect and cumulative as it would have effects outside of the immediate project area and into the future.

### Historical and Archaeological Considerations

No significant impacts are anticipated under Alternatives I and II. Potentially significant adverse impacts from construction activities related to Alternatives IIIA, IIIB, and IIIC were initially considered. Implementation of pre-construction archaeological surveys and use of an archaeological monitor can mitigate these impacts to less than significant.

### Cultural Impacts Assessment (CIA) – Chapter 343 Hawai'i Revised Statutes

Neither the CIA nor the community consultation meetings identified significant impacts from Alternative II. Significant adverse impacts are anticipated under Alternative I as residences and businesses may be forced to relocate. Additionally, there may be impacts to those who perform cultural practices in western Moloka'i and utilize water provided by the MIS. Potentially significant adverse impacts from construction activities related to Alternatives IIIA, IIIB, and IIIC were initially considered. Implementation of pre-construction cultural surveys and use of a cultural monitor can mitigate these impacts to less than significant.

### Circulation and Traffic

Beneficial impacts to traffic from Alternative I would be anticipated as traffic to and within the west end of Moloka'i would decrease due to the lack of water availability. No significant impacts are anticipated under Alternative II, the Proposed Action, as site conditions would remain the same. Potentially

significant adverse impacts from construction activities related to Alternatives IIIA, IIIB, and IIIC were initially considered. Mitigative measures such as staggering the work schedule, using alternative routes, and informing the public would reduce impacts to insignificant levels.

#### Social Factors and Community Identity

No significant impacts are anticipated under Alternatives II, IIIA, IIIB, and IIIC. Potentially adverse impacts are anticipated under Alternative I as it would force residents, businesses, and farmers to abandon their homes, businesses and farms. Their livelihoods and the community identity of this region of the island would be forfeited.

#### Economic Considerations

Beneficial impacts are anticipated under Alternative II. With continued water supply, MPL will be able to re-open the Kaluako'i Resort and Golf Course providing 100 new jobs to the community and outsourcing of hotel functions to existing businesses. Secondary impacts include consumer demand in retail, professional services, and recreational and entertainment activities throughout the community. Such consumer demand and spending will lead to increased sales tax revenues, and income and property tax revenues to the State and County governments. Alternatives IIIA, IIIB, and IIIC would have similar benefits as Alternative II, with the added benefit of the addition of construction jobs. Alternative I would have a significant adverse impact on the households, agriculture, tourism, and other businesses of western Moloka'i by denying the continued irrigation and domestic water supply critical to daily living and operations.

#### Recreational and Public Facilities

No significant impacts are anticipated under Alternatives II, IIIA, IIIB, and IIIC. Significant adverse impacts are anticipated from Alternative I, as water transportation is necessary for the operation of recreational facilities.

#### Visual and Aesthetic Resources

No significant impacts are anticipated under Alternatives I and II, as the site conditions would not change. No significant impacts are anticipated under Alternatives IIIA and IIIB. Construction of the new water lines would be underground and no visual evidence will remain. Development of a desalination plant and wells on the west end under Alternative IIIC would pose a significant adverse impact on the visual and aesthetic resources of the open undeveloped land. Depending on the location of the plant, some west end users may be able to see the desalination plant from their residence(s).

#### Infrastructure Systems and Utilities

No significant impacts are anticipated under Alternative II, IIIA, IIIB, and IIIC. Alternative I would have a significant adverse impact to infrastructure and utilities. The discontinuation of water supply from the MIS would create an inhospitable habitat for west end residents.

#### **Summary Conclusions**

Under Alternative I, the discontinued use of the MIS for current water supply to Moloka'i residents and businesses would violate the DOH Water Quality Standards (Hawai'i Administrative Rules §11-54-1.1) and therefore, is not an immediate option. Alternative II, the Proposed Action, would not result in significant impacts to environmental or societal factors evaluated. Continued use of the MIS is necessary

for the immediate supply of potable and non-potable water to west end communities. Transportation of water via the MIS would remain the same since the initial 1975 agreement and would not change current conditions of the MIS and affected communities. Alternatives IIIA, IIIB, and IIIC are not immediately implementable and may require additional environmental review. Environmental effects associated with the evaluated alternatives are provided in Table ES-1.

Based on the environmental and societal factors considered under Alternative II, a Finding of No Significant Impact (FONSI) is anticipated.

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Table ES-1: Alternatives Impacts Matrix

Resource Concerns	No Action - Alternative I	Proposed Action - Alternative II	Alternate Water Route - Alternative III		
			Alternative IIIA	Alternative IIIB	Alternative IIIC
Topography and Geology	o	o	o	o	o
Soils	o	o	o*	o*	o*
Fire Hazard	-	o	o*	o*	o*
Natural Hazard	o	o	o	o	o
Flora and Fauna	o	o	o*	o*	o*
Wetlands	o	o	o*	o*	o*
Water Resources	-	o	o	o	+
Hazardous and Toxic Material Considerations	o	o*	o*	o*	o*
Climate and Air Quality	o	o	o*	o*	o*
Noise	o	o	o*	o*	o*
Land Use and Zoning	-	o	o	o	o
Historical and Archaeological Considerations	o	o	o*	o*	o*
Cultural Impacts Assessment	-	o	o*	o*	o*
Circulation and Traffic	+	o	o*	o*	o*
Social Factors and Community Identity	-	o	o	o	o
Economic Considerations	-	+	+	+	+
Recreation and Public Facilities	-	o	o	o	o
Visual and Aesthetic Resources	o	o	o	o	-
Infrastructure and Utilities	-	o	o	o	o

- = adverse impact

o = no impact

+ = beneficial impact

\* = with mitigation measures

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## **SECTION 1 INTRODUCTION AND SUMMARY**

### **1.1 Scope and Authority**

This Draft EA is prepared pursuant to Chapter 343, Hawai‘i Revised Statutes (HRS) and associated Title 11, Chapter 200, Hawai‘i Administrative Rules (HAR). The intent of the document is to ensure that systematic consideration is given to the environmental consequences of the Proposed Action. The Proposed Action is the restoration of an agreement between the HDOA and MPL. The agreement allows for the continued use of the State-operated MIS to transport water to the west end of Moloka‘i. The use of State of Hawai‘i lands triggers the requirement of this environmental study. MPL is currently exploring alternative plans to discontinue use of the State’s MIS. These future alternative plans are also presented in this EA. However, in the interim, MPL must continue to provide irrigation water to the residents of Kaluako‘i and Maunaloa. MPL is therefore required to restore the transmission agreement with the HDOA.

### **1.2 Project Information**

Project Name:	Continued Use of the Moloka‘i Irrigation System MPL MIS Project Kualapu‘u, Moloka‘i, Hawai‘i
Applicant:	Moloka‘i Properties Limited 1003 Bishop Street, #1170, Pauahi Tower Honolulu, HI 96813 (808) 534-9523
Agent:	Environet, Inc. 1286 Queen Emma Street Honolulu, HI 96813 Contact: Colette Sakoda (808) 833-2225 ext. 1004
Accepting Authority:	HDOA 1428 S. King Street Honolulu, HI 96814
Project Location:	Island of Moloka‘i
Tax Map Key Nos.:	2nd Division, Zone 5, Sections 1 and 2 various Plats and various Parcels
Total Affected Project Area:	Six miles of the MIS
Existing Land Use:	Agricultural
State Land Use District:	Agricultural, Conservation
DHHL Designation:	Agricultural, Commercial, Homeowner
County Zoning Designation:	Agricultural



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## **SECTION 2 PROJECT DESCRIPTION**

### **2.1 Purpose and Need**

MPL is in the process of renewing its transmission agreement with the HDOA for the use of the MIS to continue transporting groundwater from Well 17 located in the Kualapu'u aquifer to MPL customers in western Moloka'i. In order to do so, MPL must conduct a HRS Chapter 343 EA to evaluate the potential environmental impacts associated with the restoration of the transmission agreement. As stated in Section 1, the action that triggers this assessment is the use of State of Hawai'i lands:

*HRS Chapter 343 Section 5 states: §343-5 Applicability and requirements. (a) Except as otherwise provided, an environmental assessment shall be required for actions that: (1) Propose the use of state or county lands or the use of state or county funds, other than funds to be used for feasibility or planning studies for possible future programs or projects that the agency has not approved, adopted, or funded, or funds to be used for the acquisition of unimproved real property; provided that the agency shall consider environmental factors and available alternatives in its feasibility or planning studies; provided further that an environmental assessment for proposed uses under section 205-2(d)(11) or 205-4.5(a)(13) shall only be required pursuant to section 205-5(b).*

The original lease agreement, dated July 1975, was issued prior to implementation of laws requiring environmental studies in Hawai'i. With the expiration of the original transmission agreement, the current need for a new transmission agreement between MPL and HDOA is now subject to HRS Chapter 343 environmental review. Additionally, the Attorney General's office issued an opinion (letter dated September 4, 2007 and Star Bulletin September 7, 2007 article; Appendix A) that MPL must conduct an EA, pursuant to the provisions of HRS Chapter 343, before the HDOA could enter into negotiations on a new transmission agreement for use of HDOA's MIS by MPL.

#### Overview of the Agreement

MPL (formerly Kaluako'i Corporation) has used the State-operated MIS system to transport water from central Moloka'i under a 20-year agreement issued by the HDOA on July 11, 1975 (Appendix B). The first amendment to the agreement, dated December 20, 1980, was issued between State of Hawai'i Department of Land and Natural Resources (DLNR) and Kukui (Moloka'i) Inc. (KMI). Unrecorded letters of understanding dated August 28, 1985 and September 9, 1985, hereinafter called the "Agreement," concerning the use of the MIS by MPL, are considered amendments to the original Kaluako'i Corporation (the original owner) agreement. "The Agreement, as amended by (1) the unrecorded letters of understanding dated August 25, 1985 and September 9, 1985, (2) the Amendment to the MIS Agreement dated December 20, 1989, and (3) the Second Amendment to the MIS dated December 29, 1995, is collectively hereinafter called the 'MIS Agreement' (State of Hawai'i, 2002)." This second amendment to the agreement was executed between HDOA and KMI. A five year extension from January 1, 1996 through December 31, 2000 was granted to KMI. The operations continued through November 2001 when MPL entered into a Purchased Agreement for the resort and its assets. An extension to the amendment was granted for January 1, 2001 through December 31, 2005. Kaluako'i Water LLC (KWLLC), a subsidiary of MPL, executed an amendment with an assumption to a five-year agreement with KMI effective December 17, 2001 and ending December 31, 2005. A proposed amendment to the agreement was drafted for an additional five years from May 1, 2006 through April 30, 2011; however, the amendment was not executed as HDOA and MPL could not come to terms on the continued use of the MIS. With the expiration of the transmission agreement, a HRS Chapter 343 environmental review was required prior to a new transmission agreement. HDOA and MPL have communicated openly on terms regarding the use of the MIS to restore the agreement. A copy of the original agreement, amendments, assignments and consents are included in Appendix B.

## Chapter 343 HRS Process (as amended)

As noted above, the State of Hawai'i Deputy Attorney General in September 2007 issued an opinion that an EA was required before the HDOA could enter into negotiations on a new transmission agreement for use of the MIS by MPL. This requirement was in response to the August 2007 Hawai'i Supreme Court decision requiring the State to provide an environmental review of the Hawai'i Superferry. MPL is proceeding with the preparation of this EA in order to reinitiate discussions with the HDOA regarding its MIS. No specific declarations have come from the State Department of Land and Natural Resources Commission on Water Resource Management (CWRM) regarding its Well Permit application process. Provided MPL succeeds in gaining a restored Transmission Agreement for use of the MIS, MPL plans to apply for a new Well Permit from CWRM for use of Well 17.

The MIS Draft EA was initiated by conducting a pre-assessment written announcement in the summer of 2010. Fifty-five pre-assessment letters were distributed to Federal, State and County agencies as well as community organizations for the purpose of soliciting from consulted parties, concerns and issues that should be addressed in the Draft EA. Twenty-six written response letters were received from consulted parties, and these can be found in Appendix C. Four community meetings were conducted in conjunction with the CIA (Appendix D) and the overall EA as part of the community consultation process.

### Community Meetings

On January 26 and 27, 2011, MPL offered community meetings in Maunaloa at the Community Center and at the Lanikeha Community Center in Ho'olehua, respectively. Approximately 30 people attended the Maunaloa community meeting and approximately 40 people attended the meeting in Ho'olehua. The Ho'olehua community meeting introduced the CIA for the MIS Draft EA. Comments from the community are addressed in the CIA and in this Draft EA.

On July 24<sup>th</sup> and 25<sup>th</sup> 2012, MPL offered community meetings in Ho'olehua at the Lanikeha Community Center and in Maunaloa at the Maunaloa Community Center, respectively. The community meetings were a follow-up to the previously held meetings in Moloka'i in 2011. Although the meetings are not specifically required as part of the EA, the meetings were held to continue consultation with the public on the development of the Draft EA. The meetings were advertised in the Moloka'i Dispatch for two weeks prior to the meeting dates and on posted flyers around the Island of Moloka'i. Additionally, community members who provided email addresses in the 2011 meetings were emailed the meeting announcement on July 9, 2012. Approximately 30 people attended the community meeting in Ho'olehua. MPL presented a PowerPoint presentation on the description of the current MIS and MPL's use. The meeting began shortly after six p.m. and ended at about 7:25 p.m.. A sign-in sheet was used to list attendees and index cards were provided for attendees to submit questions. One person submitted a written comment and question. It was noted that not every person at the meeting signed in. Verbal comments presented during these meetings were reviewed and considered in the development of this Draft EA.

The availability of this Draft EA will be announced in the Office of Environmental Quality Control (OEQC) publication for a required 30-day public review period. Written comments will be reviewed by HDOA which is the Accepting Authority of the EA. Following the HDOA's review of the written comments, the agency will determine whether an Environmental Impact Statement (EIS) will be warranted or a FONSI is in order.

## **2.2 Project Location and Setting**

### Summary History and Background

The MIS was created under a Congressional Act around 1954. Among several provisions of this Act, it authorized the United States Bureau of Reclamation (U.S. BuRec) to study, plan and develop an irrigation project on Moloka'i. The original project concept included irrigating approximately 13,250 acres encompassing most of the pineapple acreage at that time, including 400 acres for diversified agriculture in

Ho'olehua and 7,500 acres of pineapple in Maunaloa. The two major pineapple companies were Dole and Del Monte, which barged harvested fruit to O'ahu. The project was constructed by the State irrigation agency, Hawai'i Irrigation Authority (HIA), Hawai'i Water Authority (HWA) and DLNR/Division of Water and Land Development (DOWALD) with both State appropriations and a Federal loan from the U.S. BuRec. Most of the project facilities which included Waikolu valley water sources, a transmission tunnel, the Kualapu'u Reservoir, and pipelines in Ho'olehua were built in the initial phase during the period that lasted from the 1950s to the 1970s. Construction of the primary irrigation facilities was completed in 1967, at which time the system became operational (HDOA, 2012).

The original agreement between HDOA and Kaluako'i Corporation (presently known as MPL) was executed on July 11, 1975. This agreement has been assigned once and amended twice. The third agreement was also a restatement, but was never executed (Section 2.1 Purpose and Need).

### Project Setting

The project area is situated on the southwestern side of the Island of Moloka'i. The eastern boundary of the project area is located where the distribution pipe from Well 17 links to the MIS. The project area extends west to where it exits the MIS at the Mahana Pump Station (Figure 2-1). The project area is approximately six miles of pipeline associated with the MIS pipeline; the MIS extends for 25 miles (mi), through the land parcels owned by the DHHL, along the right of way of county and state roads, and from Well 17 to MPL owned land (Figure 2-2). MPL leases these six miles of pipeline of the MIS and space within the Kualapu'u Reservoir to transmit water from Well 17 to Mahana.

Land use designations include agricultural and conservation. During the past 100 years, some of the project area was used for sugarcane cultivation, pineapple production, cattle grazing, and deer hunting. The surrounding area is sparsely populated and characterized by residential homes, small resort complexes, recreational parks and facilities, and lands utilized for cattle grazing. The project area is zoned as agricultural by Maui County.

## **2.3 Project Features and Relevant Considerations**

MPL currently rents six mi of the 25 mi of the MIS and will attempt to find alternatives to convey water from Well 17 to the west end. The alternatives proposed in this EA address water system options to be developed with the cooperation of the County of Maui (COM), Department of Water Supply (DWS), DHHL, HDOA and the CWRM. The project alternatives are illustrated in Figure 2-1 and includes several parcels of land owned by the DHHL, MPL, and the State of Hawai'i. The proposed action project area includes six miles of the MIS which crosses land owned by MPL, DHHL, State of Hawai'i and the COM. The majority of the project area, the MIS pipeline, is located in the right of way along county and state roads. Under all alternatives, a transmission agreement between MPL and the HDOA must be restored to continue the use of the MIS for its present use.

Approximately 0.413 million gallons per day (mgd) of water transported through the MIS to Maunaloa Town and Kaluako'i is pumped from Well 17. KWLLC is allocated 1.018 mgd from Well 17. Water is transported from Well 17 through the MIS system to the Mahana Pump Station. Water is treated at Pu'u Nānā, piped to a reservoir in Maunaloa, and gravity fed to Maunaloa Town and Kaluako'i (McGregor, 2012).

Under the State of Hawai'i Public Utilities Commission (PUC) guidelines, MPL has a responsibility to its consumers to supply potable water at the lowest possible price (McGregor, 2012). Because no immediately viable options for water supply are available to the people on the west end of Moloka'i, it is necessary for MPL to establish a new temporary agreement with HDOA. This new agreement would provide use of the MIS to transport adequate water for the users on the west end and begin the process of disassociating MPL from the MIS. Once the agreement is issued, MPL will move forward with the groundwater use permit application for Well 17. For analysis in accordance with HRS Chapter 343,

Alternative I is the No Action Alternative, denial of the transmission agreement restoration. The discontinued use of the MIS is discussed in this EA to address the potential impacts should the use of the MIS be discontinued without other options to transport water. The Proposed Action, Alternative II, proposes to continue the use of the MIS by restoring the agreement between MPL and HDOA. Upon restoring the agreement between MPL and HDOA, alternative routes for water distribution to the west end users will be considered and are addressed as Alternatives IIIA, IIIB, and IIIC.

The second step in the EA process would offer three alternatives that could potentially extend for a duration of 10 years or more. As discussed in Section 3 of this EA, Alternative IIIA proposes to develop a pipeline facilitating water from Well 17 to west end users (complete removal of MPL from MIS). Alternative IIIB proposes developing an irrigation line around DHHL lands (complete removal of MPL from MIS). Alternative IIIC is to develop two new wells on the west end and a desalination plant (complete removal of MPL from the MIS). Implementation of a future alternative (Alternative IIIA, IIIB, or IIIC) may require a supplemental EA and additional review and approval by applicable agencies.

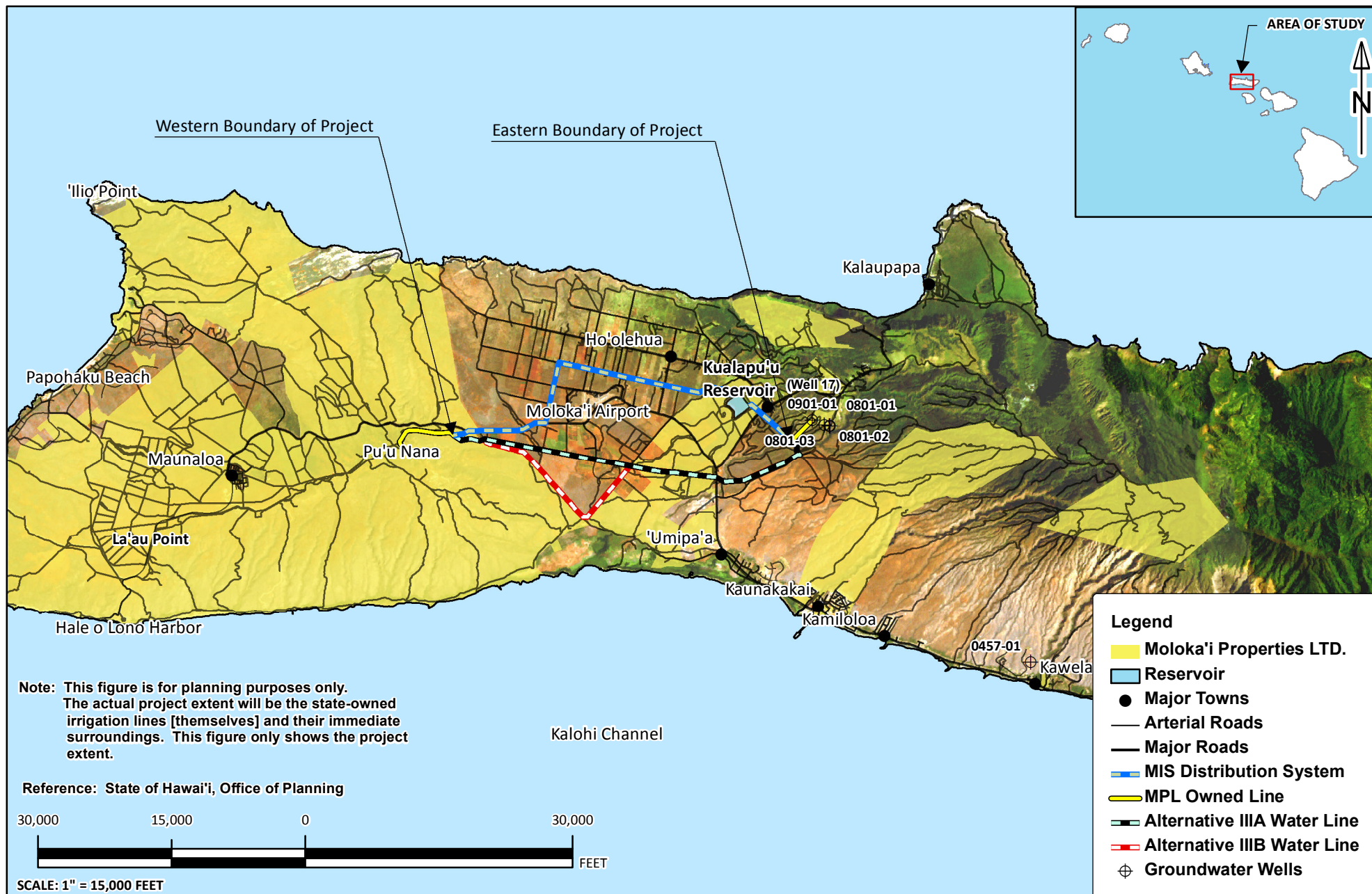
#### 2.4 Construction Time Frame and Estimated Project Construction Costs

Alternative I (Section 3.1) and II (Section 3.2) would have no associated costs. However, in the development of Alternative IIIA, IIIB, and IIIC, minor construction costs may be incurred from the detachment of Well 17 from the MIS. Alternative IIIA (Section 3.3) is highly dependent upon the engineering design. However, it is currently estimated at a construction cost of \$9.4 million. The estimate will be presented and refined during the final design process. The design of the irrigation system would be completed and construction would be initiated after completion and acceptance of this EA. The development of Alternatives IIIA, IIIB and IIIC could potentially extend for a duration of 10 years or more. Alternative IIIB (Section 3.3) is estimated at a cost of \$10.5 million for the construction of a new irrigation system on State of Hawai'i land and private land (McGregor, 2012). The cost would be ultimately borne by the small ratepayer base of Molokai Public Utilities (MPU). Alternative IIIC (Section 3.4) was estimated at \$26.5 million and could potentially be developed 10 years or more. The Alternatives are listed in the matrix (Table 2-1) below:

**Table 2-1: Alternatives Matrix**

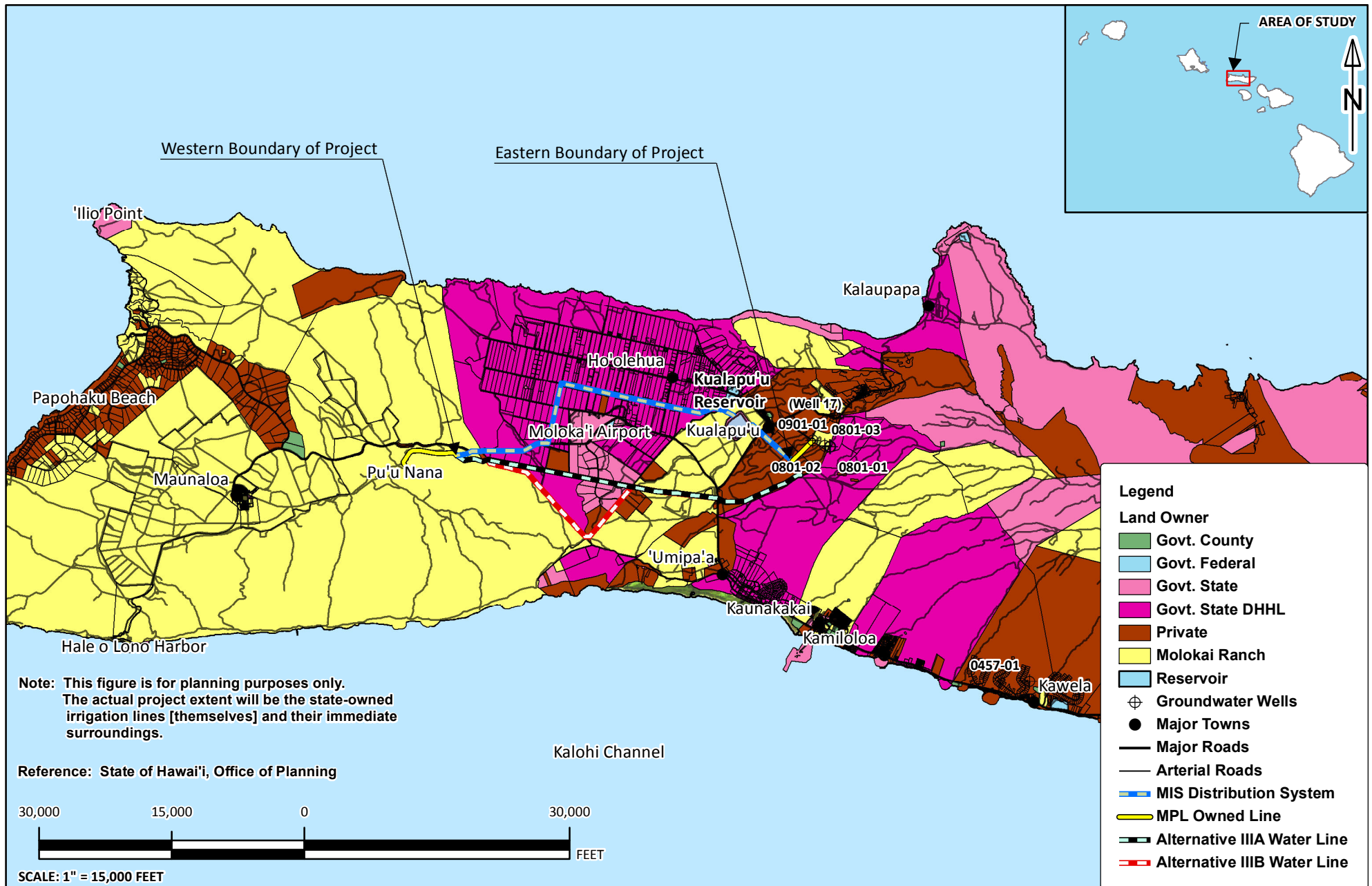
	First Step Decision		Second Step Decision		
	Projected timeline of one to three years.		Projected Completion Timeline (potentially 10 years or more after first step decision made)		
	Alternative I	Alternative II	Alternative IIIA	Alternative IIIB	Alternative IIIC
Description of Alternative	No Action - Discontinued Use of the MIS	Proposed Action - Continued Use of the MIS through Transmission Agreement Restoration	Develop pipeline to connect from Well 17 to west end through DHHL lands	Develop pipeline to connect from Well 17 to west end through MPL, State of Hawai'i and Monsanto Lands bypassing DHHL lands	Install two wells at the west end and discontinue Well 17 use
Current Estimated Construction Cost*	Not applicable	Not applicable	\$9.4 million	\$10.5 million	\$26.5 million

\* subject to increase



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## **SECTION 3 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

This section details the alternatives that are being analyzed in the Draft EA. Alternatives I and II are presented for consideration as an immediate, short-term action as MPL is required to provide irrigation water to the residents of Kaluako'i and Maunaloa. Alternatives IIIA, IIIB, and IIIC are long-term actions that would continue to provide water to the residents of Kaluako'i and Maunaloa following discontinued use of the State-owned MIS. These alternatives would not provide an immediate water supply as implementation could take 10 years or more.

### **3.1 Alternative I: No Action - Discontinued Use of the Moloka'i Irrigation System by MPL**

Alternative I is the No Action Alternative, which would be the discontinued use of the MIS. This alternative is not acceptable as it would result in the complete loss of water to the west end making it an unsuitable habitat for residents. The discontinued use of the MIS is unacceptable to the DOH and therefore is not an immediate option. Alternative I is presented in the Draft EA to provide the impacts associated with removal from the MIS. Potential environmental impacts are addressed throughout this Draft EA and cultural impacts are addressed in the CIA (Appendix D).

### **3.2 Alternative II: The Proposed Action - Continued Use of the Moloka'i Irrigation System by MPL**

Alternative II is the Proposed Action Alternative that reinstates an agreement between the HDOA and MPL to continue using the MIS to transport water. The current MIS facilitates irrigation water to properties owned by DHHL, State of Hawai'i and MPL. Residents of the west end would be provided water from Well 17 through the MIS. Current use of the MIS starts at the point where the irrigation line from Well 17 intersects the MIS and ends at the point when water leaves the MIS at the Mahana pump station. Water is treated in Pu'u Nānā, and then piped to the Maunaloa Reservoir, and gravity fed to the west end users. The agreement would continue with current leasing rights and negotiated fees for continued rental space in the MIS. MPL's allocated water amount is 1.018 mgd and will continue to operate with this permitted amount. Potential impacts associated with this alternative are addressed through this Draft EA.

MPL is proposing to continue to lease six miles of the MIS and space in the Kualapu'u Reservoir. Water from Well 17, which is operated by MPL, would be transmitted to the Kualapu'u Reservoir. Water would then enter the MIS distribution system where it would terminate in Mahana. From Mahana, the water will enter MPL owned systems beginning with a booster pump and transmission line to the Pu'u Nānā Reservoir. The water will then enter an existing transmission system to Maunaloa and eventually be gravity fed to Kaluako'i (Community Planning and Engineering (CPE), 2012).

MPL has an allocation of 1.018 mgd from the Kualapu'u aquifer, but currently only produces 0.413 mgd to provide water to users in Maunaloa and Kaluako'i. The amount of water pumped into the MIS from Well 17 and the amount of water withdrawn at Mahana are metered and monitored by the HDOA. However, in order to account for system losses and evaporation at the reservoir, MPL can only withdraw 900 gallons for every 1,000 gallons that it transports through the MIS (CPE, 2012).

### **3.3 Alternative IIIA: Develop pipeline facilitating water from Well 17 to West End Users (complete removal of MPL from MIS)**

Alternative IIIA would provide west end users complete access to the water pumped from Well 17 from a pipeline designed to facilitate the necessary water quantity for the community of 600 households. The MPL constructed irrigation line would connect from Well 17 to the Mahana pump house across DHHL lands. The irrigation line would be constructed and buried underground, the planned extent of which is shown in the Project Location Map (Figure 2-1). MPL will need to seek approval from DHHL for this pipeline under the Easement Agreement.

A new pipeline as mentioned above would direct water from Well 17 to the west end across DHHL lands. An Easement Agreement between MPL and DHHL would need to be developed.

Alternative IIIA proposes a direct route through DHHL property to transport water from Well 17 to Pu‘u Nānā bypassing the MIS. Water would be drawn from Well 17 and deposited in existing Well 17 Reservoir #1 and existing Well 17 Reservoir #2. The water would then be boosted through a pump station and transmitted through a 12-inch line to the reservoir at Pu‘u Nānā. At Pu‘u Nānā the water from Well 17 would be distributed through existing systems to Maunaloa and Kaluako‘i. The 12-inch transmission line would travel across MPL lands, State lands, DHHL lands, Maunaloa Highway and Pala‘au Avenue (CPE, 2012).

Potable water must be provided to the community at the lowest possible cost to the users. Other alternatives are more expensive to consumers. MPU can recover costs associated with the construction and start-up of the project. The operating costs would be reasonable for MPU without the annual leasing fee associated with the MIS service.

#### **3.4 Alternative IIIB: Develop irrigation line routed outside around DHHL lands (complete removal of MPL from MIS)**

Alternative IIIB is the design of a transmission main to facilitate water from Well 17 in Kualapu‘u to Pu‘u Nānā Reservoir that is routed to avoid DHHL properties. Alternative IIIB proposes to transport water from Well 17 to Pu‘u Nānā bypassing the MIS and DHHL property. The transmission line will be routed through land owned by MPL, the State of Hawai‘i and Monsanto (Figure 2-1). Although this alternative avoids an easement through DHHL lands, easements would be required through Monsanto and State lands (CPE, 2012).

This alternative would also provide west end users complete access to the water pumped from Well 17 without the use of the MIS, the planned extent of which is shown in the Project Location Map (Figure 2-1). This alternative would require an additional EA and investigation for the water line route from Well 17. The pipeline would cross land owned by Monsanto and State of Hawai‘i until it meets MPL land and is constructed across Pu‘u Nānā to Kaluako‘i. An EA would also need to be conducted for the route taken across the 124 acre parcel, which is part of the Moloka‘i Agricultural Park (McGregor, 2012).

Similar to Alternative IIIA, water would be pumped from Well 17 and stored in the two existing reservoirs located onsite. Water from the reservoirs would then be boosted through a pump station and transmitted through a 12-in transmission line to the reservoir at Pu‘u Nānā and eventually to the Maunaloa and Kaluako‘i users (CPE, 2012).

#### **3.5 Alternative IIIC: Develop two wells and a desalination plant on west end and discontinue Well 17 use (complete removal of MPL from the MIS)**

Alternative IIIC would consist of the construction of a desalination plant and two deep groundwater wells that will draw brackish water from the west end aquifers.

Ideally, west end users would be able to draw irrigation water from the west end aquifers to minimize transmission and distribution distances. However, the water in the west end aquifers is brackish and may need some level of treatment to produce useable irrigation water. A study would be required to confirm the quality of the brackish water. Currently, it is assumed that the saline levels in the groundwater from the west end aquifers are too high for irrigation use for most crops and livestock. An option considered for this study is desalinating the brackish water as a method of treatment (CPE, 2012).

Two deep groundwater wells would be constructed to access the water from the west end aquifers. A hydrogeological investigation would need to be conducted to determine the location of the wells. For this study, the assumption of minimizing the transport of water drawn from the wells to the location for treatment would be considered. The two deep ground water wells would be drilled to an approximate depth of 1,400 ft. One well would draw brackish water from the Kaluako‘i Aquifer and the other would

draw brackish water from the Punakou Aquifer. Each aquifer has a sustainable yield of 2 mgd (CPE, 2012).

The brackish water would then be transported approximately two miles to Pu‘u Nānā for treatment. The existing infrastructure at Pu‘u Nānā would be utilized, such as the reservoir, tanks and transmission lines. At Pu‘u Nānā the water would pass through a pre-treatment procedure to remove any of the larger particles and any organic material in the brackish water. Subsequently, the water would be subject to the desalination process to separate salts out of the brackish water, producing irrigation and potable water. At this point, the water would be distributed to users in Maunaloa or Kaluako‘i using the existing distribution and transmission systems (CPE, 2012).

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## ***SECTION 4 ENVIRONMENTAL SETTING AND POTENTIAL IMPACTS***

The physical and social environmental setting of the project site and the probable impacts of the Alternative I: No Action, Alternative II: Proposed Action and Alternatives IIIA, IIIB, and IIIC are described in this section of the report. Impacts are evaluated on whether they constitute a “significant effect” on a particular environmental setting. Impacts are described as having No Impact, Significant Adverse Impact or Beneficial Impact depending on the outcome to the environment. The terms impact and effect are used synonymously in this EA. Impacts may apply to the full range of natural, aesthetic, historic, cultural, and economic resources. The following subsections define key terms used throughout Section 4.

### **Significance Criteria**

A “significant effect” is defined by HRS Chapter 343 as “the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic welfare, social welfare, or cultural practices of the community and State.”

### **Direct versus Indirect Impacts**

Definitions and examples of “direct” and “indirect” impacts as used in this document are as follows:

- "Primary impact" or "primary effect" or "direct impact" or "direct effect" means effects which are caused by the action and occur at the same time and place (HAR § 11-200-2). For direct impacts to occur, a resource must be present in the particular study area.
- "Secondary impact" or "secondary effect" or "indirect impact" or "indirect effect" means effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (HAR §11-200-2).

### **Beneficial versus Adverse**

Impacts from the Proposed Action may also have beneficial or adverse affects to the environment. Beneficial impacts are those that would produce favorable outcomes and add value to the environment. Adverse impacts are those that would produce detrimental effects and cause harm to the environment.

### **Cumulative Impacts**

Cumulative impacts are two or more individual effects which, when considered together, compound or increase the overall impact. Cumulative impacts can arise from the individual effects of a single action or from the combined effects of past, present, or future actions. Thus, cumulative impacts can result from individually minor, but collectively significant actions taken over a period of time. The cumulative impacts of implementing the Proposed Action along with past and reasonably foreseeable future projects proposed were assessed based upon available information.

### **Mitigative Measures**

Mitigative measures are defined as measures taken to avoid, reduce and compensate for adverse impacts to a resource. Mitigative measures are identified and discussed for each alternative, where relevant. In this EA, mitigative measures are provided to reduce adverse impacts when levels of impact are more than minor and to ensure levels of impact are not significant. Only those mitigative measures that are practical have been identified.

## 4.1 Physical Environment

### 4.1.1 Topography and Geology

As the fifth largest Hawaiian Island, Moloka‘i is approximately 260 square miles (sq. mi.) and exhibits a roughly rectangular shape, elongated in the east to west direction. The Island of Moloka‘i was formed primarily by the coalescence of the west and east Moloka‘i volcanoes, and secondarily by rejuvenated volcanism on the Kalaupapa Peninsula. The West Moloka‘i volcano (1.9 million years old) is slightly older than the east Moloka‘i volcano (1.75 million years old), allowing for east Moloka‘i lavas to be emplaced on the eastern slope of the West Moloka‘i shield (Mink and Lau, 1992). The erosion of the west and east volcanoes has formed the Ho‘olehua Saddle, a low-lying coastal plain, in central Moloka‘i.

Presently, west Moloka‘i covers about a third of the island’s land mass and reaches a maximum elevation of about 1,380 feet above mean sea level (msl). In west Moloka‘i, a high sea cliff (about 500 ft) forms the majority of the northern coast. The southern shoreline of Moloka‘i features Hawai‘i’s most extensive coral reef system, extending over 14,000 acres offshore, due in part to the presence of Lāna‘i and Kaho‘olawe dampening waves from southern swells.

East Moloka‘i currently encompasses approximately two thirds of the island’s land mass, and reaches a maximum elevation of approximately 4,970 above msl at the Kamakou summit. Extremely steep cliffs, rising over 3,000 ft above msl, line the northern coast of east Moloka‘i. In north-central Moloka‘i, the Kalaupapa Peninsula is backed by 1,600 ft high cliffs, which isolate this area from the rest of the island. On the leeward side of east Moloka‘i, extensive mud flats occur due to the erosion of volcanic slopes. This process has been accelerated by the introduction of livestock during the 1800s, and the subsequent destruction of upland vegetation (Mink and Lau, 1992). The following gives an overview of the topography of each proposed alternative.

#### *Potential Impacts and Mitigation*

##### Alternative I

No significant impacts to the topography or geology are expected to result from Alternative I. The project is located in central and western Moloka‘i, beginning at about 800 ft above msl in elevation, where the MPL-owned water line incorporates water from Well 17 into the MIS. The MIS runs west to the Kualapu‘u Reservoir where the elevation remains relatively level at about 800 ft above msl. After exiting the Kualapu‘u Reservoir, the MIS continues west, and the elevation gradually decreases to an elevation of around 400 ft above msl in the Ho‘olehua Saddle, over a length of approximately one-half mi. West of the Moloka‘i Airport, the elevation of the MIS begins to increase, reaching a maximum of approximately 800 ft above msl at the Mahana Pumping Station. Use of the MIS would be discontinued under Alternative I and no construction or removal activities would be performed that may impact the topography or geology.

##### Alternative II

No significant impacts to the topography or geology are expected to result from Alternative II. The project boundaries are the same as Alternative I and the MIS would continue to transport water under its current condition. No construction, maintenance or removal activities would be performed that may impact the topography or geology.

##### Alternative IIIA

No significant impacts to the topography or geology are expected to result from Alternative IIIA. This alternative would involve the construction of a new water line, beginning at about 800 ft above msl. The topography would gradually decrease as the line travels southwest, reaching an elevation of about 400 ft above msl at the eastern edge of the Ho‘olehua Saddle. As the water line crosses the Ho‘olehua saddle, the topography is gently sloping, varying between 300 and 400 ft above msl. Near the Mahana Pumping

Station, the elevation increases at a moderate slope to about 800 ft above msl. Construction and operational activities would follow existing topography and not impact the topography or geology.

#### Alternative IIIB

No significant impacts to the topography or geology are expected to result from Alternative IIIB. Similar to Alternative IIIA, this alternative would involve the construction of a new water line, beginning at about 800 ft above msl. This line would follow the topography, gradually decreasing until approximately 400 ft above msl at the eastern edge of the Ho'olehua Saddle. In order to travel around the DHHL lands, this water line would proceed southwest to elevations near sea level. Eventually, the line would change to the northwest direction, and the topography would increase at gentle to moderate slopes, reaching a maximum of 800 ft above msl at the Mahana Pumping Station. Construction and operational activities would not impact the topography or geology.

#### Alternative IIIC

No significant impacts to the topography or geology are expected to result from Alternative IIIC. Alternative IIIC would be located on the western end of Moloka'i where the landscape is similar to the central part of the island near Ho'olehua. The location of the two wells and a desalination plant have not been assessed as supporting research does not include information on prime desalination locations. However, this alternative would be located in MPL land on the western side of the island. Construction and operational activities would be designed to not impact the topography or geology.

#### 4.1.2 Soils

##### *Existing Conditions*

The *Soil Survey of the Islands of Kauai, Oahu, Maui, Moloka'i, and Lanai, State of Hawai'i* (Natural Resources Conservation Service (NRCS), 1972) presents details on the soils present on the Island of Moloka'i. The dominant soil types in the project areas of each alternative are principally of the Moloka'i-Lahaina Association, with minor components of the Very Stony Land-Rock Land Association, the Rough Broken Land-Oli Association, Gullied Land, and the Mala Series.

The Moloka'i-Lahaina Association soil series is composed of the Moloka'i Series (35%), the Lahaina Series (15%), and the Ho'olehua, Holomua, 'Uwala, Waihuna and Waikapu Series (remaining 50%). These soil types were formed from weathered igneous rock, are well-drained, and have a moderately fine to fine texture. This association occurs on nearly level to moderately sloping uplands, at elevations between 100 to 1,500 ft above msl. Historically, the principle use for these soils has been pineapple cultivation or pasture, and natural vegetation includes kiawe, 'ilima, 'uhaloa, and fingergrass. In general, the Lahaina Series are characterized as potentially highly erodible, and the Moloka'i Series are categorized as not highly erodible (NRCS, 1972).

The Very Stony Land-Rock Land Association consists of gently to steeply sloping stony and rocky land, and is found in the western extent of the project area. This association occurs at elevations between sea level and 3,000 ft above msl, and is used for pasture and wildlife habitat. The Very Stony Land Soil Series accounts for 60% of the association, and is characterized by many stones and boulders that overlie weathered rock. The Rock Land Soil Series accounts for about 15% of the association, and is characterized by, not surprisingly, rock outcrops and stones (NRCS, 1972).

The Rough and Broken Land-Oli Association consists of well-drained, medium textured soils that are gently sloping to very steep at elevations between sea level and 3,500 ft above msl. They are derived from volcanic ash, and material weathered from igneous rock. The primary component of this association is the Rough and Broken Land Soil Series, which accounts for 70%, and can be characterized as soft, weathered rock with thin layers of soil. The Oli Series accounts for the remaining extent of this association, and can be characterized as a friable silt loam in the surface and upper subsurface, and a



friable clay loam in the lower subsurface. This association is mainly used for pasture and wildlife habitat (NRCS, 1972).

Gullied Land occurs in the Mahana area of Moloka‘i, and is non-arable due to the high degree of gully formation and erosion. Native vegetation is sparse, and includes kiawe, ‘ilima, ‘uhaloa and piligrass, which offer some degree of protection from erosion. This soil type occurs at the heads of drainageways and on alluvial terraces along the streams, at elevations between sea level and 1,200 ft above msl (NRCS, 1972).

The Mala Series are well-drained soils on coastal plains, and occur on elevations between sea level and 100 ft above msl. This series has historically been used for pasture, alfalfa, and wildlife habitat, and supports vegetation principally consisting of kiawe, bristly foxtail, feather fingergrass, ‘ilima, and Australian saltbush (NRCS, 1972).

The proposed and existing waterlines are located within the Kona District of Moloka‘i. This district includes the western half and the south-eastern portion of the island. The existing waterline cuts through seven ahupua‘a (land divisions). From east to west, this includes Kaunakakai, Kalama‘ula, Kahanui, Nā‘iwa, Ho‘olehua, Pālā‘au, and Kaluako‘i. The proposed line runs along the boundaries of Nā‘iwa, Ho‘olehua, Pālā‘au, and Kaluako‘i (see Figure 4-1). The terrain in this region consists of arid slopes dissected by dry, narrow gulches and small gullies that experience rare water flow. The surface is highly eroded from grazing caused by livestock and feral ungulates, periodic fires, and natural forces. The Ho‘olehua-Pālā‘au lands consist mainly of rich lateritic soil that runs from 10 to 30 ft in depth (Meyer, 1982).

#### *Potential Impacts and Mitigation*

##### Alternative I

For Alternative I, no adverse impacts to soils are anticipated from the discontinued use of the MIS. Site conditions would remain the same.

##### Alternative II

No significant impacts are anticipated for Alternative II. Site conditions would remain the same.

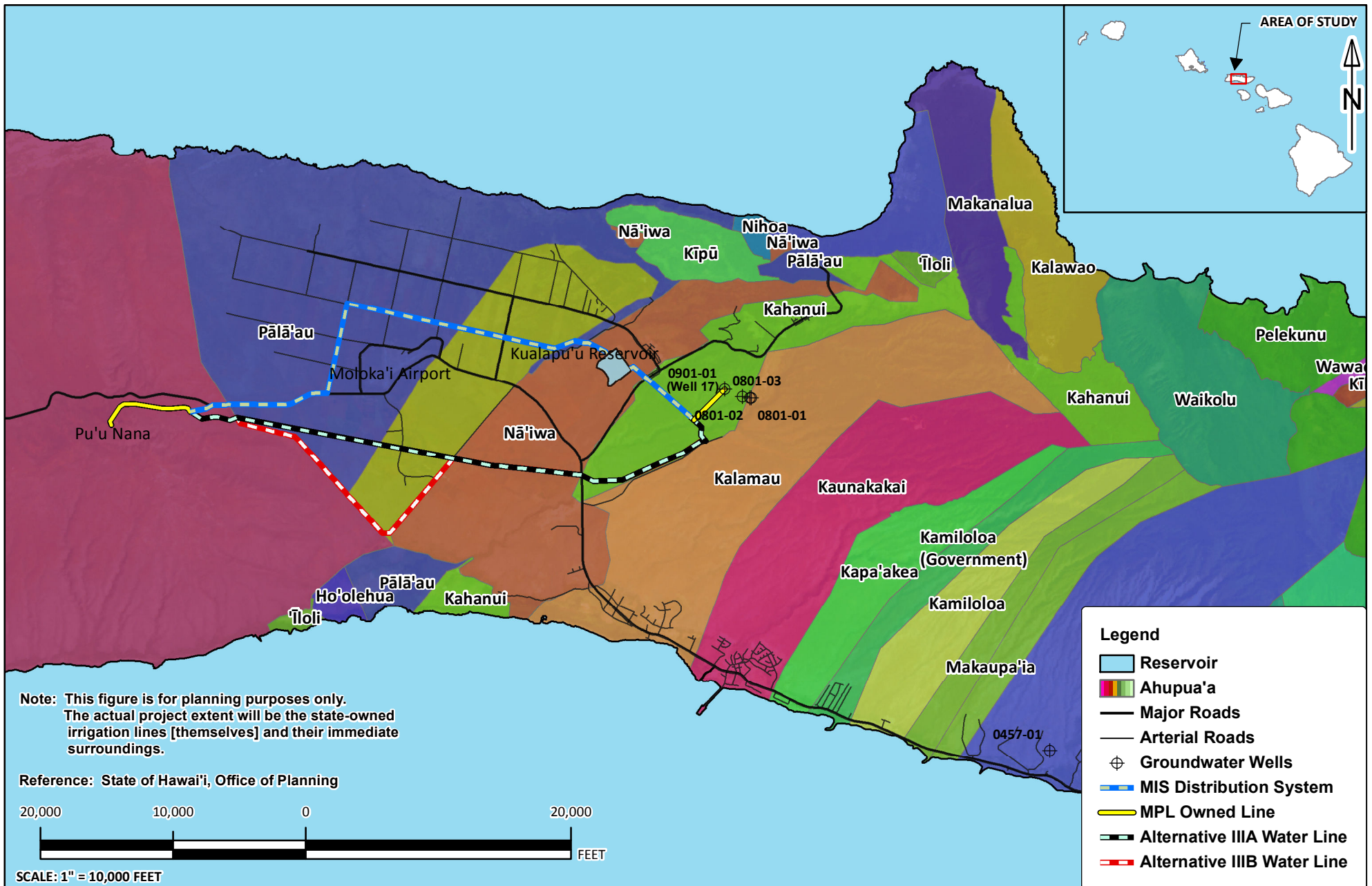
##### Alternatives IIIA, IIIB and IIIC

Alternative III could have a potential adverse impact to soils as a result of construction activities (e.g., clearing, grading, grubbing, excavation and trenching) that disturb the earth and soils. Exposed soils are susceptible to erosion, especially if it rains heavily during site work periods. Soil erosion potential in the general vicinity of the project area indicates potentially high erosion (Figure 4-2). Wind erosion may also cause some unavoidable soil loss, but the greater concern is silt runoff. Adverse impacts would be minimized or avoided as a result of both temporary and permanent erosion and sedimentation control measures that shall be implemented during the development of access roads, irrigation line installation and the desalination plant installation. Therefore, no significant impacts are anticipated. Proposed work shall comply with State and County erosion control standards and requirements including, but not limited to, preparation of a County approved erosion control plan.

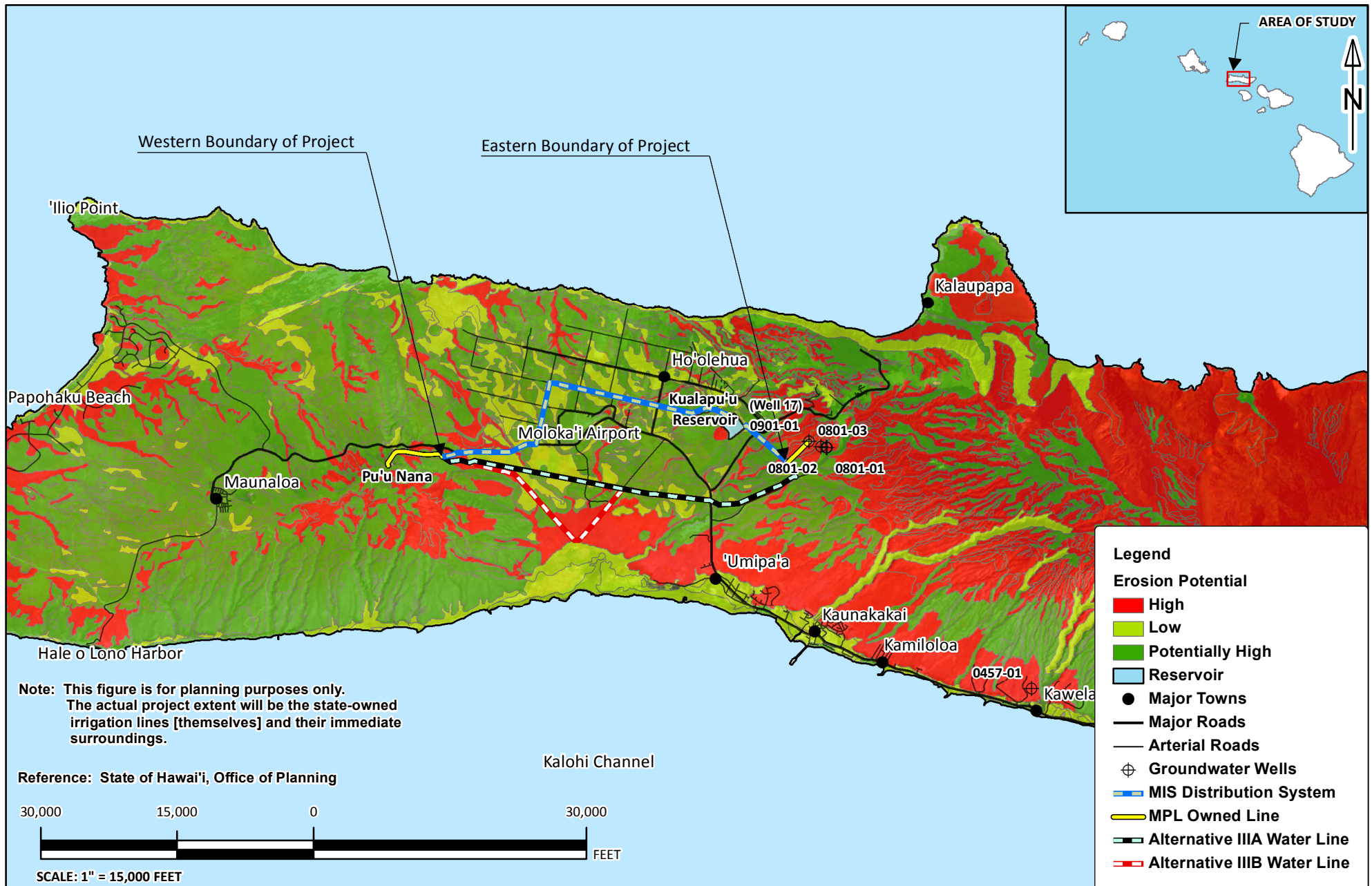
#### 4.1.3 Fire Hazard

##### *Existing Conditions*

Due to the dry nature of the west end of Moloka‘i, the project area is prone to periodic brushfires. Dry fields of non-native grasses, kiawe, and koa haole provide ideal fuel sources for brushfires. The majority of properties in the project and surrounding areas are agricultural lots with some containing human occupied structures. Brushfires can be ignited by a variety of sources including electrical sparks, downed



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power lines, human carelessness (e.g., improper disposal of cigarettes), arson, etc. The practice of open burning of yard waste and household trash (“backyard burning”) presents a significant fire hazard, and has been illegal on O‘ahu since 1973 and is now prohibited on all islands. The DOH Clean Air Branch released amendments to the HAR 11-60.1 on December 20, 2011. There are some exceptions to the prohibition of open burning such as allowing agricultural burning if a permit is obtained, and fires for cooking and ceremonial purposes (DOH, 2011).

There are 14 fire stations located throughout the County of Maui, with three fire stations located on Moloka‘i: Kaunakakai, Puko‘o, and Ho‘olehua. The Ho‘olehua Fire Station is the closest to the project area. The distance from the Ho‘olehua Fire Station to the project areas of all three alternatives ranges from approximately 0.5 to 6 mi. In the case of a large brushfire, the County of Maui also has a fire response helicopter which is stationed on Maui (County of Maui (COM), 2012). Depending on the location of the fires, water that is used to extinguish fires is obtained from nearby fire hydrants, reservoirs such as the Kualapu‘u Reservoir, or the ocean.

### *Potential Impacts and Mitigation*

#### Alternative I

Significant adverse impacts are expected under Alternative I. The water availability will be cut off and therefore water service for firefighting will no longer exist on the west end. The increased fire hazard could potentially result in loss of flora, fauna, and human life.

#### Alternative II

No significant impacts are expected under Alternative II. Existing potential fire hazards posed by the ignition sources mentioned above, will still exist in the project area.

#### Alternatives IIIA, IIIB, and IIIC

Under Alternatives IIIA, IIIB, and IIIC, potentially significant adverse impacts to fire hazards related to construction activities were initially considered. Alternatives IIIA and IIIB will involve the construction of an underground water pipeline which will require the use of heavy equipment and gasoline-fueled vehicles, thus presenting the potential for heavy equipment or vehicle fires. Alternative IIIC is the installation of wells and construction of a desalinization plant which would require similar heavy equipment and gasoline-fueled vehicles as Alternatives IIIA and IIIB. Possible contact with overhead or underground utilities could also create a potential fire hazard. The use of fuels for equipment and vehicles, and the use of chemicals for the construction of the pipeline, such as primers and glues, present possible flammable substance hazards. Trees and brush, which have been excavated from the construction area could also be a potential fire hazard if they are improperly disposed of (e.g., if left onsite as large dry debris piles).

To mitigate the potential significant adverse impact under Alternatives IIIA, IIIB, and IIIC and to reduce the chance of fire ignition in the project area, proper fire safety practices and fire hazard awareness should be established. Prior to construction activities, the project area shall be surveyed for the presence of overhead and underground utilities. Daily equipment inspections should be conducted and all vehicles and equipment brought on site should be in proper working condition. All vehicles and equipment should be mounted with appropriately rated fire extinguishers and additional fire extinguishers should also be available at the project site. All on-site workers should be aware of the locations and operation of fire extinguishers. On-site workers should also be aware of the flammability properties of the chemicals they are working with and the proper storage requirements for these chemicals (e.g., flammable storage lockers; storing flammables away from combustibles; etc.). The installation of fire breaks around the project area to control the spread of brushfires should also be considered. On-site workers should also be aware of important safety information such as emergency contact numbers, proper emergency evacuation

procedures, and designated smoking area (if smoking is permitted on site). Implementation of these mitigation measures will reduce the potential impact of fire hazard to less than significant.

Alternative IIIC also removes the supply of water from Well 17 to the Kualapu‘u Reservoir. Since the Kualapu‘u Reservoir is sometimes used to supply water for extinguishing brushfires, a reduction of water in the reservoir could potentially cause an effect on fire protection. However, this is unlikely since, as noted in Section 4.1.7 Water Resources, water demand from and to the Kualapu‘u Reservoir is expected to remain at sustainable levels.

*Note: The mitigation measures that have been discussed are only some of the measures that shall be implemented for the project to reduce the potential for fire hazards. An extensive safety plan should be established for the project site prior to the commencement of construction activities.*

#### 4.1.4 Natural Hazard

##### *Existing Conditions*

The Island of Moloka‘i has the potential to be impacted by several natural hazards including flooding, earthquakes, and tsunamis.

Flood hazard areas are delineated by Flood Insurance Rate Maps (FIRMs) prepared by the Federal Emergency Management Agency (FEMA), National Flood Insurance Program. The project area for proposed Alternatives I and II, is categorized as Zone X and defined as an area outside of the 0.2% annual chance floodplain (Figure 4-3). For project Alternative III, the southern extent of the proposed water line would run through Flood Zone A which is defined as an area with a 1% annual chance of inundation (Figure 4-3). Flood risks on Moloka‘i are primarily along the coast line.

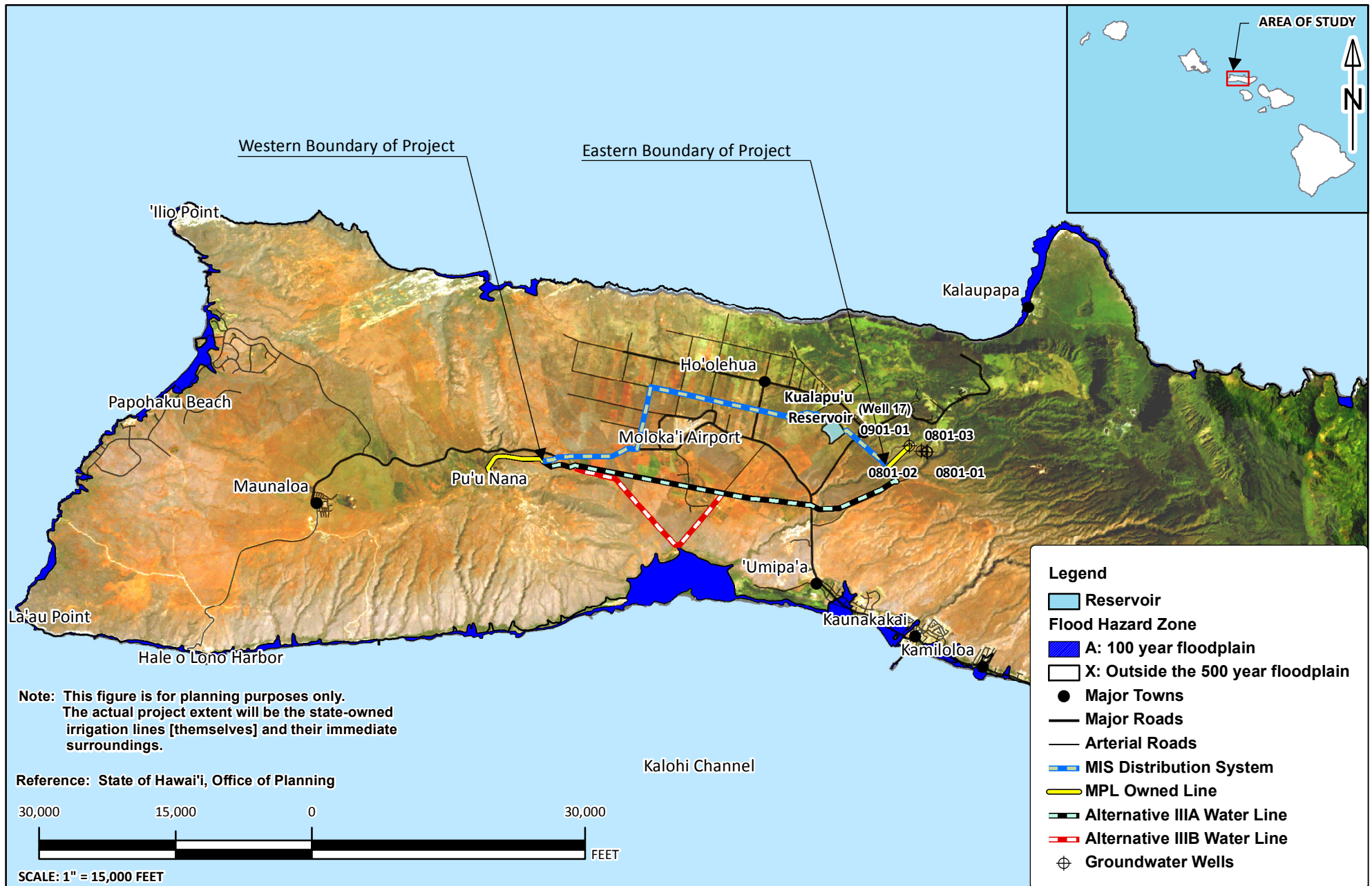
In Hawai‘i, earthquakes are generally linked to volcanic activity and occur thousands of times annually; the vast majority of which are at a very small magnitude. Significant earthquakes have recently originated on the Island of Hawai‘i; the most notable of which occurred at a magnitude of 4.9 on March 24, 2012 (United States Geological Survey (USGS), 2012). On Moloka‘i, the USGS predicts a 2% probability in 50 years that a peak ground acceleration will exceed about 30% the acceleration due to gravity. In other words, ground accelerations above 30% that of gravity is likely to occur at a probability of less than 2% in the next 50 years.

A tsunami is a series of great waves, typically the result of a violent displacement of the seafloor. Tsunamis are characterized by high speed (up to 560 miles per hour (mph), long wave lengths (up to 120 mi), and long periods between successive wave crests (up to several hours (hr)). Tsunamis have the potential to inundate the coastline, causing severe property damage and/or loss of life. On Moloka‘i, 70 tsunami events have been recorded since 1819, the largest of which caused waves to run up 54 ft on the Kalaupapa Peninsula (National Geophysical Data Center (NGDC), 2012). The project areas for all proposed alternatives, however, are not designated as Tsunami Inundation Zones.

##### *Potential Impacts and Mitigation*

##### Alternative I

No significant impacts to natural hazard vulnerability would result from Alternative I. The project area of Alternative I is located outside the tsunami inundation zone and has a very low percentage of flooding probability. Therefore, natural hazard vulnerability in the project area is insignificant.





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## Alternative II

No significant impacts from Alternative II would result from its location to the tsunami inundation zone as it has a very low percentage of flooding probability. Natural hazard vulnerability in the project area is insignificant. This alternative would not significantly affect the generation of a natural hazard.

## Alternatives IIIA, IIIB, and IIIC

No significant impacts to the flood zone vulnerability would result from Alternatives IIIA, IIIB, and IIIC as it is located in a flood zone with a 1% chance of inundation. The tsunami zone is located outside of the project area. Therefore, Alternatives IIIA, IIIB, and IIIC would not impact the generation of natural hazards nor would the project area be impacted by natural hazards.

### 4.1.5 Flora and Fauna

#### *Existing Conditions*

A variety of diverse environments exist on the Island of Moloka'i. These environments provide habitat to unique flora and fauna. The United States Fish and Wildlife Service (USFWS) designated critical habitats for 41 endangered plant species, encompassing 9,733 hectares, and for Blackburn's sphinx moth, encompassing 1,242 hectares, primarily throughout eastern and northeastern Moloka'i (Figure 4-4). In addition, Moloka'i provides recovery habitat for the Maui parrotbill (*Pseudonestor xanthophrys*) and the 'ākohekohe (*Palmeria dolei* [crested honeycreeper]), designated as endangered and threatened species by the USFWS (Mitchell, 2005). Several endangered and threatened species exist in Moloka'i, primarily in the eastern forests, including 'ōpe'ape'a (*Lasiurus cinereus semotus* [Hawaiian hoary bat]), the nēnē (*Branta sandvicensis* [Hawaiian goose]), ae'o (*Himantopus mexicanus knudseni* [Hawaiian stilt]), 'alae ke'oke'o (*Fulica alai* [Hawaiian coot]), 'ua'u (*Pterodroma sandwichensis* [Hawaiian petrel]), 'a'o (*Puffinus auricularis newelli* [Newell's shearwater]), and the Blackburn's sphinx moth (Mitchell et al., 2005).

Previous studies in the general vicinity of the project area have not found any flora or fauna present to be listed as Federally Threatened or Endangered, and the project area is outside of those areas designated as a critical habitat. The majority of lands in the Pu'u Nānā end of the MIS system and MPU distribution line have been used for cattle ranching activities over the past many years, thereby resulting in lands disturbed due to agricultural use (MPL, 2012). Mammals expected to be in the project area include those common to agricultural lands, such as dogs, cats, mongoose, rats, and mice. Also present are pigs, horses, axis deer, pheasants, and various reptiles and amphibians. Of the five main Hawaiian Islands, Moloka'i wetlands have the highest ratio of native to exotic fish, an indicator of ecosystem health, reported at approximately 1:1 (MacKenzie and Bruland, 2011). The most common nekton species present in five wetland environments along the southern shoreline of Moloka'i (i.e., Kakahai'a, Kōheo, Sea Farms, 'Ōhi'a-pilo, and 'Ualapu'e) include exotic *Peocilia* sp. and native *Mugil cephalus* (MacKenzie and Bruland, 2011). Land cover is expected to be primarily agricultural lands, mixed native-alien shrubs and grasses, and sparse forests. Natural vegetation includes primarily kiawe, 'ilima, 'uhaloa, and fingergrass. Ground cover classification throughout this area is predominantly non-native grasses, koa haole, and kiawe with some native 'ilima species. Landscaped plants can be found along the roads in residential areas, and large tracts are composed of agricultural crops in cultivated fields. Drought-like conditions and the natural aridness of Moloka'i's south-central region keeps flora to a minimum. Rainfall along the project corridor averages 15 to 30 in per year (in/yr)(Juvik and Juvik, 1998).

#### *Cultural Flora and Fauna*

"In the Wai Ola O Moloka'i ruling, the Hawai'i Supreme Court noted the importance of traditional and customary practices for the Native Hawaiian Community of Moloka'i. It stated 'A substantial population of native Hawaiians on Moloka'i engages in subsistence living by fishing, diving, hunting and gathering land and marine flora and fauna to provide food for their families... (McGregor, 2012)'. Moloka'i

residents continue their traditional and customary practices with diets consisting of a variety of limu including ogo, 'ele'ele, wawae'iole, manaua, and huluhuluwaena; a variety of fish including weke, mullet, uhu, manini, kole, 'o'io, papio and palani; as well as he'e, ulapap, loli, wana and a variety of crab including kuhonu, 'alamihi, and ala'eke from the nearshore waters of Kamiloloa. The brackish water environments onshore, nearshore and offshore are ideal nursing and hatchery grounds for pua and small fries that feed on photo plankton and for breeding grounds of crabs, clams and other small crustaceans. These creatures serve as the foundation of the food chain for the larger carnivorous fish and octopus. Hawaiians built fishponds to create the coastal feeding areas and enhance these relationships.

#### *Potential Impacts and Mitigation*

##### Alternative I

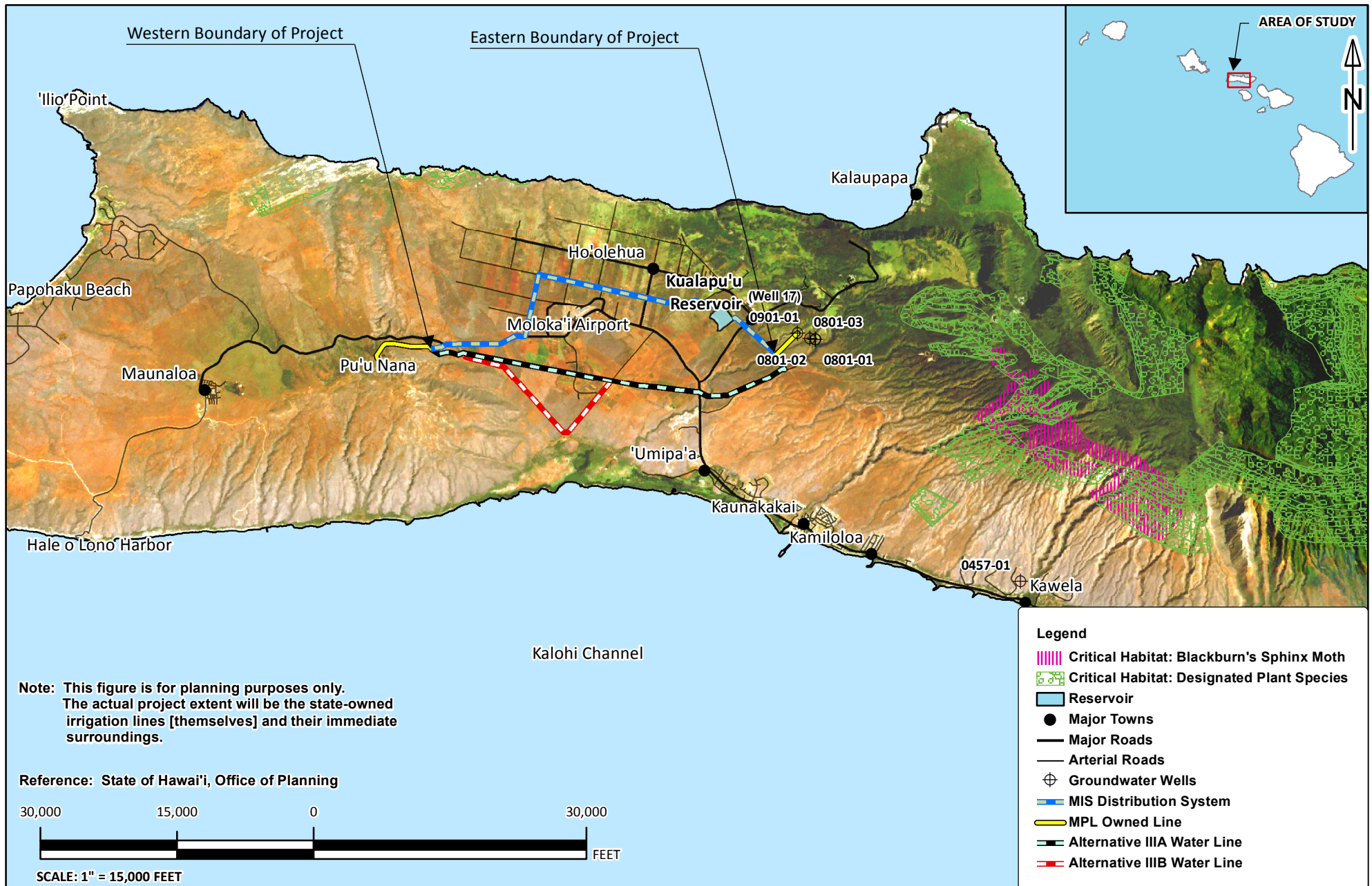
No significant impacts to flora/fauna are anticipated due to Alternative I. Because no threatened or endangered species are known to exist in the project area and the project area is located outside critical habitat, Alternative I, the No Action Alternative associated with the discontinued use of the MIS resulting in no water transport to the west end users would not result in loss or destruction of critical natural resources.

##### Alternative II

For Alternative II, no significant impacts are anticipated with the continued use of the MIS. The use of the MIS pipeline to transport irrigation water would result in no loss or destruction of critical natural resources.

##### Alternatives IIIA, IIIB, and IIIC

Potentially significant adverse impacts were initially considered for Alternatives IIIA, IIIB, and IIIC. Although no threatened or endangered species are known to exist in the areas in which Alternatives IIIA, IIIB, and IIIC build scenarios are proposed, these alternatives would involve construction activities such as trenching and borings. Alternatives IIIA, IIIB, and IIIC, therefore, may require additional environmental surveys including flora/fauna inventories as part of the site selection evaluation. In addition, having a biological monitor on site or on-call during construction activities would mitigate any impacts to biological resources to a less than significant level.



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#### 4.1.6 Wetlands

The USFWS National Wetland Inventory identifies three man-made or modified wetlands that are in close proximity to the existing MIS: the Pu'u Nānā Reservoir, the water treatment plant and the Kualapu'u Reservoir. The Pu'u Nana Reservoir is located near the western end of the existing MIS and is designated as freshwater pond wetlands (PUBHh). The Kualapu'u Reservoirs within the route of the existing MIS is and is designated as a wetland lake (L1UBHh) (USFWS, 2012). The Kualapu'u Reservoir receives water from several sources including Well 17. The reservoir is approximately 54 ft deep and has a capacity of approximately 1,400 million gallons (McGregor, 2012).

Although not in the immediate vicinity of the existing MIS or proposed pipeline routes of the other alternatives, there are a few natural wetlands located along the coastline south of the project areas (i.e., freshwater forested/shrub wetlands, freshwater emergent wetlands, and estuarine and marine wetlands) (Figure 4-5) (USFWS, 2012). Coastal wetlands are important to the ecosystem and provide a critical interface between terrestrial and marine habitats. These brackish water environments are ideal breeding and nursing grounds for organisms such as fish, clams, and crustacean, and are the foundation for the coastal food chain (McGregor, 2012). They also provide various functions such as buffering the coastline, capturing sediment, and retaining and transforming nutrients. Wetlands, do however, have a sediment and nutrient loading threshold which, once crossed, can lead to degradation and loss of the wetland (Bruland, 2008).

Because the project area is upgradient from the southern coastline, there is a potential for on-site project water and/or debris to reach the coastal wetlands via runoff or a perennial stream. Based on publicly available data (Figure 4-4), none of the wetlands in the project area are identified as critical habitats for any threatened or endangered species.

#### *Potential Impacts and Mitigation*

##### Alternative I

Alternative I, No Action Alternative, would not result in potentially significant impacts to wetlands as the wetlands are located outside of the project area and discontinued use of the MIS would not change current conditions of the wetlands identified. Loss or destruction of existing wetlands resources is not anticipated.

##### Alternative II

Alternative II, the Proposed Action, would not result in loss or destruction of existing wetland resources because the existing irrigation water transmission would not be interrupted. Loss or destruction of a natural resource, i.e., wetland, in close proximity to the MIS (e.g., Kualapu'u Reservoir) is not expected.

Additionally, there will be no construction activities required for Alternative II, and the existing MIS, at its nearest point, is approximately three miles away from a coastal wetland. Thus, the impacts to the wetlands from runoff pollution are not anticipated.

##### Alternative IIIA

Potentially significant adverse impacts were initially considered for Alternative IIIA. Although installation of a new pipeline would be a few miles from the coastal wetlands, the construction activities related to the installation of an underground pipeline would loosen and disrupt soils, increasing the likelihood of runoff. If heavy rains should occur during the construction period, it could result in sediment and nutrient runoff or the transportation of construction-related debris into nearby perennial streams that could potentially further carry these pollutants to the coastal wetlands.

To mitigate the impacts to the coastal wetlands, construction activities should be timed and controlled to avoid excessive sediment runoff from the project area. Construction activities should be scheduled to avoid the rainy season. Site activities should incorporate engineering controls (e.g., silt fences) and best

management practices (BMPs) to minimize soil loss from the site. Good housekeeping practices should also be established to minimize the presence of debris littered at the site. These mitigation measures would decrease potentially significant impacts to negligible significance.

#### Alternative IIIB

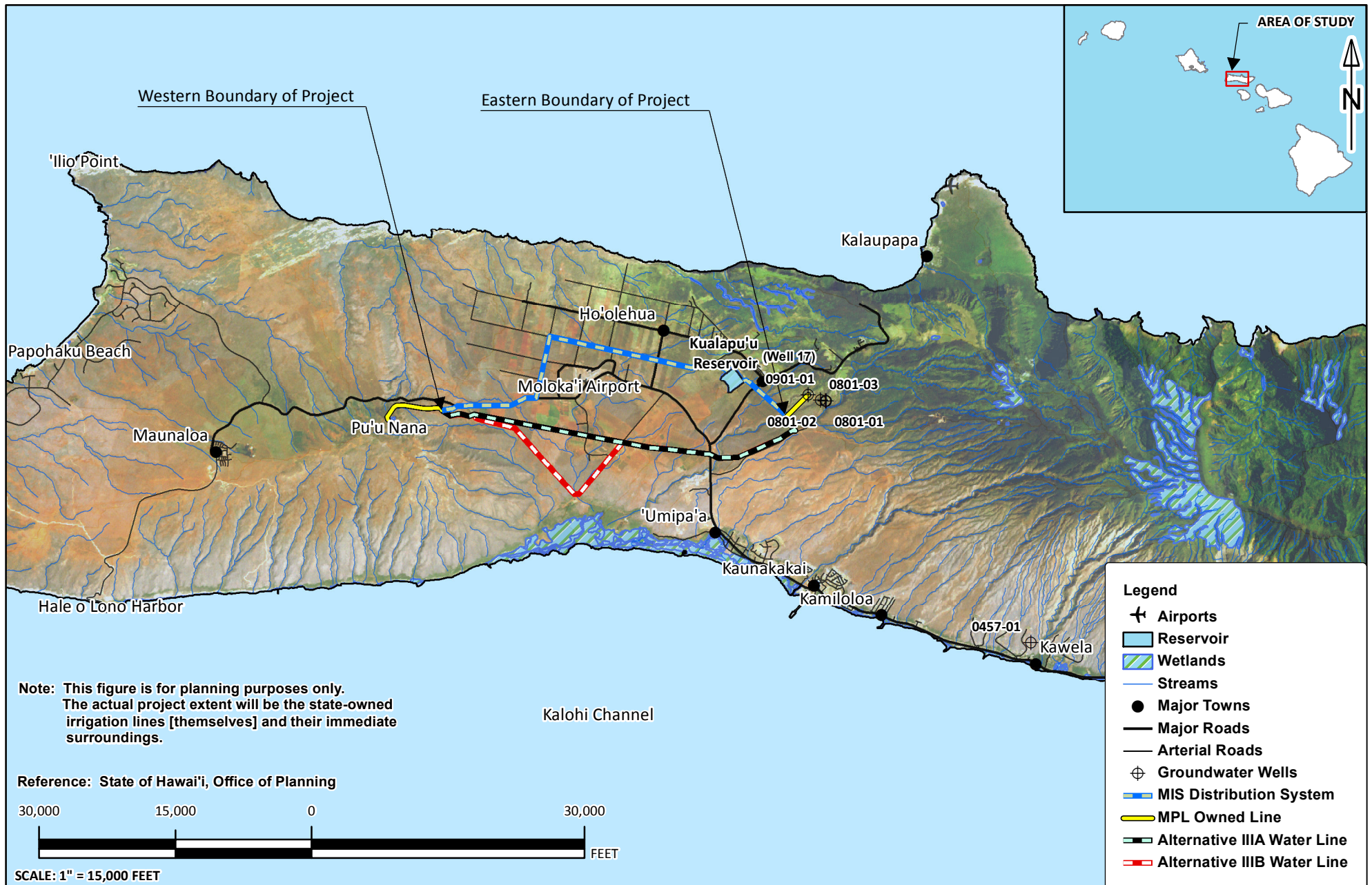
Under Alternative IIIB, the potential effects would be at least as significant as those presented by Alternative IIIA, since it would also involve the construction of an underground water pipeline. However, the risk for potential impact to the coastal wetlands would be greater. The construction area would cover a larger area which would result in greater terrain disruption and a greater potential for sediment runoff. The closest distance between the Alternative IIIB pipeline and a coastal wetland, approximately half a mile, is closer than the pipeline route proposed by Alternative IIIA, increasing the likelihood of impacting the coastal wetland.

Preventing or minimizing sediment runoff is essential and mitigation measures (e.g., BMPs) similar to those described in Alternative IIIA should be established in order to reduce the potentially significant impact to the coastal wetlands to less than significant levels.

#### Alternative IIIC

Alternative IIIC is not anticipated to present significant impacts to wetlands. Based on the wetlands map (Figure 4-5), no wetlands exist in the area of Alternative IIIC.







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#### 4.1.7 Water Resources

##### *Existing Conditions*

The Island of Moloka'i is designated as a sole source aquifer by the United States Environmental Protection Agency (EPA) under the Safe Drinking Water Act (SDWA). The Moloka'i sole source aquifer underlies the entire Island of Moloka'i. "The aquifer is largely constituted by igneous rocks formed by numerous lava flows. Fresh to brackish groundwater flows within the igneous rocks in a lens-shaped configuration under Moloka'i. Lateral groundwater flow is locally impounded by near vertical dikes. These dikes form relatively impermeable compartments of groundwater at elevations above the island-wide lens," (EPA, 1994).

Sixteen aquifer systems subdivide the Moloka'i sole source aquifer. The subsurface conditions are "poorly understood" and therefore aquifer systems are divided on the basis of topographic divides (EPA, 1994). Each aquifer is assigned a specific yield as determined by the CWRM of Hawai'i.

##### Groundwater

The project area for each alternative is contained within the west and central aquifer sectors of Moloka'i, overlying the Punakou, Ho'olehua, Manawainui, and Kualapu'u Aquifer Systems (Figure 4-6; Mink and Lau, 1992).

In general, groundwater in east Moloka'i is fresh and of a high quality, has low to moderate salinity in central Moloka'i, and is brackish in West Moloka'i. Hydraulic gradients are relatively flat (0.0002) with high hydraulic conductivities (1,000 ft/day) and effective porosities of 0.05-0.1 in the basal lens aquifers; estimated seepage velocities are on the order of a few ft/day (EPA, 1994).

The Punakou Aquifer System encompasses about 35 sq. mi. in west Moloka'i, with the contact between the east and west volcanics forming the eastern boundary. This aquifer system is characterized by non-potable, undeveloped, basal groundwater (i.e. in contact with seawater).

The Ho'olehua Aquifer System consists of approximately 14 sq. mi., located on the northern extent of the Ho'olehua Plain. The aquifer system is characterized by moderately brackish (i.e., around 1,000 mg/L Chloride (Cl-)), basal groundwater, with the potential for agricultural use.

The Manawainui Aquifer System is located on the southern portion of the Ho'olehua Plain, underlying an area of about 25 sq. mi. This aquifer system is characterized as basal (i.e., in contact with seawater) with low salinity (i.e., 250 to 1,000 mg/L Cl-), and is currently being used in agriculture.

Lastly, the Kualapu'u Aquifer System is about 18 sq. mi. located on the western slopes of the east Moloka'i volcano. Aquifers in this system are the most important in Moloka'i due to their low salinity (< 250 mg/L Cl-), central location, and accessibility. Salinity measurements collected using electromagnetic survey equipment illustrate top of salinity water levels at approximately -1,000 msl in the Kualapu'u aquifer wells. Chloride levels in test wells in western Moloka'i were in excess of 1,000 mg/L while chloride levels in wells in the eastern half of Moloka'i ranged between 10-300 mg/L (EPA, 1994).

Groundwater that is not used from wells and tunnels discharges naturally from the aquifer at onshore springs and seeps in deeply incised valleys and a subaerial and submarine coastal springs and seeps (USGS, 2006). Recharge to the aquifer occurs mainly by rainfall infiltration where the greatest recharge is directly related to rainfall amounts greatest at higher elevations located on eastern Moloka'i. Western Moloka'i has low rainfall and high evaporation rates therefore groundwater recharge rates are low.

##### **Well 17 (0901-01)**

Well 17 was drilled in 1950, and was originally used to irrigate pineapple fields in the Ho'olehua Plain area. Since 1976, Well 17 water has been used for domestic and irrigation purposes in Kaluako'i, through a system operated by MPU, a regulated public utility. The water use permit allots for 1.018 mgd for domestic and irrigation purposes in Kaluako'i and for Wai Ola customers in Kualapu'u Town. Well 17

produces potable water that is combined with non-potable water in the MIS. Water from Well 17 and the Mountain Water System is treated to drinking water standards at Pu'u Nana treatment plant and delivered to Kaluako'i via existing pipes and Moloka'i Ranch's reservoir at Maunaloa.

### Surface Water

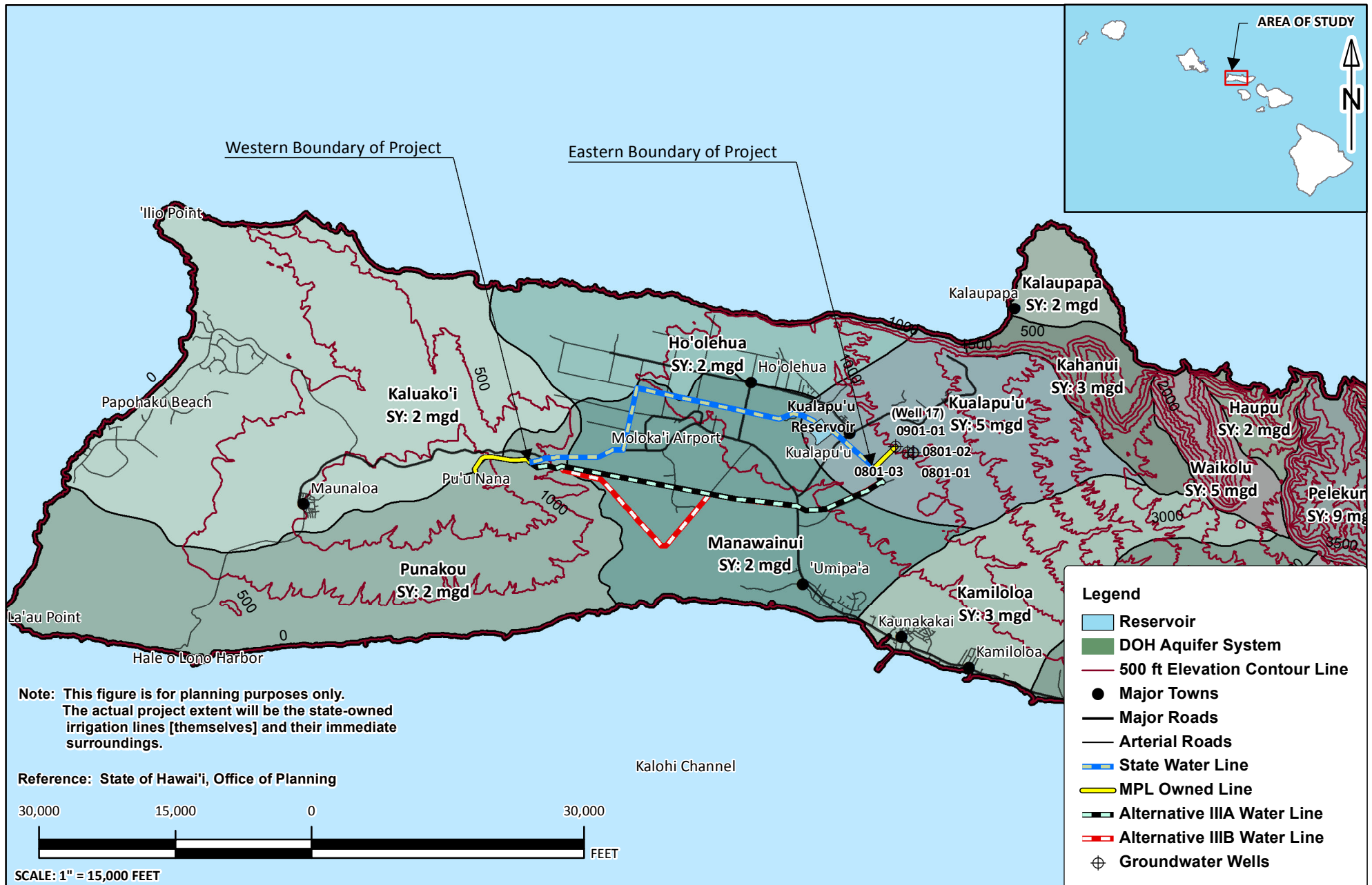
Perennial streams are common on the windward, northeastern slopes of east Moloka'i, which drain dike-confined aquifers. Along the southern slopes, generally only the upper reaches of streams are perennial, depending on rainfall patterns and/or the presence of marshes and springs. In central and western Moloka'i, streams are only active immediately following a heavy rain event, and generally contain high sediment loads. In the Kualapu'u aquifer area, some streams allow minimal flow year round. Perched water in the upper system of the aquifer drains as springs. Average annual rainfall for the region is 39 inches (Mink and Lau, 1992).

### **Kualapu'u Reservoir**

As described in the wetlands section (Section 4.1.6), the Kualapu'u Reservoir represents the largest surface water body in central Moloka'i; and is a critical part of the MIS system, since it allows water to be stored. This reservoir, completed in 1969, has a surface area of about 130 acres, is 54 ft deep, and can store up to 1,400 million gallons of water (Santo, 2001). Other manmade surface water features in the project vicinity include the Pu'u Nānā Reservoir, a water treatment plant, and ancient fishponds along the southern Moloka'i coastline dating back to the 16<sup>th</sup> century (Farber, 1997; USGS, 2006). These features are culturally important to the people of Moloka'i, and members of the community have expressed interest in restoring the fishponds for use in traditional, subsistence farming (Farber, 1997).

### *Molokai Ranch Mountain Water System*

Maunaloa Village and Kualapu'u is partially fed by the Mountain Water System. Approximately 0.11 mgd is diverted or tunneled from upper Kawela, Kamakou and Lualohi basins. The water treatment plant at Pu'u Nānā treats a maximum of 0.5 mgd of nonpotable water from the Mountain Water System for distribution to Wai Ola's customers while the remainder of the mountain water is used for irrigation in Maunaloa Village, the Lodge, and Kaupoa Camp and for MR's livestock operations (MPL, 2008). The Mountain Water System is over 100 years old, and delivers surface water from the upper Kawela and Kamakou watersheds to Pu'u Nānā, entirely by gravity. MPL has the right to use its current mountain system water line (6-inches (in)) for water carried to the west end and its 5-in line for mountain water carried to the Industrial Park. Characteristic of all surface water systems, the yield is highly weather dependent, reaching maximums in the winter months as high as 1.2 mgd and minimums in the dry, summer months as low as 0.065 mgd. The mountain water system sustainability is unreliable and unpredictable as it is dependent on weather conditions provided.



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### Groundwater Discharge Models

Groundwater enters the nearshore zone from seepage at the shoreline and from offshore springs. In some areas, seeps are actually visible at low tide and offshore springs are also visibly evident. Freshwater springs enter the reef at numerous points along Moloka'i's south shore creating brackish conditions that favor seaweed growth nearshore, especially in many of the fishponds, which tend to trap fresh water, (McGregor, 2012).

Research has been conducted by USGS to assess groundwater effects on pumping of aquifer wells. Based on communication with USGS in July 2012, during the scope of this Draft EA, a new model is being developed to analyze groundwater on Moloka'i and is likely to be published in the next couple of years. Further groundwater effects associated with Well 17 shall be addressed in the groundwater use permit application process following the completion of this EA.

### *Potential Impacts and Mitigation*

#### Alternative I

Potentially significant negative impacts to water resources would result from the discontinued use of the MIS under Alternative I, the No Action Alternative. The Kualapu'u Reservoir holds water on backup for emergency purposes for the west end users. Should the MIS be discontinued, the west end will no longer have emergency water available for firefighting or during times of drought.

#### Alternative II

No significant impacts would result from the continued use of the MIS, Alternative II, the Proposed Action Alternative. The current use of the MIS for transporting water to the west end would not impact water resources as the existing conditions would remain the same. No mitigation is required under Alternative II.

#### Alternative IIIA and IIIB

No significant impacts to water resources would result from Alternative IIIA or IIIB as Well 17 would continue to operate under the same water allocation and the MIS system would no longer be used. Water pumped from Well 17 would be transported a longer distance and the potential for water loss would be greater. However, the 1.018 mgd would remain the same and the continued use would supply the current residences with water and allow for the reopening of the Kaluako'i Resort and Golf Course. Because no significant impacts would result from Alternatives IIIA and IIIB, no mitigation is required.

#### Alternative IIIC

Potentially significant beneficial impacts to water resources on the west end would result from Alternative IIIC. The development of new wells on the west end would result in water supply to the west end users. The installation of a desalination plant would result in increased water quality to the resources available on the west end; salinity levels would be reduced with the installation of a desalination plant to potable drinking water standards. Well 17 would likely no longer be used by MPL as new wells and a desalination plant would replace the water supply to the west end users. Because no significant negative impacts would result from Alternative IV, no mitigation is required.

### **Kualapu'u Reservoir**

Historically, MPL has kept a water buffer of 18 million gallons in the Kualapu'u Reservoir for emergency purposes. Current water volumes fluctuate pending on demand and the buffer kept on reserve also fluctuates. Alternative I, the discontinued use of the MIS reservoir, would result in significant negative impacts to water resources available for emergency use to the west end as the buffer would be eliminated. Residents on the west end would not have a backup supply of water as the current water distribution system would be cut off. No potential significant impacts to water resources from Kualapu'u Reservoir would result from Alternative II, the continued use of the MIS; current water resource conditions remain

the same. Alternative IIIA and IIIB would result in no significant impacts to water resources from Kualapu'u Reservoir as current water allocations for Well 17 would remain the same. No significant impacts on the water resources available from Kualapu'u Reservoir would result from Alternative IIIC.

#### 4.1.8 Hazardous and Toxic Materials Considerations

##### *Existing conditions*

Historical records obtained from the DOH Solid and Hazardous Waste Branch (SHWB), indicate that there have been two underground storage tank (UST) releases near the project area. After investigative activities, both sites received no further action (NFA) concurrence from DOH. A summary of the sites are presented below:

- **Maunaloa Landfill:** Located within Halena Gulch, the landfill is approximately 10 acres in size. It is about 2.5 mi southwest of the town of Maunaloa and 1.3 mi north of the Pacific Ocean (Ecology and Environment, Inc., 1987). From 1922 to 1977 waste disposed at the landfill was derived from pineapple cultivation (when still in operation) and the town of Maunaloa. Potential effects of agricultural chemicals on the nearby terrestrial and coastal ecosystems are unknown and there is no available documentation indicating that hazardous substances were disposed at the landfill, however, there could have been unauthorized disposal of hazardous chemicals. A Solid Waste Management Permit for the landfill expired in December 1977 and a request for renewal was denied due to several recorded violations (e.g., open burning, poor housekeeping) (Ecology and Environment, Inc., 1987). The landfill was closed in December 1977 and a NFA was granted on April 29, 1996 (DOH, 2004).
- **Kaluako'i Water Well 17:** In May 1993, there was a diesel fuel spill of approximately 1,400 gallons. It originated from a 10,000 gallon diesel fuel storage tank that supplies a diesel engine which operates the municipal water well pump. The release had occurred at the pump engine. The impacted soil was excavated and moved to two separate sites for aeration treatment. The town of Kualapu'u is the closest residential area and is approximately one mi away from the site (M&E Pacific, Inc., 1993). In December 2005, soil sampling was conducted to determine whether or not all of the contaminated soil had been removed. Samples were collected at 4-, 6- and 8-ft depths. Diesel was detected in the 8-ft depth sample at a concentration of 2,670 milligrams per kilogram (mg/kg) which is above the DOH Environmental Action Level (EAL) (500 mg/kg) and EAL for direct exposure to humans (800 mg/kg). However, it was determined that because the contamination was 8 ft below grade, there was no opportunity for human contact. Additionally, the EAL for diesel leaching to the groundwater was 5,000 mg/kg. and the groundwater at the site was at approximately 970 ft below the surface (MPU, 2005). In a letter dated January 6, 2006, DOH determined that a NFA was warranted in response to the 1993 diesel fuel release (DOH, 2006).

##### *Potential Impacts and Mitigation*

###### Alternative I

The No Action Alternative, discontinued use of the MIS, does not pose any potential significant impacts regarding hazardous or toxic materials.

###### Alternative II

Potentially significant adverse impacts were initially considered from hazardous and toxic materials. Kaluako'i Water Well 17 will continue operation via a diesel engine which operates the municipal water well pump. To minimize these impacts to less than significant levels, proper maintenance and safety procedures shall be established. Routine inspections of the tanks and equipment shall be conducted and equipment shall have secondary containment controls in place (e.g., double-walled tanks and spill catchments).

The former Maunaloa Landfill is located downgradient and approximately six mi southwest of the west end of the existing MIS and no adverse effects are anticipated from hazardous materials that may have been disposed of at the landfill.

#### Alternatives IIIA, IIIB and IIIC

Similar to Alternative II, under Alternatives IIIA, IIIB, and IIIC scenarios, there are no potential impacts anticipated from the spills which occurred at the GTE Hawaiian Telephone sites (in Pu‘u Nānā and Kualapu‘u), unless future spills should occur. There is no potential hazard expected from the Maunaloa Landfill due to the geographic distance (GTE Hawaiian Telephone Company, 1994).

However, the spill which occurred at the Kaluako‘i Water Well 17 site could potentially present a hazard to construction workers who install the new underground irrigation pipeline from Well 17 to the west end of the island. According to the 2005 soil investigation, soils in the spill area continued to present with concentrations of diesel contamination at a level greater than the EAL for direct exposure to humans at the 8-ft depth (MPU, 2005). If excavation activities occur in the area, there is a potential for exposure to the contaminated soil. If possible, during pipeline installation, excavation within the area of contamination should be avoided. If the contaminated area cannot be avoided, proper awareness and safety measures shall be established to reduce the spread of contamination and contact with the contaminated soil. Proper treatment/disposal of contaminated soil will be established. A site-specific health and safety plan should be developed to ensure worker protection.

In addition to hazardous and toxic material that could be present at or near the project site, potential impacts are also possible from hazardous chemicals that are brought to the site in the future. Construction activities will involve the use of various equipment and vehicles which require the use of fuels, lubricants, and other hazardous materials. Chemicals such as glues and primers may also be used for construction of the pipeline. When dealing with hazardous materials, there is a potential for environmental contamination (e.g., soil contamination) and human health effects. Implementing safety measures can help to mitigate the potential impacts. Proper storage and handling of hazardous materials and knowing the proper response procedures if spills or contact with hazardous substance should occur can also help to reduce the potential impacts.

Under Alternative IIIB, the potential impacts from hazardous materials that are brought onsite may be greater since construction related activities would occur over a larger project area thereby requiring a greater quantity of hazardous materials to be utilized to complete the job. As described above, these potential impacts can be mitigated to a level of insignificance.

Under Alternative IIIC, potential impacts from hazardous materials that are brought onsite may be less because construction related activities would occur over smaller, more defined land areas thereby enabling controlled quantities of hazardous materials used to complete well and desalination plant construction. As described above, these potential impacts can be mitigated to a level of insignificance.

#### 4.1.9 Climate and Air Quality

##### *Existing Conditions*

Similar to the other Hawaiian Islands, the climate of Moloka‘i is characterized by mild temperatures (ranging between about 63 degrees (°) Fahrenheit (F) to 85°F), persistent trade winds, a rainy season between October and April and a dry season between May and September. Several micro-climates exist on Moloka‘i, ranging from tropical rainforests to dry deserts. The presence of a particular micro-climates is largely dependent on topography and the relative orientation of the North Pacific anticyclone. Rainfall patterns vary by orders of magnitude throughout Moloka‘i, reaching an annual maximum of 150 in in the higher elevations of east Moloka‘i, and decreasing to an annual minimum of less than 15 in on west Moloka‘i. In the project area of each alternative, annual rainfall varies between less than 15 in to 24 in (Giambelluca et al., 2011).



Air pollutants on Molokaʻi are generated from three sources: natural sources, aircraft operations, and vehicles. Natural sources potentially include migration of volcanic fog (“vog”), dust, and smoke from brush fires. Vehicular sources are generated primarily from automobile traffic across the island. Aircraft are probably the most often cited air pollutant source, though they produce the same types of emissions as cars. Aircraft jet engines, like many other vehicle engines, produce carbon dioxide (CO<sub>2</sub>), water, oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), oxides of sulfide (SO<sub>x</sub>), unburned or partially combusted hydrocarbons (also known as volatile organic compounds (VOCs)), particulates, and other trace compounds. Aircraft emissions contain five major, regulated pollutants: VOCs, CO, NO<sub>x</sub>, particulate matter (PM), and sulfur dioxide (SO<sub>2</sub>). The highest NO<sub>x</sub> and PM emissions occur during aircraft takeoff and initial ascent. VOCs and CO emission rates are highest when engines are operating at low power, such as when idling or taxiing.

No air monitoring stations are located directly on the Island of Molokaʻi. The closest of these air monitoring stations are on the islands of Oʻahu and Maui. As such, impacts to air quality are discussed simply as increases or decreases over an assumed baseline.

#### *Potential Impacts and Mitigation*

##### Alternative I

No significant impacts to air quality would result from Alternative I as the existing site conditions would remain the same.

##### Alternative II

Alternative II would not have a significant impact to air quality as the existing conditions would remain unchanged.

##### Alternatives IIIA, IIIB, and IIIC

Under Alternatives IIIA, IIIB, and IIIC, potentially significant adverse impacts to air quality during construction activities (i.e., fugitive dust emissions) were originally considered. Because of the location of the project area to residential areas, mitigation would likely not be necessary. Should need for mitigation occur, watering of roads and trenches during project activities may be used to mitigate dust. Once project construction is complete, impacts to air quality would not be significant. Temporary increase in traffic during the construction phase of Alternatives IIIA, IIIB, and IIIC are also anticipated to increase emissions and dust.

#### 4.1.10 Noise

##### *Existing Conditions*

Noise impacts from construction-related activities are regulated under the HAR, DOH, Title 11, Chapter 46, Community Noise Control. The project area TMKs, for all alternatives, are zoned as agricultural and conservation land; and as such falls into District C under the DOH regulations, with a maximum day (7:00 a.m. to 10:00 p.m.) and night (10:00 p.m. to 7:00 a.m.) sound level threshold of 70 decibels (dBA). In general, noise due to construction equipment is between 70-100 dBA (LHSFNA, 2012); with earthmoving equipment having the loudest impacts.

##### *Potential Impacts and Mitigation*

##### Alternative I

No significant impacts to noise are expected to occur under Alternative I. MPL would discontinue use of the MIS.

## Alternative II

No significant impacts to noise are expected to occur under Alternative II. The continued use of the MIS to transport water would not require new construction. No noise impacts are expected.

## Alternatives IIIA, IIIB and IIIC

Under Alternatives IIIA, IIIB, and IIIC, the project area is mainly agriculturally zoned lands, and population density is low (West Moloka'i Census County Division: 22 people per sq. mi.; U.S. Census Bureau, 2010). Potentially significant adverse impacts during the construction phase were originally considered. Noise disturbances may occur to the surrounding area; however, the best engineering controls, such as mufflers, and proper work practices will be employed to adhere to DOH regulations. If noise impacts exceed, or are expected to exceed, maximum permissible sound levels, a noise permit would be obtained from the DOH and sound barriers would be installed. Significant impacts to noise as the result of this project would mainly be due to short-term construction activities. With mitigation measures implemented these alternatives would not cause any significant impact.

### **4.2 Social Environment**

#### **4.2.1 Land Use Considerations and Zoning**

The project alternatives involve several parcels of land totaling 49,047 acres of which approximately six acres (0.01%) include the maximum proposed area of the alternatives within the project area. The ownership history of the MPL portion of the site is excerpted from the La'au EIS dated January 2008 and the Community-Based Master Land Use Plan for MR dated November 14, 2005 and is presented in Table 4-1.

According to the State Land Use Commission district classifications, TMKs within the project site are zoned agricultural and conservation (Table 4-2, Figure 4-7). The HDOA has developed a land classification system called Agricultural Lands of Importance to the State of Hawai'i (ALISH), in order to define the agricultural resource value of soils and land statewide (HDOA, 1977). This system describes land as being (a) prime lands, defined as soils best suited to mechanized field crops, (b) unique, defined as soils other than prime that can be used for high value crops (e.g., coffee, taro, and/or watercress), and (c) other lands, defined as lands which need irrigation or require commercial production management and are neither prime, nor unique. In the project area, land is classified as either prime or other (Figure 4-7).

Maui County zoning designations within the project area are zoned as agriculture lands.

DHHL has established its own preferred designation of land use types in its 2005 Moloka'i Island Plan. The designations for the entire island are included as Table 4-3. Within the project area, DHHL has listed the preferred land use types to include supplemental agriculture, subsistence agriculture, commercial, and general agriculture (DHHL, 2005).

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**Table 4-1: Land Ownership and Use History**

Land Use History of Molokai Ranch			
Date/Year	Ownership	Cost/Acreage	Activity
pre-1848	Molokai Ranch belong to High Chief Kapuaiwa who later became Kamehameha V. Bernice Pauahi Bishop, daughter of Pahi and Konia (last descendant of Kamehameha dynasty) given by the great Mahele, among them Princess Ruth or Ke'elikolani.	Granted during times of the great Mahele	---
1875	Charles R. Bishop (husband of Kamehameha V. Bernice Pauahi Bishop) was granted Kaluako'i (west end of Moloka'i)	Granted by Royal patent; 12.5 cents per acres or 5000 dollars for the lands of Kaluako'i	Small holdings of these lands purchase and sold when American Sugar Company formed.
1893	Bishop Estate	---	---
1897	Molokai Ranch formed by hui of men including: Judge Alfred S. Hartwell, Alfred W. Carter, and A.D. McClellan	Purchased 46,500 acres of Kaluako'i from Bishop Estate	---
1898	American Sugar Company Limited (ASC) was incorporated by Judge Alfred S. Hartwell and Alfred Carter	Exchanged stock for shares in the new ASC	---
1908	George Paul Cooke (manager); Charles M Cooke (father)	---	Sugar cane company failed when pumps installed in surface wells to irrigate cane fields depleted fresh water and began pumping salt water. George Cooke managed the Ranch for 35 until 1943 as the largest cattle ranch in Hawai'i and major producer of beef.
1923	Libby, McNeill and Libby Company leased Maunaloa area from Molokai Ranch for pineapple plantation	---	Pineapple plantation sold to Dole Corporation in 1927.
1927	Del Monte (aka California Packing Corporation) made headquarters at Kualapu'u	---	Large scale pineapple cultivation on mostly leased lands from Moloka'i Ranch.
1968	Cooke family partnered with Louisiana Land and Exploration Company (LLEC) for development of Kaluako'i Hotel and Resort	Contingency for west end of Molokai Ranch	Recreation
1977	Cooke family - Kaluako'i Resort opened	---	Hotel, golf course, and condominiums.
January 1, 1976	Cooke family - Dole ceased Moloka'i operations	---	---
1978	Cooke family	---	Molokai Ranch Wildlife Park opened for safari-like tours on ranch lands
1980	LLEC separated its interest from Molokai Ranch and exercised its option over the West End lands from Kaluako'i to Kawakii.	---	Pineapple plantation operations ceased.
mid-1980s	Del Monte phase out operations	---	Pineapple plantation operations ceased.
1987	LLEC lands sold to Tokyo Kosan	---	Operated at Kukui (Moloka'i), Inc. and subdivided property to develop Papohaku Ranchland Subdivision. Molokai Ranch tried to diversify into mainland commercial property and sold lands from Hale O Lono to Kaupoa to an individual investor. Investor sold lands to Alpha USA and Alpha USA hired Henry Ayau as representative, Walter Ritte as consultant, and Group 70 as planner to develop plans for La'au parcel involving Hawaiian villages.
---	Molokai Ranch sold stock to Brierly Investments Limited (BIL International Limited and GuocoLeisure Limited) who became stockholder in 1987.	Stock	Molokai Ranch was approximately 52,000 acres.
1991	Tokyo Kosan sold Kukui (Moloka'i) Inc. back to Molokai Ranch (MR)	---	Kaluako'i Hotel closed in January 2001.
October 2001	BIL International (on behalf of MR)	---	Acquired 6,300 acres of the southwest corner of Moloka'i previously known as Alpha parcel.
December 2001	MR acquired the land holdings of Kukui (Moloka'i) Inc.	---	Abandoned Kaluako'i Hotel, Kaluako'i Golf Course, and undeveloped lands of the resort area.
December 2002	Molokai Ranch changed name to Molokai Properties Limited (MPL)	---	Expanded operations beyond ranching
2004	MPL	---	Golf course re-opened
October 2007	BIL changed name to GuocoLeisure Limited	---	---

References: La'au Point Environmental Impact Statement, January 2008; LUCMEC, 2005.

--- = no data found

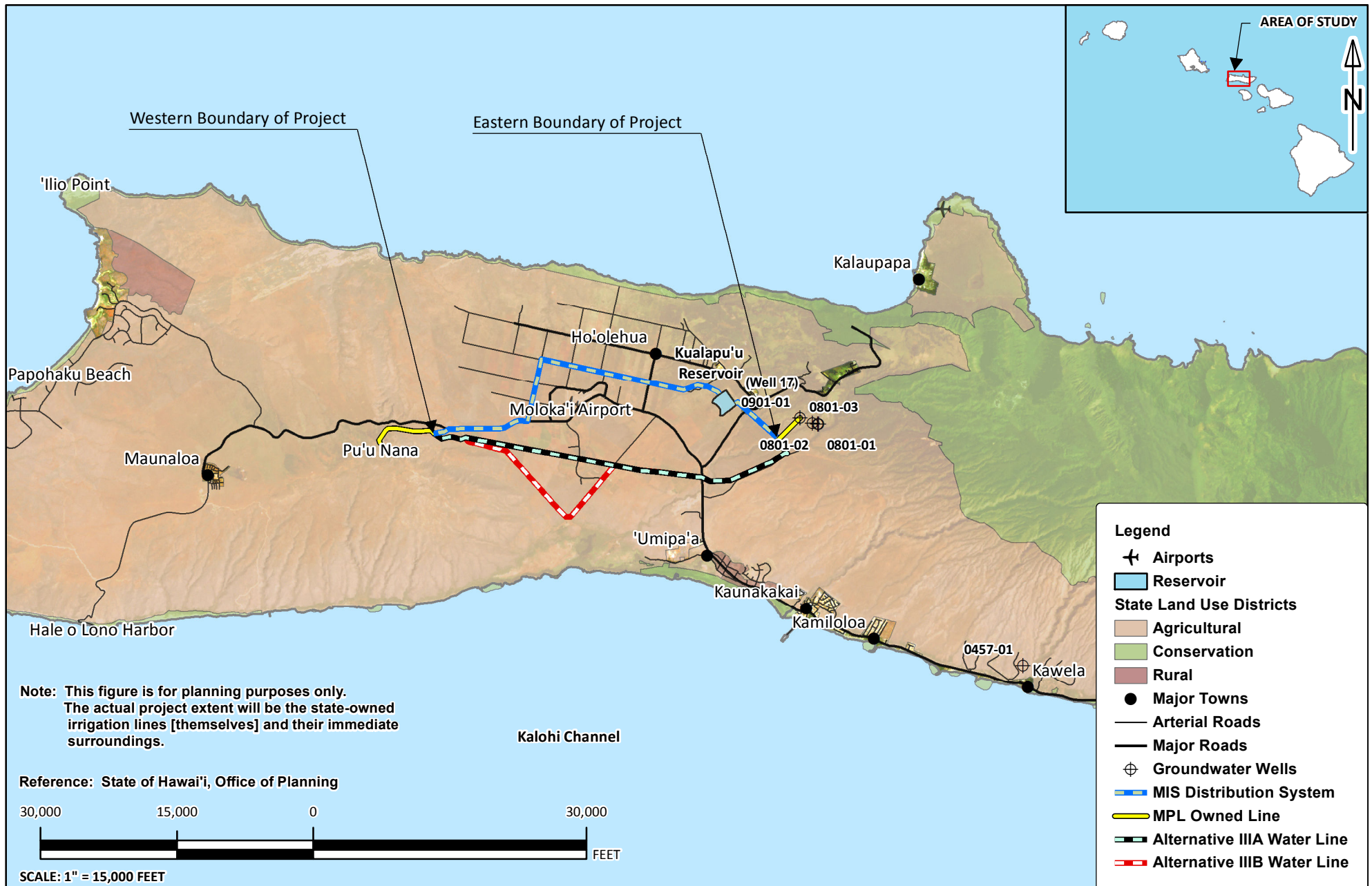
**Table 4-2: State Land Use Category Acreage for Molokaʻi and Maui County**

State Land Use Category		Conservation		Agriculture		Rural		Urban	
Island	Total Acres	Acres	% of Total Land Area	Acres	% of Total Land Area	Acres	% of Total Land Area	Acres	% of Total Land Area
Project Area	-	1,750	-	30,498	-	-	-	-	-
Molokaʻi	165,800	49,768	30.0%	111,627	67.3%	1,866	1.1%	2,539	1.5%
<b>County Total</b>	<b>750,900</b>	<b>311,601</b>	<b>41.5%</b>	<b>404,043</b>	<b>53.8%</b>	<b>8,051</b>	<b>1.1%</b>	<b>27,205</b>	<b>3.6%</b>

Reference: (COM, 2010) County of Maui 2030 General Plan Countywide Policy Plan effective March 24, 2010.

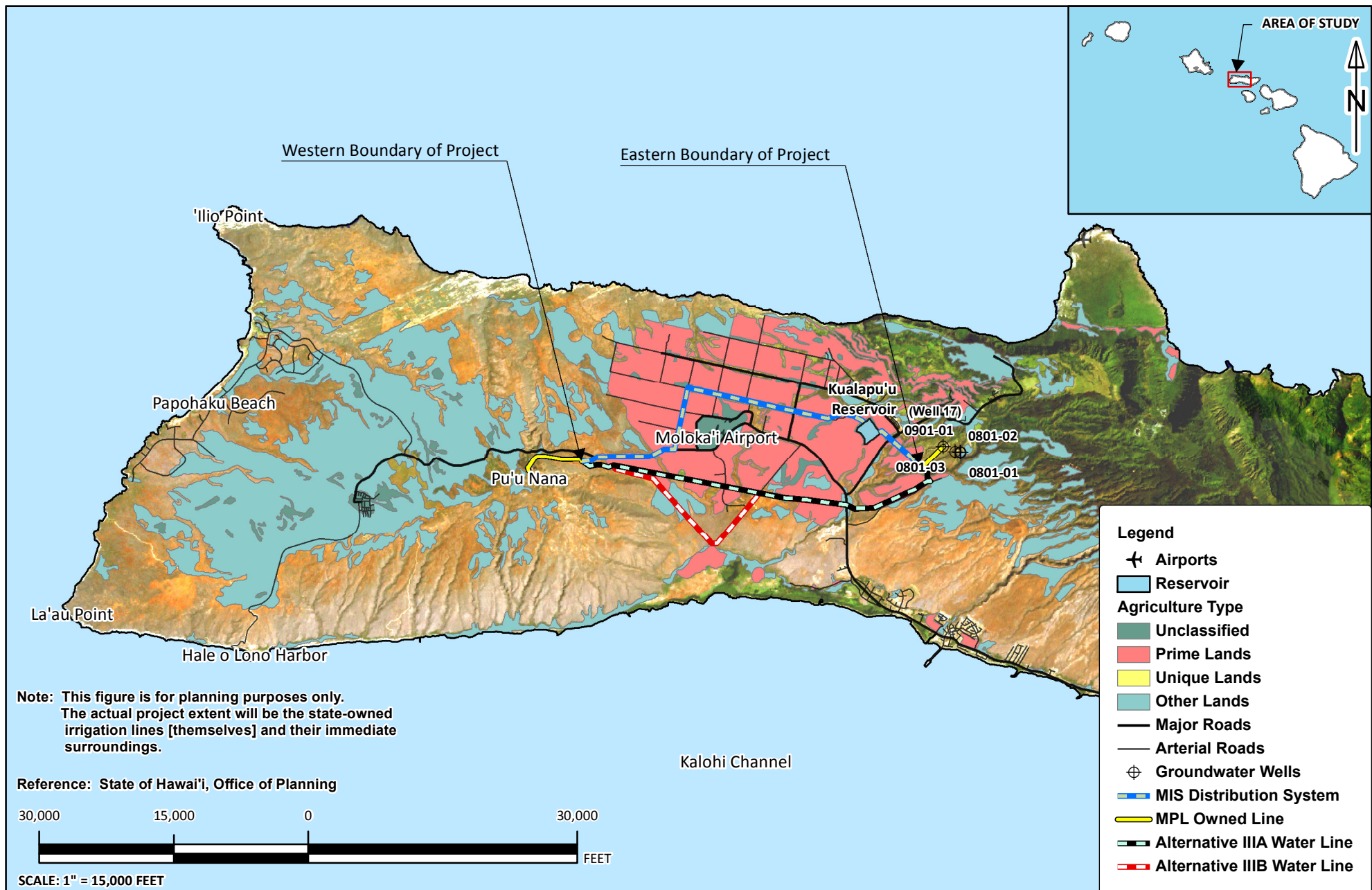
**Table 4-3: DHHL Molokaʻi Land Use Designation**

Land Use Designation	Acres
Residential	742
Subsistence Agriculture	2,350
Supplemental Agriculture	5,862
Pastoral	1,927
General Agriculture	8,498
Special District	5,558
Community Use	234
Conservation	655
Commercial	58
Industrial	16



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## *Potential Impacts and Mitigation*

### Alternative I

Alternative I would have a direct negative impact to land use and zoning. Cessation of water distribution to the west end of Moloka'i would severely curtail the intended beneficial uses of the land (i.e., agriculture and conservation) and would thus also be out of compliance with HAR §11-54-1.1 Water Quality Standards. Because the impacts of this alternative would continue to have negative impacts outside of the immediate project area and in the future, the negative impacts are also considered to be indirect and cumulative.

### Alternative II

Alternative II would not have any negative impacts to land use and zoning. These land designations are in accordance with the State of Hawai'i Land Use Commission (LUC) designations of agricultural and conservation and the state ALISH classifications of prime or other. The existing MIS pipeline would not impact DHHL's preferred land uses for their owned lands. Because the Proposed Action would not curtail the range of beneficial uses of the land, and because it does not propose an action that would be out of compliance with HAR §11-54-1.1 Water Quality Standards, it would not cause any significant negative impacts.

### Alternatives IIIA and IIIB

Alternatives IIIA and IIIB are not anticipated to have any negative impacts to land use and zoning. These land use designations are in accordance with LUC designations of agricultural and conservation and the State ALISH classifications of prime or other. Alternatives IIIA and IIIB would involve construction of a new underground pipeline, routed either through DHHL (Alternative IIIA) or adjacent to the boundary of DHHL land (Alternative IIIB). The newly constructed underground lines would not impact DHHL's preferred land use of subsistence agriculture and general agriculture and they would not impact the State's zoning of conservation and agriculture. Because these alternatives do not curtail the beneficial uses of the land and because they don't propose actions that are out of compliance with State law, they are not anticipated to cause any significant negative impacts.

### Alternative IIIC

Alternative IIIC is not anticipated to have any negative impacts to land use and zoning. These land use designations are in accordance with LUC designations of agricultural and conservation and the State ALISH classifications of prime or other. This alternative would involve construction of a desalination plant near the west coast of Moloka'i, which currently has State land use zoning of agriculture, conservation, rural, and urban. The desalination plant would be sited in an appropriately zoned area to ensure that it would be in compliance with State zoning. Because this alternative would not curtail the range of beneficial uses of the land, and because it does not propose an action that would be out of compliance with State law, it would not cause any significant negative impacts.

#### 4.2.2 Historical and Archaeological Considerations

This EA included the preparation of an Archaeological Assessment. The Archaeological Assessment conducted by Keala Pono is included as Appendix E, and is summarized below.

#### *Existing Conditions*

##### Historic Era of Project Lands

Traditional and historic land use in the vicinity of the project area and along the water line route included sweet potato and taro cultivation followed by sugar and pineapple production and the grazing of cattle and deer.

Moloka'i was known as the "bread basket" and "the land of plenty" during traditional times. Taro farming with the emergence of fishponds provided for subsistence of the people of Moloka'i. The areas of Palā'āu and Ho'olehua were known for sweet potato cultivation. Trails to the sweet potato field plots are noted by stone markers that remains and can be seen on the hillsides of Maunaloa.

Since historical times, land was classified as ranching and agriculture and was primarily used for these purposes. Cattle ranching began in the era of Kamehameha V in the mid-1800s. The first axis deer were introduced to Moloka'i in 1867. The deer populations multiplied and mainland hunters were brought here to keep them from ravaging the forest. The deer migrated to the western part of the island and goats and pigs became more of a problem.

With the development of sugar cultivation in the late 1890's by American Sugar Company, Ltd., irrigation ditches and wells were installed. Sugar cultivation ultimately failed because of the high salt content in the water. The land now owned by MR were then turned into cattle and sheep ranching and honey farming. The railroad system that transported cane ran from the coast through Palā'āu and 'Ioli to the Ho'olehua plateau.

The pineapple industry brought more irrigation development from the east end to the west end. Saltwater infiltration continued to be a problem through the 1930s. World War II changed the MR lands into training and artillery grounds for the military. Pineapple ventures and cattle ranching continued. The HWA Moloka'i Water Tunnel project commenced in 1958. The tunnel system brought water through 5.5 mi from Waikolu to Kaunakakai.

MR continues to graze cattle and is surrounded by a mixture of commercial agriculture, transportation use, and DHHL pastoral uses. Coffees of Hawai'i farm several acres of coffee adjacent to Kualapu'u village.

### Cultural History

Moloka'i island is rich in oral tradition some of which are associated with areas bordering the proposed waterline. Spiritual and medicinal arts were taught to kahuna in the areas north of Kualapu'u. God images were carved in trees in Maunaloa. In the traditional Hawaiian epic, the water and shores of Palā'āu were frequently visited by the high chiefs and the largest fishpond in Palā'āu became the center of Hawaiian habitation. Fishponds were developed all along the south shore of the island and taro, sweet potatoes, bananas, breadfruit, sugar cane, and coconuts growing along the shore. By the 1950s, siltation and erosional forces from the surrounding hills had entered Palā'āu pond and impacted the fishpond complex.

### Site Visit

Keala Pono performed a site visit of the route of the existing and proposed water lines. No surface archaeological resources were encountered along any part of the route.

The existing water line route runs approximately 20 kilometers (km) from the Pu'u Nānā Reservoir and treatment plant on the west, through the Ho'olehua Homestead and Kualapu'u Reservoir to the Kakalahale Well area. The survey route follows a portion of the MIS built in 1959. No archaeological remains were observed. Any traditional surface architecture that might have occurred was destroyed by bulldozing.

The route runs for 7 km, from the Mahana pump station to the Kualapu'u area. Areas of bulldozer push occur on either side of the road and fence and no archaeological resources were observed. Reconnaissance of the eastern and northern segments of the project area showed no evidence of archaeological features.

Two previously recorded archaeological sites were not found; these sites are labeled Site 100 and Site 107 in Keala Pono's report. Site 107 is in the vicinity of the existing MIS and Site 100 is in the vicinity of Alternative IIIB.

“In sum, the entire route of the existing and proposed waterline showed evidence of previous disturbance, in the form of roads, grading for farmland, and bulldozer push piles. No traditional surface architecture was observed in any part of the corridor,” (Keala Pono, 2011).

#### *Potential Impacts and Mitigation*

##### Alternative I

No potential impacts are associated with the No Action Alternative as no change to the current infrastructure would occur. There would be no loss or destruction of historic or archaeological resources and no infringement of State law.

##### Alternative II

Similar to Alternative I, there are no potential impacts associated with the Proposed Action as no change to the current infrastructure would occur. There would be no loss or destruction of historic or archaeological resources and no infringement of State law.

##### Alternatives IIIA, IIIB, and IIIC

Alternatives IIIA, IIIB, and IIIC would involve ground disturbing activities, and as such there is a potential for impacts to historical and archaeological impacts. No surface archaeological remains were observed during a site visit of the proposed waterline routes. One existing archaeological site is documented to exist in the vicinity of the project route for Alternative IIIB, but it was not confirmed at the time of the site visit. In order to mitigate potential impacts, a formal archeological inventory would be conducted along the selected route prior to the start of ground-disturbing activities. This should include a program of subsurface testing to identify stratigraphic deposits and areas that might contain buried archaeological sites or human remains. As an additional mitigative measure, an on-site archeological monitor would be present during all ground-disturbing activities. If human osteological remains or a potential archaeological site were uncovered, site work would cease and the Hawai‘i State Historic Preservation Division would be contacted in compliance with HRS Chapter 6E. These mitigation measures will ensure no loss or destruction of historic and archaeological resources, they will avoid adverse impacts to potential sites, and they ensure compliance with State laws and regulations. As such, these mitigation measures have reduced any potential impacts associated with Alternative IIIA, IIIB, and IIIC to a level of insignificance.

#### 4.2.3 Cultural Impacts Assessment– HRS Chapter 343

The CIA was prepared in accordance with HRS 343 and is provided as Appendix D of this EA. This assessment provides discussion on significant effects that the proposed project may have on the “cultural practices of the community and State”. It also includes “measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects,” (McGregor, 2012). This assessment also addresses effects that the proposed project may have on “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” reaffirmed and protected by Article XII Section 7 of the Hawai‘i State Constitution, (McGregor, 2012).

The CIA discusses the cultural impacts identified by Hawaiian Homesteaders in three court cases and two contested hearings, and cultural impacts identified by residents of Ho‘olehua, Pāpōhaku, Kaluako‘i and Maunaloa. These cases and contested hearings have addressed community concerns associated with the use of the MIS and the use of Well 17.

#### *Existing Conditions*

The CIA presents specific findings and conclusions based on Article XII Section 7 of the Hawai‘i Supreme Court (HSC) and ruling found in the *Ka Pa‘akai O ‘Aina v. Land Use Commission*, State of

Hawai‘i/94 Haw.31, 2000. These include identifying the valued cultural, historical and natural resources, and traditional and customary native Hawaiian rights used in the petition area; the resources and rights that may be affected or impaired by the Proposed Action; and the feasible action to be taken by the LUC to reasonably protect native Hawaiian rights. The CIA conforms to Act 50 SLH 2000 that provides that EISs disclose the effects of the Proposed Action on cultural practices of the community and State.

#### Cultural Resources

Fresh water is the primary cultural resource involved in the Proposed Action (McGregor, 2012). The MIS is a cultural resource for the Hawaiian Homesteaders of Ho‘olehua; as pursuant to Section 168-4, homesteaders have a prior right to two-thirds of the water developed by the MIS. The continued use of the MIS is essential to the residents of the Pāpōhaku/Kaluako‘i community and also the residents of Maunaloa Town.

Resources for the Hawaiian subsistence customs, beliefs, and practices include freshwater and its resources, marine foods, medicine and salt, forestlands for hunting, construction, arts, crafts, firewood, ritual offerings and spiritual customs, trails and dirt roads for access to cultural resources. Section 2.2.4 of the CIA summarizes additional uses. The resources associated with Hawaiian culture are also summarized in Keala Pono’s report.

#### Cultural Impacts

Cultural impacts identified in court cases and as brought up by the community are summarized in the Tables 4-4 through 4-8 below.

**Table 4-4: Cultural Impacts Identified by Homesteaders in Court Cases**

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the U.S. Ninth Circuit Court of Appeals</b>	<b>Date of Ruling</b>
1. MIS can only be used to transport irrigation water	MHCA v Morton	Direct	MIS can be used for domestic water users, which includes distributors of water for domestic use	10-29-74
2. Irreparable injury to the quality of the irrigation water	MHCA v Morton	Direct	"the evidence indicates that the quality of the water to be added would be well within the limits recommended by the United States Public Health Service. In fact, water in the irrigation system after such a mingling of water would be of such quality that it would be suitable for use in a domestic water system."	10-29-74
3. Irreparable harm to the quantity of homesteaders' irrigation water	MHCA v Morton	Direct	"It is proposed that the agreement with Kaluako'i Corporation will contain a clause reserving to the state the right to limit or withdraw the use of the pipeline and other water facilities of the Moloka'i Irrigation System at any time during the term of the agreement when the Board of Land and Natural Resources determines that the capacity of the pipeline is not sufficient to meet the needs of the public."	10-29-74
4. The Capacity of the MIS to deliver water for irrigation will be affected	MHCA v Morton	Direct	The Board can rescind the Agreement if the System's capacity is insufficient to meet agricultural needs.  "The Board is required to give Kaluako'i two years notice in this situation so that Kaluako'i can construct its own pipelines or develop other water sources."	10-29-74
5. Well 17 would inject highly saline water into the MIS	Ah Ho v Cobb	Direct	"In appellants' stipulation to their dismissal of their Fifth to Eight Claims on November 1, 1976, they agreed that the injection of Kaluako'i's water with a chloride content of 250 parts per million or less will not cause pollution of the System or detrimentally affect them. The Department also reserved the right to limit or control any chemical, physical, or biological constituent of Kaluako'i's water if it will harm the System's original function and purpose. "	6-19-81

**Table 4-4 (continued): Cultural Impacts Identified by Homesteaders in Court Cases**

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court (HSC)</b>	<b>Date of HSC Ruling</b>
6. The State's water supply will be depleted	Ah Ho v Cobb	Direct	"The Agreement will not deplete the State's water supply. Kaluako'i is limited to a maximum transmission flow of 2.2 million gallons per day and can only withdraw the amount of water that it injects into the System, less 10 percent to compensate for water system losses. Thus, if Kaluako'i does not inject any water into the System, it cannot withdraw any State water."	6-19-81
7. Irrigation water from the MIS will be allocated to Kaluako'i's domestic consumers in the event of a drought or water shortage during an emergency	Ah Ho v Cobb	Direct	"In the event of a drought or an emergency, the State reserved the right to set priorities and control the allocation of water. Under HRS 175-4, the Hawaiian Homesteaders 'shall at all times, upon actual need therefore being shown to the board, have a prior right to two-thirds of the water developed for the irrigation and water utilization project . . .' The Agreement is also subject to Rule III (5) Of Regulation 1 which states that during water shortages, the State will assure all consumers of receiving a fair share of the irrigation water available."	6-19-81
8. Pricing Method for Kaluako'i is unfair in comparison to Homesteaders'	Ah Ho v Cobb	Direct	"Kaluako'i is not purchasing State water, and the Agreement's flat annual rental fee does not affect the regulation."	6-19-81
9. Kaluako'i will withdraw State water	Ah Ho v Cobb	Direct	"Kaluako'i is limited to a maximum withdrawal of the amount that it injects, less 10 percent. The proportionate amount of State water in the System is not diminished."	6-19-81
10. Private party is transporting state water away from land to which it is appurtenant contrary to McBryde Sugar Co. v Robinson	Ah Ho v Cobb	Direct	"McBryde, supra, involved the ownership of running water in natural watercourses, streams and rivers. McBryde did not reach the question of ground water ownership and we do not believe that this is an appropriate case in which to decide this issue."	

**Table 4-4 (continued): Cultural Impacts Identified by Homesteaders in Court Cases**

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court (HSC)</b>	<b>Date of HSC Ruling</b>
11. Project is within purview of Chapter 343 which requires an EIS	MHCA v Cobb	Direct	<p>The agreement to rent space in the MIS to Kaluako'i was made prior to the enactment of HRS 343 and was therefore not subject to an EIS, otherwise it would have been within the purview of Chapter 343."</p> <p>"A proposal whose approval would facilitate the development of a large resort complex in a previously unpopulated area through the use of the Molokai Irrigation System's pipeline, allow water to be transported from its source to another area, and cause a rise in the salinity of the system's irrigation water would be within the purview of activities covered by Chapter 343. The use of a government pipeline, the implicit commitment of prime natural resources to a particular purpose, perhaps irrevocably, and the substantial social and economic consequences of the governmental approval of the proposal would dictate the preparation of an EIS."</p>	06-19-81
12. Interference with Department of Hawaiian Home Lands " 2.905 mgd reservation" of water	Wai Ola O Moloka'i	Indirect	<p>MR-Wai'ola had the burden of establishing, pursuant to HRS § 174C-49(a)(7), that the proposed use would not interfere with DHHL's 2.905 reservation of water in the Kualapu'u aquifer system.</p> <p>"Thus, 'existing legal uses' and 'reservations' of water constitute distinct interests in the State's water resources, which HRS § 174C-49(a) protects separately against interference by competing interests."</p> <p>"In sum, the State may compromise public rights in the resource pursuant only to a decision made with a level of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our State."</p>	01-29-04



**Table 4-4 (continued): Cultural Impacts Identified by Homesteaders in Court Cases**

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court (HSC)</b>	<b>Date of HSC Ruling</b>
13. Groundwater cannot be transported outside of the Kualapu'u Aquifer	Wai Ola O Moloka'i	Indirect	<p>"MR-Wai`ola has the right to transport groundwater beyond the Kamiloloa aquifer system, pursuant to HRS § 174C-49(c)."</p> <p>"The right to transport water outside the watershed of origin is contingent upon a finding by the Commission that 'such transport and use are consistent with the public interest and the general plans and land use policies of the State and counties.' See HRS § 174C-49(c)"</p> <p>"The Water Code requires, inter alia, that the applicant prove that the proposed use of water is a 'reasonable-beneficial use' and is consistent with public interest' HRS 174C-49(a)(2) NS (4) 1993. 'Reasonable-beneficial use' is defined as '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 public interest.'</p>	01-29-04
14. Burden to prove that the proposed water use will not abridge or deny traditional and customary native Hawaiian rights.	Wai Ola O Moloka'i	Indirect	<p>" Contrary to the implications of COL No. 24, MR-Wai`ola was obligated to demonstrate affirmatively that the proposed well would not affect native Hawaiians' rights; in other words, the absence of evidence that the proposed use would affect native Hawaiians' rights was insufficient to meet the burden imposed upon MR-Wai`ola by the public trust doctrine, the Hawai`i Constitution, and the Code."</p>	01-29-04

**Table 4-4 (continued): Cultural Impacts Identified by Homesteaders in Court Cases**

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court</b>	<b>Date of HSC Ruling</b>
15. Use of water for Kaluako'i from Well 17 conflicts with the DHHL "reservation" of water which is a public trust "purpose"	Kukui (Moloka'i)	Indirect	"under the public trust [doctrine] and the Code, permit applicants have the burden of justifying their proposed uses in light of protected public rights in the resource." Waiahole I, 914 Hawaii @ 160, P.3d at 472. The Water Code requires, inter alia, that the applicant prove that the proposed use of water is a 'reasonable-beneficial use' and is consistent with public interest' HRS 174C-49(a)(2) NS (4) 1993. 'Reasonable-beneficial use' is defined as '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 public interest.' HRS § 174C-3	12-26-07
16. Applicants must demonstrate that there are no alternative water sources	Kukui (Moloka'i)	Indirect	"Besides advocating the social and economic utility of their proposed uses, permit applicants must also demonstrate the absence of practicable mitigating measures, including the use of alternative water sources. Such a requirement is intrinsic to the public trust, the statutory instream use protection scheme, and the definition of 'reasonable-beneficial' use, and is an essential part of any balancing between competing interests."	12-26-07

**Summary and Discussion of Table 4-4**

The current use of the MIS supplies domestic water for users on the west end as chloride levels have remained below 250 mg/L for water pumped from Well 17. Current use of the MIS shows that water volumes are below the 21 mgd capacity of what the MIS can carry. Should the capacity for the MIS to deliver irrigation water exceed the limit, the HDOA or DLNR is required to give a two year notice for Kaluako'i to construct its own pipeline or develop other water sources as described in Table 4-4 above. Currently, there are no plans for future development on the west end. MPL plans to re-open the Kaluako'i Resort and Golf Course. Water use is expected to remain the same. Water is replenished in the aquifer as sustainable yields for the aquifer systems as illustrated on Figure 4-6 Aquifer Map of this Draft EA.

Because this EA project is solely for the agreement restoration between MPL and HDOA for the continued use of the MIS, environmental and cultural impacts associated with the continued use of Well 17 shall be addressed during the groundwater use permit application process following the acceptance of this EA.

**Table 4-5: Potential Impacts Identified by Pāpōhaku/Kaluako‘i Residents - Summer 2011**

<b>Potential Impacts</b>	<b>Nature of Impact</b>
1. Affect access to water for drinking and domestic uses	Direct
2. Affect existence of Pāpōhaku/Kaluako‘i Communities	Direct
3. Alienate the Pāpōhaku, Kaluako‘i and Maunaloa communities	Direct
4. Affect Back Up Water Source for Maunaloa Community	Direct
5. Affect access to water for Pāpōhaku Park and Beach Access points	Direct
6. Affect Maui County’s obligation to provide water for Pāpōhaku Beach	Direct

**Summary and Discussion of Table 4-5**

Table 4-5 includes a list of potential direct impacts on resources identified by the west end community members. The direct impacts are related to the water availability to the west end users and also the sociocultural impact on alienating the community due to the conflicts that have arisen on the use of Well 17. These resources concerns and potential direct impacts are addressed in the CIA, and in all cases the potential impacts have been determined to be insignificant.

**Table 4-6: Potential Impacts of Renewing Agreement for MPL to Rent Space in the MIS**

<b>Direct Impacts of Agreement Renewal</b>	<b>Assessment</b>	<b>Mitigation</b>
1. No Construction or Alteration of Landscape	No Impact	No mitigation needed.
2. Dedicated use of Water for Pāpōhaku and Kaluako‘i	The allocation of water to MPL will not change as part of the proceeding under the HDOA	No change in the allocation of water to MPL for the amount needed by the Pāpōhaku and Kaluako‘i communities. Amount allocated to MPL can be reviewed as part of the proceeding to renew the permit for Well 17 by CWRM.
3. Affect the salinity of the MIS water	Data shows that the chloride levels in Well 17 have never been more than 120 parts per million gallons (ppmg) since 1952 and has been less than 59 ppmg in the last ten years. This is far below the EPA potability guideline of 250 ppmg.	Continued monitoring of the chloride levels of Well 17.
4. Overextend Capacity of the MIS	All users of the MIS combined - Hawaiian Homesteaders, MPL and Private Agriculture users use only 21.4% of the MIS capacity	No mitigation needed.
5. Overextend the capacity of the MIS Reservoir	In the past 37 years since the MIS has been used to transport water to the West End, the capacity of the reservoir has not been affected	Under the Agreement (1) MPL can only use "excess capacity" in the reservoir and that (2) should there no longer be sufficient capacity in the reservoir, then the use of the MIS by MPL would have to be relinquished, with a reasonable period of notice. No mitigation needed.

**Table 4-6 (continued): Potential Impacts of Renewing Agreement for MPL to Rent Space in the MIS**

<b>Direct Impacts of Agreement Renewal</b>	<b>Assessment</b>	<b>Mitigation</b>
6. Use of MIS water by MPL	For every 1000 gals put into the MIS system, MPL is only permitted to withdraw 900 gallons. Violations by Kukui (Molokai), Inc. occurred in 1998 during a drought and the loss was compensated. In Dec 2001 when MPL acquired the MPU there was a 30 million gallon deficit that was made up within 2 months by mid-February 2002. From April 5 - August 19, 2004 MPL used MIS water when it changed the Well 17 pump engine. The water was replaced.	Since 2007, MPL keeps an average annual buffer of 18 million gallons in the MIS Reservoir as a buffer against any breakdowns. It is also available to MIS for breakdowns, drought or an emergency.  Strict and rigorous enforcement of the terms of the Agreement.
7. Use of MIS Water During Drought or an Emergency	As noted above, MPL did use MIS water during a drought and when they replaced their pump.	The Hawai'i Supreme Court, in the Ah Ho v Cobb case, ruled that, "In the event of a drought or an emergency, the State reserved the right to set priorities and control the allocation of water." Under HRS 175-4, the Hawaiian Homesteaders "shall at all times, upon actual need therefore being shown to the board, have a prior right to two-thirds of the water developed for the irrigation and water utilization project ."
8. Use of MIS Water During drought or an emergency (cont.)		The Agreement is also subject to Rule III(5) Of Regulation 1 which states that during water shortages, the State will assure all consumers of receiving a fair share of the irrigation water available."

**Table 4-6 (continued): Potential Impacts of Renewing Agreement for MPL to Rent Space in the MIS**

<b>Direct Impacts of Agreement Renewal</b>	<b>Assessment</b>	<b>Mitigation</b>
9. Price for Rental of MIS Space	MPL pays a rate comparable to or greater than the rate paid by homesteader and non-homesteader users of the MIS.	<p>Based on the potential allocation for MPL from Well 17 of 1.018 million gallons per day pumpage, this amounts to \$0.3725 per 1,000 gallons stored in the MIS Reservoir and transported through 6 miles of pipeline. However, when one considers the actual current pumpage of 413,000 gallons a day, this amounts to \$0.918 per 1,000 gallons stored in the MIS Reservoir and transported through 6 miles of pipeline.</p> <p>The homesteader and non-homesteader users of the MIS pay \$0.55 per 1,000 gallons to have transported through 25 miles of the MIS and stored in the reservoir.</p>

#### **Summary and Discussion of Table 4-6**

Table 4-6 summarizes the potential cultural impacts associated with renewing/restoring the MIS agreement between MPL and HDOA. The direct impacts addressed in this table include the concerns of water allocation, water quality, water cost, MIS capacity, and MIS rental fees. The assessment of the impacts addresses supporting information and data. Mitigation includes a discussion of the actions to be implemented to address the direct impacts. For all of the potential impacts initially identified, this EA has determined that all can be mitigated to a level of insignificance.

**Table 4-7: Potential Direct Cultural Impacts of Denying Renewal of MPL Rental Agreement**

<b>Direct Impacts of Denying Agreement Renewal</b>	<b>Assessment</b>	<b>Mitigation</b>
1. No access to water for drinking and domestic uses by 553 households of Pāpōhaku and Kaluako‘i	Critical and unacceptable impact. Breach of MPL agreement with the Public Utilities Commission to provide water to Pāpōhaku and Kaluako‘i households.	Extend Agreement for MPL to rent space in the MIS indefinitely or if not, until a pipeline over an alternate route is constructed.
2. Eliminate a Community	same as above	same as above
3. Alienate the Pāpōhaku, Kaluako‘i and Maunaloa communities	Divide the communities of Moloka‘i	same as above
4. Cut of 167 households in Maunaloa from Back Up Water	same as #1	same as above
5. Cut water from Pāpōhaku Park and Beach Access points	Critical and unacceptable impact.	same as above or Close park and beach access points
6. Loss of Revenue to MIS	Loss of between 20% to 24% (depending on monthly collections from other users) of the revenues which keep the MIS operational.	Increase rates paid by homestead and non-homestead users of the MIS.
7. Higher Rates for MIS Users	Increase of production costs to homestead and non-homestead users of the MIS	Subsidy from the State or federal government
8. Loss of Back-Up Water During a Drought	Since 2007, MPL has kept an average buffer in the MIS reservoir of approximately 18 million gallons on an annual basis. This water is a buffer against a breakdown at its Well 17, but is also, under an agreement with HDOA, available for agricultural users of the MIS system should droughts result in limitations on water availability.	Keep the existing link from Well 17 to the MIS for use in case of extreme drought and/or emergency.

**Summary and Discussion of Table 4-7**

Direct cultural impacts of denying the renewal to the agreement are addressed in Table 4-7. Impacts associated with the denial include no access to water, community alienation, revenue losses to the MIS, increased water rates, and loss of backup water for droughts. Assessments of the impacts included supporting information and further details on defining the impacts. The mitigation measures are included above. These impacts and mitigation are addressed through the EA.

**Table 4-8: Potential Indirect Cultural Impacts of Renewing the MPL Agreement**

Indirect Impacts of Agreement Renewal	Assessment	Mitigation
1. Increase of chloride levels in DHHL wells in Kualapu‘u Reservoir	The USGS reported that Although Well 17 (Well ID 0901-01), owned by MPL, is also in the Kualapu‘u Aquifer System, chloride levels do not appear to have been significantly affected by withdrawals from the DHHL or DWS wells	Assess the models and data for the impact on the DHHL wells when MPL applies for its water use permit for Well 17.
2. Interfere with DHHL 2.905 mgd reservation of water which is a public trust purpose	The USGS reported that Although Well 17 (Well ID 0901-01), owned by MPL, is also in the Kualapu‘u Aquifer System, chloride levels do not appear to have been significantly affected by withdrawals from the DHHL or DWS wells	Assess the models and data for the impact on the Kualapu‘u Reservoir when MPL applies for its water use permit for Well 17.
3. Transport groundwater outside of the Kualapu‘u aquifer	Transport of water for drinking and domestic use by residents of Pāpōhaku, Kaluako‘i and Maunaloa is a reasonable-beneficial use	Renew the MPL Agreement indefinitely or at least until a pipeline over an alternate route is constructed.
4. Reduce Discharge of fresh water necessary to sustain nearshore marine life relied upon for subsistence fishing, diving and gathering and traditional and customary cultural and spiritual practices	No data available	Assess the models and data for the impact on the DHHL wells when MPL applies for its water use permit for Well 17.
5. Distribution of Water to Kaluako‘i Large Resort Complex which was previously unpopulated	Pāpōhaku and Kaluako‘i have 533 households and Maunaloa has 167 households. Overall the growth of the population in these communities since 1980 has declined. While the Kaluako‘i Hotel and Golf Course and now closed, these facilities will be reopened and contribute to the health of Moloka‘i’s economy	Assess MPL’s allocation of water when it applies for its water use permit for Well 17.

**Summary and Discussion of Table 4-8**

Table 4-8 includes the indirect impacts on renewing/restoring the transmission agreement. Indirect or secondary impacts include an increase in chloride levels, potential interference with DHHL water allocation for the Kualapu‘u aquifer, water transportation, and distribution of water to the Kaluako‘i Resort and Golf Course. Assessments of these impacts include supporting information or further details on the description of the impacts. The mitigation measures are actions to address the indirect impacts are



included in the table above. This EA has determined that none of the potential indirect impacts considered are anticipated to be significant.

### Community Consultation

A total of four community meetings were conducted in the process of preparing this Draft EA. The first two meetings were held in January 2011, one in Maunaloa and the other in Ho'olehua, to kick off the CIA study. The second two meetings were held in July 2012, one in Ho'olehua and the other in Maunaloa to follow up with the community on the status of the project EA. Proceedings of the meetings are summarized as follows:

Summaries of the January 2011 community meetings are below:

#### *Maunaloa Community Meeting*

There were 30 persons who attended the Maunaloa Community Meeting, mostly residents of the Kaluako'i ahupua'a. In follow-up, Darlene Toth, Patricia Crandall, Edie Anderson and Gerry Anderson were interviewed on May 17, 2011. Rikki Cooke, Jimmy Duvauchelle, Colette Machado, and Halona Kaopuiki provided input about the project. Later, on June 13, 2011, all participants who provided their email on the sign-up sheet were sent an email to ask if they wanted to be interviewed. Only Barbara Rasmussen expressed an interest and she was interviewed by phone on October 1, 2011.

#### *Ho'olehua Community Meeting*

There were 38 persons who attended the Ho'olehua Community meeting. Among those who attended, Adolph Helm, Stacy Helm Crivello, Ray Foster, Dawn Bicoy and Beverly Pauole Moore were interviewed. Glenn Teves and Barbara Haliniak provided input via email. Later, on June 13, 2011, all participants who provided their email on the sign-up sheet were sent an email to ask if they wanted to be interviewed. No one else was available to be interviewed.

Summaries of the July 2012 community meetings are below:

The first was held at the Lanikeha Community Center in Ho'olehua on Tuesday, July 24, 2012 at 6:00 pm and the second was held on Wednesday, July 25, 2012 at Maunaloa Recreation Center at 6:00 pm. To advertise the meetings, an ad was placed in The Moloka'i Dispatch and flyers were posted in Ho'olehua, Kaunakakai, Kualapu'u, and the east end the previous week.

#### *Maunaloa Community Meeting*

Approximately 25 persons- residents of the west end - attended the Maunaloa Community Meeting. Their concerns were somewhat different in that they felt threatened that their water supply is in jeopardy if MPL were denied continued use of the MIS.

Attendees were assured that while there is a desire to get MPL off the MIS system, Mr. Rumbaoa said the people of the east end are not ill-intentioned, and they have no desire to cut off the water supply to the west end. He emphasized that MPL would like to get off the MIS system in the long run, but needs five to 10 years to develop its own water system on MPL land. So he is seeking a restored transmission agreement with the HDOA for use of the MIS as an interim measure in order to continue to supply the west end residents irrigation water until MPL can do the necessary studies and prepare plans to develop its system.

He plans to discuss his plans with the community as they (plans) come to fruition, and will keep residents informed of MPL's progress to improve life not only on the west end, but for the entire Moloka'i community.

#### *Ho'olehua Community Meeting*

About 40 persons attended the Ho'olehua Community Meeting, mostly residents of central and east Moloka'i. Questions and comments from attendees began with why MPL cannot just use the mountain

water system, to how the State Attorney General in 2007 determined that a Chapter 343 HRS EA was required in order for MPL to restart the discussion with HDOA to renew the Transmission Agreement for the MIS.

Other comments pointed to a preference for MPL to develop a transmission pipeline that would completely avoid crossing DHHL land (Alternative IIIB), to MPL's utility function should be turned over to a nonprofit or to the County of Maui.

When asked about MPL's future plans, Mr. Rumbaoa responded saying he plans to re-open Kaluako'i Resort and Golf Course. He concluded the meeting by saying he plans to meet again with the community to share his plans and to continue to work together with everyone. It was announced that the Draft EA would be published in OEQC's September 2012 issue for a 30-day public review period.

### *Potential Impacts and Mitigation*

#### Alternative I

Significant adverse impacts are anticipated under Alternative I. Without the transport of water to the west end communities, these households would be forced to relocate to areas that provide necessary utilities. This may also affect those who perform cultural practices in west Moloka'i who need access to potable/non-potable water supplies in their practices.

#### Alternative II

No adverse cultural impacts are anticipated to result from Alternative II. The continued use of the MIS to transport water from Well 17 to the west end of Moloka'i would allow current lifestyle and cultural practices to remain the same. Implementation of Alternative II would allow communities to continue with their current lifestyles, eliminating any adverse impact.

#### Alternatives IIIA, IIIB, and IIIC

Potentially significant adverse impacts were initially considered for Alternatives IIIA, IIIB, and IIIC. These alternatives propose construction activities that may disturb cultural areas or artifacts. Prior to construction, cultural assets surveys should be performed on all areas of anticipated ground disturbance prior to the start of construction activities. Additionally, areas of known cultural significance can be protected from the construction footprint. Once construction activities commence, if an unintended discovery of cultural resources occur, construction activities shall cease and a cultural monitor consultant should be called to the project area. Implementation of surveys and use of cultural monitors can mitigate these impacts to less than significant.

#### 4.2.4 Circulation and Traffic

##### *Existing Conditions*

According to the 2010 census, the population of Moloka'i declined from 7,404 to 7,345 since 2000 (U.S. Census Bureau, 2010). On any given day there are not more than 1,000 visitors on the island. As a result, there is very little traffic on Moloka'i; in fact there are very few stop signs and not a single traffic light on the island, and the highest posted speed limit on Moloka'i is 45 mph. A traffic jam is a rare sight on the island of Moloka'i. Some important highways and streets that network within the project boundary are (Department of Transportation (DOT), 2012):

- Route 460, Maunaloa Highway – It is a double-lane highway; it begins at Kaunakakai, passes the airport at Ho'olehua, and ends 17 mi west in the village of Maunaloa;
- Route 465, Airport Loop – It is double-laned, and is off of Maunaloa Highway (Route 460);

- Route 470, Kalae Highway – It is a double-lane highway and just branches off Highway 460. It goes to the Kalaupapa lookout, Kualapu‘u, and Kala‘e.; and
- Route 480, Pu‘upee lua Avenue – It is double-laned, and it intersects Maunaloa Highway and Farrington Avenue.

Traffic to and from the project area would incorporate use of Kaluako‘i Road and Maunaloa Highway at minimum. Workers commuting to and from their place of residence to the project area as well as the traffic of the operating equipment from their storage location are the main two factors for traffic that could potentially impact normal traffic commuter times.

#### *Potential Impacts and Mitigation*

##### Alternative I

Beneficial impacts would result from Alternative I. Traffic occurrence would decrease in the project area as the lack of water would result in less people commuting to and from the west end.

##### Alternative II

No significant impacts are anticipated from Alternative I. Site conditions would remain the same.

##### Alternative IIIA

Potential significant adverse impacts were initially considered for Alternative IIIA. Development of an underground pipeline that connects Well 17 to the west end, through DHHL involves construction of an underground irrigation facility cutting through three major highways (Route 460, Route 465, and Route 470) on the island of Moloka‘i. The traffic, although minimal on the island shall be affected during the construction phase of the project. Various types of impact typically caused by construction work include detours, longer commute times, and congestion, relative to existing traffic conditions. The temporary impacts would be controlled with mitigation measures including scheduling construction work at night, or during low-traffic hours as much as possible, building alternative routes for the commuters, and informing the general public about the construction activity schedule and the alternate routes before the project breaks ground. With the mitigation measures incorporated, the impacts of the construction work would be insignificant.

##### Alternative IIIB

Potential significant adverse impacts were initially considered for Alternative IIIB. Development of an underground MIS system around the DHHL lands involves construction of an underground irrigation facility around the DHHL lands. Alternative IIIB would have some impact on the traffic during the construction phase, but traffic and circulation conditions will be restored to their existing state as soon as the construction phase is complete. Various types of short term impacts include detours, longer commute times, and traffic congestion, relative to existing traffic conditions. The impact of this alternative on the traffic and circulation in the area would be less as compared to Alternative IIIA as this later involves construction work closer to the airport which, relative to the other parts of the island, is an area of higher traffic density. Mitigation measures would include scheduling construction work at night, or during low-traffic hours as much as possible, building alternative routes for the commuters, and informing the general public about the construction activity schedule and the alternate routes before the project breaks ground. Therefore, impacts from Alternative IIIB would be insignificant.

##### Alternative IIIC

Potential significant adverse impacts were initially considered for Alternative IIIC. Kaluako‘i Road is located in open country designated as agricultural land. Use of this road is minimal. Maunaloa Highway is the main road that circulates traffic from central Moloka‘i to western Moloka‘i and the town of Maunaloa. The development of Alternative IV would have some impact on traffic mainly from north of

Maunaloa town along Maunaloa Highway to Kaluako'i Road. Mitigation measures would include scheduling construction work at night, or during low-traffic hours as much as possible, building alternative routes for the commuters, and informing the general public about the construction activity schedule and the alternate routes before the project breaks ground. Alternate routes and therefore these short term impacts from Alternative IIIC would be insignificant. No long term impacts to traffic or circulation are expected for the development of this alternative.

#### 4.2.5 Social Factors and Community Identity

##### *Existing Conditions*

The Island of Moloka'i supports a resident population of 7,345 people, producing a population density of 28 people per sq. mi. This is strikingly rural when compared to the Island of O'ahu, where the resident population is 953,207 people, producing a population density of 1,595 people per sq. mi (U.S. Census Bureau, 2010).

The project area for each alternative is located in the West Moloka'i Census County Division. The median age in this division is 33.9 years, and the total population is 2,752 people. People of two or more races account for 45% of the population; and Native Hawaiian or Other Pacific Islander is the single most common race of people, accounting for 28% of the population, with other prominent groups being White (14%) and Asian (12%) (U.S. Census Bureau, 2010).

The Island of Moloka'i has a distinct rural character, clearly exemplified by the lack of a single traffic signal on the entire island. It is a place where patience, acceptance, and a sense of community are highly regarded values; and Native Hawaiian culture and tradition permeate all aspects of life.

A detailed investigation of direct and indirect cultural implications of the proposed project is presented in the CIA (Appendix D).

##### *Potential Impacts and Mitigation*

##### Alternative I

Alternative I would result in a complete change in the economics and population for the town of Maunaloa. Water would be shut off to the west end of Moloka'i, and this would force residents, businesses, and farmers to abandon their homes, businesses and farms. Their livelihoods and the community identity of this region of the island would be forfeit. This constitutes a significant negative impact to social factors and community identity. Because this Alternative is unacceptable by the DOH, mitigation measures are not being assessed as this alternative could not move forward without an alternate water supply to the residences and businesses.

##### Alternative II

The Proposed Action would pose no change to the social and community identity of Maunaloa as this Proposed Action is the continued use of the MIS. No residences, businesses, community facilities, farms, or other activities would be impacted as a result of the proposed project as the continued use of the MIS. It is the long-term goal of the project to foster a Hawaiian lifestyle. No adverse impacts are anticipated and no mitigation is required.

##### Alternatives IIIA, IIIB, and IIIC

These alternatives would foster the Hawaiian lifestyle to continue agricultural practices and factors associated with this way of life. Temporary changes in the population of the island may change with the increase in temporary jobs to construct the chosen alternative. Otherwise no other potential impacts to the social identity and community populations are expected as a result of these alternatives.

#### 4.2.6 Economic Considerations

##### *Existing Conditions*

The mean annual income for all households in the project area was \$49,984.00, and most families have one worker (U.S. Census Bureau, 2010). Between 2006 and 2010, the mean unemployment rate in west Moloka'i was estimated at 8.7%, which is slightly higher than the statewide estimate in 2010 of 8.1% (U.S. Census Bureau, 2010). The primary industries of west Moloka'i are tourism and agriculture, and MPL is the largest private employer on the island, providing approximately 140 jobs (MPL, 2008).

MPU's annual lease rent payments to the State for use of the MIS system to transport water from Well 17 to the west end accounts for approximately 20- 24% of the system's total revenue.

##### *Potential Impacts and Mitigation*

###### Alternative I

Alternative I, denial of MPU's continued water transmission via the MIS, would have a significant adverse impact on the households, tourism, and other businesses of west Moloka'i by denying the continued water supply critical to daily living and operations. By forcing the shutdown of the MIS, the current water transportation system, the public health and safety of businesses and households would be directly threatened resulting in homes and businesses being vacated, foreclosed, and ultimately going bankrupt. The demise of businesses and residential activity in western Molokai would result in lowered sales and income tax revenues to the State of Hawai'i, and lowered rental income and property tax revenues to landlords and the County of Maui. Additionally, the rest of the island of Moloka'i would be affected by secondary impacts such as overcrowding, competition for jobs, and diminished quality of life when people and businesses flee the western side of the island for central and eastern communities where water is available.

Under this scenario, MPU's contributions in fee payments to the State for use of the MIS system would cease thereby possibly forcing the State to increase its charges to other users of the MIS in order to make up for the loss in fees from MPU.

###### Alternative II

Alternative II is the continued use of the MIS to transport Well 17 water through central Moloka'i; this alternative would allow irrigation and domestic usage of water on the west end of Moloka'i to continue. According to the CIA (McGregor, 2012; Appendix D), residents in the west end who depend on water supplied by MPL would not be adversely affected because a continued water supply would be ensured. Further, the additional revenue to the State government as a result of the fees associated with MPL transporting water in the MIS, accounting for approximately 20-24% of the total revenue, allows for the costs of water supplied by the MIS to remain at the current level (McGregor, 2012).

As long as the transmission agreement for the MIS is restored, MPL will be able to realize its plans to re-open Kaluako'i Resort and Golf Course. The reopening of Kaluako'i Resort is expected to provide 100 permanent jobs for the local community along with outsourcing of resort functions to small businesses (LUCMEC, 2005). Secondary and spinoff beneficial impacts resulting from the reopening of Kaluako'i Resort and Golf Course would be the increase in jobs will translate into consumer demand in retail, professional services, and recreational and entertainment activities throughout the community. Such consumer demand and spending will lead to increase sales tax revenues, income and property tax revenues to the State and County governments.

###### Alternatives IIIA, IIIB, and IIIC

Potential significant impacts from Alternatives IIIA, IIIB, and IIIC are anticipated. For the Alternatives IIIA, IIIB, and IIIC, requiring the development of a new water distribution system, temporary jobs would be created during the construction phase including on-site laborers, tradesmen, mechanical operators, and

supervisors. Indirectly, the creation of these jobs would induce economic stimulation in the retail, food and beverage, and material supply industries. These alternatives, however, may result in increased costs of water supplied by the MIS, due to the loss of MPL as a revenue source. This rise in cost may be mitigated by State or federal subsidies. In addition, residents of Maunaloa Town and Kaluako'i supplied by water from MPL may incur increased fees, due to construction related costs associated with the new water lines. This increase in cost would be short-term, however the long-term outlook is a decrease in water cost. A detailed assessment of costs associated with each alternative is presented in Section 4.2.10 of this EA, CIA (Appendix D) and CPE (Appendix F).

#### 4.2.7 Recreational and Public Facilities

##### *Existing Conditions*

Moloka'i offers a wide variety of recreational opportunities such as swimming, biking, hiking, fishing, boating, camping, diving, surfing, and windsurfing. There are mountain, valley, and shoreline hikes with trails leading to scenic views and historic sites. In west Moloka'i, the principal resort areas are the Kaluako'i Resort and Maunaloa Town (both currently closed). Kaunakakai in central Moloka'i, is the biggest town on the island with a population of 3,425 (U.S. Census Bureau, 2010). On the east end of the island there are several bed and breakfast hideaways, vacation rentals, and condominiums. Moloka'i has one nine-hole golf course called "The Greens at Kauluwai" or better known as Ironwoods Golf Course. It is located along central Moloka'i's north coast mountains, close to the Moloka'i airport. This course is the descendant of one of Hawai'i's original plantation courses, the Hanekekua Golf Club, which opened in 1938. The other golf course on the island sprawls along the west shore, called Kaluako'i Golf Course. There is one State Park, Pala'au State Park; 13 county parks and community centers; and one National Historical Park, Kalaupapa National Historic Park on Moloka'i. Kalaupapa is located on the north eastern side of the project boundary and it is a place of stunning beauty. The settlement of Kalaupapa is on the west end of the nearly flat, Makanalua Peninsula which juts into the Pacific below the world's highest sea cliffs. One of the most popular activities on the island of Moloka'i is the Kalaupapa cultural tour. It is a site of a former leprosy settlement. The natural beauty of the valley and the horrid tales of the leper settlement at Kalaupapa attract a significant amount of tourist traffic (National Park Service (NPS), 2012).

The project area comprises mostly agricultural lands. However, the project boundary also encompasses public facilities such as major highways and the Moloka'i Airport. The most important public facility within the project boundary is the Moloka'i Airport. Moloka'i Airport or Ho'olehua Airport is located in the center of the island and is serviced by Aloha Island Air and Go! Mokulele.

##### *Potential Impacts and Mitigation*

###### Alternative I

Alternative I is expected have a significant adverse impact on the recreational and public facilities on the island. Significant adverse impacts will be felt in the form of lack of a sufficient water transportation system to provide the water necessary to continue operation of recreational and public facilities including the resort facilities and golf courses.

###### Alternative II

Alternative II is expected to have no impact on the recreational and public facilities on the island. The MIS will continue to direct water to the existing recreational and public facilities and their operations will continue as they exist today.

###### Alternative IIIA

Alternative IIIA is also expected to have no impact on the recreational and public facilities on the island. Alternative IIIA is the development of an underground pipeline that connects Well 17 to the west end through DHHL lands. Once complete, water will be provided to the existing recreational and public

facilities, and they will continue operations as they exist today. The initial project phase of this alternative involves construction of a new underground irrigational infrastructure on DHHL lands. The initial project phase would involve street and highway closures during construction activities. This may have a short-term, insignificant, indirect impacts on the recreational activities of the people living on and visiting Moloka'i. The recreational activities will be impacted temporarily by construction work due to road closures, detours, and traffic delays. One of the major public facilities that would experience short-term impacts is the Moloka'i airport. This alternative proposes an underground irrigation system that will run in close proximity to the airport which may affect the airport accessibility during the construction phase of the project.

Mitigation measures may be implemented to ensure that any impacts remain at less than significant levels. During the construction phase, alternative routes should be arranged for the general public that are expected to traverse on the affected streets and highways within the project boundary in order to minimize any impact on the recreational and public activities within and surrounding the project area.

#### Alternative IIIB

Alternative IIIB is also expected to have no impact on the recreational and public facilities on the island. The development of an underground pipeline system around the DHHL lands will provide water to the existing recreational and public facilities, and they will continue operations as they exist today. This alternative may have a short-term, insignificant indirect impact on the recreational and public facilities in and around the region during the construction of the underground pipeline system. New construction would involve temporary closure of streets and highways. This may have an indirect impact on the recreational activities of the people living on and visiting Moloka'i. This alternative, although farther away from the airport relative to the Alternative IIB will have some impact on the public accessibility to the Moloka'i Airport, thereby affecting the recreational activities on the island.

As with Alternative IIIA, mitigation measures may be implemented to ensure that any impacts remain at less than significant levels. During the construction phase, alternative routes should be arranged for the general public that are expected to traverse on the affected streets and highways within the project boundary in order to minimize any impact on the recreational and public activities within and surrounding the project area.

#### Alternative IIIC

Alternative IIIC is also expected to have no impact on the recreational and public facilities on the island. The development of a desalination plant and two wells on the west end would allow for a local water source to support the town of Maunaloa and neighboring towns associated currently with MPL utility subsidiaries. Once the desalination plant and additional wells on the west end are in operation, it is expected that sufficient water will be supplied to the existing recreational and public facilities, and they will continue operations as they exist today. As with the other alternatives, this alternative may have a short-term, insignificant indirect impact on the recreational and public facilities in and around the region during the construction of the desalination plant. New construction would involve increases in truck traffic, and possible temporary closure of streets and highways. This may have an indirect impact on the recreational activities of the people living on and visiting Moloka'i. Mitigation measures regarding traffic and construction activities may once again be implemented to ensure that any impacts remain at less than significant levels.

Additionally, the desalination plant would be developed on MPL land. Portions of the MPL land are used for hunting deer for recreational purposes. The construction and use of desalination plant may change the behavior of game and the location of hunting areas if the plant were developed within the hunting area.

#### 4.2.8 Visual and Aesthetic Resources

##### *Existing Conditions*

Moloka'i is known for its natural beauty. The island is relatively small, only 38 mi long by 10 mi wide but filled with what many consider magnificent natural beauty and historical significance. Three of the other Hawaiian Islands can be seen from its shore: O'ahu, Lana'i, and Maui. The eastern half of the island showcases some of the most beautiful waterfalls in the state such as Haipuapua and Moaula. The western end of Moloka'i is much drier with arid red soil and windswept landscape.

Most of the land within the project boundary is agricultural land. A major portion of the land within the project area is owned by the DLNR. The most important facility within the project boundary is the Moloka'i Airport. Views in and around the project area are mostly agricultural and rural lands with the exception of the Moloka'i Airport and other highways (Hawai'i Aviation, 2012).

##### *Potential Impacts and Mitigation*

###### Alternative I

No impact on the visual resources and aesthetics in or around the project area is anticipated with Alternative I. The MIS shall cease to be used for the water needs of the west end of the project area, but no visual changes will be made to the landscape in the project area. If an insufficient supply of irrigation water is supplied to the west end there may be some impacts due to loss of vegetation, however the majority of project area is arid with little visual and aesthetic resources.

###### Alternative II

There would be no impact on the visual resources and aesthetics in or around the project area anticipated with Alternative II as this alternative shall not bring about any changes in the existing conditions. The MIS shall continue to be used for the water needs of the west end of the project area.

###### Alternative IIIA

Alternative IIIA is also expected to have no impact on the visual resources and aesthetics in or around the project area. The development of a pipeline that connects Well 17 to the west end through DHHL lands will be underground and no visual evidence will remain. Short-term, insignificant impacts on the visual and aesthetic resources are expected during the construction phase. Construction of the pipeline system would have short-term impacts on the site and the surrounding environment as it involves construction activities such as grading, trenching, and street closures that typically alter the visual resources of the construction site and its surrounding areas. But, these impacts would be short-term and would not exist once beyond the construction phase. Landscaping immediately after construction is complete would help mitigate the lasting visual impacts caused by construction activity on the surrounding environment.

###### Alternative IIIB

Alternative IIIB is also expected to have no impact on the visual resources and aesthetics in or around the project area. The development of a pipeline system around the DHHL lands would also be underground as with Alternative IIIA. There would be no perpetual impact on the visual resources and aesthetics in or around the project area. During the construction phase, there may be short-term insignificant impacts on the visual and aesthetic resources of the site. The impacts would be similar to those from Alternative IIIA from general construction activity, but last longer due to development of more complex irrigation system around the DHHL lands. Landscaping immediately after construction is complete would help mitigate the lasting visual impacts caused by construction activity on the surrounding environment.



### Alternative IIIC

Development of a desalination plant and wells on the west end under Alternative IIIC would pose a significant adverse impact on the visual and aesthetics of the open undeveloped land. Currently, the west end of the island is rural with dry, open ground with scattered vegetation. Depending on the location of the plant, some west end users may be able to see the desalination plant from their residence(s). Construction work needed to develop this alternative would also bring short-term adverse impacts on the visual aesthetics of the area as equipment and transportation will be used to construct the desalination plant and wells.

The desalination plant will likely not be visible from the Kaluako‘i Resort and Golf Course. Therefore, visual aesthetics from the Kaluako‘i Resort and Golf Course will not be impacted by the development of this alternative.

#### 4.2.9 Infrastructure Systems and Utilities

The Infrastructure Study was completed by CPE and is provided as Appendix F. The study is excerpted and summarized below:

##### *Existing Conditions*

Aquifers Kaluako‘i and Punakou is comprised of brackish water that is presumed to be unsuitable for irrigation use without treatment. The Kualapu‘u aquifer in central Moloka‘i is comprised of water that is suitable for irrigation and potable use. MPL’s need to transmit water from Well 17 to its customers in west Moloka‘i is in direct relation to the water source (CPE, 2012).

The MIS originally served large-scale pineapple operations, but was converted to serve diversified agriculture after pineapple operations closed in the late 1970s. The systems current priority service is for the Native Hawaiian Homesteads in Ho‘olehua for irrigation use. The MIS was designed to collect water from Waikolu Valley, and then transport, store, and distribute the collected water to central Moloka‘i. The water collection system consists of surface water diverted by dams, ground water from drilled wells and dike-confined water intercepted by the MIS tunnel. The water collected from the Waikolu Watershed is transported via the MIS tunnel, a covered concrete flume and transmission pipeline to the existing 1,400 mg Kualapu‘u open reservoir. Water is then distributed from the Kualapu‘u Reservoir via 26-in and 30-in water mains through the Department of Hawaiian Home Lands (DHHL) Ho‘olehua Subdivision (CPE, 2012).

In the mid 90s, MPL contracted Warren S. Unemori Engineering, Inc. to design a 12-in transmission line from Well 17 to Pu‘u Nānā. Subsequently, MPL contracted Tom Nance Water Resource Engineering to design the improvements at the site of Well 17 to remove MPL from the MIS. The designed route for the transmission line took a direct path which passed through DHHL property. MPL constructed the transmission line, but the line was never completed due to community opposition and easement agreements with DHHL. Only portions of the 12-in line up to DHHL property and portions after DHHL property, were constructed. Consequently, the improvements at the site of Well 17 were never constructed. The uncompleted line has remained dry for approximately 10 to 15 years. Due to the line remaining idle and the condition of the line being unknown an assessment would be required to know if the line is suitable for operation (CPE, 2012).

### Alternative I

Alternative I would have a significant adverse impact to the infrastructure and utilities. Alternative I calls for the denial of restoration of the transmission agreement. If water is no longer supplied to the west end users, the west end would not have suitable habitat for residents. Therefore, the infrastructure and utilities would be determined to be inadequate to provide habitable living environments in the west end.

## Alternative II

Alternative II is expected to have no impact on the infrastructure and utilities in or around the project area. Alternative II proposes the use of the existing MIS to transport water from Well 17 to the west side of Moloka'i. Currently the system transports approximately 2.5 to 4.5 mgd. All of the users of the MIS combined, including what is transmitted by MPL, utilize only 21.4% of the system's capacity. Kualapu'u Reservoir has a capacity of 1,400 million gallons, and can rise to an elevation up to 54 ft, but has never been over 30 ft. At 22 million gallons per ft of the 54-ft deep reservoir, MPL would only be using excess capacity in the reservoir. An analysis of the existing MIS was performed to ensure the system can accommodate the allocated flow from MPL's Well 17 (CPE, 2012), and therefore, this existing infrastructure was determined to be adequate in providing the necessary water to the west end.

## Alternative IIIA

Alternative IIIA is also expected to have no impact on the infrastructure and utilities. Alternative IIIA is the development of a transmission main to facilitate water from Well 17 in Kualapu'u to Pu'u Nānā Reservoir through DHHL properties. Once complete, the infrastructure and utilities will adequately provide necessary water to the west end.

An infrastructure analysis was performed based on Warren S. Unemori Engineering, Inc. and Tom Nance Water Resource Engineering's design plans. The design plans consider a 12-in transmission line through DHHL property from Well 17 to Pu'u Nānā and improvements at the site of Well 17. The overflow elevation of the two existing Well 17 reservoirs is 1,000 ft and the elevation of the reservoir at Pu'u Nānā is approximately 1,380 ft creating an elevation head of 380 ft. The 12-inch transmission main will travel over 53,580 ft with losses in the system equating 92.73 ft. The water is boosted by an 875 gallon per minute (gpm), 300 horse power (HP) pump. The construction of a second pump in parallel would need to be constructed as a reserve. At 875 gpm the booster pump has the capacity to pump the allocated 707 gpm from Well 17. The 300 HP pump will have sufficient horse power to boost the water through the 12-in diameter transmission line and the elevation difference between the two reservoirs. The analysis for this alternative verified the design of the transmission system through DHHL property was sufficient and could provide the necessary water to the west end of Moloka'i. Although portions of the design of this alternative were previously constructed by MPL the condition of the constructed portion is currently unknown. Therefore, Alternative IIIA considers the construction of an entirely new system and replacing the water lines that were previously constructed (CPE, 2012). A slight beneficial impact might be observed in that older infrastructure will be replaced with a new infrastructure which may require less maintenance and upkeep.

## Alternative IIIB

Alternative IIIB is also expected to have no impact on the infrastructure and utilities. Alternative IIIB is the development of a transmission main to facilitate water from Well 17 in Kualapu'u to Pu'u Nānā Reservoir around the DHHL lands. Once complete, the infrastructure and utilities will adequately provide necessary water to the west end.

An infrastructure analysis was performed based on Warren S. Unemori Engineering, Inc. and Tom Nance Water Resource Engineering's design plans. Similar to Alternative II the overflow elevation of the two existing Well 17 reservoirs is 1,000 ft and the elevation of the reservoir at Pu'u Nānā is approximately 1,380 ft creating an elevation head of 380 ft. Traveling an additional 7,790 ft around DHHL property the 12-in transmission main will travel a total 60,670 ft with an equivalent loss in the system totaling 105 ft. The water is boosted by an 875 gpm, 300 HP pump, with a second identical pump in parallel as a reserve. At 875 gpm the booster pump has the capacity to pump the allocated 707 gpm from Well 17. The 300 HP pump will have sufficient horse power to boost the water through the 12-in diameter transmission line around DHHL property and the elevation difference between the two reservoirs. The analysis for this

alternative verified the design of the transmission system around DHHL property was sufficient and could provide the necessary water to the west end of Moloka'i (CPE, 2012).

A portion of the previously constructed 12-in transmission line by MPL could be of use for this alternative; however the condition of the constructed portion is unknown. Therefore, Alternative IIIB considers the construction of an entirely new system and replacing the water lines that were previously constructed. As with Alternative IIIA, a slight beneficial impact might be observed in that older infrastructure will be replaced with a new infrastructure which may require less maintenance and upkeep.

#### Alternative IIIC

Alternative IIIC is also expected to have no impact on the infrastructure and utilities. Alternative IIIC is the development of a desalination plant and two wells on the west end which would allow for a local water source to support the surrounding area. Under Alternative IIIC, it is assumed that the newly constructed wells and desalination plant will be able to adequately provide necessary water to the west end. There are multiple desalination technologies including electrodialysis, reverse osmosis and thermal evaporation. In order to select an appropriate desalination process, factors such as the salt content and quality of the initial water, quality of water produced, quantity of water needed and site specific conditions must be taken into consideration. Additional analysis would be required to confirm the quality of the brackish water available from the wells, and develop a suitable desalination process. For the purposes of this analysis, it is assumed that sufficient desalination could be performed and the infrastructure and utilities system would be deemed adequate for the west end of Moloka'i

In addition to the water utility requirements, all desalination processes require large amounts of energy for operation. It is assumed the energy for operating the desalination process would be available, however additional infrastructure may be required if the energy for desalination could not be provided. It is also assumed that the cost for the energy used will be absorbed by the end consumer by increasing consumer water rates. This is also considered a significant adverse effect.

## **SECTION 5 RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS**

The purpose of Section 5 is to identify plans and policies that may be applicable to this project and summarize the relationship of the plans and policies to project actions. Additionally, the intent is to revisit these plans and policies to qualify any significant effects from actions proposed in this EA.

### **5.1 State Land Use Plans and Policies**

*State of Hawai‘i*

#### **Chapter 343 HRS**

Compliance with Chapter 343, HRS is required as previously described in Section 2.1 Purpose and Need.

**§343-5 Applicability and requirements.** *(a) Except as otherwise provided, an environmental assessment shall be required for actions that:*

- (1) Propose the use of the state or county lands or the use of state or county funds, other than funds to be used for feasibility or planning studies for possible future programs or projects that the agency has not approved, adopted, or funded, or funds to be used for the acquisition of unimproved real property; provided that the agency shall consider environmental factors and available alternatives in its feasibility or planning studies; provided further that an environmental assessment for proposed uses under section [205-2(d)(10)] or [205-4.5(a)(13)] shall only be required pursuant to section 205-5(b).*

#### Discussion:

The current project area includes DHHL, MPL and State lands associated with the MIS. Alternatives proposed address the issue of routing the MIS along private lands owned by MPL, DHHL lands and State Lands. Environmental factors associated with the use of the current MIS and the proposed MIS are addressed throughout the text of this Draft EA. The Archaeological Assessment addresses Chapter 343 Section 6E.

#### **State Land Use Law Chapter 205, HRS**

Chapter 205, HRS promulgates the State Land Use Law. This law is intended to preserve, protect, and encourage the development of lands in the State of Hawai‘i for uses that are best suited to the public health and welfare of its people. The LUC classifies all land into four districts: Urban, Conservation, Agriculture, and Rural. Most of the project area is designated within the State Agricultural District which is situated within the State’s Urban Land Use District. DHHL lands are exempt from land classification requirements for homestead development, thus no district boundary amendment will be necessary for the proposed project.

**§205-5(b)** *Within agricultural districts, uses compatible to the activities described in section 205-2 as determined by the commission shall be permitted; provided that accessory agricultural uses and services described in sections 205-2 and 205-4.5 may be further defined by each county by zoning ordinance. Each county shall adopt ordinances setting forth procedures and requirements, including provisions for enforcement, penalties, and administrative oversight, for the review and permitting of agricultural tourism uses and activities as an accessory use on a working farm, or farming operation as defined in section 165-2; provided that agricultural tourism activities shall not be permissible in the absence of a bona fide farming operation. Ordinances shall include but not be limited to:*

- (1) Requirements for access to a farm, including road width, road surface and parking;*

- (2) *Requirements and restrictions for accessory facilities connected with the farming operation, including gift shops and restaurants; provided that overnight accommodations shall not be permitted;*
- (3) *Activities that may be offered by the farming operation for visitors;*
- (4) *Days and hours of operation; and*
- (5) *Automatic termination of the accessory use upon the cessation of the farming operation.*

*Each county may require an environmental assessment under Chapter 343 as a condition to any agricultural tourism use and activity. Other uses may be allowed by special permits issued pursuant to this chapter...*

**§205-5(c)** *Unless authorized by special permit issued pursuant to this chapter, only the following uses shall be permitted within rural districts:*

- (1) *Low density residential uses;*
- (2) *Agricultural uses;*
- (3) *Golf courses, golf driving ranges, and golf-related facilities; and*
- (4) *Public, quasi-public, and public utility facilities.*

**Discussion:**

The MIS used for irrigation and domestic purposes to facilitate residential and commercial services on the west end of the island of Moloka'i. The continued use of the MIS will be for similar purposes. Installation of any of proposed alternatives would also be used for similar purposes.

**Hawai'i State Plan Chapter 226, HRS**

The Hawai'i State Plan, Chapter 226, HRS was developed as a guideline for the future growth of the State of Hawai'i. The State Plan identifies goals, objectives, policies, and priorities for the development and growth of the State. It provides a basis for prioritizing and allocating the limited resources such as public funds, services, human resources, land, energy, and water. The State Plan establishes a system for the formulation and program coordination of State and County plans, policies, programs, projects, and regulatory activities. The State Plan also facilitates the integration of all major State and County activities.

The proposed project would be in conformance with the State Plan's objectives and policies for socio-cultural advancement of the Hawaiian people. The proposed project will allow for continued use of the MIS for facilitating groundwater to residential lands.

**§226-7 Objectives and policies for the economy-agriculture.**

State's economy with regard to agriculture shall be directed towards achievement of the following objectives:

- (b) To achieve the agriculture objectives, it shall be the policy of the State to:
  - (2) Encourage agriculture by making best use of natural resources.
  - (10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.

**Discussion:**

Water supply from Well 17 is adequate for facilitating current domestic uses for MPL lands. Kualapu'u Reservoir allows for Well 17 water to be stored in case of an emergency and is available as a back up should drought occur. The MIS is currently at approximately 21% capacity and can facilitate another 78% water volume to be transported to various locations as needed. Adapting the MIS to accommodate increased use is expected as development occurs.

#### **§226-16 Objectives and policies for facilities systems-water.**

(b) To achieve the facility systems water objective, it shall be the policy of the State to:

- (1) Coordinate development of land use activities with existing and potential water supply.
- (5) Support water supply services to areas experiencing critical water problems.

##### Discussion:

Current water uses include the use of Well 17 water distributed by the MIS. Water is facilitated to the west end users from the treatment facility at Pu'u Nānā. Kualapu'u Reservoir allows for Well 17 water to be stored in case of an emergency and is available as a back up should drought occur. This backup water is for use during drought periods.

#### **§226-25 Objective and policies for socio-cultural advancement-culture**

(b) To achieve the culture objective, it shall be the policy of the State to:

- (1) Foster increased knowledge and understanding of Hawai'i's ethnic and cultural heritages and the history of Hawai'i.
- (2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai'i's people and which are sensitive and responsive to family and community needs.

##### Discussion:

Current use of the MIS facilitates agriculture that has been initially developed within the last century and continues to grow. Because agriculture has been practiced for a long period of time here, Native Hawaiians practice these activities as a way of life valuable to meeting the needs of their families and community members.

#### **HRS**

**§174C-101 Native Hawaiian water rights.** (a) Provisions of this chapter shall not be construed to amend or modify rights or entitlements to water as provided for by the Hawaiian Homes Commission Act, 1920, as amended, and by Chapters 167 and 168, relating to the MIS. 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 homelands as set forth in section 221 of the Hawaiian Homes Commission Act.

(b) No provision of this chapter shall diminish or extinguish trust revenues derived from existing water licenses unless compensation is made.

(c) Traditional and customary rights of ahupua'a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, shall not be abridged or denied by this chapter. Such traditional and customary rights shall include, but not be 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.

(d) The appurtenant water rights of kuleana and taro lands, along with those traditional and customary rights assured in this section, shall not be diminished or extinguished by a failure to apply for or to receive a permit under this chapter. [L 1987, c 45, pt of §2; am L 1991, c 325, §8]

Discussion: "In the Wai Ola case, the HSC held that the Water Commission has a public trust duty to protect a reservation of water for DHHL's future needs. Protecting such a reservation means not only subtracting the amount of the reservation from the available sustainable yield of the aquifer, but also assuring that other water developments do not otherwise jeopardize DHHL's ability to access the reserved water in the future, (MPL, 2008). On page 24 of the Appendix U of the La'au Point EIS, number five: *Consistency with Traditional and Customary Native Hawaiian Rights* states, "In issuing the permit for withdrawal of 1.018 mgd from Well 17, the Water Commission must have already determined that traditional and customary native Hawaiian rights would not be unduly impacted," (MPL, 2008).

## **HAR, Title 11, DOH, Chapter 54, Water Quality Standards**

### **§11-54-1.1 General policy of water quality antidegradation**

- (a) Existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

### **Coastal Zone Management (CZM) Program**

The CZM Program is promulgated by Chapter 205A, HRS. The objectives and policies of the program are administered by the Office of State Planning. Through the CZM Program, each County is required to establish Special Management Areas (SMAs) and shoreline setbacks within which permits are required for development (see Section 5.2 below).

#### **5.2 County Land Use Plans and Policies**

##### *County of Maui 2030 General Plan (Countywide Policy Plan)*

The General Plan for the County of Maui is a policy document that provides broad goals, objectives, policies, and implementing actions that portray the desired direction of the County's future. This includes: (1) a vision statement and core values for the County to the year 2030; (2) an explanation of the plan making process; (3) a description and background information regarding Maui County today; (4) identification of guiding principles; and (5) a list of countywide goals, objectives, policies, and implementing actions related to the following core themes (Countywide Policy Plan (CPP), 2010).

##### *Moloka'i Community Plan – County of Maui, 2001*

The community plan provides specific direction to address goals, objectives and policies discussed in the County's General Plan.

#### **5.3 Other Relevant Plans and Policies**

### **DHHL**

#### Island of Moloka'i Regional Plan April 2010

The regional plan is developed by the lessees and stakeholders of the lands. The plan compiles planning meetings, issue and opportunities and addresses these with potential projects, budget estimates, and planning information.

#### Moloka'i Island Plan June 2005

This plan provides recommendations for future use of 25,899 acres with specific areas for priority homestead development. This plan began with DHHL General Plan for developing responsible uses of these lands.

#### **5.4 Necessary Permits and Approvals**

Several permits and approvals will be required for the implementation of the project (Munekio Hiraga, Inc., 2012). They are listed here under their granting agencies.

##### State of Hawai'i

###### **HDOA**

- Agreement of continuation of MIS use
- Approval of the chosen alternative for this EA

###### **Commission on Water Resources Management**

- Groundwater use permit (to be initiated upon FONSI for this EA and an issued agreement for use of the MIS)

Clean Water Branch, DOH

- National Pollution Discharge Elimination Systems Permit

Indoor and Radiological Health Branch, DOH

- Noise Permit

Department of Public Works, County of Maui

- Construction Permits (Grubbing and Grading)



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## **SECTION 6 FINDINGS AND DETERMINATIONS**

In accordance with the provisions set forth in Chapter 343, HRS, this Draft EA has preliminarily determined that the project will not have significant adverse impacts on the environment. As such, a FONSI is anticipated for Alternative II, the Proposed Action. Anticipated impacts will be temporary and will not adversely impact the environmental quality of the area. Therefore, it is recommended that an EIS not be required.

A review of the “Significance Criteria” used as a basis for the above determination is presented below. An action is determined to have a significant impact on the environment if it meets any one of the thirteen (13) criteria.

**(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources.**

Alternative II, the Proposed Action, will not provide irrevocable commitment to loss or the destruction of any natural or cultural resources. Operation of the MIS would continue as it is presently operating using existing pipelines. No new construction is proposed.

**(2) Curtails the range of beneficial uses of the environment.**

Alternative II will not curtail the range of beneficial uses of the environment. All properties proposed for this project are currently undeveloped vacant lands. Many of the surrounding areas are maintained as agricultural lands and parks.

**(3) Conflicts with the State’s long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;**

Alternative II would be in conformance with the Chapter 343, HRS, State Environmental Policy, to enhance the quality of life. It is the long-term goal of the project to foster a Hawaiian lifestyle. The neighborhood that would result from this project would reflect the culture and values of the past Hawaiian communities.

**(4) Substantially affects the economic or social welfare of the community or state;**

Alternative II does not have significant effects on the economic or social welfare of the community or the state. The proposed revenue-generating uses from continued water supply (i.e., reopening of the Kaluako‘i Resort and Golf Course) would provide a long-term benefit to the local economy.

**(5) Substantially affects public health;**

Alternative II will have beneficial effects on public health as water of adequate quality, in conformance with DOH Water Quality Standards, will continue to be provided to residents and businesses located in west Moloka‘i.

**(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;**

Alternative II will likely not result in substantial secondary impacts, such as population changes or effects on public facilities.

**(7) Involves a substantial degradation of environmental quality;**

Alternative II is not likely to result in a substantial degradation of environmental quality. All infrastructure is presently in place. No construction will be required.

**(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;**

Alternative II is not anticipated to result in cumulative effects; therefore, it would not involve a commitment to larger actions.

**(9) Substantially affects a rare, threatened or endangered species or its habitat;**

Alternative II is not anticipated to have substantial effects on a rare, threatened, or endangered species, or any critical habitat. The critical habitat map indicates locations of sensitive areas. The locations of these areas do not overlap with the Proposed Action.

**(10) Detrimentially affects air or water quality or ambient noise levels;**

No significant impacts on the area's long-term air or water quality or ambient noise levels are anticipated to result from Alternative II.

**(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters;**

Alternative II will not affect or be affected by environmentally sensitive areas, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.

**(12) Substantially affects scenic vistas and view planes identified in County or State plans or studies;**

Alternative II will not affect the visual aesthetics of the areas identified in the County or State plans and studies. No new construction is proposed. Current conditions of the areas surrounding the MIS will remain the same.

**(13) Requires substantial energy consumption.**

Alternative II will not require substantial energy consumption relative to other similar projects..

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## SECTION 8 AGENCIES AND ORGANIZATIONS CONSULTED

	Consulted Agency or Group	Response Received
<b>Federal Agencies</b>	U.S. Army Corps of Engineers	✓
	U.S. Fish and Wildlife Service	
	U.S. Geological Survey	✓
	U.S. National Park Service	✓
	USDA Natural Resources Conservation Service	
	U.S. EPA Region 9	
<b>State Agencies</b>	Office of Environmental Quality Control	✓
	Hawaii Department of Agriculture	✓
	Office of Hawaiian Affairs - Honolulu	
	Office of Hawaiian Affairs - Molokai	
	SOH Department of Business, Economic Development and	
	SOH Department of Defense	✓
	SOH Department of Hawaiian Homelands	
	SOH Department of Land and Natural Resources	✓
	SOH Department of Transportation	✓
	SOH of BEDT-Strategic Industries Division (Energy Division)	
	SOH Office of Planning	
	SOH Department of Education	
	SOH Department of Health	✓
	SOH Department of Human Services	✓
	SOH Department of Accounting and General Services	
	University of Hawaii Environmental Center	
<b>County of Maui</b>	Public Utilities Commission	
	Department of Environmental Management	✓
	Department of Fire and Public Safety	
	Department of Housing and Human Concerns	✓
	Department of Parks and Recreation	✓
	Department of Planning	
	Department of Transportation	
	Department of Water Supply	✓
	Police Department	
<b>Libraries</b>	Department of Public Works	✓
	State Library	
	University of Hawaii Hamilton Library	
<b>Media</b>	Molokai Public Library	
	Honolulu Star Advertiser	
<b>Utility Companies</b>	Molokai Dispatch	
	Maui Electric Company	✓
	Hawaiian Telecom	
<b>Elected Officials</b>	The Gas Company - Molokai	
	U.S. Senator	
	U.S. Senator	
	U.S. Representative	
	State Senator	
	State Representative	
<b>Individuals and Groups</b>	County Council Member	
	Sierra Club, Hawaii Chapter	
	Native Hawaii Legal Corporation	
	Hui Malama Learning Center	
	University of Hawaii, Professor of Ethnic Studies	✓
	Molokai Irrigation System Advisory Board	✓
	Ho'olehua Homestead Association	
	MIS Advisory Board	✓
	Molokai Planning Commission	
	Papohaku Homeowners Association	✓



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**APPENDIX A**

DEPUTY ATTORNEY GENERAL LETTER,

DATED SEPTEMBER 4, 2007

AND

STAR BULLETIN ARTICLE,

DATED SEPTEMBER 7, 2007

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LINDA LINGLE  
GOVERNOR



MARK J. BENNETT  
ATTORNEY GENERAL

LISA M. GINOZA  
FIRST DEPUTY ATTORNEY GENERAL

STATE OF HAWAII  
DEPARTMENT OF THE ATTORNEY GENERAL  
425 QUEEN STREET  
HONOLULU, HAWAII 96813  
(808) 588-1180  
(808) 588-1205 (fax)

September 4, 2007

Alan T. Murakami, Esq.  
Native Hawaiian Legal Corporation  
1164 Bishop Street, Suite 1205  
Honolulu, Hawaii 96813

Dear Mr. Murakami:

Re: Proposed Use of Molokai Irrigation System

As we briefly discussed over the phone, your letter dated July 9, 2007 has been forwarded to this office for review. Thank you for granting us this extension of time within which to reply.

We have reviewed the authorities cited in your letter. We have also reviewed the decision in Sierra Club v. Dept. of Transportation, State of Hawaii, et al., filed on Friday, August 31, 2007. While we may not agree with all of your legal analyses in reaching your conclusion, we agree that Chapter 343, Hawaii Revised Statutes, is triggered in the matter of the Molokai Irrigation System pipeline agreement. The Hawaii Department of Agriculture has already been apprised of our opinion on this matter.

Accordingly, we will be advising the Department of Agriculture on the procedures to be followed, and of all notices which must be given, throughout the process. We look forward to your and your clients' participation and input in this process. In the meantime, we will be assisting the HDOA in getting Molokai Properties off the system as quickly as possible, until all environmental effects, if any, are sufficiently and properly addressed.

If there are any further legal matters to discuss concerning the State's administration and operation of the Molokai Irrigation System, please feel free to contact me.

Very truly yours,

A handwritten signature in black ink, appearing to read "Myra M. Kaichi", is written over a horizontal line.

Myra M. Kaichi  
Deputy Attorney General

cc: Sandra Lee Kunimoto



## Superferry fallout

The state cites the Alakai case in requiring an environmental review of a Molokai water project

» [Superferry ruling could rest on time limit](#)

### STORY SUMMARY »

In the latest fallout from a Hawaii Supreme Court decision, a Molokai water project is being asked to have an environmental study before renewing a contract.

Molokai Ranch, also known as Molokai Properties, wants to continue to use a state-run irrigation system to transport its drinking water to the west end of the Friendly Isle.

But Deputy Attorney General Myra Kaichi, citing the Supreme Court's Aug. 31 decision on the Superferry, has issued an opinion saying an environmental study is needed to assess its effects.

Kaichi also said the ranch should get off the state-run irrigation system until it completes an environmental study.

The ranch is the main provider of drinking water to western Molokai.

First Deputy Attorney General Lisa Ginoza said she is worried about the Supreme Court's decision and its potential impact on future projects.

Superferry officials said their project is in jeopardy as a result of the court's decision requiring an environmental assessment.

Ginoza said the attorney general's office is looking at asking the Supreme Court to reconsider parts of its decision.

### FULL STORY »

By Gary T. Kubota  
[gkubota@starbulletin.com](mailto:gkubota@starbulletin.com)

WAILUKU » A resort owner has been told to stop using a state-run system to transport drinking water to western Molokai until it

### NO WATER

*A deputy attorney general says more than 1 million gallons of water a day should not continue to go to the industrial park at Palauea, the Kaluakoi resort and Maunaloa until an environmental study is done.*



### Inside | Sept. 7

#### Hawaii News

- » Superferry fallout hits Molokai Ranch
- » Superferry ruling could rest on time limit
- » Van theft puts hurt on disabled boy, 10
- » Lightning bolts struck as storms got stronger
- » Bridge might be razed, replaced
- » Pilot project causes concern in Hawaii Kai
- » University settles with exiled professor
- » W. Oahu freshmen help UH enrollment grow
- » Services set for ex-mayor of Kauai
- » Newswatch, Police/Fire
- » Ocean Watch
- » Corky's Hawaii
- » Photo Finish
- » Island Images
- » Obituaries
- » Corrections
- » Weather

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- » 5-for-1 musical special at MVT
- » Aloha Festivals kick off this weekend
- » 'The Pajama Game' is light, fluffy
- » HGTV's design star born in Waikiki
- » At The Movies
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- » Our Picks
- » In the Mix
- » Island Mele
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- » Crawlspace

#### Sports

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- » Wahine wake up and defeat Eagles
- » Junior linebacker wants to start for USC
- » Baldwin sings California blues
- » Intense football rivalry continues tonight
- » Leuenberger's leniency

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completes an environmental study.

Deputy Attorney General Myra Kaichi said Tuesday in an opinion that Molokai Ranch should get off the Molokai Irrigation System "as quickly as possible" -- citing the Aug. 31 decision by the Hawaii Supreme Court requiring the state to provide an environmental assessment of the impact of the Hawaii Superferry at Kahului Harbor on Maui.

The court ruled that state transportation officials were incorrect in exempting the Superferry from an environmental assessment, noting state law requires such a study whenever state property is used and there is a potential for significant environmental impact.

In a telephone interview yesterday, Kaichi said that after analyzing the Supreme Court decision, she decided an environmental study was required before a new contract could be issued to the ranch to use the state-run system.

Molokai Ranch has used the state-run irrigation system to transport water from central Molokai under an agreement issued by the state in the mid-1970s.

More than 1 million gallons a day has been allocated to go to the industrial park at Palauea, the resort -- beach lots, condos and a golf course -- at Kaluakoi and Maunaloa Town, including the ranch's 22-room Lodge.

Asked what is meant by "as quickly as possible," Kaichi said, "I think the parties should get together and talk this through."

First Deputy Attorney General Lisa Ginoza said she had not seen Kaichi's opinion, but the court's decision was of "great concern" because of the potential effect it will have on a number of projects.

Ginoza said that while she believes the court's decision does not apply retroactively, the ruling could influence whether projects go forward because of the resources needed to do environmental assessments.

"It creates quite a bit of uncertainty," she said. "We do see some real challenges."

Ginoza said the attorney general's office was reviewing the court's decision and looking at whether to ask justices for a reconsideration of parts of their decision.

Critics, including a group of Hawaiian homesteaders, have argued that the ranch, also known as Molokai Properties, should have conducted an environmental study before it was issued the agreement.

State administrators in the 1970s said the contract was issued before laws requiring an environmental study took effect.

The agreement was originally for 20 years and has been given a number of extensions, the latest ending in April 2006.

Under the 1970s license, the ranch is required to put a little more than 1 million gallons a day into the irrigation system's pipeline.

The ranch is allowed to take out about the same amount after the water is transported several miles west.

Molokai Ranch President Peter Nicholas declined comment, pending a review of the opinion.

Hawaiian homesteader Glenn Teves said he felt the opinion was long overdue.

Teves said the Molokai Irrigation System, including the 1.4 billion-gallon Kualapuu reservoir, was built mainly to benefit Hawaiian

appeal heard

- » Sidelines
- » Hawaii Grown Notebook
- » Hawaii Beat
- » Scoreboard
- » TV & Radio

**Business**

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- » Nelnet to close Honolulu operation
- » TheBuzz
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**Editorial**

- » Weekly gas report needs improvement
- » Sovereignty poll results should be scrutinized
- » Corky's Editorial Cartoon
- » According to Joe
- » Letters

**Columns | Sept. 7**

**Corky's Hawaii**

Corky Trinidad

**Ocean Watch**

Susan Scott

**Photo Finish**

S-B Photographers

**Island Images**

S-B Photographers

**In the Mix**

Jason Genegabus

**Island Mele**

John Berger

**Sidelines**

Kalani Simpson

**TheBuzz**

Erika Engle

**Editorial Cartoon**

Corky Trinidad

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homesteaders and that two-thirds of the water was supposed to be set aside for them.

Teves said that under the current system of allocation, about 20 percent is set aside for Hawaiian homesteaders and 80 percent to other users.

Attorney Alan Murakami, representing some Hawaiian homesteaders, said an environmental study would improve accountability for the water use.

Murakami said a study would also help to assess the impact of Molokai Ranch's surface water diversions on ground water in central Molokai.

He said that in times of drought, Hawaiian homesteaders have been forced to cut back on their water use, while the resort has not.

State Deputy Agriculture Director Duane Okamoto said his department will be looking for guidance from the attorney general's office on how to comply with the opinion.

Okamoto said that at one time, Hawaiian homesteaders used about 80 percent of the water in the Molokai Irrigation System.

He said the usage decreased after homesteaders were prevented in the 1990s from engaging in third-party contracts renting their land to other farmers.

Okamoto said state agricultural officials have been meeting regularly with homesteaders to try to find a way to increase their participation as farmers.

"We'd certainly like to see more homesteaders farming," he said.

[BACK TO TOP](#)

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As featured on







**APPENDIX B**  
**MIS AGREEMENT**

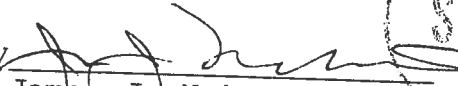
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CONSENT TO ASSIGNMENT AND ASSUMPTION OF  
AGREEMENT REGARDING MOLOKAI IRRIGATION SYSTEM

The STATE OF HAWAII, by its Board of Agriculture (the "STATE"), hereby consents to the Assignment and Assumption of Agreement Regarding Molokai Irrigation System made as of the 17<sup>th</sup> day of December, 2001 by and between Kukui (Molokai), Inc., a Hawaii corporation, and Kaluakoi Water, LLC, a Hawaii limited company, upon the express and continuing conditions that should there be any conflict between the terms of the MIS Agreement and the terms of the Assignment and Assumption of Agreement Regarding Molokai Irrigation System, the MIS Agreement shall control, that except as provided herein, this consent shall not waive any of the terms, covenants, and conditions of the MIS Agreement, that no further assignment of the MIS Agreement shall be made without prior written consent of the Board of Agriculture, and that all rights of the STATE under the MIS Agreement are hereby expressly reserved.

Dated: FEB 19 2002

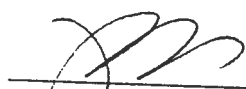
STATE OF HAWAII, by its  
BOARD OF AGRICULTURE

By   
James J. Nakatani  
Chairperson of the  
Board of Agriculture



Approved by the Board of  
Agriculture at its meeting  
held on January 31, 2002

Approved as to form:

  
Deputy Attorney General



CONFIDENTIAL

LAND COURT

REGULAR SYSTEM

AFTER RECORDATION, RETURN BY MAIL (X) PICK UP. ( )

Kukui (Molokai), Inc.

P.O. Box 26

Maunaloa, Molokai, Hawaii 96770

**SECOND AMENDMENT TO  
MOLOKAI IRRIGATION SYSTEM AGREEMENT**

THIS SECOND AMENDMENT TO MOLOKAI IRRIGATION SYSTEM AGREEMENT, is made and entered into this 29<sup>th</sup> day of December, 1995, by and between the STATE OF HAWAII, by its Department of Agriculture, hereinafter called the "STATE", and KUKUI (MOLOKAI), INC., a Hawaii corporation, whose principal place of business is Kaluakoi, Molokai, Hawaii and post office address is P.O. Box 26, Maunaloa, Molokai, Hawaii 96770, hereinafter called "KMI".

**WITNESSETH:**

WHEREAS, the State of Hawaii, through its Board of Land and Natural Resources (the "BLNR"), and Kaluakoi Corporation ("Kaluakoi") entered into an Agreement dated July 11, 1975, recorded in the Bureau of Conveyances of the State of Hawaii in Liber 10785, at Page 474, as amended by those certain unrecorded letters of understanding dated August 28, 1985 and September 9, 1985, hereinafter called the "Agreement", concerning the use of the Molokai Irrigation System by Kaluakoi; and,

WHEREAS, Kaluakoi assigned its interest in and to said Agreement to KMI by instrument dated January 8, 1988, and the BLNR on behalf of the State of Hawaii executed its consent thereto by instrument of the same date; and,

WHEREAS, Act 306, 1987 Hawaii Session Laws, transferred the Molokai Irrigation System from BLNR to the Department of Agriculture effective July 1, 1989, along with all

rights, powers, functions and duties, including all contracts held by BLNR relating to the transferred functions; and,

WHEREAS, by Amendment to Molokai Irrigation System Agreement dated December 20, 1989, recorded in said Bureau of Conveyances as Document No. 90-040299, the STATE and KMI further amended the Agreement to reflect the statutory transfer of BLNR's rights and responsibilities under the Agreement to the Board of Agriculture; and,

WHEREAS, KMI has requested a five-year extension in the term of the Agreement from January 1, 1996, to and including December 31, 2000, as well as an option for early termination or further extension depending on the status of completion of KMI's new water pipeline; and

WHEREAS, STATE is agreeable to the requested extension and option upon the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the premises and other good and valuable consideration the receipt whereof is hereby acknowledged, STATE and KMI do hereby mutually agree to amend the Agreement in the following respects:

1. The term of the Agreement is hereby extended under the same terms and conditions as contained in the existing July 11, 1975 agreement, as amended by the December 20, 1989 amendment, for an additional term of five (5) years from January 1, 1996, to and including December 31, 2000, subject to the options granted to KMI hereinbelow for early termination and/or a further extension.

2. Section 1, Definitions, of the Agreement is hereby amended by the addition of the following new subsection j:

"j. The term "KMI" as used herein shall mean Kukui (Molokai), Inc., a Hawaii corporation, and for all purposes herein from and after January 8, 1988, whenever the word "Kaluakoi" appears in the body of the Agreement the term "KMI" shall be substituted in place thereof."

3. Option for Earlier Termination. STATE recognizes that KMI shall construct an alternative water pipeline from its Well No. 17 to the Mahana pump station to provide domestic and irrigation water to the lands owned or controlled by KMI on the west end of Molokai. Upon completion of the alternative water pipeline, KMI may terminate this Agreement and its use of the Molokai Irrigation System upon not less than thirty (30) days prior written notice to the STATE.

4. Option to Further Extend Term of Agreement. In the event that KMI has not been able to complete construction of its alternative water pipeline from its Well No. 17 to the

Mahana pump station by December 31, 1999, then and in such event KMI shall have the right and option at any time by written notice to STATE between January 1, 2000 and June 30, 2000 to extend the term of this Agreement for an additional term of five (5) years from January 1, 2001, to and including December 31, 2005, upon the same terms and conditions as contained in the existing July 11, 1975 agreement, as amended by the December 20, 1989 amendment.

5. Periodic Reports on Construction Status. Commencing on July 1, 1995, and on July 1 of each year thereafter, KMI shall provide the STATE with a written status report on the progress of construction of KMI's alternative water pipeline from Well No. 17 to the Mahana pump station, including the status of any third-party approvals, permits, actions or litigation which may affect or delay the completion of the construction of the alternative water pipeline by KMI.


The Agreement and all of its terms and conditions, as hereby amended, are hereby ratified and confirmed and shall bind and inure to the benefit of the STATE and KMI, and their respective successors and permitted assigns.

IN WITNESS WHEREOF, KMI and the State of Hawaii, by its Chairperson of the Board of Agriculture, who has caused the seal of the Department of Agriculture to be affixed hereto, have executed this Second Amendment to Molokai Irrigation System Agreement as of the day and year first above written.

APPROVED AS TO FORM:

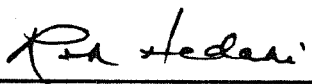
Hauvoni Burns  
Deputy Attorney General

STATE OF HAWAII, by its  
DEPARTMENT OF AGRICULTURE

By   
JAMES J. NAKATANI  
Chairperson, Board of Agriculture

"STATE"

KUKUI (MOLOKAI), INC.

By   
Ron Hedani  
Its Senior Vice President

"KMI"



STATE OF HAWAII

)

) ss.

CITY AND COUNTY OF HONOLULU

)

On this 29<sup>th</sup> day of December, 1999, before me appeared JAMES J. NAKATANI, to me personally known, who, being by me duly sworn, did say that he is the Chairperson of the DEPARTMENT OF AGRICULTURE, STATE OF HAWAII, and that the seal affixed to said instrument is the seal of said DEPARTMENT OF AGRICULTURE and that the foregoing instrument was signed and sealed in behalf of said DEPARTMENT OF AGRICULTURE by authority of its Board, and said JAMES J. NAKATANI acknowledged said instrument to be the free act and deed of said DEPARTMENT OF AGRICULTURE, STATE OF HAWAII.

L.S.

J. F. Batula  
Notary Public, State of Hawaii

My commission expires 12/21/98

STATE OF HAWAII

)

) ss.

CITY AND COUNTY OF HONOLULU

)

On this 15th day of December, 1995, before me appeared RON HEDANI, to me personally known, who, being by me duly sworn, did say that he is the Senior Vice President of KUKUI (MOLOKAI), INC., a Hawaii corporation; that said instrument was signed in behalf of said corporation by authority of its Board of Directors; and said RON HEDANI acknowledged said instrument to be the free act and deed of said corporation.

Ron Hedani  
Notary Public, State of Hawaii

My commission expires

9/24/98

THE ORIGINAL OF THIS DOCUMENT  
RECORDED AS FOLLOWS:  
STATE OF HAWAII

BUREAU OF CONVEYANCES

DATE MAR 21 1990 TIME 2:36p  
DOCUMENT NO. 90-040299

After Recordation Return By: Mail (X) Pickup ( ) To:

State of Hawaii  
Department of Agriculture  
Div. of Agricultural Resource Management  
P. O. Box 22159  
Honolulu, Hawaii 96822-0159

RECORDATION REQUESTED BY:

AFTER RECORDATION, RETURN TO:

RETURN BY: MAIL ( ) PICKUP ( )

---

AMENDMENT TO  
MOLOKAI IRRIGATION SYSTEM AGREEMENT

THIS AGREEMENT, made and entered into this 20<sup>th</sup> day of December, 1989, by and between the State of Hawaii by its Department of Agriculture, hereinafter called "STATE," and KUKUI (MOLOKAI), INC., a Hawaii corporation, hereinafter called "KUKUI (MOLOKAI)," having its principal place of business at 737 Bishop Street, Suite 2141, Honolulu, Hawaii, 96813.

WITNESSETH THAT

WHEREAS, the State of Hawaii, through its Board of Land and Natural Resources, hereinafter "BLNR," and Kaluakoi Corporation entered into an Agreement dated July 11, 1975, hereinafter "Agreement," concerning the use of the Molokai Irrigation System; and

WHEREAS, Kaluakoi Corporation assigned its interest in said Agreement to KUKUI (MOLOKAI) on January 8, 1988, and the

BLNR, on behalf of the State of Hawaii, executed its consent to the assignment the same date; and

WHEREAS, Act 306, 1987 Hawaii Session Laws, transferred the Molokai Irrigation System from the BLNR to the Board of Agriculture effective July 1, 1989, along with all rights, powers, functions and duties, including all contracts held by the BLNR relating to the transferred functions; and

WHEREAS, KUKUI (MOLOKAI) and the STATE desire to amend the Agreement to reflect the statutory transfer of BLNR's rights and responsibilities under the Agreement to the Board of Agriculture.

NOW, THEREFORE, it is mutually agreed by the STATE and KUKUI (MOLOKAI), that Section 1, Definitions, of the Agreement be amended in its entirety to read as follows:

"1. Definitions. As used herein, the following terms are construed as follows:

- a. The word "State" means the State of Hawaii.
- b. The word "Department" means the Department of Agriculture of the State of Hawaii acting under the administrative direction of the Board.
- c. The word "Board" means the Board of Agriculture of the State of Hawaii which is the governing body of the Department of Agriculture.
- d. The term "Chairperson" means the person holding the office of Chairperson of the Department of

Agriculture acting directly or through his or her authorized assistants.

- e. The term "Administrator-Chief Engineer" means the person holding the office of Administrator and Chief Engineer of the Division of Agricultural Resources Management of the Department of Agriculture.
- f. The word "Kaluakoi" means Kaluakoi Corporation, a Hawaii corporation.
- g. The term "Service Connection" means the tap type fittings and valves from the "main pipe" of the Molokai Irrigation System up to and including the meter. A service connection may be either an "injection" or a "withdrawal" connection.
- h. The term "Molokai Irrigation System" means the reservoirs, tunnels, pipelines, valves, pumps and controls and other elements comprising the irrigation system operated by the Department to serve the land situated on the Island of Molokai, Hawaii.
- i. The term "Kaluakoi Water System" means the pipelines, filtration facilities, reservoirs, valves, flow and pressure regulation devices, meters and all other elements comprising the

water system installed and operated by Kaluakoi or the County of Maui to provide domestic and irrigation water to the lands owned or controlled by Kaluakoi located on the west end of Molokai."

IT IS FURTHER AGREED that section 3 of the Agreement be amended to read as follows:

"This agreement shall be subject to the applicable provisions of the rules and regulations and any amendments thereto of the Department of Agriculture, State of Hawaii, governing irrigation water service to consumers of the Molokai Irrigation System which are now in force and which may hereinafter be in force."

Except as herein amended, all the terms and conditions of the Agreement shall remain in full force and effect,

IN WITNESS WHEREOF, the State of Hawaii, by its Chairperson of the Board of Agriculture, has caused the seal of the Department of Agriculture to be affixed hereto and this

Amendment to be duly executed as of the day and year first  
above written.

STATE OF HAWAII  
DEPARTMENT OF AGRICULTURE

By *Yukio Kitagawa*  
YUKIO KITAGAWA  
Chairperson, Board of  
Agriculture

KUKUI (MOLOKAI), INC.

By *Takashi Yoshioka*  
Its President  
TAKASHI YOSHIOKA

APPROVED AS TO FORM:

*Hauensni Burns*  
Deputy Attorney General

STATE OF HAWAII

CITY AND COUNTY OF HONOLULU

)  
) SS.  
)

On this 12th day of January, 1990<sup>90</sup> before  
me appeared Takashi Yoshioka, to me personally

known, who, being by me duly sworn, did say that he is the  
President of KUKUI (MOLOKAI) INC., a Hawaii

corporation; that the seal affixed to the foregoing instrument  
is the corporate seal of said corporation; that the foregoing  
instrument was signed and sealed in behalf of the corporation  
by authority of its Board of Directors; and that said person  
acknowledged the instrument to be the free act and deed of the  
corporation.

Katharine Y. Awaya L.S.  
Notary Public, First Circuit,  
State of Hawaii

My commission expires: 7-14-93





RECORDATION REQUESTED BY:

DEPT. OF LAND AND NATURAL RESOURCES  
LAND MANAGEMENT DIVISION

AFTER RECORDATION, RETURN TO:

DEPT. OF LAND AND NATURAL RESOURCES  
LAND MANAGEMENT DIVISION

THE ORIGINAL OF THE DOCUMENT  
RECORDED AS FOLLOWS:  
STATE OF HAWAII  
OFFICE OF

BUREAU OF CONVEYANCES

Received for record this 14<sup>th</sup>  
day of July, A.D., 1975  
at 2:19 o'clock P.M. and  
recorded in Liber 10785  
- Pages 474 - 485

RETURN BY: MAIL ( ) PICKUP (X)

AGREEMENT

THIS AGREEMENT, made and entered into this 11 day  
of July, 1975, between the STATE OF HAWAII by its Board  
of Land and Natural Resources, hereinafter called the "State", and  
KALUAKOI CORPORATION, a Hawaii corporation, hereinafter referred to  
as "Kaluakoi", having its principal place of business at Suite 901,  
745 Fort Street, Hawaii Building, Honolulu, Hawaii,

W I T N E S S E T H :

WHEREAS, the State owns and operates on the Island  
of Molokai the Molokai Irrigation System to serve water for  
agricultural and other incidental uses; and

WHEREAS, the State has within its existing Molokai Irriga-  
tion System an excess transmission capacity; and

WHEREAS, Kaluakoi desires to rent space within the  
pipeline and other water facilities of the Molokai Irrigation System  
in order to transmit water to its proposed resort and urban develop-  
ment at the west end of Molokai; and

WHEREAS, the water to be transmitted will be developed  
or purchased by Kaluakoi from source or sources of water separately  
of the existing Molokai Irrigation System; and

WHEREAS, the State will receive direct economic benefits from the rental of excess transmission capacity in the Molokai Irrigation System through payments by Kaluakoi and through the development of Kaluakoi's lands by virtue of the expansion of employment opportunities on Molokai and the increase in the tax base,

NOW, THEREFORE, in consideration of the premises and covenants contained herein, the State and Kaluakoi agree as follows:

1. Definitions. As used herein, the following terms are construed as follows:

- a. The word "State" means the State of Hawaii.
- b. The word "Department" means the Department of Land and Natural Resources of the State of Hawaii, a body corporate of the State of Hawaii acting under the administrative direction of the Board.
- c. The word "Board" means the Board of Land and Natural Resources of the State of Hawaii which is the governing body of the Department of Land and Natural Resources.
- d. The term "Chairman" means the person holding the office of Chairman of the Department of Land and Natural Resources acting directly or through his authorized assistants.
- e. The term "Manager-Chief Engineer" means the person holding the office of Manager-Chief Engineer of the Division of Water and Land Development of the Department of Land and Natural Resources.
- f. The word "Kaluakoi" means Kaluakoi Corporation, a Hawaii corporation.
- g. The term "Service Connection" means the tap type

fittings and valves from the "main pipe" of the Molokai Irrigation System up to and including the meter. A service connection may be either an "injection" or a "withdrawal" connection.

h. The term "Molokai Irrigation System" means the reservoirs, tunnels, pipelines, valves, pumps and controls and other elements comprising the irrigation system operated by the Department to serve the land situated on the Island of Molokai, Hawaii.

i. The term "Kaluakoi Water System" means the pipelines, filtration facilities, reservoirs, valves, flow and pressure regulation devices, meters and all other elements comprising the water system installed and operated by Kaluakoi or the County of Maui to provide domestic and irrigation water to the lands owned or controlled by Kaluakoi located on the west end of Molokai.

2. The State for and in consideration of the rent to be paid and of the terms, covenants and conditions on the part of Kaluakoi to be kept, observed and performed does hereby lease and rent to Kaluakoi, and Kaluakoi does hereby lease and rent from the State, the non-exclusive right and privilege to use the pipeline and other water facilities of the Molokai Irrigation System for the purpose of conveying Kaluakoi's water through the Molokai Irrigation System.

TO HAVE AND TO HOLD said right and privilege unto Kaluakoi for the term of twenty (20) years, commencing on the 1st day of January, 1976, up to and including the 31st day of December, 1995, unless sooner terminated as hereinafter provided, the Department reserving and Kaluakoi yielding and paying to the Department a net annual rental payable in advance without notice on demand, in twelve monthly installments as provided

hereinafter:

a. For and during the first ten (10) year period, beginning January 1, 1976, the net annual rental of FORTY-FIVE THOUSAND AND NO/100 DOLLARS (\$45,000.00) payable in equal monthly installments of THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS (\$3,750.00) on the first day of each month.

b. For and during each of the five (5) year periods next ensuing, the net annual rental of \$45,000.00 aforesaid shall be adjusted upward in accordance with the increases, if any, in the proportion that the rate for domestic water usage charge per thousand gallons effective in the County of Maui at the date of this contract shall bear to the rate for domestic water usage charge per thousand gallons effective in the County of Maui at the commencement date of each of the five (5) year periods, said net annual rental, as adjusted upward being payable in monthly installments of one-twelfth (1/12) thereof in advance as aforesaid.

3. This agreement shall be subject to the applicable provisions of the rules and regulations and any amendments thereto of the Division of Water and Land Development, Department of Land and Natural Resources, State of Hawaii, governing irrigation water service to consumers of the Molokai Irrigation System which are now in force and which may hereinafter be in force.

4. Service Connections. The State agrees to allow Kaluakoi two (2) service connections to the Molokai Irrigation System. One (1) of these service connections shall be for the purpose of injecting Kaluakoi's water into the Molokai Irrigation System and one (1) of these service connections shall be for the purpose of withdrawing water from the Molokai Irrigation System.

The location of said points of injection and withdrawal and any additional service connections that may be required shall be as agreed upon by the parties. All service connections shall be installed at the expense of Kaluakoi in accordance with plans approved by the Department and the Maui Board of Water Supply and will thereafter become the property of, and will be maintained by, the Department, the total cost of maintenance to be reimbursed by Kaluakoi within thirty (30) days after billing by the Department. Kaluakoi may provide for additional service connections with the written consent of the Manager-Chief Engineer.

5. Maximum Withdrawal Flow Rate. The State agrees to permit Kaluakoi to withdraw the equivalent of Kaluakoi's input into the State's system, less 10 per cent attributable to water system losses, up to a withdrawal flow rate of two (2) million gallons per day.

6. Unavoidable Interruption of Service. The State agrees to exercise reasonable diligence and care to maintain delivery of Kaluakoi's water to the point of withdrawal and to avoid interruptions in water service whenever possible, but the State will not be liable for any interruption, shortage of any loss or damage occasioned thereby.

7. Temporary Interruption of Service. The State reserves the right at any and all times to temporarily shut off the water from the mains with reasonable notice for the purpose of making repairs and alterations, or for other appropriate purposes.

8. Drought. In the event of drought or any emergency conditions, the State reserves the right to set priorities and

otherwise control the allocation of the water within the Molokai Irrigation System.

9. Installation of Booster Pump. When requested by the Board, Kaluakoi will increase the capacity of the pipelines in the system by installing a booster pump or by other means. The cost of the installation, operation, maintenance and replacement of the booster pump will be borne by Kaluakoi.

10. Limitation in Use. The State also reserves the right to limit or withdraw from Kaluakoi the right and privilege to the use of the pipeline and other water facilities of the Molokai Irrigation System at any time during the term of this agreement, upon giving Kaluakoi two (2) year prior written notice thereof, when the Board, or the County of Maui with the approval of the Board, determines that the capacity of the system is not sufficient to meet the needs of the public for agricultural purposes. Further, the State reserves the right to cancel this contract should Kaluakoi fail to construct the service connections within eighteen (18) months or commence monthly rental payments within three (3) months from January 1, 1976.

11. Alternate Pipeline System, Booster Pump. In the event that the State gives written notice to Kaluakoi of the withdrawal of the right and privilege to the use of the pipeline and other water facilities of the Molokai Irrigation System pursuant to paragraph 10, above, Kaluakoi shall construct, at the cost and expense of Kaluakoi, an alternate pipeline system to transmit water from an approved source for Kaluakoi's use and purpose.

In the event the Board requests that Kaluakoi increase the capacity of the pipelines in the system by installing a

booster pump or by other means pursuant to said paragraph 9, above, Kaluakoi shall, within one (1) year from the date of the request, install said booster pump or such other means as approved by the Board such that the capacity of the pipeline in the system will be increased by two (2) million gallons per day.

12. Compensation for System Losses. To compensate the State for water system losses, Kaluakoi agrees to inject into the Molokai Irrigation System, on a daily basis, a quantity of water equal to one hundred eleven and one-ninth per cent (111-1/9%) of the quantity withdrawn from the system.

13. Quantity Control. Kaluakoi agrees to install one meter for each service connection unless the State, because of operating necessity, requires the installation of two or more meters in parallel. In addition, Kaluakoi shall install a flow control valve in its withdrawal service connection. The Department will determine the location, size, and type of all meters and valves to be installed. The cost for purchasing and installing the meters shall be borne by Kaluakoi, which meters are to be considered as part of the service connection, by definition.

14. Quality Control (Chlorides). Kaluakoi shall install appropriate devices and shall establish procedures, to be approved by the Department, to monitor the chloride content of water injected into the Molokai Irrigation System. Kaluakoi agrees that the water injected into the Molokai Irrigation System shall be of such quality that it would be potable and suitable for use in a domestic water system. The drinking water standards as presently established by the Department of Health, State of Hawaii, shall be used to determine potability of the water and the water injected shall not be of a quality less than the existing quality of



water distributed by the system, unless otherwise approved by Manager-Chief Engineer and the Director of the Department of Water Supply of the County of Maui; provided, however, that the water from Well No. 17 (the Del Monte well) and water from any other source, the quality of which is not less than the quality of water from Well No. 17 as of the date of this contract, may be injected into the Molokai Irrigation System.

15. Quality Control (Other Properties). Kaluakoi further agrees to install appropriate devices and/or adopt appropriate procedures, to be approved by the Department, to monitor other physical, chemical and biological constituents of the injected water when required by the State. The Department reserves the right to limit or control any chemical, physical, or biological constituent of the injected water should it be found that an excessive concentration of such constituent is harmful to the Molokai Irrigation System's original function and purpose or that such concentration exceeds the standards for drinking water as established by the Department of Health, State of Hawaii.

16. Covenant Against Discrimination. The use and enjoyment of the rights and privileges conveyed by this agreement shall not be in support of any policy which discriminates against anyone based upon race, creed, color or national origin.

17. Indemnity. Kaluakoi shall indemnify and hold harmless the State, its officers, employees and agents from and against (1) any and all claims and demands for loss, personal injury, and/or liabilities, property damages and/or deaths arising or resulting from any act or omission of Kaluakoi in the exercise of its rights and privileges conveyed by this agreement, (2) all actions, suits and claims for damages brought about or made by

reason of the non-observance or non-performance by Kaluakoi of any of the terms, covenants and conditions herein, or the rules, regulation, ordinances and laws of the federal, state or county governments, and (3) all costs and expenses in connection with the defense of any of the aforementioned claims or demands.

18. Liability Insurance. That Kaluakoi shall procure, at its own cost and expense, and maintain during the entire period of this agreement, with an insurance company or companies acceptable to the Department, a policy or policies of comprehensive public liability insurance, in an amount of THREE MILLION AND NO/100 DOLLARS (\$3,000,000.00) insuring Kaluakoi and the State against all claims for personal injury, death and property damage. Kaluakoi shall furnish the Department with a certificate showing such policy to be initially in force and shall furnish a like certificate upon each renewal of such policy, each such certificate to contain or be accompanied by an assurance of the insurer to notify the Department of any intention to cancel any such policy prior to actual cancellation. The procuring of this policy shall not release or relieve Kaluakoi of its responsibility under this agreement as set forth herein or limit the amount of its liability under this agreement.

19. Assignment. Kaluakoi shall not transfer or assign this agreement or any right, privilege and obligation arising thereunder without the prior approval of the Board, except as provided herein. Kaluakoi may without further consent of the Department assign to the County of Maui all of Kaluakoi's rights and benefits under this agreement (but not the obligations for which Kaluakoi shall continue to be liable to observe and perform

for the term of the agreement) upon the following agreements and conditions:

a. Kaluakoi shall develop or provide a water source to an operational standard acceptable to the County of Maui and meeting the standards for drinking water as established by the Department of Health, State of Hawaii, and shall convey said source and all its appurtenances to the County of Maui at no cost to the County of Maui. Upon such conveyance of the source, Kaluakoi shall purchase water from the County of Maui at a rate equal to the operational cost, including any pumping costs for the source developed, incurred by the County of Maui to provide water to Kaluakoi, but in no event shall the rate be less than the prevailing domestic rate.

b. In the event Kaluakoi shall construct an alternate pipeline system to transmit water from the source under paragraph 11 of this agreement, Kaluakoi shall convey said alternate pipeline system to the County of Maui at no cost to the County of Maui.

c. Kaluakoi shall be responsible for the cost of developing such necessary water sources to meet the water needs of Kaluakoi.

d. The assignment of this agreement to the County of Maui shall be effective immediately upon the execution of this agreement; provided that the assignment to the County of Maui shall not relieve Kaluakoi of its primary obligations to the County of Maui under the assignment or to the State under this agreement; provided further that the specific terms and conditions of the assignment shall be subject to the approval of the Board.

20. The determination and decision of the State or the County of Maui with respect to any of the provisions contained herein and applicable to it shall be conclusive, final and not subject to judicial review.

21. Upon the breach of any of the terms and conditions herein by Kaluakoi, the State reserves the right to cancel this agreement upon sixty (60) days written notice to Kaluakoi.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed on the day, month and year first above written.

STATE OF HAWAII  
BOARD OF LAND AND NATURAL RESOURCES

By C. C. C. C.  
Its Chairman

By Manuel M. M. M.  
Its Member

KALUAKOI CORPORATION

By R. E. M. M.  
Its President  
VICE

APPROVED AS TO FORM:

Elwin D. Watson  
Deputy Attorney General

Date: July 11, 1975

On this 11th day of July, 1975,  
before me appeared C. Cobb and Manuel Moniz, Jr.,  
to me personally known, who, being by me duly sworn, did say that

C. Cobb and Manuel Moniz, Jr.  
acknowledged said instrument to be the free act and deed of  
said BOARD OF LAND AND NATURAL RESOURCES, STATE OF HAWAII.

My commission expires 1-1-77

On this 11th day of July, 1975,  
before me appeared R. E. MOTT-SMITH, to me personally known,

Directors; and said R. E. MOFF-SMITH acknowledged said instrument to be the free act and deed of said corporation.

My commission expires 1-1-77

**APPENDIX C-1**  
**PRE-ASSESSMENT CONSULTATION LETTERS**

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July 14, 2010

Moloka'i Irrigation System Advisory Board  
P.O. Box 205  
Hoolehua, Hawai'i 96729

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

Dear Consulted Party:

Environet, on behalf of MPL is in the process of preparing a Draft Environmental Assessment (EA) for MPL's continued use of the MIS to transport water from Well 17 to the west end of Moloka'i, Moloka'i, Hawai'i. This EA is required following the expiration of an agreement between the State of Hawai'i Department of Agriculture (DOA) and Kaluakoi Water LLC (KWLLC) (a Hawai'i limited liability company wholly owned by MPL), and prior to any agreement renewal, and will examine the potential environmental impacts of transmitting water between connections into the MIS system at Kualapu'u and Pu'u Nana, which are approximately 0.7 miles and 9 miles (along the MIS) from Well 17, respectively.

MPL has used the state-run MIS to transport water from central Moloka'i under an agreement issued by the state in the mid-1970s. State administrators in the 1970s did not require an environmental study before the contract was issued to MPL because the agreement preceded the enactment of Hawai'i's environmental law. While the regulatory need for an EA to renew the expired lease agreement is questionable, MPL has decided to proceed with the preparation of a Chapter 343 HRS EA in response to the state's recommendation. The DOA has advised MPL that the DOA shall be the approving agency for the EA. We are in the project scoping phase and are seeking your input in terms of issues that would identify potential environmental impacts associated with the proposed project.

The EA to be conducted relates the transmission by KWLLC of water from Well 17 via the MIS to the west end of Moloka'i (Figure 1). The project MIS is contained within 77 different tax map parcels in county 2, zone 5, and sections 1 thru 4. Well 17, located in the Kualapu'u aquifer near the township of Kualapu'u, currently provides approximately 350,000 gallons per day of water to Kaluakoi on the west end of Moloka'i. This water is transported from Well 17 to Kaluakoi first through the MIS system to the Mahana pump station. From Mahana, water is pumped to Pu'u Nana for treatment. The treated water is piped to a reservoir in





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Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Please send a copy of your comments to:

Brian Kau, P.E.  
State of Hawai'i  
Chief Engineer  
Department of Agriculture  
Agriculture Resource Management Division  
1428 South King Street  
Honolulu, Hawai'i 96814

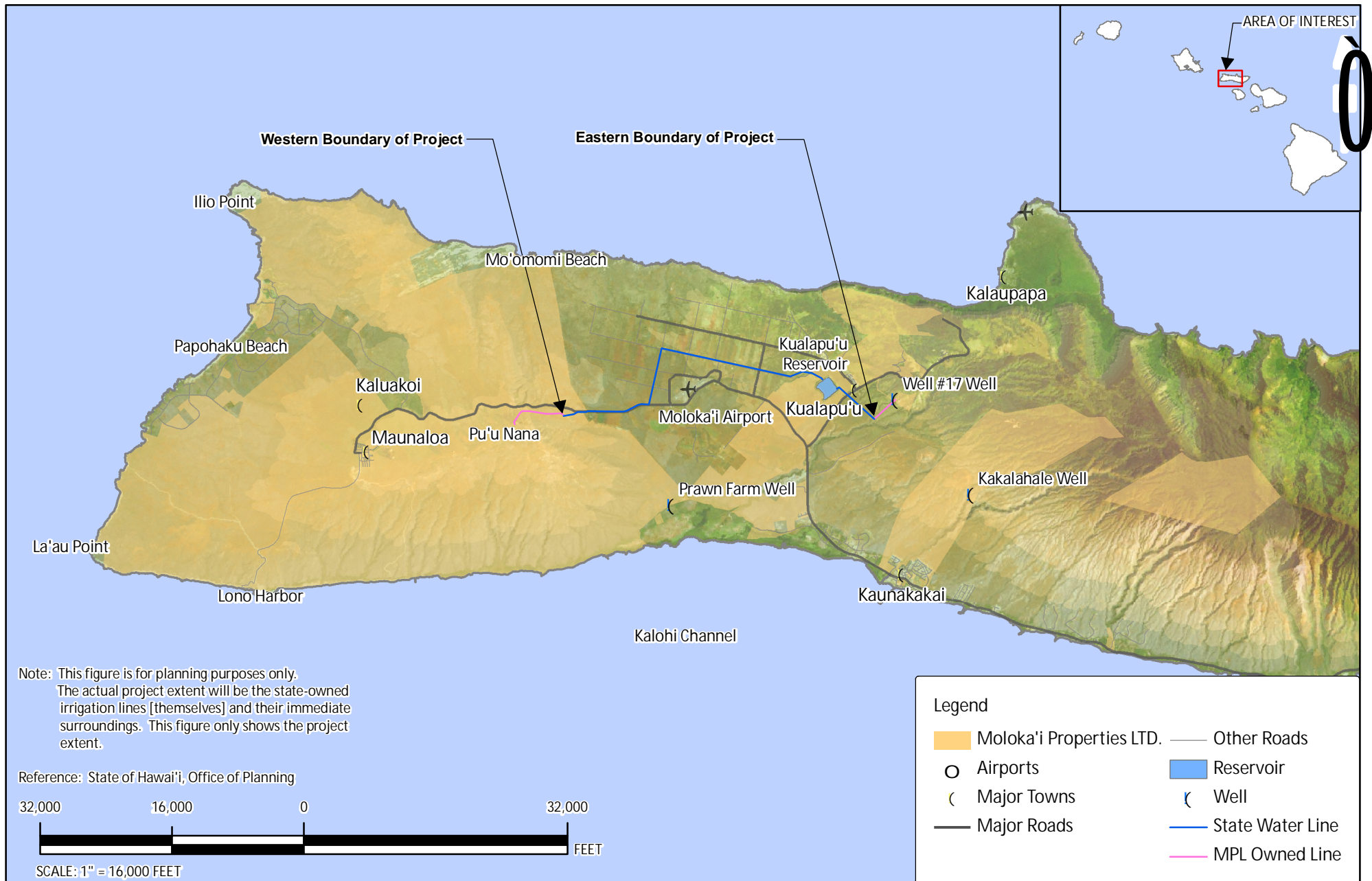
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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent







July 14, 2010

Steve Chaikin, Chairperson  
Moloka'i Planning Commission  
P.O. Box 526  
Kaunakakai, Hawai'i 96748

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

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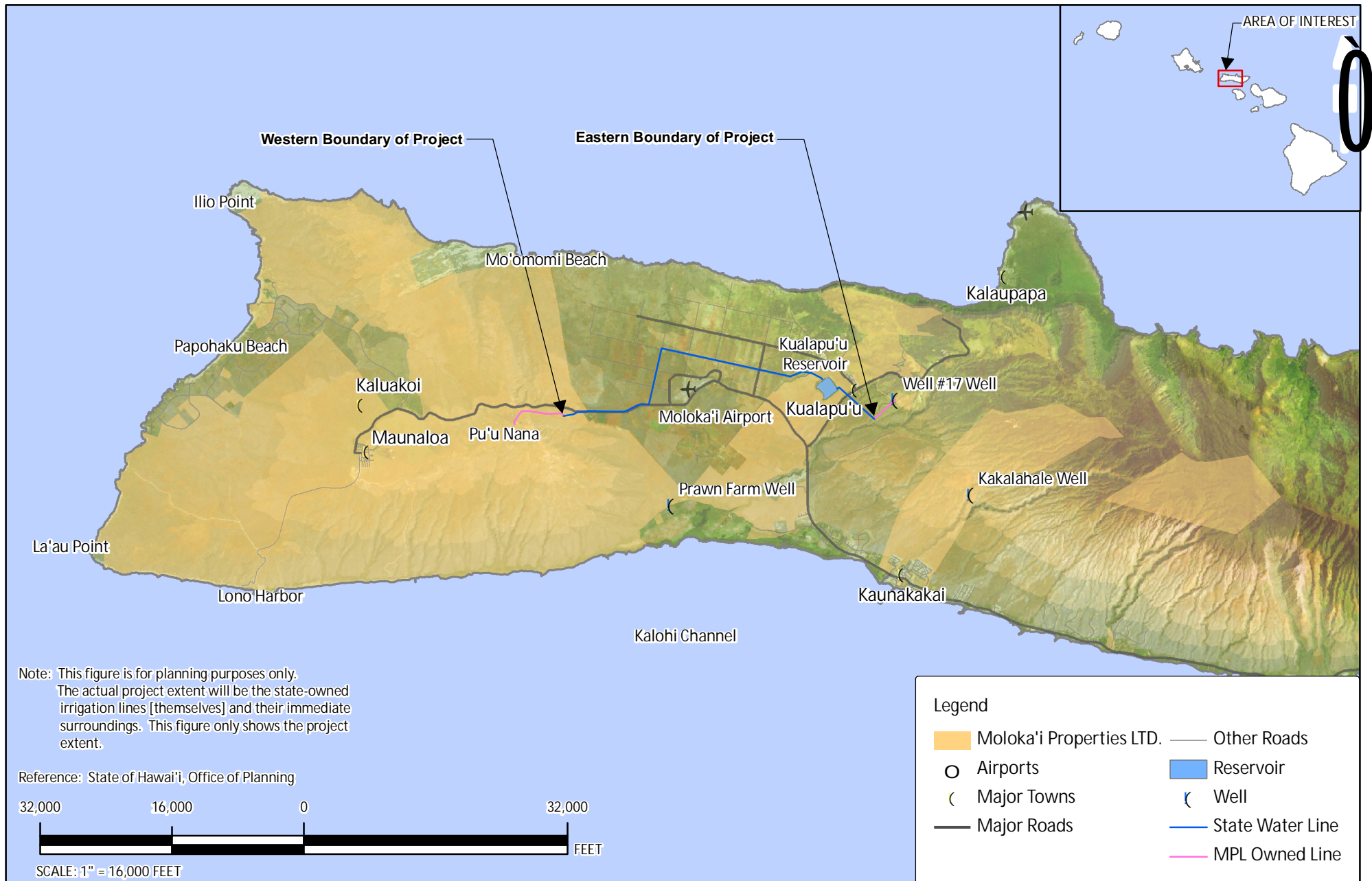
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Colette Sakoda  
Environmental Planning Program Manager

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July 14, 2010

Lyle Dunham  
Papohaku Homeowners Association  
P.O. Box 321  
Maunaloa, Hawai'i 96770

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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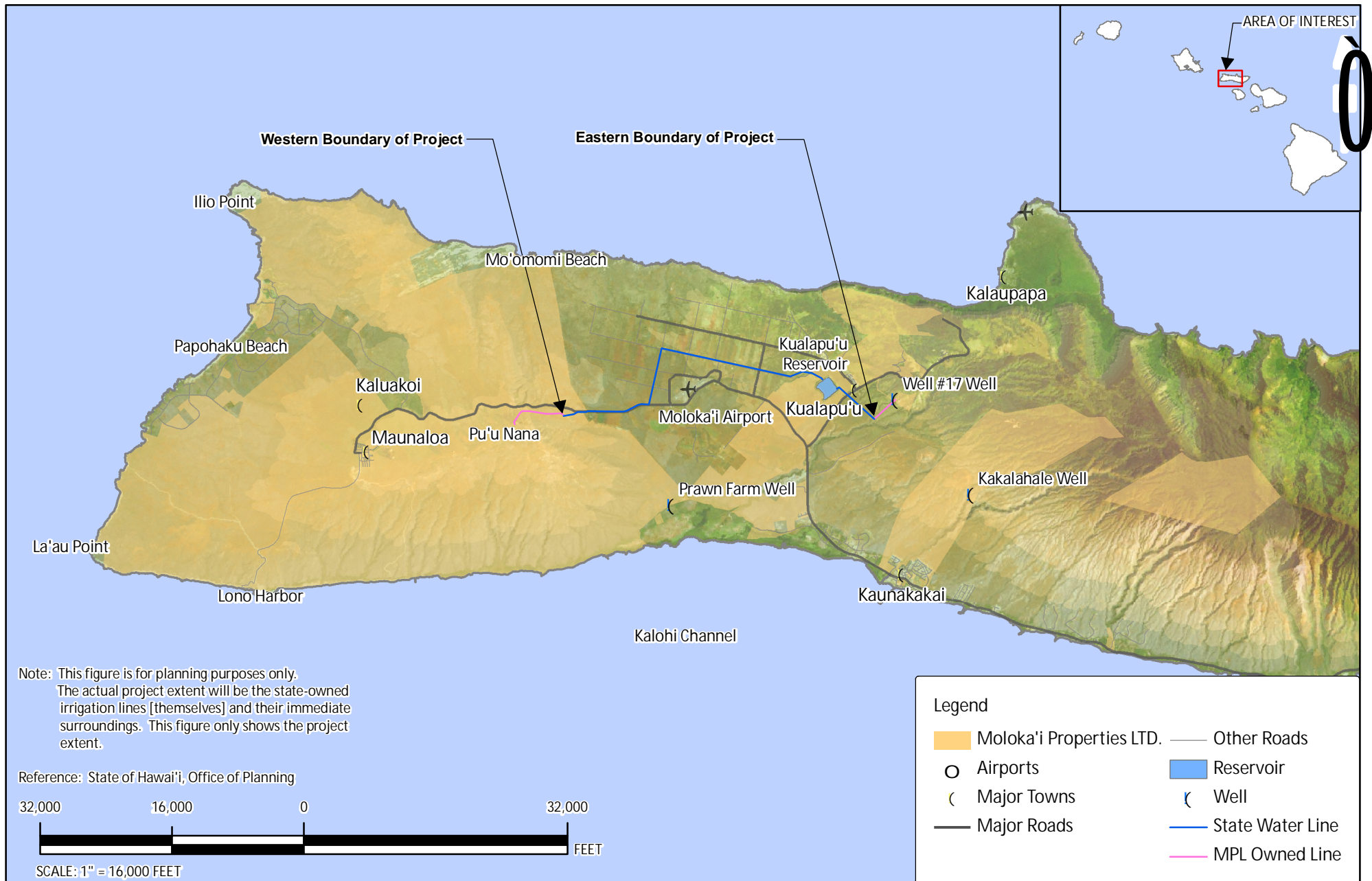
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Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent







June 9, 2010

Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Cheryl K. Okuma, Esq., Director  
Department of Environmental Management  
2200 Main Street  
One Main Plaza Building, Suite 100  
Wailuku, HI 96793-2155

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

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June 9, 2010

Jeffrey A. Murray, Fire Chief  
Department of Fire and Public Safety  
200 Dairy Road  
Kahului, HI 96733

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Lori Tsuhako, Director  
Department of Housing and Human Concerns  
2200 Main Street  
One Main Plaza Building, Suite 546  
Wailuku, HI 96793

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Tamara Horcajo, Director  
Department of Parks and Recreation  
700 Halia Nakoia Street  
Wailuku, HI 96793

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Honolulu, Hawai'i 96817

Please send a copy of your comments to:

Brian Kau, P.E.  
State of Hawai'i  
Chief Engineer  
Department of Agriculture  
Agriculture Resource Management Division  
1428 South King Street  
Honolulu, Hawai'i 96814

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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Kathleen Ross Aoki, Director  
Department of Planning  
250 South High Street  
Kalana Pakui Building, Suite 200  
Wailuku, HI 96793

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

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Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent





June 9, 2010

Don Medeiros, Director  
Department of Transportation  
2145 Kaohu Street  
David Trask Building, Suite 102  
Wailuku, HI 96793

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Jeffery K. Eng, Director  
Department of Water Supply  
200 South High Street  
Kalana O Maui Building, 5th Floor  
Wailuku, HI 96793-2155

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Gary Yabuta, Chief of Police  
Police Department  
55 Mahalani Street  
Wailuku, HI 96793

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Milton Arakawa, Director  
Department of Public Works  
200 High Street  
Kalana O Maui Bldg., 4th Floor  
Wailuku, HI 96793

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

George Young, Chief, Regulatory Branch  
U.S. Army Engineer Division  
Department of Army Engineering District  
Fort Shafter, HI 96819-5440

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Gordon Tribble, USGS State Representative  
U.S. Geological Survey  
677 Ala Moana Boulevard, Suite 415  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

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June 9, 2010

Loyal Mehrhoff, Field Supervisor  
U.S. Fish and Wildlife Service  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122, Box 50088  
Honolulu, HI 96850

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

George Turnbull, Acting Regional Director  
U.S. National Park Service  
Pacific West Region  
1111 Jackson Street, Suite 700  
Oakland, CA 94607

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Dean Higuchi  
U.S. EPA Region 9  
Pacific Island Contact Office  
P.O. Box 50003  
Honolulu, HI 96850

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Lawrence T. Yamamoto, Director  
USDA Natural Resources Conservation Service  
Pacific Island Area State Office  
P.O. Box 50004  
Honolulu, HI 96850-0050

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

State Library  
478 South King Street  
Honolulu, HI 96813-2994

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June 9, 2010

University of Hawai'i Hamilton Library  
2500 Campus Road  
Honolulu, HI 96822

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Sri TenCate, Library Branch Manager  
Mokokai Public Library  
15 Malama Street  
Kaunakakai, HI 96748-0395

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June 9, 2010

Editor-in-Chief  
Honolulu Star-Advertiser  
500 Ala Moana Boulevard #7-210  
Honolulu, HI 96813

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Honolulu, Hawai'i 96814

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Sincerely,

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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Todd Yamashita, Owner/Editor-in-Chief  
Molokai Dispatch  
P.O. Box 482219  
Kaunakakai, HI 96748

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

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Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Please send a copy of your comments to:

Brian Kau, P.E.  
State of Hawai'i  
Chief Engineer  
Department of Agriculture  
Agriculture Resource Management Division  
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Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Sandra Kunimoto, Chairperson  
Hawaii Department of Agriculture  
1428 South King Street  
Honolulu, HI 96814-2512

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent





June 9, 2010

Haunani Apoliona, Chairperson  
Office of Hawaiian Affairs - Honolulu  
711 Kapiolani Boulevard, Suite 500  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

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June 9, 2010

Colette Y. Machado, Trustee, Molokai & Lanai  
Office of Hawaiian Affairs - Molokai  
P.O. Box 1717  
Kaunakakai, HI 96748

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

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June 9, 2010

Theodore E. Liu, Director  
State of Hawaii Department of Business, Economic Development & Tourism  
P.O. Box 2359  
Honolulu, HI 96804

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Mr. Edward Teixeira, Vice Director  
State of Hawaii Department of Defense  
3949 Diamond Head Road  
Honolulu, HI 96816-4495

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Kaulana H.R. Park, Chairman  
Department of Hawaiian Home Lands  
P.O. Box 1879  
Honolulu, HI 96805

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Nancy McMahon, Deputy  
State Historic Preservation Office  
Department of Land & Natural Resources  
601 Kamokila Boulevard, Suite 555  
Kapolei, HI 96707

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Colette Sakoda  
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650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Please send a copy of your comments to:

Brian Kau, P.E.  
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Chief Engineer  
Department of Agriculture  
Agriculture Resource Management Division  
1428 South King Street  
Honolulu, Hawai'i 96814

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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Brennon Morioka, Director  
State of Hawaii Department of Transportation  
AliiAIMoku Building, 869 Punchbowl Street  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

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Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Abbey Mayer, Director  
State of Hawaii State Office of Planning  
P.O. Box 2359  
Honolulu, HI 96804-2359

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent





June 9, 2010

Mary J. Cochran, Esq.  
State of Hawaii Department of Education, Maui District  
P.O. Box 2360  
Honolulu, HI 96804

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Chiyome L. Fukino, MD, Health Director  
State of Hawaii Department of Health  
1250 Punchbowl Street  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

State of Hawaii Department of Human Services  
1390 Miller Street, Room 209  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

State of Hawaii Department of Accounting and General Services  
Kalanimoku Building  
1151 Punchbowl Street  
Honolulu, HI 96813

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June 9, 2010

Laura H. Thielen, Chairperson  
Department of Land & Natural Resources  
Kalanimoku Building  
1151 Puchbowl Street  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

University of Hawai'i Environmental Center  
2500 Campus Road  
Honolulu, HI 96822-2217

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

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Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

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Brian Kau, P.E.  
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Chief Engineer  
Department of Agriculture  
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1428 South King Street  
Honolulu, Hawai'i 96814

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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Carlito Caliboso, Chairperson  
Public Utilities Commission  
465 South King Street #103  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Maui Electric Company  
900 Richards Street  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent





June 9, 2010

Harlan Hashimoto, A1  
Support Service, Hawaiian Telcom  
P.O. Box 2200  
Honolulu, HI 96841

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

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June 9, 2010

The Gas Company - Moloka'i  
Ulili Street, Moloka'i Industrial Park  
Kaunakakai, HI 96748

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June 9, 2010

Senator Dan Inouye  
300 Ala Moana Boulevard, Room 7-212  
Honolulu, HI 96850-4975

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Senator Daniel Akaka  
300 Ala Moana Boulevard, Room 3-106  
Honolulu, HI 96850

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June 9, 2010

U.S. Congresswoman Mazie K. Hirono  
5-104 Prince Kuhio Building  
300 Ala Moana Boulevard  
Honolulu, HI 96850

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Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Please send a copy of your comments to:

Brian Kau, P.E.  
State of Hawai'i  
Chief Engineer  
Department of Agriculture  
Agriculture Resource Management Division  
1428 South King Street  
Honolulu, Hawai'i 96814

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Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

J. Kalani English, State Senator  
Hawaii State Capitol, Room 205  
415 South Beretania Street  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

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June 9, 2010

Mele Carroll, State Representative  
Hawaii State Capitol, Room 405  
415 South Beretania Street  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Colette Sakoda  
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Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Danny A. Mateo, Council Chair  
County Council Member  
Kalana O Maui Building  
200 South High Street, 7th Floor  
Wailuku, HI 96793

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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Environmental Planning Program Manager

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June 9, 2010

Alan Murakami  
Native Hawaii Legal Corporation  
1164 Bishop Street, Suite 1205  
Honolulu, HI 96813

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Pualani Enos, Executive Director  
Hui Malama Learning Center  
375 Mahalani Street  
Wailuku, HI 96793

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Robert D. Harris, Esq., Director  
Sierra Club, Hawai'i Chapter  
P.O. Box 2577  
Honolulu, HI 96803

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Davianna McGregor, Professor of Ethnic Studies  
Ethnic Studies Department  
University of Hawai'i at Manoa  
2560 Campus Road  
George Hall, Room 336  
Honolulu, HI 96822

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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June 9, 2010

Adolph Helm, Chairman  
Moloka'i Irrigation System Advisory Board  
P.O. Box 391  
Hoolehua, HI 96729

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
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The EA to be conducted relates the transmission by KWLLC of water from Well 17 via the MIS to the west end of Moloka'i (Figure 1). The project MIS is contained within 77 different tax map parcels in county 2, zone 5, and sections 1 thru 4. Well 17, located in the Kualapu'u aquifer near the township of Kualapu'u, currently provides approximately 350,000 gallons per day of water to Kaluakoi on the west end of Moloka'i. This water is transported from Well 17 to Kaluakoi first through the MIS system to the Mahana pump station. From Mahana, water is pumped to Pu'u Nana for treatment. The treated water is piped to a reservoir in





Maunaloa, and from there gravity fed to Kaluakoi. The MIS originally served large-scale pineapple operations, but was converted to serve diversified agriculture after the pineapple operations closed in the late 1970s. The system is also used by commercial agriculture and the Native Hawaiian homesteads in Ho'olehua, and pursuant to HRS section 168-4, Hawaiian homesteads have a prior right to two-thirds of the water currently developed by the MIS. Historically, the MIS transported 1,500,000 gallons per day via a 10-mile transmission link to an open reservoir at Kualapu'u, where it is stored prior to entering a distribution network extending from Ho'olehua to Mahana. The actual project extent will be the state-owned irrigation lines and their immediate surroundings (Figure 1).

In conjunction with this work, we are requesting any written comments and/or information with respect to your area(s) of concern. Please send your written comments to the following by July 10, 2010:

Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Please send a copy of your comments to:

Brian Kau, P.E.  
State of Hawai'i  
Chief Engineer  
Department of Agriculture  
Agriculture Resource Management Division  
1428 South King Street  
Honolulu, Hawai'i 96814

Thank you for participating in the planning stages of this important project. If you have any questions or need clarification, please contact me at 833-2225 ext. 1004.

Sincerely,

A handwritten signature in black ink, appearing to read 'Colette Sakoda'.

Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent



June 9, 2010

Ochie Bush, President  
Ho'olehua Homestead Association  
P.O. Box 134  
Hoolehua, HI 96729

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

Dear Consulted Party:

Environet, on behalf of MPL is in the process of preparing a Draft Environmental Assessment (EA) for MPL's continued use of the MIS to transport water from Well 17 to the west end of Moloka'i, Moloka'i, Hawai'i. This EA is required following the expiration of an agreement between the State of Hawai'i Department of Agriculture (DOA) and Kaluakoi Water LLC (KWLLC) (a Hawai'i limited liability company wholly owned by MPL), and prior to any agreement renewal, and will examine the potential environmental impacts of transmitting water between connections into the MIS system at Kualapu'u and Pu'u Nana, which are approximately 0.7 miles and 9 miles (along the MIS) from Well 17, respectively.

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The EA to be conducted relates the transmission by KWLLC of water from Well 17 via the MIS to the west end of Moloka'i (Figure 1). The project MIS is contained within 77 different tax map parcels in county 2, zone 5, and sections 1 thru 4. Well 17, located in the Kualapu'u aquifer near the township of Kualapu'u, currently provides approximately 350,000 gallons per day of water to Kaluakoi on the west end of Moloka'i. This water is transported from Well 17 to Kaluakoi first through the MIS system to the Mahana pump station. From Mahana, water is pumped to Pu'u Nana for treatment. The treated water is piped to a reservoir in



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Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Please send a copy of your comments to:

Brian Kau, P.E.  
State of Hawai'i  
Chief Engineer  
Department of Agriculture  
Agriculture Resource Management Division  
1428 South King Street  
Honolulu, Hawai'i 96814

Thank you for participating in the planning stages of this important project. If you have any questions or need clarification, please contact me at 833-2225 ext. 1004.

Sincerely,

A handwritten signature in black ink, appearing to read 'Colette Sakoda', is written over a light blue circular stamp.

Colette Sakoda  
Environmental Planning Program Manager

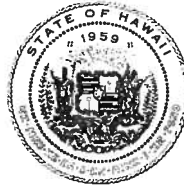
Attachment: Figure 1: Estimated Project Extent

## **APPENDIX C-2**

### **PRE-ASSESSMENT CONSULTATION LETTER RESPONSES**

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**LINDA LINGLE**  
Governor



**SANDRA LEE KUNIMOTO**  
Chairperson, Board of Agriculture

**DUANE K. OKAMOTO**  
Deputy to the Chairperson

State of Hawaii  
**DEPARTMENT OF AGRICULTURE**  
1428 South King Street  
Honolulu, Hawaii 96814-2512  
Phone: (808) 973-9600 Fax: (808) 973-9613

June 22, 2010

Ms. Colette Sakoda  
Environmental Planning Program Manager  
Environet, Inc.  
150 Iwilei Road, Suite 204  
Honolulu, HI 96817

Dear Ms. Sakoda:

Thank you for your June 9, 2010 letter informing us of the Draft Environmental Assessment regarding use of the Molokai Irrigation System (MIS) to transport water for Molokai Properties Limited (MPL). In addition to the impact of transporting water through our system, should MPL wish to propose storage of water in the Kualapuu reservoir, this issue needs to be addressed as well.

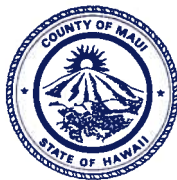
Additionally, we'd like to clarify that the prior right to two-thirds of the water currently developed by the MIS is based upon actual need being shown to the board of agriculture and that during a typical year, average daily irrigation water use by MIS customers is approximately 3,000,000 gallons per day, not 1,500,000. We look forward to providing additional comments as your work progresses.

Sincerely,

Sandra Lee Kunimoto  
Chairperson, Board of Agriculture

C: Brian Kau, Agricultural Resource Management Division

CHARMAINE TAVARES  
MAYOR



DON A. MEDEIROS  
Director  
WAYNE A. BOTEILHO  
Deputy Director  
Telephone (808) 270-7511  
Facsimile (808) 270-7505

## DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI  
200 South High Street  
Wailuku, Hawaii, USA 96793-2155

June 18, 2010

Ms. Colette Sakoda  
Environet, Inc  
650 Iwilei Road, Suite 203  
Honolulu, Hawaii 96817

Subject: Draft Environmental Assessment for Moloka'i Properties Limited's  
Continued Use of the Moloka'i irrigation System to Transport Water from Well 17  
to the West End of Moloka'i

Dear Ms. Sakoda,

Thank you for the opportunity to comment on this project. We have no  
comments to make at this time.

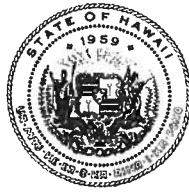
Please feel free to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Don Medeiros", is written over a horizontal line.

Don Medeiros  
Director

LINDA LINGLE  
Governor of Hawai'i



KATHERINE PUANA KEALOHA  
Director

**STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL**

Telephone (808) 586-4185  
Facsimile (808) 586-4186  
Electronic Mail: [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)

Department of Health  
235 South Beretania Street  
Leiopapa A Kamehameha, Suite 702  
Honolulu, Hawai'i 96813

June 15, 2010

Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

Dear Ms. Sakoda:

Thank you for the opportunity to comment on the proposed water transportation system. Your letter states that the Hawai'i Department of Agriculture will be the approving agency for the proposed project being undertaken by the applicant.

Under Section 343-5(c), Hawai'i Revised Statutes, the approving agency determines whether the document meets the requirements under Chapter 343, HRS. If the approving agency is satisfied that the draft environmental assessment meets the requirements set forth under the Chapter 11-200, Hawai'i Administrative Rules (HAR), then the approving agency writes and notifies OEQC of its determination that it anticipates a finding of no significant impact (FONSI) for the proposed project.

The approving agency also requests publication of the availability of the draft environmental document on the Environmental Notice for public comment. Please visit the OEQC website at [http://oeqc.doh.hawaii.gov/Shared%20Documents/Environmental\\_Notice/2010\\_Deadline\\_Calendar.pdf](http://oeqc.doh.hawaii.gov/Shared%20Documents/Environmental_Notice/2010_Deadline_Calendar.pdf) to access the publication calendar which lists the submittal due dates for document publication.

There is also an OEQC publication form which must be filled out and accompany the approving agency's letter; please visit the OEQC website and find the OEQC\_Publication\_Form\_2010.



Furthermore, we advise that under §11-200-9(B), HAR, you must seek the advice and input of the lead county agency responsible for implementing the county's general plan and consult with other agencies having jurisdiction or expertise as well as those citizen groups and individuals whom the approving agency reasonably believes to be affected.

If you have any questions, please call Herman Tuiolosega at 586-4185.

Sincerely,

A handwritten signature in black ink, appearing to read 'Katherine Puana Kealoa', written over a faint circular stamp.

KATHERINE PUANA KEALOHA  
Director

c: Brian Kau, Hawai'i Department of Agriculture

EIS



June 17, 2010

Ms. Colette Sakoda  
Environet, Inc.  
650 Iwilei Road - Suite 204  
Honolulu, HI 96817

Dear Ms. Sakoda:

**Re: Pre-Assessment Consultation  
Continued Use by Molokai Properties Ltd. of  
the Molokai Irrigation System to Transport  
Water to Well 17 on the West End of Molokai  
TMK No. (2) Zone 5, Sec. 1-4, Various Parcels (77)**

Thank you for the opportunity to comment on the above-referenced project. Maui Electric Company, Ltd. (MECO) has no objections at this time.

Should MECO have existing facilities/easements on the subject properties, continued access for maintenance purposes will be needed. In addition, MECO reserves the opportunity to further comment on the protection of existing power lines and electric power facilities that may be affected by the project.

As the project develops and construction plans are finalized, please continue to keep us informed so that we may be better able to evaluate any effects on MECO's system facilities.

Thank you again for the chance to comment on this project.

Sincerely,

Kirk S. Tomita  
Senior Environmental Scientist

cc: Ms. Catherine P. Kealoha (OEQC)  
Mr. Brian Kam, P.E. (Hawaii State DOA)  
A. Herrera  
G. Kauhi/D. Takahata  
M. Ribao/D. Pires



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
P.O. BOX 621  
HONOLULU, HAWAII 96809

LAURA H. THIELEN  
CHAIRPERSON  
WILLIAM D. BALFOUR, JR.  
SUMNER ERDMAN  
NEAL S. FUJIWARA  
CHIYOME L. FUKINO, M.D.  
DONNA FAY K. KIYOSAKI, P.E.  
LAWRENCE H. MIIKE, M.D., J.D.

LENORE N. OHYE  
ACTING DEPUTY DIRECTOR

July 7, 2010

Ms. Colette Sakoda, Program Manager  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, HI 96817

Dear Ms. Sakoda:

SUBJECT: Continued Use of Molokai Irrigation System to Transport Water from Kualapuu to Kaluakoi DEA

FILE NO.: N/A

TMK NO.: (2) -5-1 through 4 (77 parcels)

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrm>.

Our comments related to water resources are checked off below.

- ☒ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- ☒ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- ☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.
- ☐ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at <http://www.usgbc.org/leed>. A listing of fixtures certified by the EPA as having high water efficiency can be found at <http://www.epa.gov/watersense/pp/index.htm>.
- ☐ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at <http://hawaii.gov/dbedt/czm/initiative/lid.php>.

July 8, 2010

- ☐ 6. We recommend the use of alternative water sources, wherever practicable.
- ☐ 7. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:

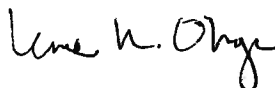
Additional information and forms are available at [www.hawaii.gov/dlnr/cwrmm/forms.htm](http://www.hawaii.gov/dlnr/cwrmm/forms.htm).

- ☒ 8. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water.
- ☐ 9. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
- ☐ 10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.
- ☐ 11. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- ☐ 12. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- ☐ 13. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- ☐ 14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- ☐ 15. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- ☐ 16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- ☒ OTHER:

The use of a surface water system to convey potable ground water to a treatment plant for potable use raises the perennial question of best use, and the requirement that an additional 10% beyond used water be added for transport to account for system loss raises the questions of reasonableness and waste. The source, Well 17 (Well No. 0901-01) is a high-quality, high-yielding, and underused source from the Kualapuu Aquifer System under CWRM management, in which two other major users (Department of Hawaiian Home Lands and Maui Department of Water Supply) are overpumping and required to find relief sources prior to completing plans to increase use. Well 17 may provide such relief, subject to negotiations between the users. Well 17 and its end uses were the subject of a contested case hearing appealed to the Supreme Court, which remanded the case for renewed proceedings. These have not yet taken place, and are part of the process required to implement continuing use; the well owner must file an amended application for new water use.

If there are any questions, please contact Charley Ice at 587-0218.

Sincerely,



LENORE N. OHYE  
Acting Deputy Director



# United States Department of the Interior

U.S. GEOLOGICAL SURVEY  
Pacific Islands Water Science Center  
677 Ala Moana Blvd., Suite 415  
Honolulu, Hawai'i 96813  
Phone: (808) 587-2400/Fax: (808) 587-2401



July 9, 2010

Ms. Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Dear Ms. Sakoda:

Subject: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i, TMK No. (2) zone 5, sections 1-4, 77 different parcels

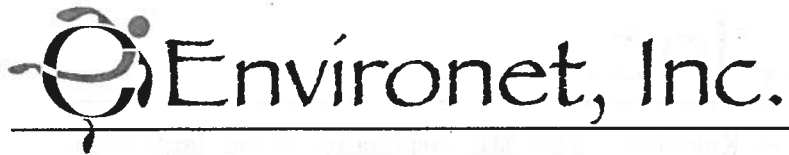
Thank you for forwarding the subject Pre-Assessment Consultation for review and comment by the staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

We appreciate the opportunity to participate in the review process.

Sincerely,

Stephen S. Anthony  
Center Director

cc: Brian Kau, P.E., State of Hawai'i, Department of Agriculture



June 9, 2010

Gordon Tribble, USGS State Representative  
U.S. Geological Survey  
677 Ala Moana Boulevard, Suite 415  
Honolulu, HI 96813

U.S. GEOLOGICAL SURVEY  
PIWSC  
HONOLULU, HAWAII

JUN 11 2010

**RECEIVED**

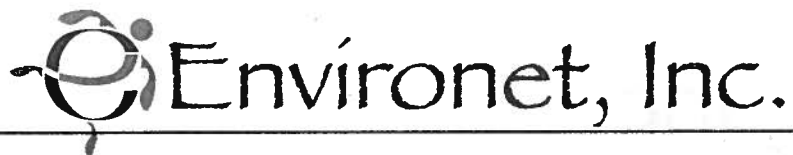
**Subject:** Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawai'i  
TMK No. (2) zone 5, sections 1-4, 77 different parcels

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In conjunction with this work, we are requesting any written comments and/or information with respect to your area(s) of concern. Please send your written comments to the following by July 10, 2010:

Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawai'i 96817

Please send a copy of your comments to:

Brian Kau, P.E.  
State of Hawai'i  
Chief Engineer  
Department of Agriculture  
Agriculture Resource Management Division  
1428 South King Street  
Honolulu, Hawai'i 96814

Thank you for participating in the planning stages of this important project. If you have any questions or need clarification, please contact me at 833-2225 ext. 1004.

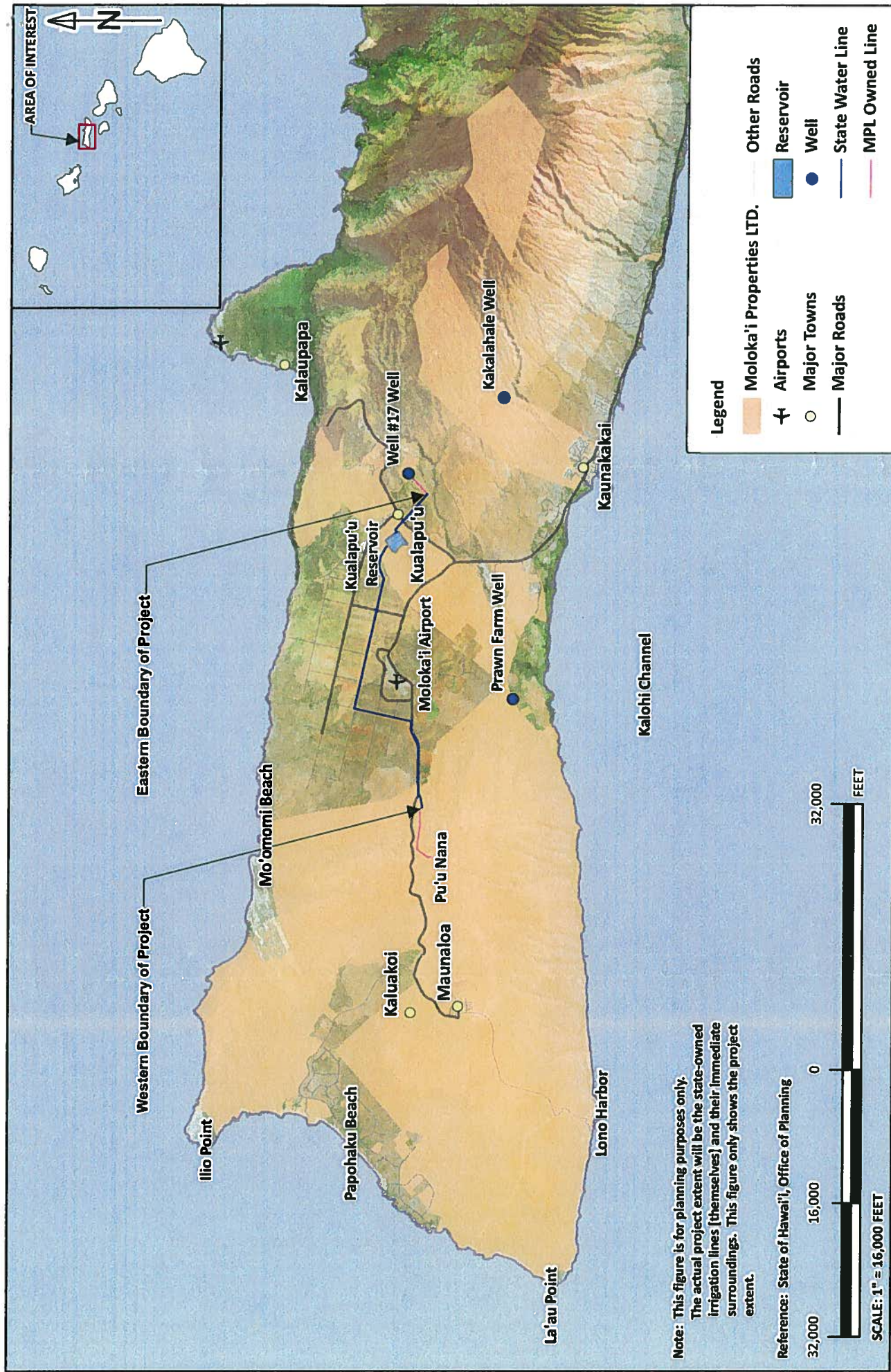
Sincerely,


A handwritten signature in black ink, appearing to read "Colette Sakoda", is written over the printed name.

Colette Sakoda  
Environmental Planning Program Manager

Attachment: Figure 1: Estimated Project Extent





 Environet, Inc.	PROJECT NO.: 1052-001		MOLOKA'I PROPERTIES LTD. (MPL) ENVIRONMENTAL ASSESSMENT	ESTIMATED PROJECT EXTENT MOLOKA'I, HAWAII	FIGURE 1
	DATE: June 1, 2010				
	DRAWN BY: SK				
	REVIEWED BY: CS				







# United States Department of the Interior

NATIONAL PARK SERVICE  
Pacific West Region  
1111 Jackson Street, Suite 700  
Oakland, California 94607-4807



IN REPLY REFER TO:

L7619(PWR-PP)

JUL 02 2010

Mr. Brian Kau, P.E.  
Chief Engineer, Department of Agriculture  
Agriculture Resource Management Division  
1428 South King St.  
Honolulu, Hawaii 96814

Dear Mr. Kau:

The Pre-Assessment background summary information for the proposed **Continued Use of the Molokai Irrigation System** has been reviewed. Our understanding is that preparation of an Environmental Assessment (EA) is necessitated following expiration of an agreement between the State of Hawaii Dept. Of Agriculture and Kaluakoi Water LLC (KWLLC, a subsidiary of Molokai Properties Limited) which allows use of the Molokai Irrigation System (MIS) by these parties.

The EA would assess the potential environmental consequences of transport by KWLLC of water from Well 17 via the MIS to areas in western Molokai. While the system is intended to serve commercial agriculture, certain Native Hawaiian homesteads have prior rights to a portion of the water supply.

Kalaupapa National Historical Park is situated considerably northeast of Well 17 and the MIS. Based upon review of the background information provided, including maps of the area of potential effect, our determination is that this proposal will not impinge upon park values and resources, nor would Native Hawaiian interests associated with the park be affected.

Thank you for contacting the NPS in regards to this matter. Future inquiries regarding other conservation planning projects may be directed to Stephen Prokop, Superintendent, Kalaupapa National Historical Park (808) 567-6802.

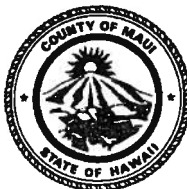
Sincerely,

John H. Williams  
Acting Regional Director

cc:  
Environet, Inc., Attn: Colette Sakoda, 650 Iwilei Rd., Ste. 204, Honolulu, HI 96817  
KALA-S  
PWRO-PP  
PWRO-PAD

TAKE PRIDE<sup>®</sup>  
IN AMERICA

CHARMAINE TAVARES  
Mayor



TAMARA HORCAJO  
Director

ZACHARY Z. HELM  
Deputy Director

(808) 270-7230  
Fax (808) 270-7934

## DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

July 2, 2010

Ms. Colette Sakoda, Environmental Planning Program Manager  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

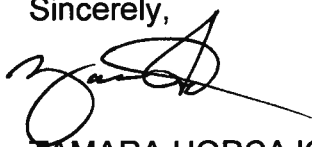
**SUBJECT: Pre-Assessment Consultation to Prepare Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Hawai'i**  
**TMK: (2) zone 5, sections 1-4, 77 different parcels**

Dear Ms. Sakoda:

Thank you for the opportunity to review and comment on the subject project. The Department of Parks and Recreation does not have any comments at this time.

Please feel free to contact me or Mr. Patrick Matsui, Chief of Parks Planning and Development at 270-7387 should you have any other questions.

Sincerely,

  
For TAMARA HORCAJO  
Director

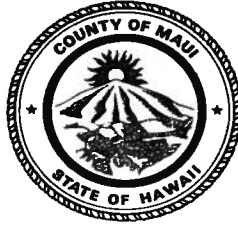
xc: Patrick Matsui, Chief of Parks Planning & Development

TH:PTM:sg/bks

CHARMAINE TAVARES  
Mayor

CHERYL K. OKUMA, Esq.  
Director

GREGG KRESGE  
Deputy Director



TRACY TAKAMINE, P.E.  
Solid Waste Division

DAVID TAYLOR, P.E.  
Wastewater Reclamation  
Division

**COUNTY OF MAUI  
DEPARTMENT OF  
ENVIRONMENTAL MANAGEMENT**  
2200 MAIN STREET, SUITE 100  
WAILUKU, MAUI, HAWAII 96793

July 2, 2010

Ms. Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

Dear Ms. Sakoda,

**SUBJECT: MOLOKAI PROPERTIES LTD - CONTINUED USE OF THE MOLOKAI  
IRRIGATION SYSTEM (MIS) TO TRANSPORT WATER FROM WELL  
17 TO THE WEST END OF MOLOKAI  
PRE-CONSULTATION FOR DRAFT EA  
TMK (2) ZONE 5, SECTIONS 1-4 (77 DIFFERENT PROPERTIES)**

We reviewed the subject pre-consultation request and have the following comments:

1. Solid Waste Division comments:
  - a. None.
2. Wastewater Reclamation Division (WWRD) comments:
  - a. None.

If you have any questions regarding this memorandum, please contact Gregg Kresge at 270-8230.

Sincerely,

CHERYL K. OKUMA  
Director of Environmental Management

xc: Mr. Brian Kau, Chief Engineer  
State of Hawaii Department of Agriculture



DEPARTMENT OF  
**HOUSING AND HUMAN CONCERNS**  
HOUSING DIVISION  
COUNTY OF MAUI

CHARMAINE TAVARES  
Mayor

LORI TSUHAKE  
Director

JO-ANN T. RIDAO  
Deputy Director

35 LUNALILO STREET, SUITE 102 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7351 • FAX (808) 270-6284

July 1, 2010

Ms. Collette Sakoda  
Environmental Planning Program Manager  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

**SUBJECT: Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited (MPL)'s Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i, Moloka'i, Hawaii, TMK (2) 5-Sections 1 thru 4: 77 different parcels**

The Department has reviewed the Pre-Assessment Consultation for the above subject project. Based on our review, we have determined that the subject project is not subject to Chapter 2.96, Maui County Code. At the present time the department has no additional comments to offer.

Please contact Mr. Buddy Almeida of our Housing Division at (808) 270-7356 if you have any questions.

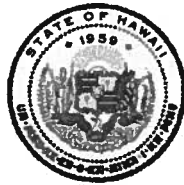
Sincerely,

A handwritten signature in black ink, reading "Wayde T. Oshiro".

WAYDE T. OSHIRO  
Housing Administrator

xc: Mr. Brian Kau  
Director of Housing and Human Concerns

LINDA LINGLE  
GOVERNOR OF HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

STATE HISTORIC PRESERVATION DIVISION  
601 KAMOKILA BOULEVARD, ROOM 555  
KAPOLEI, HAWAII 96707

LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI  
FIRST DEPUTY

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

June 30, 2010

LOG NO: 2010.2354  
DOC NO: 1006MV60

Collette Sakoda,  
Environment Inc.  
650 Iwilei Road, Suite 204  
Honolulu, HI 96817

Dear Ms. Sakoda,

**SUBJECT: Chapter 6E-42 Historic Preservation Review—  
Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for  
Molokai Properties Limited (MPL)'s Continued Use of the Molokai Irrigation  
System (MIS) to Transport Water from Well 17 to the West End of Molokai,  
Molokai, Hawaii  
TMK [2]-5-1 through 4**

Thank you for the opportunity to review the aforementioned document that was received by our office on June 15, 2010. As we discussed in a telephone conversation on June 28<sup>th</sup> there will be no new construction associated with the continued use of the Molokai Irrigation System. Because there is no ground disturbing activity it is unlikely that any historic archaeological sites would be impacted. Therefore, it is likely that no historic properties will be affected by this project.

However, the State Historic preservation Division would appreciate the opportunity to review the draft environmental assessment for the continued use of the MIS to transport water from Well 17 to west Molokai. Please call Mike Vitousek at (808) 692-8029 if you have any questions or concerns regarding this letter.

Sincerely

A handwritten signature in cursive script that reads "Nancy A. McMahon".

Nancy McMahon (Deputy SHPO),  
Archaeology and Historic Preservation Manager

CC:

Brian Kau  
State of Hawaii Chief Engineer, Department of Agriculture  
1428 South King Street  
Honolulu, HI 96814

**DUANE K. OKAMOTO**  
Deputy to the Chairperson

June 24, 2010

Benito

\* 1995-1996, 1997-1998, 1999-2000, 2001-2002, 2003-2004, 2005-2006, 2007-2008, 2009-2010, 2011-2012, 2013-2014, 2015-2016, 2017-2018, 2019-2020, 2021-2022, 2023-2024, 2025-2026, 2027-2028, 2029-2030, 2031-2032, 2033-2034, 2035-2036, 2037-2038, 2039-2040, 2041-2042, 2043-2044, 2045-2046, 2047-2048, 2049-2050, 2051-2052, 2053-2054, 2055-2056, 2057-2058, 2059-2060, 2061-2062, 2063-2064, 2065-2066, 2067-2068, 2069-2070, 2071-2072, 2073-2074, 2075-2076, 2077-2078, 2079-2080, 2081-2082, 2083-2084, 2085-2086, 2087-2088, 2089-2090, 2091-2092, 2093-2094, 2095-2096, 2097-2098, 2099-2100, 2101-2102, 2103-2104, 2105-2106, 2107-2108, 2109-2110, 2111-2112, 2113-2114, 2115-2116, 2117-2118, 2119-2120, 2121-2122, 2123-2124, 2125-2126, 2127-2128, 2129-2130, 2131-2132, 2133-2134, 2135-2136, 2137-2138, 2139-2140, 2141-2142, 2143-2144, 2145-2146, 2147-2148, 2149-2150, 2151-2152, 2153-2154, 2155-2156, 2157-2158, 2159-2160, 2161-2162, 2163-2164, 2165-2166, 2167-2168, 2169-2170, 2171-2172, 2173-2174, 2175-2176, 2177-2178, 2179-2180, 2181-2182, 2183-2184, 2185-2186, 2187-2188, 2189-2190, 2191-2192, 2193-2194, 2195-2196, 2197-2198, 2199-2200, 2201-2202, 2203-2204, 2205-2206, 2207-2208, 2209-2210, 2211-2212, 2213-2214, 2215-2216, 2217-2218, 2219-2220, 2221-2222, 2223-2224, 2225-2226, 2227-2228, 2229-2230, 2231-2232, 2233-2234, 2235-2236, 2237-2238, 2239-2240, 2241-2242, 2243-2244, 2245-2246, 2247-2248, 2249-2250, 2251-2252, 2253-2254, 2255-2256, 2257-2258, 2259-2260, 2261-2262, 2263-2264, 2265-2266, 2267-2268, 2269-2270, 2271-2272, 2273-2274, 2275-2276, 2277-2278, 2279-2280, 2281-2282, 2283-2284, 2285-2286, 2287-2288, 2289-2290, 2291-2292, 2293-2294, 2295-2296, 2297-2298, 2299-2300, 2301-2302, 2303-2304, 2305-2306, 2307-2308, 2309-2310, 2311-2312, 2313-2314, 2315-2316, 2317-2318, 2319-2320, 2321-2322, 2323-2324, 2325-2326, 2327-2328, 2329-2330, 2331-2332, 2333-2334, 2335-2336, 2337-2338, 2339-2340, 2341-2342, 2343-2344, 2345-2346, 2347-2348, 2349-2350, 2351-2352, 2353-2354, 2355-2356, 2357-2358, 2359-2360, 2361-2362, 2363-2364, 2365-2366, 2367-2368, 2369-2370, 2371-2372, 2373-2374, 2375-2376, 2377-2378, 2379-2380, 2381-2382, 2383-2384, 2385-2386, 2387-2388, 2389-2390, 2391-2392, 2393-2394, 2395-2396, 2397-2398, 2399-2400, 2401-2402, 2403-2404, 2405-2406, 2407-2408, 2409-2410, 2411-2412, 2413-2414, 2415-2416, 2417-2418, 2419-2420, 2421-2422, 2423-2424, 2425-2426, 2427-2428, 2429-2430, 2431-2432, 2433-2434, 2435-2436, 2437-2438, 2439-2440, 2441-2442, 2443-2444, 2445-2446, 2447-2448, 2449-2450, 2451-2452, 2453-2454, 2455-2456, 2457-2458, 2459-2460, 2461-2462, 2463-2464, 2465-2466, 2467-2468, 2469-2470, 2471-2472, 2473-2474, 2475-2476, 2477-2478, 2479-2480, 2481-2482, 2483-2484, 2485-2486, 2487-2488, 2489-2490, 2491-2492, 2493-2494, 2495-2496, 2497-2498, 2499-2500, 2501-2502, 2503-2504, 2505-2506, 2507-2508, 2509-2510, 2511-2512, 2513-2514, 2515-2516, 2517-2518, 2519-2520, 2521-2522, 2523-2524, 2525-2526, 2527-2528, 2529-2530, 2531-2532, 2533-2534, 2535-2536, 2537-2538, 2539-2540, 2541-2542, 2543-2544, 2545-2546, 2547-2548, 2549-2550, 2551-2552, 2553-2554, 2555-2556, 2557-2558, 2559-2560, 2561-2562, 2563-2564, 2565-2566, 2567-2568, 2569-2570, 2571-2572, 2573-2574, 2575-2576, 2577-2578, 2579-2580, 2581-2582, 2583-2584, 2585-2586, 2587-2588, 2589-2590, 2591-2592, 2593-2594, 2595-2596, 2597-2598, 2599-2600, 2601-2602, 2603-2604, 2605-2606, 2607-2608, 2609-2610, 2611-2612, 2613-2614, 2615-2616, 2617-2618, 2619-2620, 2621-2622, 2623-2624, 2625-2626, 2627-2628, 2629-2630, 2631-2632, 2633-2634, 2635-2636, 2637-2638, 2639-2640, 2641-2642, 2643-2644, 2645-2646, 2647-2648, 2649-2650, 2651-2652, 2653-2654, 2655-2656, 2657-2658, 2659-2660, 2661-2662, 2663-2664, 2665-2666, 2667-2668, 2669-2670, 2671-2672, 2673-2674, 2675-2676, 2677-2678, 2679-2680, 2681-2682, 2683-2684, 2685-2686, 2687-2688, 2689-2690, 2691-2692, 2693-2694, 2695-2696, 2697-2698, 2699-2700, 2701-2702, 2703-2704, 2705-2706, 2707-2708, 2709-2710, 2711-2712, 2713-2714, 2715-2716, 2717-2718, 2719-2720, 2721-2722, 2723-2724, 2725-2726, 2727-2728, 2729-2730, 2731-2732, 2733-2734, 2735-2736, 2737-2738, 2

CHARMAINE TAVARES  
Mayor

MILTON M. ARAKAWA, A.I.C.P.  
Director

MICHAEL M. MIYAMOTO  
Deputy Director

Telephone: (808) 270-7845  
Fax: (808) 270-7955



RALPH NAGAMINE, L.S., P.E.  
Development Services Administration

CARY YAMASHITA, P.E.  
Engineering Division

BRIAN HASHIRO, P.E.  
Highways Division

COUNTY OF MAUI  
**DEPARTMENT OF PUBLIC WORKS**  
200 SOUTH HIGH STREET, ROOM NO. 434  
WAILUKU, MAUI, HAWAII 96793

June 24, 2010

Ms. Colette Sakoda  
ENVIRONET, INC.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

**SUBJECT: PRE-ASSESSMENT CONSULTATION TO PREPARE A  
DRAFT ENVIRONMENTAL ASSESSMENT FOR MOLOKAI  
PROPERTIES LIMITED'S CONTINUED USE OF THE  
MOLOKAI IRRIGATION SYSTEM TO TRANSPORT  
WATER FROM WELL 17 TO THE WEST END OF  
MOLOKAI; TMK: (2) 5-1-4, 77 DIFFERENT PARCELS**

We reviewed the subject application and have the following comment:

1. We are concerned with the condition of the transmission lines/irrigation system that are located on government roads (Department of Hawaiian Home Lands [DHHL] and County). The condition of the lines may impact paved road surfaces.

Please call Michael Miyamoto at (808) 270-7845 if you have any questions regarding this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Milton M. Arakawa".

Milton M. Arakawa, A.I.C.P.  
Director of Public Works

MMA:MMM:ls

xc: Highways Division

Engineering Division

Brian Kau, P.E., Chief Engineer, Department of Agriculture

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RECEIVED JUN 28 2010





**DEPARTMENT OF THE ARMY**  
**U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT**  
**FORT SHAFTER, HAWAII 96858-5440**

REPLY TO  
ATTENTION OF:

June 23, 2010

Regulatory Branch

File Number **POH-2010-00161**

Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, HI 96817

Brian Kau, P.E.  
Chief Engineer  
Agriculture Resource Management Division  
State of Hawaii, Dept. of Agriculture  
1428 South King Street  
Honolulu, HI 96814

Dear Ms. Sakoda and Mr. Kau:

This responds to your request for written comments for the preparation of a draft Environmental Assessment (dEA) for Molokai Properties Limited (MPL)'s continued use of the Molokai Irrigation System to transport Water from Well 17 to the west end of Molokai, Molokai Island. The dEA shall address activities, structures and potential environmental impacts for the transmission of water in a 9.7 mile corridor. The location of the assessed project will be at TMKs 251-254 and include 77 individual parcels.

The proposed water transmission lease renewal project and dEA will be reviewed pursuant to Section 404 of the Clean Water Act (Section 404).

Section 404 requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including wetlands, prior to conducting the work (33 U.S.C. 1344). The area of Corps jurisdiction under Section 404 extends to the Mean High Tide Line (MHTL) for navigable waters like the Pacific Ocean, and to the upland boundary of any adjacent wetlands.

Based upon general information provided the location of the project to be assessed does not appear subject to Section 10 of the Rivers and Harbors Act of 1899 (Section 10). Section 10 requires that a Department of Army (DA) permit be obtained for certain structures or work in or affecting navigable waters of the United States (U.S.), prior to conducting the work (33 U.S.C. 403). Navigable waters of the U.S. are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified as navigable by the Honolulu District. In addition, a Section 10 permit is required for structures or work outside this

limit if they affect the course, location, or condition of the waterbody (generally the Pacific Ocean) as to its navigable capacity.

The dEA should provide sufficient detail about the location of perennial, intermittent and ephemeral streams and drainageways, including wetlands, which are traversed by the water transmission line or are adjacent to the transmission corridor. Specific information should indicate the configuration of water transmission structures where crossings of waters, drainageways and wetlands are present (i.e., overhead/suspended, buried, trestled). Where practicable, methods of maintenance, proposed appurtenant construction and associated ground disturbing and in-water activities that may likely occur during use should be included.

This Regulatory Branch requests a copy of the above dEA for additional evaluation and comment.

Thank you for your consideration of potential impacts to the aquatic environment of Molokai's watersheds. Please contact Mr. Farley Watanabe of my staff at 808-438-7701, facsimile 808-438-4060, or by email at [Farley.K.Watanabe@usace.army.mil](mailto:Farley.K.Watanabe@usace.army.mil) if you have any questions or need additional information. Please refer to File Number **POH-2010-00161** in any future correspondence with us.

Sincerely,

A handwritten signature in black ink, appearing to read "George P. Young", with a stylized flourish at the end.

George P. Young, P.E.  
Chief, Regulatory Branch



**DEPARTMENT OF THE ARMY**  
**U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT**  
**FORT SHAFTER, HAWAII 96858-5440**

REPLY TO  
ATTENTION OF:

June 23, 2010

Regulatory Branch

File Number **POH-2010-00161**

Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, HI 96817

Brian Kau, P.E.  
Chief Engineer  
Agriculture Resource Management Division  
State of Hawaii, Dept. of Agriculture  
1428 South King Street  
Honolulu, HI 96814

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Sincerely,

A handwritten signature in black ink, appearing to read "George P. Young", with a stylized flourish at the end.

George P. Young, P.E.  
Chief, Regulatory Branch

CHARMAINE TAVARES  
Mayor

MILTON M. ARAKAWA, A.I.C.P.  
Director

MICHAEL M. MIYAMOTO  
Deputy Director

Telephone: (808) 270-7845  
Fax: (808) 270-7955



RALPH NAGAMINE, L.S., P.E.  
Development Services Administration

CARY YAMASHITA, P.E.  
Engineering Division

BRIAN HASHIRO, P.E.  
Highways Division

COUNTY OF MAUI  
**DEPARTMENT OF PUBLIC WORKS**  
200 SOUTH HIGH STREET, ROOM NO. 434  
WAILUKU, MAUI, HAWAII 96793

June 24, 2010

Ms. Colette Sakoda  
ENVIRONET, INC.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

**SUBJECT: PRE-ASSESSMENT CONSULTATION TO PREPARE A  
DRAFT ENVIRONMENTAL ASSESSMENT FOR MOLOKAI  
PROPERTIES LIMITED'S CONTINUED USE OF THE  
MOLOKAI IRRIGATION SYSTEM TO TRANSPORT  
WATER FROM WELL 17 TO THE WEST END OF  
MOLOKAI; TMK: (2) 5-1-4, 77 DIFFERENT PARCELS**

We reviewed the subject application and have the following comment:

1. We are concerned with the condition of the transmission lines/irrigation system that are located on government roads (Department of Hawaiian Home Lands [DHHL] and County). The condition of the lines may impact paved road surfaces.

Please call Michael Miyamoto at (808) 270-7845 if you have any questions regarding this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Milton M. Arakawa".

Milton M. Arakawa, A.I.C.P.  
Director of Public Works

MMA:MMM:ls

xc: Highways Division  
Engineering Division

Brian Kau, P.E., Chief Engineer, Department of Agriculture

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**LINDA LINGLE**  
Governor



**SANDRA LEE KUNIMOTO**  
Chairperson, Board of Agriculture

**DUANE K. OKAMOTO**  
Deputy to the Chairperson

State of Hawaii  
**DEPARTMENT OF AGRICULTURE**  
1428 South King Street  
Honolulu, Hawaii 96814-2512  
Phone: (808) 973-9600 Fax: (808) 973-9613

June 24, 2010

Ms. Colette Sakoda  
Environmental Planning Program Manager  
Environet, Inc.  
150 Iwilei Road, Suite 204  
Honolulu, HI 96817

Dear Ms. Sakoda:

RE: Pre-Assessment consultation to prepare a Draft Environmental Assessment for Moloka'i Properties Limited's continued use of the Moloka'i Irrigation System to transport water from Well 17 to the West End of Moloka'i

Enclosed for your use is Maui County Department of Transportation's response to your request for written comments on the subject project.

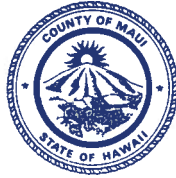
Sincerely,

Boings

**Brian Kau, P.E.**  
**Administrator and Chief Engineer**  
**Agricultural Resource Management Division**

Enclosure

CHARMAINE TAVARES  
MAYOR



DON A. MEDEIROS  
Director  
WAYNE A. BOTEILHO  
Deputy Director  
Telephone (808) 270-7511  
Facsimile (808) 270-7505

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI  
200 South High Street  
Wailuku, Hawaii, USA 96793-2155

June 18, 2010

Mr. Brian Kau  
State of Hawaii  
Department of agriculture  
1428 South King Street  
Honolulu, Hawaii 96817

Subject: Draft Environmental Assessment for Moloka'i Porperties Limited's  
Continued Use of the Moloka'i irrigation System to Transport Water from Well 17  
to the West End of Moloka'i

Dear Mr. Kau,

Thank you for the opportunity to comment on this project. We have no  
comments to make at this time.

Please feel free to contact me if you have any questions.

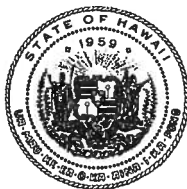
Sincerely,

A handwritten signature in black ink, appearing to read "Don Medeiros", is written over a horizontal line.

Don Medeiros  
Director

RECEIVED JUN 23 2010

LINDA LINGLE  
GOVERNOR



**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORMBY  
FRANCIS PAUL KEENO  
BRIAN H. SEKIGUCHI  
JIRO A. SUMADA

IN REPLY REFER TO:

STP 8.0160

July 13, 2010

Ms. Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Subject: Molokai Properties Limited (MPL) Continued Use of the Molokai Irrigation System (MIS) – Pre-Assessment Consultation for Draft Environmental Assessment (DEA)

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project.

DOT understands that MPL is in the process of preparing a DEA for the continued use of the MIS to transport water from Well 17 in Kualapuu to the west end of Molokai. Portions of the MIS appear to run in or along State highway facilities (Kalae Highway and Mauna Loa Highway). DOT's comments are as follows:

1. Maps should be provided to show the locations of the MIS system within or abutting the State highway rights-of-way (ROW);
2. Figure 1, Estimated Project Extent, should more clearly distinguish between major roads, State water lines and MPL owned lines;
3. Tax map plat numbers should be included in the DEA; and
4. A request to continue using any portion of a State highway ROW for the MIS should be submitted to the DOT Highways Division ROW Branch for review and approval.

DOT appreciates the opportunity to provide comments on the subject project. When the DEA for the project is completed, DOT requests four (4) paper copies of the document be provided for



Ms. Colette Sakoda  
Page 2  
July 13, 2010

STP 8.0160

staff review and any necessary approvals. If there are any questions, please contact Mr. David Shimokawa of the DOT Statewide Transportation Planning Office at telephone number (808) 587-2356.

Very truly yours,

*Francis Paul Keeno*

*for* BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

c: Brian Kau, Department of Agriculture



STATE OF HAWAII  
**DEPARTMENT OF HUMAN SERVICES**  
Benefit, Employment & Support Services Division  
820 Mililani Street, Suite 606  
Honolulu, Hawaii 96813

July 13, 2010

Refer to 10:0452

Ms. Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Thank you for your letter dated June 9, 2010, that requests the Department review the Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Molokai Properties Limited (MPL)'s Continued Use of the Molokai Irrigation System (MIS) to Transport Water from Well 17 to the West End of Molokai. The Director of the Department of Human Services (DHS) has forwarded your letter to me for a response.

After a review of the proposed project, we do not have any comments regarding any environmental impacts associated with the project. We also do not foresee any impact on any child care services in the community at this time.

If you have any questions or need further information, please contact Ms. Kathy Ochikubo, Child Care Program Specialist, at (808) 586-7058.

Sincerely,

  
for Pankaj Bhanot  
Division Administrator

c: Lillian B. Koller, Director, Department of Human Services  
Brian Kau, P.E., Department of Agriculture



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

July 12, 2010

Environet, Inc.  
650 Iwilei Road Suite 204  
Honolulu, Hawaii 96817

Attention: Ms. Colette Sakoda


Ladies and Gentlemen:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment for Continued Use of the Molokai Irrigation System to Transport Water from Well 17 to the West End of Molokai

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Division of Aquatic Resources, Historic Preservation, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

  
for Morris M. Atta  
Acting Administrator



DAR 3166



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

June 16, 2010

MEMORANDUM

TO:

**DLNR Agencies:**

- ☒ Div. of Aquatic Resources
- ☐ Div. of Boating & Ocean Recreation
- ☒ Engineering Division
- ☐ Div. of Forestry & Wildlife
- ☐ Div. of State Parks
- ☒ Commission on Water Resource Management
- ☐ Office of Conservation & Coastal Lands
- ☒ Land Division - Maui District
- ☒ Historic Preservation



RECEIVED  
LAND DIVISION  
2010 JUL -6 P 12:43  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

FROM: Charlene Unoki, Assistant Administrator  
SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Continued Use of the Molokai Irrigation system to Transport Water from Well 17 to the West End of Molokai  
LOCATION: Island of Molokai  
APPLICANT: Environet, Inc. on behalf of Molokai Properties Limited

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by **July 8, 2010**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- ( ) We have no objections.
- ( ) We have no comments.
- (X) Comments are attached.

Signed: Francis Unoki  
Date: 7-2-10

DIVISION OF AQUATIC RESOURCES - MAUI  
DEPARTMENT OF LAND & NATURAL RESOURCES  
130 Mahalani Street  
Wailuku, Hawai'i 96793  
July 1, 2010

To: Alton Miyasaka, Aquatic Biologist  
From:  Skippy Hau, Aquatic Biologist  
Subject: Pre-Assessment Consultation for Draft EA For Continued  
Use of the Molokai Irrigation System from Well 17  
(DAR3166)  
(Due July 8, 2010 Charlene Unoki Land)

Similar to irrigation ditches and reservoirs on Maui, has the whole system been evaluated for leakage and efficiency? Would it be more efficient to change parts of the system to pipes?

Leaking auwai used to irrigate kalo and water flowing back into the stream is significantly different than removing water outside of the original ahupua'a. The justification of water for "agriculture" should be weighed against the actual amount needed for aquifer recharge protection and sustainable well use. Has well depth been decreasing?

We are experiencing our fourth year of drought on Maui and below average rainfall. The lining of a leaking reservoir should reduce the need for continued total diversion of stream water at each irrigation ditch intersection. Most of the streams have been turned into dry gulches. They remain intermittent and flow only during heavy storms.



2010.2357 CC



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

June 16, 2010

RECEIVED  
HISTORIC PRES. DIV.  
DEPT. OF LAND &  
NATURAL RESOURCES  
2010 JUN 24 A 11:25

MEMORANDUM

TO: **DLNR Agencies:**  
☒ Div. of Aquatic Resources  
☐ Div. of Boating & Ocean Recreation  
☒ Engineering Division  
☐ Div. of Forestry & Wildlife  
☐ Div. of State Parks  
☒ Commission on Water Resource Management  
☐ Office of Conservation & Coastal Lands  
☒ Land Division - Maui District  
☒ Historic Preservation

FROM: Charlene Unoki, Assistant Administrator

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Continued Use of the Molokai Irrigation system to Transport Water from Well 17 to the West End of Molokai

LOCATION: Island of Molokai

APPLICANT: Environet, Inc. on behalf of Molokai Properties Limited

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by **July 8, 2010**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- ( ) We have no objections.  
(X) We have no comments.  
( ) Comments are attached.

Signed: Phyllis Coochee Cayan, History + Culture Branch Chief  
Date: 9 July 2010

phone: 692-0825

LINDA LINGLE  
GOVERNOR

MAJOR GENERAL ROBERT G. F. LEE  
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA  
VICE DIRECTOR OF CIVIL DEFENSE



PHONE (808) 733-4300  
FAX (808) 733-4287

**STATE OF HAWAII**  
**DEPARTMENT OF DEFENSE**  
**OFFICE OF THE DIRECTOR OF CIVIL DEFENSE**  
3949 DIAMOND HEAD ROAD  
HONOLULU, HAWAII 96816-4495

July 29, 2010

Ms. Colette Sakoda  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

Thank you for your letter of June 9, 2010, and the opportunity to review and provide comments on the Pre-Assessment Consultation to Prepare a Draft Environmental Assessment for Moloka'i Properties Limited Continued Use of the Moloka'i Irrigation System to Transport Water from Well 17 to the West End of Moloka'i.

We do not see any impact.

Once again, thank you for the opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward T. Teixeira".

EDWARD T. TEIXEIRA  
Vice Director of Civil Defense

c: Brian Kau

LINDA LINGLE  
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.  
DIRECTOR OF HEALTH

**STATE OF HAWAII  
DEPARTMENT OF HEALTH**

P.O. BOX 3378  
HONOLULU, HAWAII 96801-3378

In reply, please refer to:  
EMD/SOWB

July 29, 2010

Ms. Colette Sakada  
Environet, Inc.  
650 Iwilei Road, Suite 204  
Honolulu, Hawaii 96817

Dear Ms. Sakoda:

SUBJECT: PRE-ASSESSMENT CONSULTATION  
DRAFT ENVIRONMENTAL ASSESSMENT  
MOLOKAI PROPERTIES LIMITED (MPL) CONTINUED USE OF THE  
MOLOKAI IRRIGATION SYSTEM (MIS)

We have received your letter dated June 9, 2010, requesting comment for the pre-assessment consultation for the subject project. We would like to express our appreciation for the opportunity to provide comments during this early phase of the environmental assessment process.

However, we would like to reserve comment at this time and look forward to a later time when more details become available for review and comment. At that time we would welcome the opportunity for review and comment.

If you should have any questions, please contact Craig Watanabe of the Safe Drinking Water Branch at 586-4258.

Sincerely,

A handwritten signature in dark ink, appearing to read "Stuart Yamada", is written over a horizontal line.

STUART YAMADA, P.E., CHIEF  
Safe Drinking Water Branch  
Environmental Management Division

CW:slm

c: Brian Kau, P.E., Chief Engineer  
Department of Agriculture

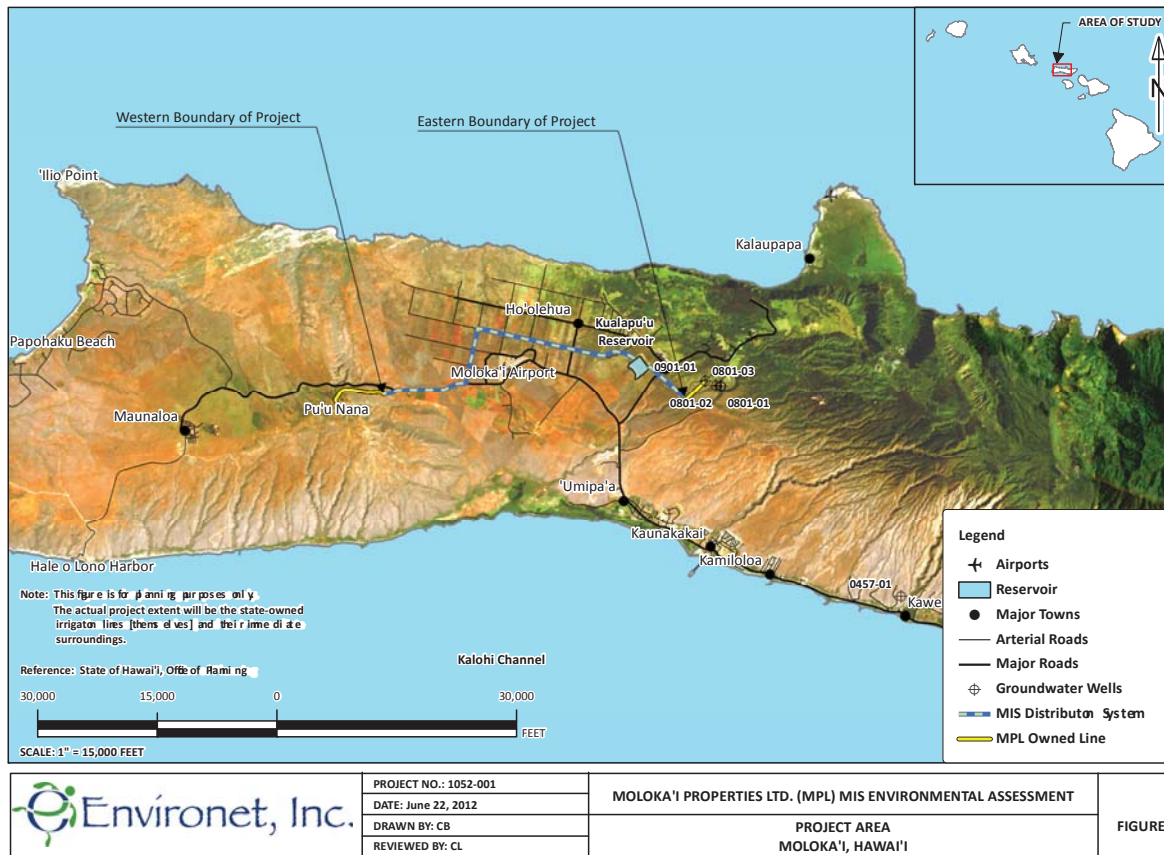




**APPENDIX D**  
**CULTURAL IMPACT ASSESSMENT**

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**Draft Cultural Assessment for the Continued Use of the Moloka‘i Irrigation System  
to Transport Water from Well 17 to the West End of Moloka‘i by Kaluakoi Water LLC  
Owned by Molokai Properties Limited  
Kualapu‘u, Island of Moloka‘i**



**August 2012**

by  
***Davianna Pōmaika'i McGregor, PhD***  
***Professor, Ethnic Studies Department***  
***University of Hawai'i, Mānoa***

**Continued Use of the Molokai Irrigation System (MIS)  
to Transport Water from Well 17 to the West End of Moloka'i by Kaluakoi Water LLC  
(KWL) Owned by Molokai Properties Limited (MPL)  
Kualapu'u, Island of Moloka'i, Hawai'i**

Project Name:	Continued Use of the Moloka'i Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i
Location:	Kualapu'u, Island Moloka'i, Hawai'i
Applicant:	Molokai Properties Limited (MPL)
Landowner:	The MIS is owned by the Hawai'i State Department of Agriculture
Tax Map Key:	(2) zone 5, sections 1 - 4, 69 different parcels
Project Area:	see map on cover
Existing Uses:	The MIS is currently used to transport water from Well 17 to the West End of Moloka'i
Proposed Use:	Continued use of the MIS to transport water from Well 17 to the West End of Moloka'i
Land Use Designations:	Agriculture and Conservation (2)
Permits/Approvals Required:	Compliance with Hawaii Revised Statutes Chapter 343
Accepting Authority:	State of Hawai'i Department of Agriculture

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## **Executive Summary of the Cultural Assessment**

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This Draft Cultural Impact Assessment Report has been prepared as part of the Draft Environmental Assessment (EA) for the Continued Use of the Molokai Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i by Kaluakoi Water LLC (KWL) owned by Molokai Properties Limited (MPL) Kualapu'u, Island of Moloka'i. (hereinafter the distributor shall be referred to simply as MPL)

In accordance with HRS 343, this draft provides an assessment of the potential significant effects that the proposed project may have on, the "cultural practices of the community and State." It also includes "measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects."

HRS 343 defines "Significant effect" as "the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic welfare, social welfare, or cultural practices of the community and State."

Further, this assessment considers the effects that the proposed project may have on "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" which are reaffirmed and protected by Article XII. Section 7 of the Hawai'i State Constitution.

The project area extends across five (5) ahupua'a in the Kona District on the island of Moloka'i, from where Well 17 water enters the MIS system in the ahupua'a of Kahanui 2 and flows in the MIS pipe through the ahupua'a of Nā'iwa, Ho'olehua 2, Pālā'au 2 and to the Kaluako'i ahupua'a where it exits the MIS system at the Mahana pump station.

Keala Pono Archaeological Consulting, LLC conducted an archaeological assessment of the existing and proposed waterline corridors from Kualapu'u to Mahana that included archival research and a walk-through of the routes. Their report, completed in September 2011 provides a comprehensive description of the mo'olelo and historic cultural resources of the project area.

### **Summary of Identified Cultural Resources and Concerns**

This cultural assessment discusses the cultural impacts identified by Hawaiian Homesteaders in three court cases and two contested hearings and cultural impacts identified by residents of Ho'olehua, Pāpōhaku, Kaluako'i and Maunaloa. Tables 1 and 2 summarize these cultural impacts.



**Table 1. Cultural Impacts Identified by Homesteaders in Court Cases**

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the U.S. Ninth Circuit Court of Appeals</b>	<b>Date of Ruling</b>
1. MIS can only be used to transport irrigation water	MHCA v Morton	Direct	MIS can be used for domestic water users, which includes distributors of water for domestic use	10-29-74
2. Irreparable injury to the quality of the irrigation water	MHCA v Morton	Direct	"the evidence indicates that the quality of the water to be added would be well within the limits recommended by the United States Public Health Service. In fact, water in the irrigation system after such a mingling of water would be of such quality that it would be suitable for use in a domestic water system."	10-29-74
3. Irreparable harm to the quantity of homesteaders' irrigation water	MHCA v Morton	Direct	<p>"It is proposed that the agreement with Kaluako'i Corporation will contain a clause reserving to the state the right to limit or withdraw the use of the pipeline and</p> <p>other water facilities of the Molokai Irrigation System at any time during the term of the agreement when the Board of Land and Natural Resources determines that the capacity of the pipeline is not sufficient to meet the needs of the public."</p>	10-29-74
4. The Capacity of the MIS to deliver water for irrigation will be affected	MHCA v Morton	Direct	<p>The Board can rescind the Agreement if the System's capacity is insufficient to meet agricultural needs.</p> <p>"The Board is required to give Kaluakoi two years notice in this situation so that Kaluakoi can construct its own pipelines or develop other water sources."</p>	10-29-74

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court (HSC)</b>	<b>Date of HSC Ruling</b>
5. Well 17 would inject highly saline water into the MIS	Ah Ho v Cobb	Direct	"In appellants' stipulation to their dismissal of their Fifth to Eight Claims on November 1, 1976, they agreed that the injection of Kaluako'i's water with a chloride content of 250 parts per million or less will not cause pollution of the System or detrimentally affect them. The Department also reserved the right to limit or control any chemical, physical, or biological constituent of Kaluako'i's water if it will harm the System's original function and purpose. "	6-19-81
6. The state's water supply will be depleted	Ah Ho v Cobb	Direct	"The Agreement will not deplete the State's water supply. Kaluakoi is limited to a maximum transmission flow of 2.2 million gallons per day and can only withdraw the amount of water that it injects into the System, less 10 percent to compensate for water system losses. Thus, if Kaluakoi does not inject any water into the System, it cannot withdraw any State water."	6-19-81

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court (HSC)</b>	<b>Date of HSC Ruling</b>
7. Irrigation water from the MIS will be allocated to Kaluako'i's domestic consumers in the event of a drought or water shortage during an emergency	Ah Ho v Cobb	Direct	"In the event of a drought or an emergency, the State reserved the right to set priorities and control the allocation of water. Under HRS 175-4, the Hawaiian Homesteaders 'shall at all times, upon actual need therefor being shown to the board, have a prior right to two-thirds of the water developed for the irrigation and water utilization project . . .' The Agreement is also subject to Rule III (5) Of Regulation 1 which states that during water shortages, the State will assure all consumers of receiving a fair share of the irrigation water available."	6-19-81
8. Pricing Method for Kaluako'i is unfair in comparison to Homesteaders'	Ah Ho v Cobb	Direct	"Kaluakoi is not purchasing State water, and the Agreement's flat annual rental fee does not affect the regulation."	6-19-81
9. Kaluako'i will withdraw state water	Ah Ho v Cobb	Direct	"Kaluakoi is limited to a maximum withdrawal of the amount that it injects, less 10 percent. The proportionate amount of state water in the System is not diminished."	6-19-81

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court (HSC)</b>	<b>Date of HSC Ruling</b>
11. Project is within purview of Chapter 343 which requires an EIS	MHCA v Cobb	Direct	<p>The agreement to rent space in the MIS to Kaluakoi was made prior to the enactment of HRS 343 and was therefore not subject to an EIS, otherwise it would have been within the purview of Chapter 343."</p> <p>"A proposal whose approval would facilitate the <b>development of a large resort complex in a previously unpopulated area</b> through the use of the Molokai Irrigation System's pipeline, <b>allow water to be transported from its source to another area</b>, and <b>cause a rise in the salinity</b> of the system's irrigation water would be within the purview of activities covered by Chapter 343. The <b>use of a government pipeline, the implicit commitment of prime natural resources to a particular purpose, perhaps irrevocably, and the substantial social and economic consequences of the governmental approval of the proposal</b> would dictate the preparation of an EIS."</p>	06-19-81

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court</b>	<b>Date of HSC Ruling</b>
12. Interference with Department of Hawaiian Home Lands "2.905 mgd reservation" of water	Waiola O Molokai	Indirect	<p>Molokai Ranch (MR)-Waiola had the burden of establishing, pursuant to HRS § 174C-49(a)(7), that the proposed use would not interfere with DHHL's 2.905 reservation of water in the Kualapu`u aquifer system.</p> <p>"Thus, 'existing legal uses' and 'reservations' of water constitute distinct interests in the State's water resources, which HRS § 174C-49(a) protects separately against interference by competing interests."</p> <p>"In sum, the state may compromise public rights in the resource pursuant only to a decision made with a level of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our state."</p>	01-29-04

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court</b>	<b>Date of HSC Ruling</b>
13. Groundwater cannot be transported outside of the Kualapu'u Aquifer	Waiola O Molokai	Indirect	<p>"MR-Waiola has the right to transport groundwater beyond the Kamiloloa aquifer system, pursuant to HRS § 174C-49(c)."</p> <p>"The right to transport water outside the watershed of origin is contingent upon a finding by the Commission that 'such transport and use are consistent with the public interest and the general plans and land use policies of the state and counties.' <u>See</u> HRS § 174C-49(c)"</p> <p>"The Water Code requires, inter alia, that the applicant prove that the proposed use of water is a 'reasonable-beneficial use' and is consistent with public interest' HRS 174C-49(a)(2) NS (4) 1993. 'Reasonable-beneficial use' is defined as '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 public interest.'</p>	01-29-04

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court</b>	<b>Date of HSC Ruling</b>
14. Burden to prove that the proposed water use will not abridge or deny traditional and customary native Hawaiian rights.	Waiola O Molokai	Indirect	" Contrary to the implications of COL No. 24, MR-Waiola was obligated to demonstrate <u>affirmatively</u> that the proposed well would <u>not</u> affect native Hawaiians' rights; in other words, the absence of evidence that the proposed use would affect native Hawaiians' rights was insufficient to meet the burden imposed upon MR-Waiola by the public trust doctrine, the Hawai'i Constitution, and the Code."	01-29-04
15. Use of water for Kaluako'i from Well 17 conflicts with the DHHL "reservation" of water which is a public trust "purpose"	Kukui (Moloka'i)	Indirect	"under the public trust [doctrine] and the Code, permit applicants have the burden of justifying their proposed uses in light of protected public rights in the resource." Waiahole I, 914 Hawaii @ 160, P.3d at 472. The Water Code requires, inter alia, that the applicant prove that the proposed use of water is a 'reasonable-beneficial use' and is consistent with public interest' HRS 174C-49(a)(2) NS (4) 1993. 'Reasonable-beneficial use' is defined as '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 public interest.' HRS § 174C-3	12-26-07

<b>Cultural Impacts Identified by Homesteaders</b>	<b>Court or Contested Case</b>	<b>Nature of Impact</b>	<b>Ruling of the Hawai'i Supreme Court</b>	<b>Date of HSC Ruling</b>
16. Applicants must demonstrate that there are no alternative water sources	Kukui (Moloka'i)	Indirect	"Besides advocating the social and economic utility of their proposed uses, permit applicants must also demonstrate the absence of practicable mitigating measures, including the use of alternative water sources. Such a requirement is intrinsic to the public trust, the statutory instream use protection scheme, and the definition of 'reasonable-beneficial' use, and is an essential part of any balancing between competing interests."	12-26-07

**Table 2. Impacts Identified by Pāpōhaku/Kaluaka'i Residents - Summer 2011**

<b>Impacts Identified by Pāpōhaku/Kaluako'i Residents</b>	<b>Nature of Impact</b>
1. Affect access to water for drinking and domestic uses	Direct
2. Affect existence of Pāpōhaku/Kaluako'i Communities	Direct
3. Alienate the Pāpōhaku, Kaluako'i and Maunaloa communities	Direct
4. Affect back Up Water Source for Maunaloa Community	Direct
5. Affect access to water for Pāpōhaku Park and Beach Access points	Direct
6. Affect Maui County's obligation to provide water for Pāpōhaku Beach	Direct



## Summary of Findings

### Renewal of Agreement for MPL to Rent Space in the MIS

There are **no apparent direct** cultural impacts that would be caused by the continued use of the Moloka'i Irrigation System (MIS) to transport water from Well 17 to the West End of Moloka'i.

The pumping of water from Well 17; the impact of this pumping upon the Kualapu'u aquifer and on the nearshore marine resources used for traditional and customary subsistence practices; and the commitment of water as a prime natural resource to the West End for resort, domestic and other uses, are **important indirect impacts** related to the **source and end users** of the water for which continued use of the MIS is necessary. These impacts are discussed as indirect impacts in this assessment, but can be more fully addressed as direct impacts in a separate environmental assessment to renew the Water Use Permit for Well 17. Provided MPL succeeds in gaining a restored Transmission Agreement for use of the MIS, MPL plans to apply for a new Well Permit from the Commission on Water Resources Management for the use of Well 17.

Table 3 outlines the assessment of direct cultural impacts of renewing the Agreement for MPL to rent space in the MIS. Table 4 outlines the assessment of the direct cultural impacts of denying the renewal of the MPL Agreement. Table 5 outlines the indirect cultural impacts of renewing the MPL agreement.

**Table 3. Impacts of Renewing Agreement for MPL to Rent Space in the MIS**

Direct Impacts of Agreement Renewal	Assessment	Mitigation
1. No Construction or Alteration of Landscape	No Impact	No mitigation needed
2. Dedicated use of Water for Pāpōhaku and Kaluako'i	The allocation of water to MPL will not change as part of the agreement under the DOA	No change in the allocation of water to MPL to serve Pāpōhaku and Kaluako'i communities. Amount allocated to MPL can be reviewed as part of the proceeding to renew the permit for Well 17 by CWRM.
3. Affect the salinity of the MIS water	Data shows that the chloride levels in Well 17 have never been more than 120 parts per million gallons since 1952 and has been less than 59 ppmg in the last ten years. This is far below the EPA potability guideline of 250 ppmg.	Continued monitoring of the chloride levels of Well 17
4. Overextend Capacity of the MIS	All users of the MIS combined - Hawaiian Homesteaders, MPL and Private Agriculture	No mitigation needed

	users use only 21.4% of the MIS capacity	
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<b>Direct Impacts of Agreement Renewal</b>	<b>Assessment</b>	<b>Mitigation</b>
5. Overextend the capacity of the MIS Reservoir	In the past 37 years since the MIS has been used to transport water to the West End, the <b>capacity</b> of the reservoir has not been affected	Under the Agreement (1) MPL can only use "excess capacity" in the reservoir and (2) should there no longer be sufficient capacity in the reservoir, then the use of the MIS by MPL would have to be relinquished, with a reasonable period of notice. No mitigation needed
6. Use of MIS water by MPL	For every 1000 gals put into the MIS system, MPL is only permitted to withdraw 900 gallons. Violations by Kukui (Molokai), Inc. occurred in 1998 during a drought and the loss was compensated. In Dec 2001 when MPL acquired the Molokai Public Utility there was a 30 million gallon deficit that was made up within 2 months by mid-February 2002. From April 5 - August 19, 2004 MPL used MIS water when it changed the Well 17 pump engine. The water was replaced.	Since 2007, MPL keeps an average annual buffer of 18 million gallons in the MIS Reservoir as a buffer against any breakdowns. It is also available to MIS for breakdowns, drought or an emergency.  Strict and rigorous enforcement of the terms of the Agreement
7. Use of MIS Water During Drought or an Emergency	As noted above, MPL did use MIS water during a drought and when they replaced their pump.	The Hawai'i Supreme Court, in the Ah Ho v Cobb case, ruled that, "In the event of a drought or an emergency, the State reserved the right to set priorities and control the allocation of water." Under HRS 175-4, the Hawaiian Homesteaders "shall at all times, upon actual need therefore being shown to the board, have a prior right to two-thirds of the water

		developed for the irrigation and water utilization project ."
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<b>Direct Impacts of Agreement Renewal</b>	<b>Assessment</b>	<b>Mitigation</b>
7. Use of MIS Water During drought or an emergency (cont.)		The Agreement is also subject to Rule III(5) Of Regulation 1 which states that during water shortages, the State will assure all consumers of receiving a fair share of the irrigation water available."
8. Price for Rental of MIS Space	MPL pays a rate comparable to or greater than the rate paid by homesteader and non-homesteader users of the MIS.	<p>Based on the potential allocation for MPL from Well 17 of 1.018 million gallons per day pumpage, this amounts to \$0.3725 per 1,000 gallons stored in the MIS Reservoir and transported through 6 miles of pipeline. However, when one considers the actual current pumpage of 413,000 gallons a day, this amounts to \$0.918 per 1,000 gallons stored in the MIS Reservoir and transported through 6 miles of pipeline.</p> <p>The homesteader and non-homesteader users of the MIS pay \$0.55 per 1,000 gallons to have transported through 25 miles of the MIS and stored in the reservoir.</p>

**Table 4. Direct Cultural Impacts of Denying Renewal of MPL Rental Agreement**

<b>Direct Impacts of Denying Agreement Renewal</b>	<b>Assessment</b>	<b>Mitigation</b>
1. No access to water for drinking and domestic uses by 553 households of Pāpōhaku and Kaluako‘i	Significant, critical and unacceptable impact. Breach of MPL agreement with the Public Utilities Commission to provide water to Pāpōhaku and Kaluako‘i households.	Extend Agreement for MPL to rent space in the MIS indefinitely or if not, until a pipeline over an alternate route is constructed.
2. Eliminate a Community	same as above	same as above
3. Alienate the Pāpōhaku, Kaluako‘i and Maunaloa communities	Divide the communities of Moloka‘i	same as above
4. Cut off 167 households in Maunaloa from Back Up Water	same as #1	same as above
5. Cut water from Pāpōhaku Park and Beach Access points	Critical and unacceptable impact.	same as above or Close park and beach access points
6. Loss of Revenue to MIS	Loss of between 20% to 23% (depending on monthly collections from other users) of the revenues that keep the MIS operational.	Increase rates paid by homestead and non-homestead users of the MIS.
7. Higher Rates for MIS Users	Increase of production costs to homestead and non-homestead users of the MIS	Subsidy from the state or federal government
8. Loss of Back-Up Water During a Drought	Since 2007, MPL has kept an average buffer in the MIS reservoir of approximately 18 million gallons on an annual basis. This water is a buffer against a breakdown at its Well 17, but is also, under an agreement with DOA, available for agricultural users of the MIS system should droughts result in limitations on water availability.	Keep the existing link from Well 17 to the MIS for use in case of extreme drought and/or emergency.

**Table 5. Indirect Cultural Impacts of Renewing the MPL Agreement**

Indirect Impacts of Agreement Renewal	Assessment	Mitigation
1. Increase of chloride levels in DHHL wells in Kualapu‘u Reservoir	The USGS reported that Well 17 (Well ID 0901-01) chloride levels do not appear to have been significantly affected by withdrawals from the DHHL or Maui DWS wells, thus Well 17 appears to be independent from the DHHL well. The increase in chloride concentrations in the DHHL wells (Well IDs 0801-01 and 0801-02) appears to be due to the operation of the Maui DWS well (Well ID 0801-03), and does not represent widespread aquifer degradation.	Assess the models and data for the impact on the DHHL wells when MPL applies for its water use permit for Well 17.
2. Interfere with DHHL 2.905 mgd reservation of water which is a public trust purpose	The USGS reported that AWell 17 (Well ID 0901-01), chloride levels do not appear to have been significantly affected by withdrawals from the DHHL or Maui DWS wells. The amount of water that CWRM allows MPL to withdraw from the Kualapu‘u reservoir is based on the estimated sustainable yield of the Kualapu‘u aquifer and the 2.905 reservation for DHHL. The increase in chloride concentrations in the DHHL wells (Well IDs 0801-01 and 0801-02) appears to be due to the operation of the Maui DWS well (Well ID 0801-03), and does not represent widespread aquifer degradation.	Assess the models and data for the impact on the Kualapu‘u Reservoir when MPL applies for its water use permit for Well 17.

<b>Indirect Impacts of Agreement Renewal</b>	<b>Assessment</b>	<b>Mitigation</b>
3. Transport groundwater outside of the Kualapu‘u aquifer	Transport of water for drinking and domestic use by residents of Pāpōhaku, Kaluako‘i and Maunaloa is a reasonable-beneficial use	Renew the MPL Agreement indefinitely or at least until a pipeline over an alternate route is constructed.
4. Reduce Discharge of fresh water necessary to sustain nearshore marine life relied upon for subsistence fishing, diving and gathering and traditional and customary cultural and spiritual practices	Models used in the Waiola Case estimated that pumping of 1.25 mgd would reduce ground-water flux to the nearshore area by about 3% to 15%. A 2007 USGS model showed that pumping 1.7 mgd would cause 11 % reduction of coastal discharge near the Kaunakakai stream & reductions on the south coast from Pālā‘au to beyond Kawela & NW of Well 17.	Assess the models and data for the impact on the DHHL wells when MPL applies for its water use permit for Well 17.
5. Distribution of Water to Kaluako‘i Large Resort Complex which was previously unpopulated	Pāpōhaku and Kaluako‘i have 533 households and Maunaloa has 167 households. Since 1980 the population has declined. While the Kaluako‘i Hotel and Golf Course are now closed, these facilities will be reopened and contribute to the health Moloka‘i's economy	Assess MPL’s allocation of water when it applies for its water use permit for Well 17.

### **Recommendations**

The renewal of the MPL Agreement to rent space in the MIS cannot be denied because there is no alternate infrastructure to transport water to households of Pāpōhaku and Kaluako‘i and provide back up water for Maunaloa.

In the longterm, the path which will alleviate the cultural concerns of the homesteaders and provide the lowest rates for water to the Pāpōhaku and Kaluako‘i households would be to extend the MPL Agreement to rent space in the MIS for a ten year period with an option for another automatic 5 year period to allow the negotiation with DHHL and compliance with regulations to construct a pipeline through the existing easement that MPL has with DHHL.

Measures and devices for the Pāpōhaku, Kaluako‘i and Maunaloa residents to conserve water would enhance overall community relations on the island. Another positive gesture would be for MPL to work with the community to replant the native forests that once graced Maunaloa in order to improve the water resources of the Kaluako‘i ahupua‘a.

## **Section 1      Introduction**

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This Draft Cultural Impact Assessment Report has been prepared as part of the Draft Environmental Assessment (EA) for the Continued Use of the Molokai Irrigation System (MIS) to Transport Water from Well 17 to the West End of Moloka'i by Kaluakoi Water LLC (KWL) owned by Molokai Properties Limited (MPL) Kualapu'u, Island of Moloka'i. (hereinafter the distributor shall be referred to simply as MPL)

In accordance with HRS 343, it provides an assessment of the potential significant effects that the proposed project may have on, the "cultural practices of the community and State." It also includes "measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects."

HRS 343 defines "Significant effect" as "the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic welfare, social welfare, or cultural practices of the community and State."

Further, this assessment considers the effects that the proposed project may have on "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" which are reaffirmed and protected by Article XII. Section 7 of the Hawai'i State Constitution.

### **1.1.    Project Description**

Construction of the Molokai Irrigation System began in 1958 with funds provided by the legislature of the Territory of Hawai'i. Upon achieving statehood in 1959, the project was eligible for a federal loan under the Small Reclamation Projects Act of 1956, 43 U.S.C. §422a et seq. The state applied for a loan in 1961. The loan was approved and a repayment contract was entered into between the Department of Land and Natural Resources in 1963. The total cost was \$9,910,400.00, of which the federal government loaned approximately \$4,400,000.00 and the balance contributed by the State of Hawai'i. Construction of the system was completed in 1969. The MIS contains the Waikolu Valley Diversion Works, tunnel, feeder mains, reservoir and distribution works. The sources of the water in Waikolu are high-level compartmentalized dikes. The MIS was constructed to deliver water for irrigation to lands at Ho'olehua and Mauna Loa. The system has the capacity to carry 21 million gallons of water per day and was envisioned to serve approximately 13,650 acres of pineapple land and 400 acres of diversified cropland. In 1974, the MIS delivered 2 million gallons per day to irrigate 7,779 acres of pineapple land and 199 acres of diversified cropland.<sup>1</sup>

Well 17, located in the Kualapu'u aquifer currently provides approximately 413,000 gallons per day of water to Kaluako'i, but under the Commission on Water Resources Management

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<sup>1</sup> Molokai Homesteaders Cooperative Association and Life of the Land, Plaintiffs, v. Rogers B. Morton, 506F.2d 572 (9th Cir. 1974)



(CWRM) allocation to MPL, up to 1.018 million gallons a day (mgd) can be pumped. The water is transported from Well 17 through a MPL pipeline to a link into the MIS system. The water goes through the MIS, including the Kualapu'u reservoir, and over to the Mahana pump station.

At the Mahana pump station, the water exits the MIS and is pumped to Pu'u Nana for treatment. At Pu'u Nana, water from the MPL mountain system is also comingled and treated. From Pu'u Nana, the water from both systems are piped to a reservoir in Maunaloa and gravity fed to Maunaloa Town and Kaluako'i. (see Figure 1 - below). From Pu'u Nana, the system currently provides water for 167 units in Maunaloa Town and 553 units in Pāpōhaku and the Kaluako'i Resort area. Theoretically, the mountain system provides the water that serves Maunaloa Town and the Well 17 provides the water that serves Pāpōhaku and the Kaluako'i Resort area, but, given that the water is comingled both systems serve both areas.

Hawaiian homesteaders have a prior right to two-thirds of the water developed by the MIS. The MIS pipeline has the capacity to transport 21 million gallons of water a day to an open reservoir at Kualapu'u where it is stored prior to entering a distribution network extending from Ho'olehua to Mahana. The reservoir has a capacity of 1.4 billion gallons. It is 54 feet deep and for each foot, 22 million gallons can be stored.

MPL, rents 6 miles of space in the 25 mile MIS pipe system and space in the Kualapu'u Reservoir to transmit Well 17 water to Mahana. In order to account for potential system losses and evaporation, MPL can only withdraw 900 gallons for every 1000 gallons that it transports through the MIS. The amount of water pumped into the MIS from Well 17 and the amount that is withdrawn at Mahana are metered. The meters at both ends are monitored by the Hawai'i Department of Agriculture. MPL pays a monthly rental fee of \$11,375 for the transport and storage of up to a maximum of 1.018 million gallons per day.

Currently, the MIS system transports approximately 2.5 to 4.5 mgd, depending on rainfall. All of the users of the MIS, combined, including what is transmitted by MPL, utilize 21.4% of the system's capacity via a 26 and 30 inch pipe.

The original agreement now held by MPL was finalized by the Board of Land and Natural Resources with the predecessors of MPL on July 11, 1975. It was transferred to the Hawai'i Department of Agriculture in 1989. The agreement expired and the Office of the Attorney General determined that Chapter 343, Hawaii Revised Statutes was triggered and that an environmental assessment would be required in order for the permit to be renewed.

The agreement would allow the continuation of the existing 37-year use of the MIS to transport water from Well 17 to residents and businesses Maunaloa, Pāpōhaku and the Kaluako'i Resort by MPL.



## **1.2 Scope of Work**

The Scope of Work for this project involved:

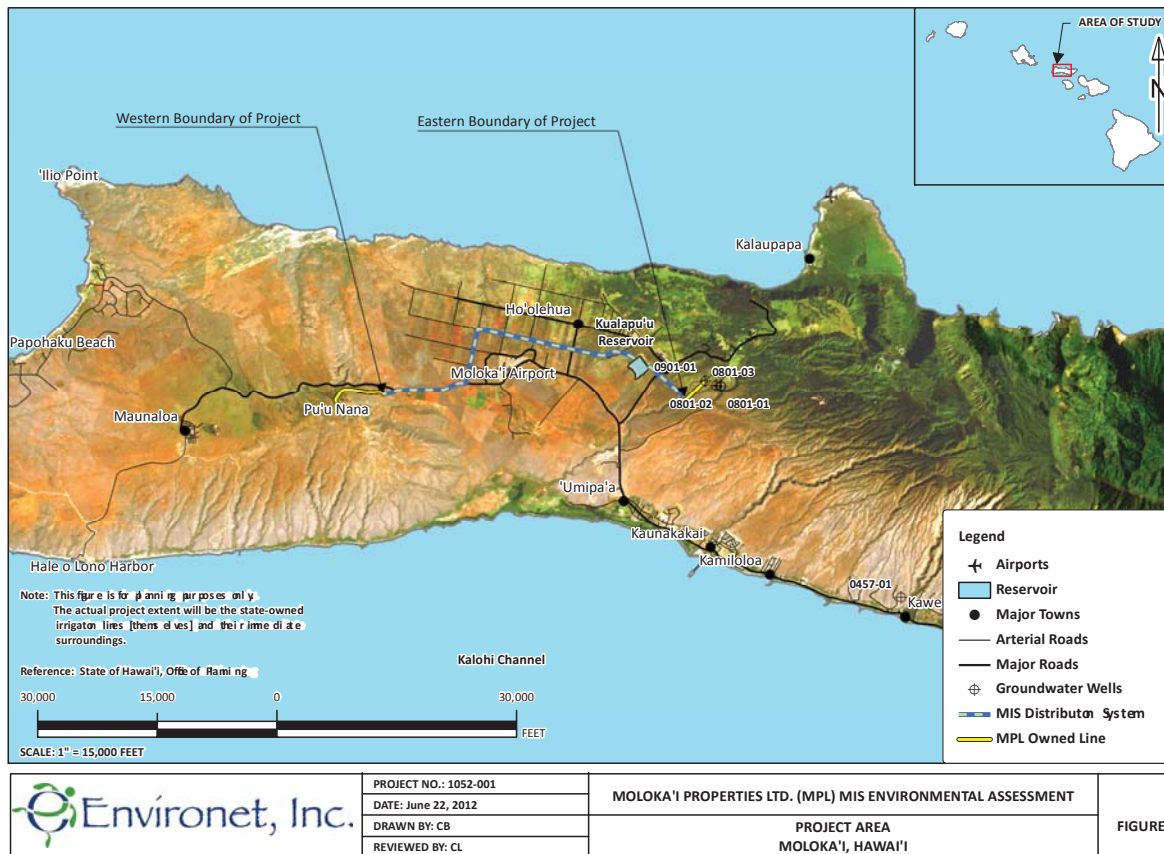
- a. Conducting meetings in Ho'olehua and in Maunaloa to gather and/or identify community impacts of the transfer of water on Hawaiian cultural issues, the use of the MIS and relevant issues to establish whether there is any detrimental impact on Native Hawaiian Gathering Rights.
- b. Conducting interviews with identified cultural practitioners.
- c. Identifying whether the interviews result in alternatives, other than those outlined in this document, to consider.
- d. Undertaking reviews concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.
- e. Conducting discussions concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the use of the MIS.
- f. Discussing any conflicting information with respect to identified cultural resources, practices and belief
- g. Analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements that may alter the setting in which cultural practices take place.
- h. Mitigating measures; i.e. would be MPL need to agree to get off the MIS if Native Hawaiians/DOA ever needs the capacity.

## **1.3. Setting**

The project area extends across five (5) ahupua'a in the Kona District on the island of Moloka'i, from where Well 17 water enters the MIS system in the ahupua'a of Kahanui 2 and flows in the MIS pipe through the ahupua'a of Nā'iwa, Ho'olehua 2, Pālā'au 2 and to the Kaluako'i ahupua'a where it exits the MIS system at Mahana. (see Figure 1. below)

Keala Pono Archaeological Consulting, LLC conducted an archaeological assessment of the existing and proposed waterline corridors from Kualapu'u to Mahana, which included archival research, and a walk-through of the routes. That report, completed in September 2011 provides a comprehensive description of the mo'olelo and historic cultural resources of the project area. Therefore, this study relies upon the Keala Pono report regarding historical cultural resources in the project area, including alternate waterline corridors.

### Figure 1. Map of Project Area



## **Section 2. Methodology**

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### **2.1 Framework For this Cultural Assessment**

Article XII, Section 7 of the Hawai'i State Constitution protects "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."

In its ruling, Ka Pa'akai O Ka 'Āina v. Land use Commission, State of Hawai'i / 94 Haw. 31 (2000), the Hawai'i State Supreme Court outlined findings that must be made in order to "preserve and protect customary and traditional native Hawaiian rights to the extent feasible". According to the ruling, specific findings and conclusions should include:

- (1) the identity and scope of 'valued cultural, historical, or natural resources' *n27* in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;
- (2) the extent to which those resources, including traditional and customary native Hawaiian rights will be affected or impaired by the proposed action; and
- (3) the feasible action, if any, to be taken by the LUC to reasonably protect native Hawaiian rights if they are found to exist. *n28*

In addition, by following these guidelines, this report also conforms to Act 50 (SLH 2000) which provides that environmental impact statements:

- (1) Include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and
- (2) Provides that the definition of "significant effect" include adverse effects on cultural practices.

As discussed above, HRS 343 defines "Significant effect" as "the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic welfare, social welfare, or cultural practices of the community and State."

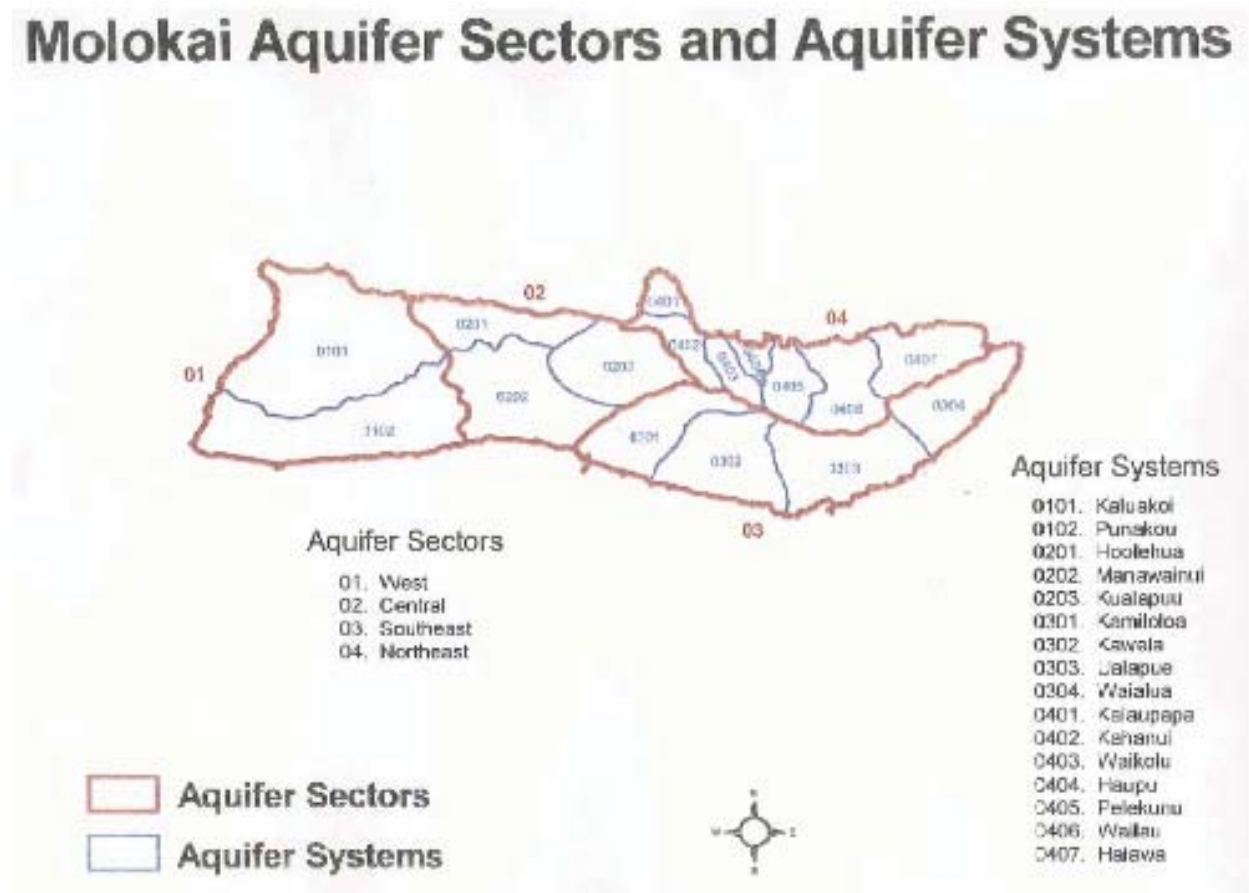
### **2.2 Cultural Resources**

#### **2.2.1 Water is the Primary Cultural Resource**

Fresh water is the primary cultural resource involved in the proposed action. While there are 16 aquifers in four sectors on the island, Moloka'i is designated as a sole source aquifer by the Environmental Protection Agency under the authority of Section 1424(e) of the Safe Drinking Water Act, Federal Register Citation -61FR47753, Publication Date 09-10-96. All of the water that will continue to be transported through the MIS under the agreement originates in the Kualapu'u aquifer.

**Figure 2. Moloka'i Aquifer Sectors and Aquifer Systems**

(source: <http://hawaii.gov/dbedt/info/visitor-stats/sustainable-tourism-project/drafts/final-maui-county-appx.pdf>, viewed 7-23-2012)



### 2.2.2 The MIS is a Cultural Resource for Ho'olehua Hawaiian Homesteaders

The MIS is considered to be an essential cultural resource for the Hawaiian homesteaders of Ho'olehua. The MIS originally served large-scale pineapple operations, but was converted to serve diversified agriculture after the pineapple operations closed in the late 1970s. The system serves the Native Hawaiian homesteads in Ho'olehua, and pursuant to HRS section 168-4, Hawaiian homesteads have a prior right to two-thirds of the water developed by the MIS. This cultural assessment examined if there are any direct impacts of the proposed action upon the quantity or quality of the water developed for and distributed to Ho'olehua Hawaiian Homesteaders by the MIS or if there are any direct impacts upon the flow and distribution of water through the MIS to the Ho'olehua Hawaiian Homesteaders.

### 2.2.3 Continued Use of the MIS to Transport Water to the West End is Essential to the West End Community and Residents

As a result of community meetings, residents of the West End provided key informant interviews in which they described the impact that the denial of the permit would have on their lives and the

life of their community. The transport of water from Well 17 to Kaluako'i is essential to the health, well being, way of life and existence of the residents of the Pāpōhaku/Kaluako'i community and also the residents of Maunaloa Town.

#### **2.2.4 Resources for the conduct of Hawaiian subsistence customs, beliefs and practices**

The following identifies the resources that are essential for the conduct of Hawaiian subsistence customs, beliefs and practices. This cultural assessment sought to determine if any of these resources would be affected by the proposed action:

1. Areas of naturally occurring or cultivated sources for food, medicine, and shelter.
  - a. Fresh water streams, springs, ponds, wetlands, irrigation networks, including 'auwai for taro cultivation; gathering of fresh water aquatic resources; for drinking, for healing and for domestic uses.
  - b. Shorelines, reefs, nearshore and offshore ocean for marine foods, medicine, salt and conducting cultural and spiritual customs and practices.
  - c. Forests for hunting pigs, deer, goats, birds, etc.; for gathering of flora used for food, household goods, arts, crafts, construction materials, cultivation, firewood, decoration, adornment, ritual offerings, and the conduct of spiritual customs.
2. Habitats of naturally occurring or cultivated endangered terrestrial and marine native flora and fauna, including plant and animal materials used for medicinal purposes.
3. Trails and dirt roads that are indispensable to access to cultural resources and use areas, both mauka to streams, springs, and forests and makai to streams, wetlands, and the ocean.

The following identifies the resources that are essential for the expression and perpetuation of Hawaiian culture, religion and language. In their cultural history of the project area and assessment of cultural sites, Keala Pono Archaeological Consulting, LLC assessed impacts to the following kinds of resources:

1. Wahi Pana: These are sacred sites such as heiau, shrines, burial caves and graves and geographic features associated with deities and significant natural, cultural, spiritual or historical phenomenon or events.
2. Natural and cultural areas believed to be traditional domains of ancestral spirits and Hawaiian and deities where Hawaiians renew their ties to ancestors through experiencing natural phenomena and witnessing ho'ailona (signs) are also wahi pana.
3. Known historical and contemporary religious beliefs, customs, and practices related to an area.
4. Habitats of naturally occurring or cultivated endangered terrestrial and marine native flora and fauna used for cultural and religious ceremonies, rituals, arts, crafts, and related activities.
5. Natural, cultural and community resources for perpetuation of language, especially place names.
6. Natural and community resources for cultural forms of art, craft, music, and dance.

## **2.3 Methodology**

### **2.3.1 Community Meetings**

Two community meetings were held to inform the community about the study and to receive input and comments. The first was held at the Maunaloa Rec Center on Wednesday January 26, 2011 at 7:00pm and the second was held on Thursday January 27, 2011 at 6:00pm. To advertise the meetings, an ad was placed in The Molokai Dispatch and flyers were posted in Maunaloa, Kaunakakai, Kualapu'u, and East End the previous week.

#### **2.3.1.1 Maunaloa Community Meeting**

There were 30 persons who attended the Maunaloa Community Meeting, mostly residents of the Kaluako'i ahupua'a. In follow-up, Darlene Toth, Patricia Crandall, Edie Anderson and Gerry Anderson were interviewed on May 17, 2011. Rikki Cooke, Jimmy Duvauchelle, Colette Machado, and Halona Kaopuiki provided input about the project. Later, on June 13, 2011, all participants who provided their email on the sign-up sheet were sent an email to ask if they wanted to be interviewed. The information sent out with the email is attached as Appendix \_\_\_\_\_. Only Babara Rasmussen expressed an interest and she was interviewed by phone on October 1, 2011.

John Pele	Darryl Canady
Nani Pele	Rikki Cooke
Raymond Temsfeldt	Jimmy Duvauchelle
Mike Mangana	Butch Haase
Mark Hayden	Michael Preiss
Dan Mauyhew	Charlotte Preiss
R. Haeman	Patsy Nicholas
Jane Johnson	Barbara Rasmussen
G. Westgate	Jane LaVoie
R. Westagate	Bob Underwood
Halona Kaopuiki	Stephen Kaelber
Colette Machado	Carol Gartland
Patricia Crandall	William Graves
Darlene Toth	Edie Anderson
Spencer Bevill	Gerry Andersan

#### **2.3.1.2 Ho'olehua Community Meeting**

There were 38 persons who attended the Ho'olehua Community meeting. Among those who attended, Adolph Helm, Stacy Helm Crivello, Ray Foster, Dawn Bicoy and Beverly Pauole Moore were interviewed. Glenn Teves and Barabara Haliniak provided input via email. Later, on June 13, 2011, all participants who provided their email on the sign-up sheet were sent an email to ask if they wanted to be interviewed. The information sent out with the email is attached as Appendix \_\_\_\_\_. No one else was available to be interviewed.

Jonathan Lindo	Tania Joao
Elvi Lindo	Ron Joao
Oscar Ignacio	Isaac Kamaile Jr
Dawn Bicoy	Jim Bevin



Rob Stephenson  
Billy Akutagawa  
Henry K. Tancayo  
Steve Morgan  
Kevin Donnelly  
Irene Kaahanui  
Lori Buchanan  
Nancy McPherson  
Randy Teruya  
Donna or Dana \_\_\_\_  
William G. Kaholoaa Sr.  
Glenn Teves  
Lynn DeCoite  
Steven L. Arce  
Beverly Pauole-Moore

Gene Davis  
Rose Davis  
Megan Stephenson  
John Kau  
Barbara Haliniak  
Ray Foster  
Stacy Crivello  
Adolph Helm  
Marin Kahae  
Jess Ford  
Kammy Purdy  
Wayde Lee  
Adele Lee  
Loretta Ritte  
Walter Ritte

### **2.3.2 Limited Key Informant Interviews**

Members of the community who indicated that they were willing to be interviewed were contacted and interviewed. Persons in the Maunaloa, Kaluako'i and Ho'olehua Homestead communities who were identified by members of the community as knowledgeable about the MIS were contacted and asked if they would be available for an interview. Most of those persons identified were not willing or not available to be interviewed. Lynn Decoite, president of the Moloka'i Homestead Farmers' Alliance referred me to the attorney for the organization, Mr. Alan Murakami, esq of the Native Hawaiian Legal Corporation. Mr. Murakami provided an 8.5 page statement and attachments that has been referred to in the body of the report and included in the appendices.

In-depth interviews were conducted with the following 9 persons:

Adolph Helm - Ho'olehua Homesteader  
Ray Foster - Monsanto  
Dawn Bicoy - Monsanto, Moloka'i Community Affairs Manager  
Barbara Rasmussen - West End resident  
Darlene Toth - West End resident  
Patricia Crandall - West End resident  
Edie Anderson - West End resident  
Gerry Anderson - West End resident  
Beverly Pauole-Moore - Ho'olehua Homesteader;

Input via email was received from the following 3 persons:

Glenn Teves - Ho'olehua Homesteader  
Barbara Haliniak - Kalama'ula Homesteader  
Alan Murakami - Attorney for Moloka'i Homestead Farmers' Alliance, Native Hawaiian Legal Corporation

### **2.3.3 Keala Pono Archaeological Consulting, LLC Assessment of Historic Cultural Sites**

Keala Pono Archaeological Consulting, LLC conducted an archaeological assessment of historic cultural sites located along the existing and proposed waterline corridors from Kualapu'u to Mahana. This included archival research and a walk-through of the routes. That report, completed in September 2011 provides a comprehensive description of the mo'olelo or traditional history and historic cultural resources of the project area. Therefore, this study relies upon the Keala Pono report regarding historical cultural resources in the project area.

### **2.3.4 Homesteader Cases and Contested Cases**

While Native Hawaiian homesteaders attended the Ho'olehua Community meeting, they did not make themselves available for key informant interviews. Throughout the decades that the MIS has been utilized to transport water to Kaluako'i Resort, the Native Hawaiian Homesteaders filed 3 civil suits and engaged in 1 contested case related to the use of the MIS or the pumping of water from Well 17 by the predecessors of MPL. They also engaged in a contested case on a proposal by Waiola O Moloka'i and its parent company Moloka'i Ranch to develop a well in Kamiloloa. The sentiment among the Native Hawaiian Homesteaders is that they have expressed their cultural concerns and provided information about cultural impacts in statements and testimonies about the use of the MIS and the pumping of water from Well 17 in those suits and hearings. Therefore, I have extracted information from those suits and hearings to document the cultural impacts of continued use of the MIS by MPL.

## **Section 3 Identified Cultural Concerns and Impacts**

### **3.1 Homesteader Court and Contested Cases**

The three civil suits filed by the Hawaiian Homesteaders and the two contested cases related to applications for water permits by the predecessors of MPL provide information about the primary concerns that Native Hawaiian homesteaders have about the direct and indirect cultural impacts of the transmission of water from Well 17 through the MIS to the West End. These are identified and discussed below.

#### **3.1.1 October 29, 1974 - Molokai Homesteaders Cooperative Assn v. Morton, 506 F.2d 572 (1974) and No. 73-2934 United States Court of Appeals, Ninth Circuit**

This suit was filed by the Moloka'i Homesteaders Cooperative Association and Life of the Land. It sought to enjoin the Board of Land and Natural Resources from entering into an agreement with MPL's predecessor, Kaluako'i Corporation, on the grounds that the federal statute limited the use of the MIS for irrigation water and that use of the MIS to deliver water to the Kaluako'i resort was not an authorized use. The court ruled that federal loan contract and state statutes authorized the state Board of Land and Natural Resources to contract with domestic users of water from the MIS. The Ninth Circuit Court of Appeals noted that, "the term 'domestic water users' is not intended to refer exclusively to ultimate users of water for domestic purposes but also embraces distributors of water for domestic use. The corporation [Kaluako'i Corporation] was deemed to be such a distributor.

The plaintiffs alleged irreparable injury to the quality and quantity of their irrigation water if the Kaluako'i Corporation was allowed to use the MIS. The court ruled, "It is proposed that the agreement with Kaluako'i Corporation will contain a clause reserving to the state the right to



limit or withdraw the use of the pipeline and other water facilities of the Molokai Irrigation System at any time during the term of the agreement when the Board of Land and Natural Resources determines that the capacity of the pipeline is not sufficient to meet the needs of the public. There will also be provisions controlling the quantity and quality of the water put into and taken out of the system by Kaluako'i Corporation. The state Office of Environmental Quality Control, Department of Hawaiian Home Lands, and Department of Health, all have concerns regarding the operation of the Molokai Irrigation System that will provide external surveillance of operations under the proposed agreement."

In an amended complaint that was part of an appeal to the Ninth Circuit Court of Appeals the homesteaders characterized the water that would be injected into the MIS as "highly saline." The Ninth Circuit Court of Appeals opinion stated, "the evidence indicates that the quality of the water to be added would be well within the limits recommended by the United States Public Health Service. In fact, water in the irrigation system after such a mingling of water would be of such quality that it would be suitable for use in a domestic water system."

**3.1.2 September 30, 1980 - Hawaii Supreme Court, Emma Ah Ho, et al., Plaintiffs-Appellants, v Christopher Cobb, Chairman, Board of Land and Natural Resources, et al., Defendants-Appellees 62 Haw. 546**

The plaintiffs-appellants were seventy lessees of 40 acre Hawaiian Homestead farm lots on the island of Molokai, County of Maui. They raised issues regarding the quality and quantity of the water that Kaluako'i would inject into the MIS; the capacity of the MIS; the rent price; and the use of state water.

Regarding quality, the court noted, "In appellants' stipulation to their dismissal of their Fifth to Eight Claims on November 1, 1976, they agreed that the injection of Kaluako'i's water with a chloride content of 250 parts per million or less will not cause pollution of the System or detrimentally affect them. The Department also reserved the right to limit or control any chemical, physical, or biological constituent of Kaluako'i's water if it will harm the System's original function and purpose. "

Regarding water quantity, the court noted, "In addition, the Agreement will not deplete the State's water supply. Kaluakoi is limited to a maximum transmission flow of 2.2 million gallons per day and can only withdraw the amount of water that it injects into the System, less 10 percent to compensate for water system losses. Thus, if Kaluakoi does not inject any water into the System, it cannot withdraw any State water."

The homesteaders were concerned that the irrigation water from the System would be allocated to Kaluako'i's domestic consumers in the event of a drought or water shortage during an emergency. With regard to this, the court noted, "In the event of a drought or an emergency, the State reserved the right to set priorities and control the allocation of water. Under HRS 175-4, the Hawaiian Homesteaders 'shall at all times, upon actual need therefor being shown to the board, have a prior right to two-thirds of the water developed for the irrigation and water utilization project . . .' The Agreement is also subject to Rule III(5) Of Regulation 1 which states that during water shortages, the State will assure all consumers of receiving a fair share of the irrigation water available."

With regard to homesteaders concerns about the capacity of the system, the court noted that the Board can rescind the Agreement if the System's capacity is insufficient to meet agricultural needs. The court also stated, "The Board is required to give Kaluakoi two years notice in this situation so that Kaluakoi can construct its own pipelines or develop other water sources."

With regard to the appellants' concern about the pricing method for the rent of space in the MIS, the court stated, "Kaluakoi is not purchasing State water, and the Agreement's flat annual rental fee does not affect the regulation."

The homesteaders were also concerned that a portion of the water that Kaluakoi withdraws will be state water because Kaluakoi's water will comingle with state water within the system. The court, however, stated, "Kaluakoi is limited to a maximum withdrawal of the amount that it injects, less 10 percent. The proportionate amount of state water in the System is not diminished."

The homesteaders raised the concern that permitting a private party to transport state water away from the land to which it is appurtenant contrary to *McBryde Sugar Co. v Robinson*, 54 Haw. 174, 504 P.2d 1330 (1973) cert. denied, 417 U.S. 976 (1974). The court state, "*McBryde*, supra, involved the ownership of running water in natural watercourses, streams and rivers. *McBryde* did not reach the question of ground water ownership and we do not believe that this is an appropriate case in which to decide this issue."

The court also noted some of the positive impacts of the use of the MIS system by the Kaluakoi Corporation, stating, "Reduced revenues from irrigation services when pineapple companies were tentatively going to be phased out by 1975. The agreement provides additional revenues to repay federal and state loans for the construction of the System." The court also stated, "The development of Kaluakoi's land also increases employment opportunities and increases Kaluakoi's tax base."

### **3.1.3 June 19, 1981 - Hawai'i Supreme Court Ruling in Molokai Homesteaders Cooperative Association v Cobb (Molokai Homesteaders Cooperative Assn v Cobb, 63 Haw. 453; 629 P.2d 1134 (1981))**

In a ruling of the Hawaii Supreme Court on June 19, 1981 in *Molokai Homesteaders Cooperative Association v Cobb* the court noted that, while the agreement to rent space in the MIS to Kaluakoi Corporation was made prior to the enactment of HRS 343 and was therefore not subject to an EIS, that the project would have otherwise been within the purview of Chapter 343.

"A proposal whose approval would facilitate the development of a large resort complex in a previously unpopulated area through the use of the Molokai Irrigation System's pipeline, allow water to be transported from its source to another area, and cause a rise in the salinity of the system's irrigation water would be within the purview of activities covered by Chapter 343. The use of a government pipeline, the implicit commitment of prime natural resources to a particular purpose, perhaps irrevocably, and the substantial social and economic consequences of the governmental approval of the proposal would dictate the preparation of an EIS." *Molokai Homesteaders Cooperative Assn v Cobb*, 63 Haw. 453; 629 P.2d 1134 (1981).

Given this observation, 31 years ago, of the potential significant direct and indirect impacts of the use of the MIS to transport water to the West End, this study explores the status of those impacts, i.e. the status of the resort complex; the population of the West End; salinity levels in the MIS water; and the status of the MIS, itself.

**3.1.4 January 29, 2004 - In Re Waiola O Molokai, 103 Haw. 401, 431; 82 P.3d664, 694 (2004)**

Testimonies and findings in the Wai Ola Case were reviewed to identify cultural concerns about the potential secondary impact of the continued use of the MIS to transport Water from Well 17 to the West End of Moloka'i related to the drawing out of water from Well 17. These are summarized in the following section on Findings.

The following excerpts of the findings of the Hawai'i State Supreme Court are relevant to the concerns of the Native Hawaiian Homesteaders regarding the ongoing rental of space in the MIS to MPL:

1. "HRS § 174C-101(a), supra note 4 ('Decisions of the commission on water resource management . . . 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 [HHCA].'). To hold otherwise would cripple DHHL's ability to contest proposed uses in adjacent aquifers that could significantly diminish its ability to utilize its reservations in the future simply because the proposed use was outside the Kualapu'u aquifer; such an interpretation defies not only legal but also scientific logic. That being the case, MR-Waiola had the burden of establishing, pursuant to HRS § 174C-49(a)(7), that the proposed use would not interfere with DHHL's 2.905 reservation of water in the Kualapu'u aquifer system. Likewise, the Commission was duty bound to hold MR-Waiola to its burden under the Code and the public trust doctrine. See further discussion infra in section III.A.3.c."
2. "We therefore hold that a 'reservation' of water does not constitute an 'existing legal use' within the meaning of HRS § 174C-49(a)(3).
3. "Although we ground our holding in the plain language of HRS § 174C-49(d) and HAR § 13-171-63, we nonetheless note that, to read the Code as defining a 'reservation' as an 'existing legal use' would also render HRS § 174C-49(a)(7), which expressly addresses DHHL's rights under the HHCA, superfluous."
4. "Thus, 'existing legal uses' and 'reservations' of water constitute distinct interests in the State's water resources, which HRS § 174C-49(a) protects separately against interference by competing interests.
5. "In sum, the state may compromise public rights in the resource pursuant only to a decision made with a level of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our state." Id.

6. "A substantial population of native Hawaiians on Moloka'i engages in subsistence living by fishing, diving, hunting, and gathering land and marine flora and fauna to provide food for their families. Aside from the nutritional and affordable diet, subsistence living is essential to (1) maintaining native Hawaiians' religious and spiritual relationship to the land and nearshore environment and (2) perpetuating their commitment to "malama ka aina," which mandates the protection of their natural ecosystems from desecration and deprivation of their natural freshwater resources. The Commission granted the Interveners standing to participate in the contested case hearing on the basis that they either (1) claimed property interests in or resided on the land within the Kamiloloa aquifer system or (2) claimed traditional and customary rights of the ahupua'a tenants who were descendants of the native Hawaiians inhabiting the Hawaiian islands prior to 1778. The Interveners testified that they traditionally and customarily gathered food and fish along the Kamiloloa shoreline and that MR-Waiola's proposed pumping would significantly reduce groundwater discharge into the ocean, thereby adversely affecting the limu growth and fish populations that they gathered for subsistence living. The Interveners' points of error with respect to the foregoing address whether the Commission's decision adequately protected their traditional and customary gathering rights, as guaranteed by HHCA §§ 220(d) and 221(b) and (c), article XII, section 7 of the Hawai'i Constitution, and HRS § 174C-101. See supra notes 2, 3, and 4, respectively."

7. "As discussed supra in section III.A, an applicant for a water use permit bears the burden of establishing that the proposed use will not interfere with any public trust purposes; likewise, the Commission is duty bound to hold an applicant to its burden during a contested-case hearing. See Waiahole, 94 Hawai'i at 136-38, 9 P.3d at 448-50. In the present matter, MR-Waiola had the burden of proving, *inter alia*, that the proposed water use would not abridge or deny traditional and customary native Hawaiian rights."

8. " Contrary to the implications of COL No. 24, MR-Waiola was obligated to demonstrate affirmatively that the proposed well would not affect native Hawaiians' rights; in other words, the absence of evidence that the proposed use would affect native Hawaiians' rights was insufficient to meet the burden imposed upon MR-Waiola by the public trust doctrine, the Hawai'i Constitution, and the Code. Accordingly, the Commission's COL No. 24 concluded in a vacuum that "the proposed use will not in any way diminish access for the purpose of practicing traditional and customary native Hawaiian rights in the project area, shoreline, or nearshore areas."

9. "MR-Waiola has the right to transport groundwater beyond the Kamiloloa aquifer system, pursuant to HRS § 174C-49(c). As previously mentioned, the right to transport water outside the watershed of origin is contingent upon a finding by the Commission that 'such transport and use are consistent with the public interest and the general plans and land use policies of the state and counties.' See HRS § 174C-49(c), supra note 1. Although the Commission did not expressly invoke HRS § 174C-49(c) to establish the prerequisite for permitting MR-Waiola 'to transport or use . . . ground water beyond overlying land or outside the watershed from which it is taken,' the Commission nevertheless made the necessary findings in the context of determining that MR-Waiola's application satisfied the conditions prescribed by HRS §§ 174C-49(a)(4), (5), and (6). In particular, the Commission expressly found that the proposed use was consistent with the public interest, as required by HRS § 174C-49(a)(4), when it favorably considered the impact of

the proposed use on Molokai's economy and natural environment. See FOF Nos. 111-168; see also supra note 33. Moreover, the Commission expressly found that the proposed use was consistent with state and county general plans and land use designations, see HRS § 174C-49(a)(5), and county land use plans and policies, see HRS § 174C-49(a)(6).

**3.1.5 January 26, 2007 - In Re Kukui (Molokai), Inc., 174 P.3d 320 (2007) In the Matter of the Contested Case Hearing on the Water Use Permit Application Filed by Kukui (Molokai), Inc., No. 24856, Supreme Court of Hawai'i**

The following findings of the Hawai'i Supreme Court pertain to the cultural concerns of the Native Hawaiian Homesteaders with regard to the indirect impact of MPL pumping water from Well 17.

1. "DHHL's reservation is a public trust 'purpose' and not an 'existing legal use';"
2. "a 'reservation' of water does not constitute an 'existing legal use' for purposes of HRS § 174C-49(a)(3). Waiola, 103 Hawai'i at 427, 83 P.3d at 690 (emphasis added). Nevertheless, we held that DHHL's constitutional reservation of water resources 'constitutes a public trust purpose[.]' Waiola, 103 Hawai'i at 430, 83 P.3d at 693 (emphasis added), 'entitled to the full panoply of constitutional protections afforded the other public trust purposes enunciated by this court in Waiahole[ I ]'."
3. "under the public trust [doctrine] and the Code, permit applicants have the burden of justifying their proposed uses in light of protected public rights in the resource." Waiahole I, 914 Hawaii @ 160, P.3d at 472. The Water Code requires, inter alia, that the applicant prove that the proposed use of water is a 'reasonable-beneficial use' and is consistent with public interest' HRS 174C-49(a)(2) NS (4) 1993. 'Reasonable-beneficial use' is defined as '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 public interest.' HRS § 174C-3 (1993) (emphasis added).
4. "Besides advocating the social and economic utility of their proposed uses, permit applicants must also demonstrate the absence of practicable mitigating measures, including the use of alternative water sources. Such a requirement is intrinsic to the public trust, the statutory in-stream use protection scheme, and the definition of 'reasonable-beneficial' use, and is an essential part of any balancing between competing interests."
5. "Applicants must demonstrate their actual needs and, within the constraints of available knowledge, the propriety of draining water from public streams to satisfy those needs. Waiahole 1, 94 Hawaii at 161, 9 P3d at 474."
6. "Specifically, the public trust compels the state duly to consider the cumulative impact of existing and proposed diversions on trust purposes and to implement reasonable measures to mitigate this impact, including using alternative resources. In sum, the state may compromise public rights in the resource pursuant only to a decision made with a level of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our state. Waiahole at 143, 9 P.3d at 455."



7 . "Although expressed in terms of the diversion of water from public streams, this court has stated that the doctrine 'applies to all water resources without exception or distinction[,] Waiahole I, 94 Hawai'i at 133, 9 P.3d at 445, and 'unlimited by any surface-ground distinction.' Id. at 135, 9 P.3d at 447. "

### **3.2 Cultural Impacts to the Residents of the Kaluako'i Ahupua'a**

#### **3.2.1 Residents of Pāpōhaku and Kaluako'i**

Without continued access to the MIS system for the transmission of potable water, households in Pāpōhaku and Kaluako'i would have no access to water for drinking and other domestic purposes, unless an alternative distribution system is constructed. Discontinuing use of the MIS before an alternate infrastructure to transport water to the households in the Kaluako'i Ahupua'a would create significant critical health hazards that would be unacceptable to the residents, as well as county, state and federal agencies. The existence of the Pāpōhaku and Kaluako'i communities depend upon having access to water for drinking and domestic purposes.

The relationship of these communities to the rest of Moloka'i will be affected by the decision to continue or discontinue use of the MIS to transport water from Well 17 to the West End.

#### **3.2.2 Residents of Maunaloa Town**

The 167 households in Maunaloa Town rely upon back-up water from the MIS. Discontinuing use of the MIS before an alternate infrastructure to transport water to the households in the Kaluako'i Ahupua'a would create health hazards that would be unacceptable to the residents, as well as county, state and federal agencies.

#### **3.2.3 Users of Pāpōhaku Park**

Water for Pāpōhaku park is provided by MPL, through the use of the MIS.

### **4.0 Findings**

#### **4.1 Direct Cultural Impacts of Continued Use of the MIS**

There are **no apparent direct** cultural impacts caused by the continued use of the Moloka'i Irrigation System (MIS) to transport water from Well 17 to the West End of Moloka'i.

The pumping of water from Well 17; the impact of pumping this water from the Kualapu'u aquifer; the impact that this pumping of water has on the nearshore marine resources used for traditional and customary subsistence practices; and the commitment of water as a prime natural resource to the West End for resort, domestic and other uses, are **important indirect factors** related to the **source and end users** of the water for which continued use of the MIS is necessary. These indirect impacts are discussed in this below, but will be more thoroughly addressed as direct impacts in a separate environmental assessment to renew the Well 17 permit.

##### **4.1.1 No Construction or Alteration of the Landscape**

The first factor is that there will be no new construction, no land disturbance, and no landscape alteration. Therefore, there will be no direct impact on any historic cultural sites.

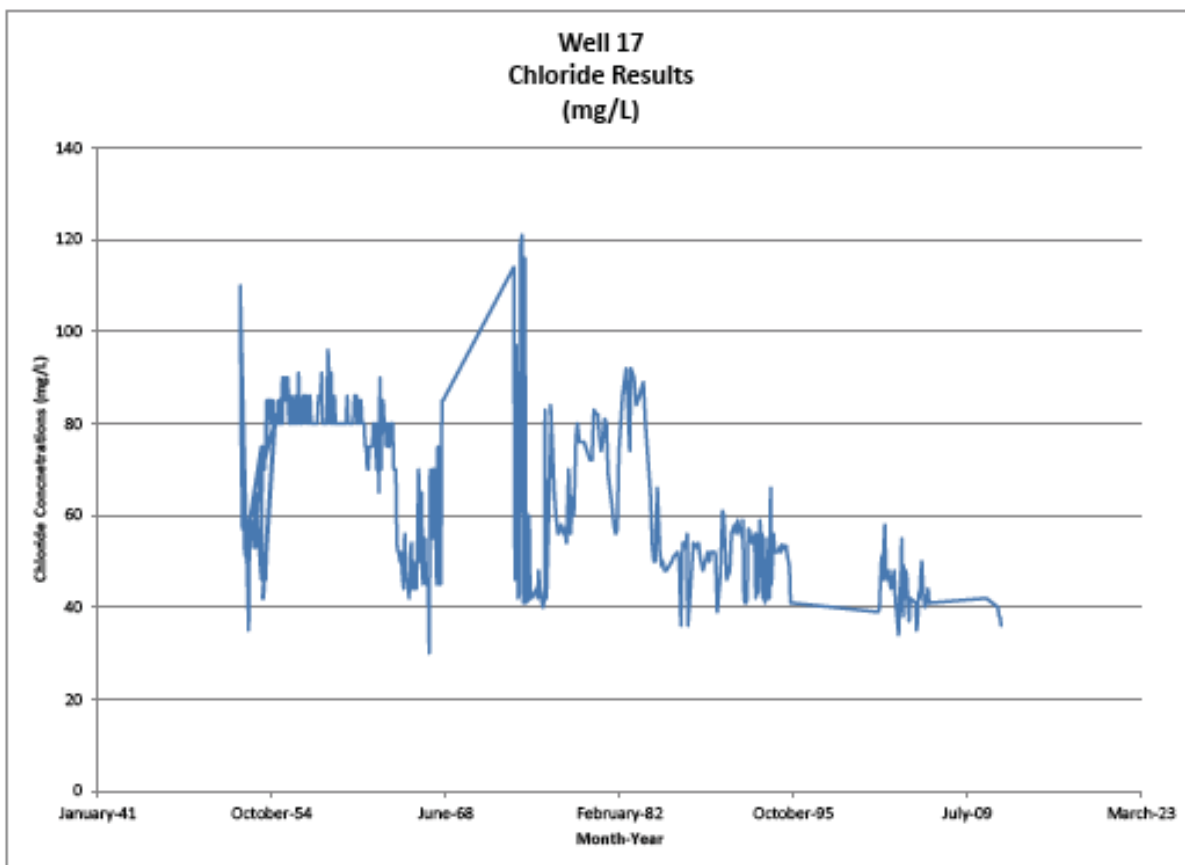
#### 4.1.2 Water Pumped from Well 17 is the Only Natural Resource Used

The second factor is that no natural resources, except water pumped from Well 17 are utilized. The pumping of water from Well 17 is an **indirect and integral factor** that will be discussed below under **indirect** impacts. The amount of water allocated to MPL from the aquifer will not be affected by the continued use of the MIS system. Water from Well 17 would still need to be delivered to the Pāpōhaku/Kaluako'i community and Maunaloa Town. Instead, an alternative private system would ultimately need to be developed to transport water from Well 17 to the West End community if the MIS permit cannot be renewed.

#### 4.1.3 No Affect on Salinity of the MIS Water

The third factor is that, throughout the past 37 years, the Well 17 water has not contributed to the rise in the salinity of the system's irrigation water. This was the primary concern of the Molokai Homesteaders Cooperative Association in the Ah v Cobb case. At the time of the case, the homesteaders did agree that a chloride content of 250 parts per million or less would not cause pollution of the MIS or detrimentally affect their irrigation water. This is the EPA guideline for potable water. Data collected by MPL show that there has been no rise in the salinity of the MIS irrigation water from Well 17. Figure 3 below shows that the chloride levels have never been more than 120 parts per million and in the last 10 years, the chloride levels have been less than 58 parts per million.

**Figure 3. Well 17 Chloride Levels 1952 to 2012**



#### **4.1.4 Only "Excess Capacity" in the 6 Miles of MIS Pipeline Is Used**

The fourth factor is that all of the current users of the MIS government pipeline, combined, including the transmission of Well 17 water by MPL, equals a maximum of 21.4% of the capacity of the MIS. The MIS can still accommodate 78.6% more flow if DHHL would need to increase the amount of water transmitted through the MIS. In the past 37 years that 6 miles of the MIS pipeline has been used to transport water to the West End, there has always been sufficient excess space for the principal users of the MIS, the Ho'olehua Homesteaders. Therefore, the use of the MIS pipeline **space** does not have a direct cultural impact upon the capacity of the MIS to provide water to the Ho'olehua homesteaders. Continued use of the MIS by MPL should not have a future impact on the capacity of the system especially with the continuation of the terms of the Agreement which provide that: (1) MPL can only use "excess capacity" in the MIS and that (2) should there no longer be sufficient capacity in the system, then the use of the MIS by MPL would have to be relinquished, with a reasonable period of notice.

#### **4.1.5 Only Excess Capacity in the Reservoir Is Used**

The fifth factor is that the reservoir capacity is 1.4 billion gallons. It can rise up to 55 feet but it has never been over 30 feet. In the past 37 years since the MIS has been used to transport water to the West End, the **capacity** of the reservoir has not been affected by the use of space to store water from Well 17 to transmit water to the West End of Moloka'i. The capacity of the reservoir should not be affected if use of the MIS by MPL is continued and especially with the continuation of the terms of the Agreement which provide that (1) MPL can only use "excess capacity" in the reservoir and that (2) should there no longer be sufficient capacity in the reservoir, then the use of the MIS by MPL would have to be relinquished, with a reasonable period of notice.

#### **4.1.6 Amount of Water in the MIS is Not Impacted. A Buffer of Water is Available in Case of Drought**

The sixth factor is that for every 1000 gals put into the MIS system, MPL is only permitted to withdraw 900 gallons. The amount of water pumped into the MIS from Well 17 and the amount that is withdrawn at Mahana are metered and monitored by the DOA.

Native Hawaiian homesteaders have been consistently concerned that MPL has chronically violated this condition of the lease. Homesteaders filed a suit, *Molokai Homesteaders Cooperative Assn v. Morton*, 506 F.2d 572 (9th cir. 1974), which challenged the use of the MIS by MPL as a violation of a rule that water supplied by the MIS be used exclusively for irrigation. According to Murakami, despite assurances provided by the MPL in this case that it would NOT be taking out any water dedicated for irrigation, but only using space in the MIS, in practice, the MPL "was chronically using that irrigation water for its commercial benefit operating resort-related functions on the west end."

According to Alan Murakami, attorney for the Moloka'i Homestead Farmers' Alliance, Native Hawaiian homesteaders provided the DOA evidence in 1998 that MPL had illegally used 6 million gallons of MIS water in one week alone, during a drought period that seriously affected homestead farmers. At the time, he says, "the DoA, rather than strictly enforce the lease term, allowed it without fanfare, and instead began imposing irrigation water use restrictions on



homesteaders for whom the MIS was built in the first place. In view of the 25,000 acres of homestead trust land on Molokai, much of which has yet to be serviced with irrigation water from the MIS, this abuse of the system is atrocious."

The violations in 1998 stopped and were compensated. However, when MPL acquired the assets of Kukui (Moloka'i), Inc. and Molokai Public Utility and December 2001, Kukui had a pumping deficit of 30 million gallons. MPL made up this deficit to the MIS within two months, by mid-February 2002. Since 2002, MPL was in arrears only once, between April 5 to August 19, 2004. This was the result of the change-out of the old Detroit diesel engine with a new Caterpillar four-stroke diesel that is expected to be a more reliable power unit to drive the Well 17 pump. In hindsight, MPL should have built up greater reserves prior to taking the Well 17 motor out of commission.

This breakdown, quite rightly, raised concern from homesteaders that a future breakdown could lead to a similar occurrence. Since 2007, MPL adopted the practice of keeping an average buffer in the MIS reservoir of approximately 18 million gallons on an annual basis. This water is a buffer against a breakdown at its Well 17, but is also, under an agreement with DOA, available for agricultural users of the MIS system should droughts result in limitations on water availability.

Provided that the DOA strictly and rigorously enforces the terms of the lease agreement with regard to the amount of water pumped into the MIS and the amount that is withdrawn, there will be no impact upon the amount water that is developed by the MIS for use by the Native Hawaiian homesteaders.

#### **4.1.7 Designation of Use of MIS Water During an Emergency**

The homesteaders are concerned that irrigation water from the MIS will be allocated to the Pāpōhaku/Kaluako'i domestic consumers in the event of a drought or a water shortage during an emergency. The Hawai'i State Supreme Court, in the Ah Ho v Cobb case, ruled that, "In the event of a drought or an emergency, the State reserved the right to set priorities and control the allocation of water." Under HRS 175-4, the Hawaiian Homesteaders "shall at all times, upon actual need therefore being shown to the board, have a prior right to two-thirds of the water developed for the irrigation and water utilization project . . ." The Agreement is also subject to Rule III(5) Of Regulation 1 which states that during water shortages, the State will assure all consumers of receiving a fair share of the irrigation water available."

#### **4.1.8 MPL Pays A Rate Comparable or Greater to Native Hawaiian Homesteaders and Other Users for Space in the MIS and Helps Keep the MIS Financially Solvent**

The eighth factor is that MPL pays a lease rent of \$11,375 per month for the use of space in 6 miles of the MIS and the Kualapu'u reservoir. Based on the current allocation for MPL from Well 17 of 1.018 million gallons per day pumpage, this amounts to \$0.3725 per 1,000 gallons pumped through 6 miles of pipeline. However, when one considers the actual current pumpage of 413,000 gallons a day, this amounts to \$0.918 per 1,000 gallons pumped and transported through 6 miles of pipeline.

The homesteader and non-homesteader users of the MIS pay \$0.55 per 1,000 gallons to have water transported through 25 miles of the MIS and stored in the Kualapu'u Reservoir.

Per mile, at the rate of \$0.3725 per thousand gallons, MPL pays approximately three times as much as the homesteader and non-homesteader users of the MIS to transport water. At the rate of \$0.918 per thousand gallons, MPL pays approximately seven times as much as the homesteader and non-homesteader users of the MIS to transport water.

The rent of \$11,375 per month paid by MPL comprises between 20% and 23.8% (depending on monthly collections from other users) of the total revenue base for the MIS. This rent payment helps to keep the MIS financially solvent.

## **4.2 Direct Cultural Impacts of Denying Continued Use of the MIS**

### **4.2.1 Residents of Ahupua'a Kaluako'i**

There will be a direct cultural impact upon the way of life of the 553 households in the Pāpōhaku/Kaluako'i Resort as well as the 167 households in Maunaloa Town if use of the MIS to transmit water to them is discontinued. Without the current access to the MIS system for the transmission of this potable water, households in Pāpōhaku/Kaluako'i would have no access to drinking water. Households in Maunaloa Town would have no back-up water. This would be a breach of the agreement with the PUC to provide water to the residents of the Ahupua'a Kaluako'i. It would create health hazards that would be unacceptable to State agencies and residents.

Residents of the West End who attended community meetings and were key informants are alarmed that denial of the continued use of the MIS will cut them off from their supply of water for domestic use. One of the residents stated, "Denying the permit would eliminate a whole community. Without the water, we cannot live here and that includes Maunaloa."

Informants are concerned that they are characterized as outsiders who don't care about Moloka'i and who waste water. However, informants pointed out that most homeowners in Pāpōhaku practice conservation. New owners try to set things up to be sustainable with alternative energy sources and the use of native plants. Informants said that the first people who moved into Pāpōhaku loved lawns, but that now, there are virtually no lawns. The West End homeowners use drought resistant plants and drip systems only (no overhead sprinklers). Homeowners also use deer resistant plants and have bought water efficient washers and toilets. They are constantly monitoring for leaks. A few residents have rain catchments. There is an attempt to educate the community about the use of catchments and using rain gutters to water plants. Homeowners are also using gray water from bath tubs and washing machines to water plants. They also noted that most of the families are 2-member families who don't use a lot of water for domestic purposes.

Denial of the agreement for use of the MIS to transport water from Well 17 would alienate the communities at Pāpōhaku, Kaluako'i and Maunaloa from the rest of the island.

#### **4.2.2 Pāpōhaku Park and Beach Access Point Users**

Residents pointed out that the MPL water system also delivers water to Pāpōhaku Park and access points along the coast. Denial of continued use of the MIS would also negatively affect users of the Pāpōhaku Park and the users of the beach access points - swimmers, surfers and fishermen.

#### **4.2.3 Loss of Revenue to the MIS and Higher Rates for MIS Users**

Denying continued use of the MIS by MPL would lead to a loss of between 20% and 23.8% (depending on monthly collections from other users) of the revenues that keep the MIS operational. This would lead to higher rates to Native Hawaiian Homesteaders and private agricultural users of the system in order to keep the system financially solvent. Informants noted that higher costs for water could affect the sustainability of agriculture on the island of Moloka'i.

#### **4.2.4 Loss of Back Up Water In Times of Drought**

Since 2007, MPL has kept an average buffer in the MIS reservoir of approximately 18 million gallons on an annual basis. This water is a buffer against a breakdown at its Well 17, but is also, under an agreement with DOA, available for agricultural users of the MIS system should droughts result in limitations on water availability. This back up buffer would be lost if continued use of the MIS to transport Well 17 water is denied. The impact of this loss of this insurance of the water resource as a back up in emergency conditions can be extreme to those who rely upon the MIS system for water for agriculture. Informants noted that this loss could affect the viability of agriculture as an industry on the island.

### **4.3 Indirect Cultural Impacts**

#### **4.3.1 Pumping of Water from Well 17 Located in the Kualapu'u Aquifer**

The impact of pumping water out of the Kualapu'u aquifer from Well 17 is the principal concern of the Native Hawaiian homesteaders. Mr. Murakami articulates this concern as follows:

"Accordingly, the Court has already alerted public agency decision-makers that they protect "adequate reserves of water for current and foreseeable homestead development." *Id.* To make this mandate meaningful, the Court has articulated the contexts in which this mandate applies, including ensuring that the chloride levels in the DHHL wells in Kualapu'u are not compromised by even existing pumpage at Well 17, which is located in their immediate vicinity. *Id. at 499, 174 P.3d at 338.* It must also include protection of the 2.905 mgd DHHL water reservation in Kualapu'u, which the CWRM can only compromise "with a level of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our state." *Id. at 491, 174 P.3d; Waiola, 103 Hawaii at 433, 83 P.3d at 696."*

"Accordingly, any state agency with jurisdiction over water on Moloka'i must keep in mind this existing and potential conflict over available, but extremely limited, water and enforce the priority rights of homesteaders to that water so it is not disturbed. The DoA is in a prime position to implement these protections by controlling access by the Ranch to the MIS system."

The multi-faceted concerns of the homesteaders related to pumping water out of the Kualapu'u aquifer from Well 17 are discussed below. However, their concerns will only be ultimately

satisfied when MPL demonstrates that the delivery of water from Well 17 to Maunaloa, Kaluako'i and Pāpōhaku fulfills the conditions for the renewal of their permit under HRS § 174C-49 Conditions for a permit. These conditions are:

"(a) To obtain a permit pursuant to this part, the applicant shall establish that the proposed use of water:

- (1) Can be accommodated with the available water source;
- (2) Is a reasonable-beneficial use as defined in section 174C-3;
- (3) Will not interfere with any existing legal use of water;
- (4) Is consistent with the public interest;
- (5) Is consistent with state and county general plans and land use designations;
- (6) Is consistent with county land use plans and policies; and
- (7) Will not interfere with the rights of the department of Hawaiian home lands as provided in section 221 of the Hawaiian Homes Commission Act. . . .

(c) The common law of the State to the contrary notwithstanding, the commission shall allow the holder of a use permit to transport and use surface or ground water beyond overlying land or outside the watershed from which it is taken if the commission determines that such transport and use are consistent with the public interest and the general plans and land use policies of the State and counties.

(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. 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.

(e) All permits issued by the commission shall be subject to the rights of the department of Hawaiian home lands as provided in section 221 of the Hawaiian Homes Commission Act, whether or not the condition is explicitly stated in the permit."

MPL will demonstrate that these conditions are fulfilled when they submit their application and environmental assessment to renew their water use permit for Well 17.

#### **4.3.1.1 Compromising the DHHL Wells' Productivity Due to Increases in Chloride Levels in Those Wells and Interference with Department of Hawaiian Home Lands " 2.905 mgd Reservation" of Water which is a Public Trust "Purpose"**

As discussed above, the Hawai'i Supreme Court, in the Waiola o Moloka'i case ruled that applicants have the burden of establishing, pursuant to HRS § 174C-49(a)(7), that proposed uses of water would not interfere with DHHL's 2.905 reservation of water in the Kualapu'u aquifer system. While this decision was rendered with regard to an application to CWRM for the use of water, this decision shall be considered applicable in assessing the pumping of water from Well 17 as an indirect impact of the continued use of the MIS.

With regard to the process, the Hawai'i Supreme Court ruled that, "The state may compromise public rights in the resource pursuant only to a decision made with a level of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our state."

In the Kukui (Molokai) case, the court elaborated on the burden of proof that applicants must provide. The court stated, "under the public trust [doctrine] and the Code, permit applicants have the burden of justifying their proposed uses in light of protected public rights in the resource." Waiahole I, 914 Hawaii @ 160, P.3d at 472. The Water Code requires, inter alia, that the applicant prove that the proposed use of water is a 'reasonable-beneficial use' and is consistent with public interest' HRS 174C-49(a)(2) NS (4) 1993. 'Reasonable-beneficial use' is defined as '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 public interest.' HRS § 174C-3 (1993) (emphasis added)." This environmental assessment as a whole provides the documentation necessary to show that the transport of water to the residents of Maunaloa, Pāpōhaku and Kaluako'i is a "reasonable-beneficial use".

The issue of interference and conflict revolves around the chloride levels in the DHHL wells that is within one-half mile of Well 17. In 1996, DHHL filed an application to increase its pumpage to 1.247 mgd. The Commission on Water Resource Management (CWRM) staff recommended denial of DHHL's application on the grounds that the geographic concentration of the DHHL, County Department of Water Supply (DWS) and Kukui (Molokai) Inc.(KMI) wells within one-half mile of each other militated against granting a permit for the requested new withdrawals of .879 mgd from the existing DHHL wells. The CWRM staff noted that there were low chloride levels in the two DHHL wells and the DWS well in the 1980's of 60 parts per million gallons. The DWS well was installed in 1987. By the 1990's the chloride levels reached 180 parts per million gallons. The EPA potability guideline is 250 parts per million gallons.

In, 1996 KMI applied for a permit to increase its water allocation to 1.169 mgd from the interim allocation of 871,420 gallons a day, it was denied. KMI requested a contested case hearing. In 2001, the Commission authorized KIMI to withdraw 930,000 gallons a day, with several conditions. DHHL, the Office of Hawaiian Affairs and Hawaiian Homesteaders appealed this decision and the Hawai'i Supreme Court vacated the Commission's decision and remanded the case for further proceedings. The highlights of the findings of the court are summarized in Section 3.1.5 above.

At present, the sustainable yield of the Kualapu‘u aquifer is 5 mgd. At present, MPL has an allocation of 1.018 mgd, but is pumping 413,000 gallons a day. MPL plans to re-open the Kaluako‘i hotel and golf course at which time the remainder of the allocation will be utilized.

The allocation of 1.018 mgd was based on the following usage:

(Source: *Community-Based Master Land Use Plan for Moloka‘i Ranch, 2005, p. 115*)

<b>Kaluako‘i</b>	<b>848,000</b>
Kaluako‘i Hotel	67,000
Condos	186,000
Residential	51,000
Golf Course	400,000
Beach Park	26,000
Nursery	18,000
Filter Backwash	100,000
<b>MIS System Use</b>	<b>94,000</b>
<b>Kualapu‘u Town</b>	<b>76,000</b>

The DHHL is allocated .367 mgd and is pumping .5 mgd. While its chloride levels have remained below 250 mpg it has reached above 150 mgd. The CWRM staff has advised DHHL to drill a new well in the Kualapu‘u aquifer in order to draw down more of its reserve.

Maui County is allocated .516 mgd and is pumping .6 mgd. Its chloride levels have reached almost 150 mgd. The CWRM staff has also advised the county to drill a new well in the Kualapu‘u aquifer to meet its needs.

To further establish the hydraulic connection between the DHHL and DWS wells, the USGS reported that pumping from DHHL well 0801-02 and DWS well 0801-03 can cause a local reduction in the hydraulic head near the top of the Kualapu‘u aquifer, thus enhancing the upward flow of water in the borehole of DHHL well 0801-01. This effect could cause more complete mixing of the deeper, saltier water with the overlying fresher water, in the well borehole (Oki, 2000).

Although Well 17 (Well ID 0901-01), owned by MPL, is also in the Kualapu‘u Aquifer System, chloride levels do not appear to have been significantly affected by withdrawals from the DHHL or Maui DWS wells (Figure # and Figure #). This may be due to its location being significantly removed from the other wells, thus minimizing the hydraulic connectivity between them.

Therefore, the increase in chloride concentrations in the DHHL wells (Well IDs 0801-01 and 0801-02) appears to be due to the operation of the Maui DWS well (Well ID 0801-03), and does not represent widespread aquifer degradation. In regard to DHHLs request for increased pumping allocation in the Kualapu‘u aquifer from existing wells, the CWRM advised DHHL that any increased withdrawals be from new wells in more strategic locations of the Kualapu‘u Aquifer System.



#### **4.3.1.2 The Transport of Groundwater Outside of Kualapu‘u Aquifer**

The Hawai‘i Supreme Court, in the Waiola o Molokai case, ruled that the right to transport groundwater outside of the watershed of origin is contingent upon a finding that, "such transport and use are consistent with the public interest and the general plans and land use policies of the state and counties." The court stated, "The Water Code requires, inter alia, that the applicant prove that the proposed use of water is a 'reasonable-beneficial use' and is consistent with public interest' HRS 174C-49(a)(2) NS (4) 1993. 'Reasonable-beneficial use' is defined as '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 public interest.'" This environmental assessment as a whole provides the documentation necessary to show that the transport of water to the residents of Maunaloa, Pāpōhaku and Kaluako‘i is a "reasonable-beneficial use".

#### **4.3.1.3 Impact of Pumping Water From Well 17 On Subsistence Fishing, Diving, and Gathering Marine Resources**

In the Waiola O Moloka‘i ruling, the Hawai‘i Supreme Court noted the importance of traditional and customary subsistence practices for the Native Hawaiian community of Moloka‘i. It stated, "A substantial population of native Hawaiians on Moloka‘i engages in subsistence living by fishing, diving, hunting, and gathering land and marine flora and fauna to provide food for their families . . . subsistence living is essential to (1) maintaining native Hawaiians' religious and spiritual relationship to the land and nearshore environment and (2) perpetuating their commitment to "malama ka aina," which mandates the protection of their natural ecosystems from desecration and deprivation of their natural freshwater resources."

Given this, the court ruled that MPL’s predecessor, MR-Waiola had the burden to prove that the proposed water use would not abridge or deny traditional and customary native Hawaiian rights. Moreover, the court clarified that, "MR-Waiola was obligated to demonstrate affirmatively that the proposed well would not affect native Hawaiians' rights; in other words, the absence of evidence that the proposed use would affect native Hawaiians' rights was insufficient to meet the burden imposed upon MR-Waiola by the public trust doctrine, the Hawai‘i Constitution, and the Code."

According to Mr. Murakami, the Native Hawaiian residents of Moloka‘i are concerned that the continued pumping of water from Well 17 is diverting ground water outflow to the estuarine ecology along the Kamiloloa shoreline, where he notes, "Moloka‘i residents continue their traditional and customary practices centered a variety of limu including ogo, `ele`ele, wawae`iole, manaua, and huluhuluwaena; a variety of fish including weke, mullet, uhu, manini, kole, `o`io, papio and palani; as well as he`e, ulapapa, loli, wana and a variety of crab including kuhonu, `alamihi, and ala`eke from the nearshore waters of Kamiloloa,"

On the island of Molokai, the struggle over water is longstanding and rooted in a cultural way of life that is dependent upon subsistence. This subsistence lifestyle is threatened when coastal resources that thrive in brackish water environments are negatively impacted due to a diminishing aquifer. These brackish water environments, located on shore as well as off shore, are ideal nursing and hatchery grounds for pua or small fries as they feed on photo plankton,

brackish water organisms, and limu. Furthermore, these environments are also the breeding grounds of crabs, clams, and other small crustaceans. Together these brackish water environments serve as the foundation for the coastal food chain, as the larger carnivorous fish and octopus are able to then feed on pua and smaller crustaceans. Traditionally, Native Hawaiians recognized these relationships and built fishponds in this environment to create a coastal feeding arena. This knowledge and understanding of the interdependence of the marine environment upon infusions of fresh water that sustains a subsistence lifestyle for the people of Moloka'i, elevates the struggle over the use and distribution of fresh water from a struggle to perpetuate the culture and a way of life, to a struggle to protect life itself.

The continued gathering of is integral to the cultural life ways, health and well-being of the families who have relied upon these resources for subsistence. It is of critical significance to the diet of these families. The ability to alternate gathering areas in accordance with seasonal variations and level of use is essential to having resources available all year round. The sharing of foods gathered through subsistence activities reinforces good relations among members of extended families and with neighbors. Subsistence is integral to the life ways of the Hawaiians of Moloka'i, popularly referred to as the "Last Hawaiian Island." Hawaiians comprise approximately 60 percent of the population. Moreover, the persistence of subsistence on Moloka'i is of critical significance to the persistence of Hawaiian culture throughout our islands. The island of Moloka'i serves as a cultural kīpuka for Hawaiian culture throughout Hawai'i. Bypassed by the mainstream of political and economic change in Hawai'i until the 1970's, it serves as a preserve of Hawaiian culture from which the contemporary generations of Hawaiians continue to draw strength and inspiration in the perpetuation of Hawaiian language, culture, and spirituality.

Figure 4 shows subsistence activities on Moloka'i in 1994. It shows that the shoreline and nearshore ocean is utilized for fishing and ocean gathering of marine resources that thrive on brackish water environments makai of Well 17.

Figure 5 provides a diagram of the linkage of fresh water to coastal subsistence resources. It illustrates that marine resources need the infusion of fresh water for reproduction.

The findings in the Waiola Case were based on the pumping of 1.25 mgd of ground water. Ground-water models used in the case showed that pumping 1.25 mgd of ground water would reduce ground-water flux to the nearshore area by about 3% to 15%. The conclusion was that at that magnitude, the resultant change in salinity in the fishponds would be virtually indistinguishable from the initial values.

The following excerpts from the findings in the Waiola Case document the importance of groundwater discharge to marine life and discusses models that predict the impact of pumping water from the Kualapu'u aquifer.

### **Groundwater Discharge Models**

125. Groundwater enters the nearshore zone from seepage at the shoreline and from offshore springs. In some areas, seeps are actually visible at low tide and offshore springs are also visibly evident.



126. Freshwater springs enter the reef at numerous points along Molokai's south shore creating brackish conditions that favor seaweed growth nearshore, especially in many of the fishponds, which tend to trap fresh water.

127. Groundwater discharge into the ocean is reduced by the amount that is pumped from the ground whether it is pumped from the Kualapu'u or Kamiloloa aquifer.

128. The McNulty model predicts that if 1.25 mgd of groundwater is pumped from the proposed well, the flux of groundwater at the Kamiloloa shoreline will be reduced by about 15%. The USGS Study indicates that the coastal discharge is reduced by 3 percent over a 13-mile stretch of coastline.

129. The USGS Study predicts that pumping 0.3 mgd from the proposed well [Wai Ola] will result in a reduction in groundwater discharge of 0.8 percent over a 13-mile stretch of coastline (which extends further than the boundaries of the Kamiloloa aquifer). The largest effects occur in areas nearest the well and effects diminish with distance from the well.

### **Fish**

133. Several important species of fish, including mullet, aholehole, and milkfish, depend upon brackish environment along Moloka'i's south shore.

134. The brackish water environment is necessary for the primary productivity that is the basis of the food chain for milkfish, mullet, aholehole, and other animals found along Moloka'i's south shore.

135. Mullet need brackish water with salinity ranging from 13 to 20 ppt. for proper maturation of their eggs.

136. After mullet, 'ama'ama, awa or milkfish spawn in the open ocean, the fry, up to one month old, are predators, eating zooplankton in the open ocean. Then they move to nearshore areas where they switch to an omnivore diet, and feed on diatoms, a benthic plant usually found on the bottom of estuaries where brackish water and sunlight mix to allow for their growth. They stay on this diet for the rest of their lives, reaching sexual maturity, and feeding in estuaries and stream mouth areas that are conducive to this plant. Fishermen often know these locations in their areas.

137. Brackish water environments, which Dr. Tamaru defined as having salinities of less than 30 ppt, are essential for the maturation of striped mullet from the juvenile stage to maturation. For oocyte maturation, salinities in the range of 13 to 20 ppt is important. However, salinities along the nearshore area fronting the Kamiloloa aquifer consistently exceed 30 ppt.

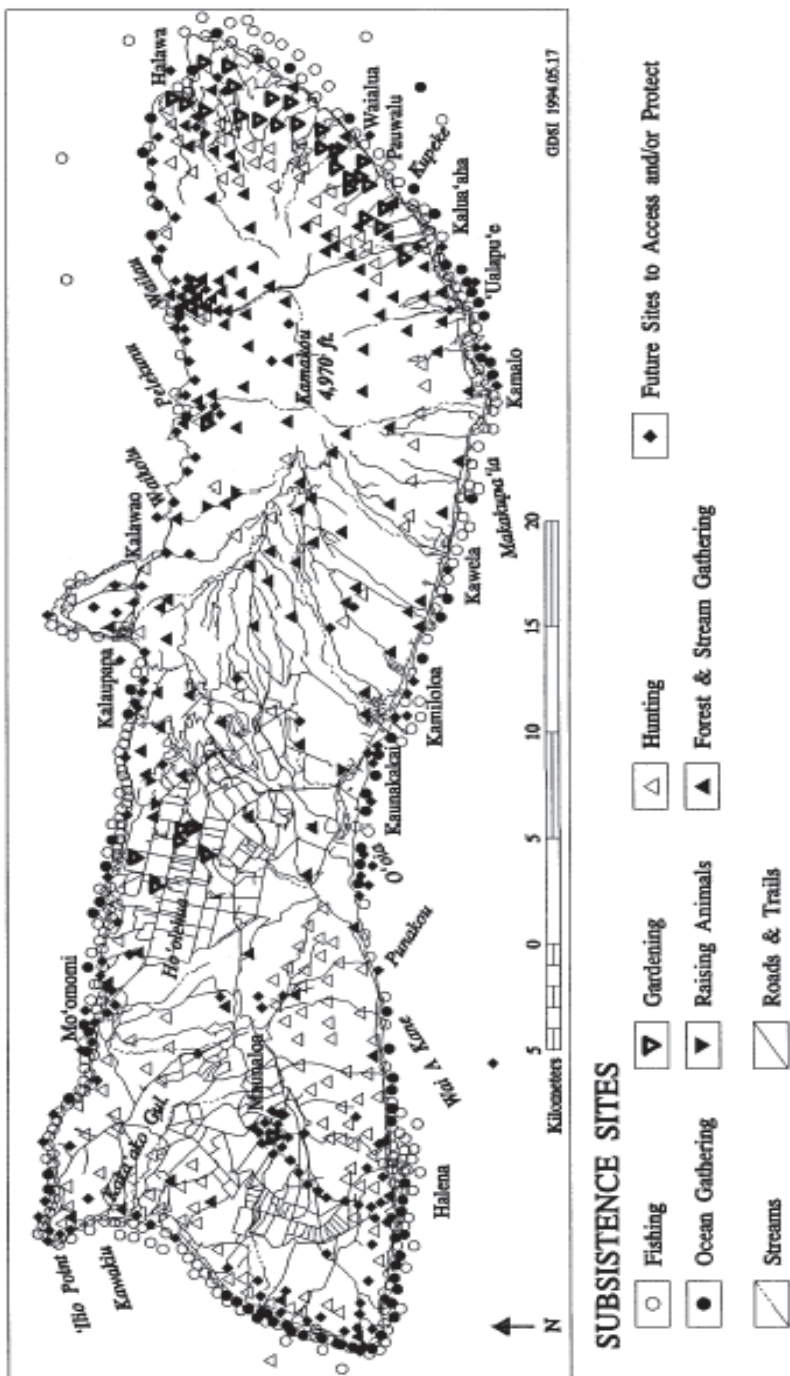
### **Limu**

145. Native Hawaiians gather limu and other marine resources all along the southern and eastern coastline of Molokai, including the shoreline area of the Kamiloloa aquifer. They do not confine their gathering activities to area within their ahupua'a of residence.

149. Limu is more productive in brackish water than in pure seawater.

Groundwater enters the nearshore zone from seepage at the shoreline and from offshore springs. In some areas, seeps are actually visible at low tide and offshore springs are also visibly evident."

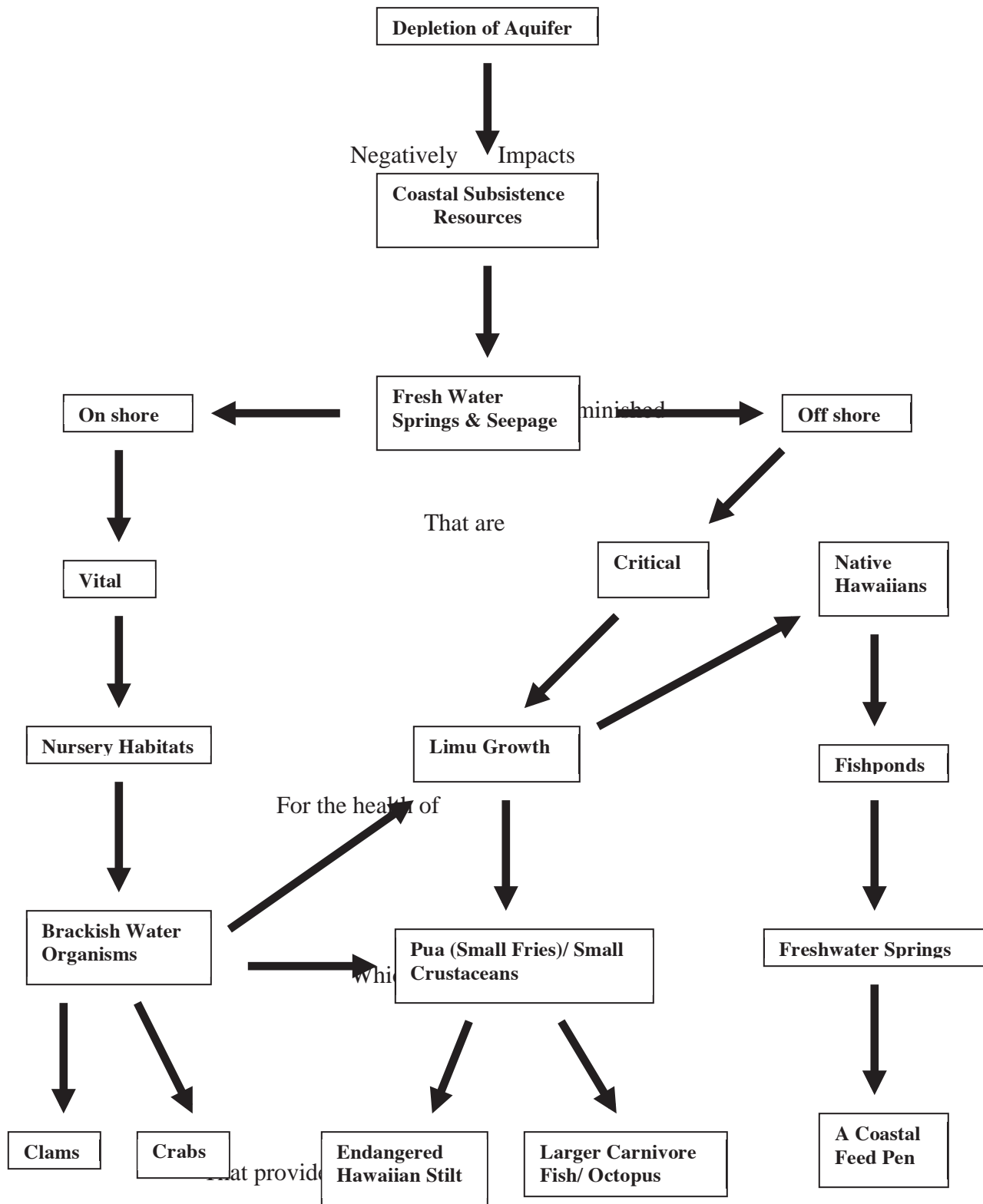
A report by the U.S.G.S. in 2007 entitled, Effects of Ground-Water Withdrawal on Kaunakakai Stream Environmental Restoration Plan, Moloka'i, Hawai'i, developed a Scenario of the impact of withdrawals of water from Well 17 on groundwater discharge. The simulation was based on the withdrawal of 1.7 mgd. In the scenario, coastal discharge would decrease mainly along the south coast from Pālā'au in the west to beyond Kawela in the east, but also along the north coast, northwest of Well 17. Coastal discharge was reduced by as much as 150,000 gallons per day along the south coast east of Kaunakakai Stream. Near the Kaunakakai Stream, the reduction was about 149,000 gallons per day, which is an 11 percent reduction from the original base conditions. (p. 16)



Source: Moloka'i Subsistence Task Force Report (1994)

Figure. 4 Map showing subsistence activities on Moloka'i in 1994.

**Figure 5. Fresh Water Aquifer Linkage to Coastal Subsistence Resources**



#### 4.3.2 Distribution of Water to Kaluako'i, a Large Resort Complex in a Previously Unpopulated Area

In 1972, Kaluakoi submitted an application to the Board of Land and Natural Resources to "rent space" in the System to transport water from its well in central Molokai to a resort complex it planned to develop at the island's west end. A public hearing to discuss the proposal was conducted on October 11, 1972. The Board approved the application on January 12, 1973 and a formal contract was executed on July 11, 1975.

The original plans for the Kaluako'i resort included the development of 3,600 hotel units; 3,404 villas and cottages and 6,605 houses and townhouses and a potential population of 30,000.

In 1970, prior to the development of the Kaluako'i resort, the population of the West End of Moloka'i was 2,515 with 872 persons living in Maunaloa. In 1980, when the transmission of water via the MIS began, the West End population declined to 2,331, with 636 persons living in Maunaloa. In 2010, the West End population increased to 2,752 with 376 persons living in Maunaloa. Overall, the West End population increased by 421 persons in the 30 year period from 1980 through 2010. This represents a 15% increase in the West End population. Population growth in the Kualapu'u-Ho'olehua community accounts for this growth, as the population at Maunaloa decreased by 260 persons or a 40% decline and the population in the West End, outside of Maunaloa and Kualapu'u declined by 844 persons or by 70%.

The overall population growth on the West End since 1980 has not been large, but, significantly, it has included the creation of a new community consisting 533 new households who are dependent upon water from Well 17 for domestic use. The number of houses on the West End in 2010 was 1,443, of which 842 were occupied and 601 were unoccupied. Maunaloa had 160 housing units and Kualapu'u had 671 housing units. There were 612 units in the West End outside of Kualapu'u and Maunaloa, of which 148 are occupied and 464 are unoccupied.

**Table 6. Population of West Moloka'i from 1970 to 2010**

Source: U.S. Census and State of Hawai'i Data Book

	<b>West Moloka'i (Census Tract includes Kualapu'u, Maunaloa and Kaluako'i Resort Area)</b>	<b>Maunaloa</b>	<b>Kaluako'i Resort Area</b>
1970	2,515	872	1,202
<b>1980</b>	<b>2,331</b>	<b>636</b>	<b>1,193</b>
1990	2,168	405	102
2000	2,568	230	402
<b>2010</b>	<b>2,752</b>	<b>376</b>	<b>349</b>
<b>Growth Since 1980</b>	<b>+ 421</b>	<b>- 260</b>	<b>- 844</b>

MPL is allowed to pump up to 1.018 million gallons per day from Well 17 for the residents of Kaluako'i, the Kaluako'i resort and golf course and other uses. With the closure of the Kaluako'i Hotel and golf course and MPL operations on the West End, the average daily amount of water

transmitted through the MIS for domestic uses of the West End residents is currently about 413,000 gallons per day.

Water from Well 17 is being supplied to the Kaluako‘i Resort residents residing in the 3 condominium complexes and surrounding single family homes. In addition, water service will be available to current vacant lots when homes are built.

Although the existing Kaluako‘i Hotel and Golf Course are currently closed, MPL has every intention of reopening these facilities as part of the overall revitalization of the Kaluako‘i Resort. The current allocation per the State of Hawai‘i Commission on Water Resource Management (CWRM), is 67,000 gallons per day (gpd) for the Hotel and 400,000 gpd for the Golf Course. These facilities are key to revival of a healthy Moloka‘i economy, as they can directly provide upwards of 120 jobs for Moloka‘i residents and indirectly provide opportunities for other small businesses to flourish or be created. The reopening of Kaluako‘i Hotel and Golf Course is a 'reasonable-beneficial use' and consistent with the public interest as defined in HRS 174C-49(a)(2) NS (4) 1993, i.e. '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 public interest.' HRS § 174C-3 (1993).

#### **4.4 Impacts of Alternatives to the Use of the MIS**

Upon completion of the environmental disclosure process, either there will be an agreement for the continued use of the MIS to transport Well 17 water or an alternative method of water transport will have to be established. Because there are approximately 600 customers in Kaluakoi dependent upon Well 17 water, water will have to somehow continue to be transported from Well 17 to the facilities owned by MPL affiliates for further distribution to end users at Kaluakoi until an alternate route and pipeline system are constructed.

Currently, there is no alternate means of transporting water from the source (Well 17) to end users in Kaluakoi without extremely high cost and a lengthy time period to implement. Any alternate route for a pipeline would need to be developed with the cooperation and consent of the County of Maui (DWS), DHHL and the Water Commission (CWRM).

In 2003, MPL was turned down by the Department of Hawaiian Homelands when it applied for a variation to its existing easement agreement to construct a pipeline across DHHL lands that would avoid using the MIS, and save consumers at Kaluakoi the high cost of the MIS use.

Two alternate routes and one alternate source of water for the communities of Maunaloa, Pāpōhaku and Kaluako‘i are described in other sections of the environmental assessment. The potential cultural impacts of these alternatives are discussed below. Please note that the above identified indirect cultural impacts of pumping water out of the Kualapu‘u aquifer and of delivering water to Maunaloa, Pāpōhaku and Kaluako‘i will be the same for Alternative #1 and Alternative #2, as they are for continuing the use of the MIS

system by MPL. However, the potential direct impacts of using the MIS system would be eliminated with Alternatives #1 #2. Other potential direct impacts are discussed below.

### **Alternative #1. A New Pipeline Across DHHL Land to Avoid Using the MIS**

In anticipation of having to find an alternative to transmitting water from Well 17 to the West End other than using the MIS system, MPL has constructed a 12 –inch pipeline to each end of DHHL lands. This pipeline is currently “dry” and not in use. At a cost of approximately \$9.4 million, a pipeline could be constructed across DHHL lands under its easement agreement with that agency. This new pipe can be connected to this existing “dry” pipe and with the necessary pumping equipment. Under this alternative, water can flow from Well 17 direct to the West End via Pu’u Nana without the need to filter and treat the water as is now the case. An additional environmental assessment would need to be conducted. The permitting process and construction of this new pipeline would take a minimum of ten years.

This option, which has always been MPL’s preferred alternative to using the MIS system. It will dramatically lower the cost of supplying water to the West End in the longterm because there would be no payment of rent to the MIS, no treatment cost and no wastage of water associated with that treatment. However, under this scenario, MPL will need to seek approval from DHHL for a third pipeline across its lands under the Easement Agreement between both parties. Under the easement agreement, MPL has the right to use its current 6 inch pipeline for its mountain system water carried to the West End, and for its 5 inch pipeline carrying treated mountain water back to the Industrial Park for consumer use.

The Easement Agreement between both parties is specific. Approval is needed from either party for either increases in pipeline sizes or for proposed new pipelines. However the agreement is also specific in its language, that "such agreement .....cannot be unreasonably withheld.....".

Under the PUC guidelines, MPL has a responsibility to its consumers to supply them with potable water at the lowest possible price. If this option is implemented, the price for Well 17 water will be much more expensive to consumers during the initial years because of stated guidelines that MPL can recover the cost of its capital and future capital needs as well as reasonable operating costs. However, in the longterm, it will ultimately cost the consumers less money for the delivery of water, as the annual payment for rent to the MIS and the cost of treating the water to meet clean water standards will be eliminated. This alternative will also be very beneficial to the West End consumers because it will assure the availability of water and remove the transport of water from the political arena. This alternative will also relieve the Hawaiian Homesteaders of their concerns over the use of the MIS and their irrigation water.

The negative impact of this alternative will be the loss of 20% and 23.8% (depending on monthly collections from other users) of the revenues of the MIS. In addition, the back up buffer would be lost if continued use of the MIS to transport Well 17 water is denied. The impact of this loss of this insurance of the water resource as a back up in emergency conditions can be extreme to those who rely upon the MIS system for water for agriculture. Informants noted that this loss could affect the viability of agriculture as an industry on the island.



The only direct cultural impact to the Hawaiian Homestead community will be increased rates for irrigation water from the MIS.

Keala Pono Archaeological Consulting, LLC conducted an archaeological assessment of this alternate waterline corridor, which included archival research and a walk-through of the routes. Their report, completed in September 2011 and included in the overall environmental assessment found no negative impact to historic or cultural sites. An environmental assessment would need to be conducted to assess any additional impacts of this alternative.

One homesteader has suggested that this alternative may be acceptable if DHHL would be able to put in a meter to monitor the amount of water flowing to the West End and be able to close the valve if the amount exceeds the allocated amount.

## **Alternative #2. A New Pipeline Avoiding DHHL Land by an Alternate Route**

A second alternative would be for MPL to construct a pipeline from Well 17 through an easement across land owned by Monsanto to near Pālā'au, where the pipeline would need to cross land owned by the State before it meets Molokai Properties Limited land and is then transmitted to Kaluakoi across the hills at Pu'u Nana to Kaluakoi.

MPL would need to conduct an additional environmental assessment for the State on the route taken across the 124 acre parcel (TMK 5-200-1024-0000) that is part of the Molokai Agricultural Park.

This alternative route is estimated to cost \$10.5 million and would take a minimum of ten years for the permitting process and construction. Like Alternative #1, this transmission option will be more expensive for MPL and the domestic water consumers in the near term for the development of the infrastructure. However, it will be much more expensive than Alternative #1.

Under the PUC guidelines, MPL has a responsibility to its consumers to supply them with potable water at the lowest possible price. If this option is implemented, the price for Well 17 water will be much more expensive to consumers during the initial years because of stated guidelines that MPL can recover the cost of its capital and future capital needs as well as reasonable operating costs. It will also be much more expensive than Alternative #1. However, in the longterm, it will ultimately cost the consumers less money for the delivery of water, as the annual payment for rent to the MIS and the cost of treating the water to meet clean water standards will be eliminated. This alternative will also be very beneficial to the West End consumers because it will assure the availability of water and remove the transport of water from the political arena. This alternative will also relieve the Hawaiian Homesteaders of their concerns over the use of the MIS and their irrigation water.

The negative impact of this alternative will be the loss of 20% and 23.8% (depending on monthly collections from other users) of the revenues of the MIS. In addition, the back up buffer would be lost if continued use of the MIS to transport Well 17 water is denied. The impact of this loss of this insurance of the water resource as a back up in emergency conditions can be extreme to





Geophysical surveys conducted for Alpha USA of the northwest and southwest rift zones, along the ridgeline between Kahuwai and Ka'a'auku'u Gulches indicated that there were no water resources sufficient to warrant the expense of a test hole.

**Table 7. Status of Drilled Wells in West Moloka'i**

(source: memo from Tom Nance Water Resource Engineering to Harold Edwards, 2-7-97)

**Drilled Wells in the Kaluakoi and Punakou Aquifer Systems of West Molokai**

No. on Figure	State Well No.	Owner	Year Drilled	Ground Elev. (Feet)	Chlorides (MG/L)	Temperature (° F)	Current Status
1	0615-01	Alpha USA	1990	406	11,000	--	Unused
2	0615-02	Alpha USA	1991	344	11,000	--	Unused
3	0715-01	Alpha USA	1991	382	4,100	94	Unused
4	0715-02	Alpha USA	1991	367	6,300	93	Unused
5	0815-01	Alpha USA	1991	388	4,300	96	Unused
6	0807-01	Molokai Ranch	1975	348	1360	--	Unused
7	1011-01	Molokai Ranch	1945	503	2900	93	Unused
8	0915-01	Kaluakoi	1974	48	--	--	Unused
9	1014-01	Kaluakoi	1974	63	--	--	Unused
10	1114-01	Kaluakoi	1974	76	--	--	Unused
11	1114-02	Kaluakoi	1974	63	--	--	Unused

**Note:** Dashed lines in the table indicate that the information is not available.

The limiting factor for the development of groundwater anywhere in West Moloka'i is the substantial imbalance of rainfall and evaporation. Rainfall is about 25 inches a year between Maunaloa and Pu'u Nana and decreases to less than 20 inches in the coastal areas. Evaporation rates range from 85 to 105 inches per year. For recharge to occur, rainfall must exceed evaporation from bare soil and evapotranspiration by plants. In West Moloka'i, this only occurs during the rainy season storm events. At other times of the year, the meager amounts of rainfall are caught in the soil mantle and then subsequently lost to evaporation rather than deep percolation. When this occurs, the dissolved salts in the rainfall are left behind in the soil. When there is a subsequent rain event of sufficient magnitude to cause deep percolation, it picks up the salts left in the soil, causing the water percolating to the groundwater lens to be brackish. The unfortunate result is that the possibility of finding even irrigation quality groundwater anywhere on West Moloka'i is extremely remote or non-existent. Replanting of the forests which once

graced the slopes of Maunaloa would help decrease evaporation and increase the recharge. It is advisable to start the replanting of a native forest in this generation so that the next generations may begin to reap the benefits of a restored forest.

One alternative to the proposed action is for MPL construct a desalination plant to develop fresh water from the brackish wells in the Kaluako'i and Punakou aquifers. It is estimated that 4 mgd of brackish water can be obtained from these aquifers, with Water Commission approval. This would allow MPL to dispose of Well 17.

The permitting and research to develop desalinated water from brackish wells at the West End would involve a long process and extend the use of Well 17 and the use of the MIS to transport water for at least a decade. The capital cost for two wells, plus the associated permitting and environmental report are estimated to cost \$26.5 million for development of the infrastructure. This will involve the drilling of the brackish wells and the construction and operation of a desalination system. Annual operating costs would be \$2 million a year.

As stated above, under the PUC guidelines, MPL has a responsibility to its consumers to supply them with potable water at the lowest possible price. The price for water under this alternative will be prohibitive to consumers.

The indirect impacts associated with the pumping of water from Well 17 would be eliminated after a decade. However, this option would open the potential to expand the build out of Kaluako'i and other lands owned by MPL on the West End that would create new significant cumulative impacts.

An environmental impact study would be required to fully assess the environmental, social, cultural and economic impact of drilling wells and establishing a desalination system on the West End. This would include an archaeological study of the areas projected for well development and the desalination system.

Given the prohibitive cost, the number of years to implement this alternative and the potential social, cultural and economic impacts of this alternative, MPL decided that this alternative is not feasible, as discussed in the section of this environmental assessment on alternatives.

## **Section 5 Recommendations**

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The renewal of the MPL Agreement to rent space in the MIS cannot be denied because there is no alternate infrastructure to transport water to households of Pāpōhaku and Kaluako‘i and provide back up water for Maunaloa.

In the longterm, the path which will alleviate the cultural concerns of the homesteaders and provide the lowest rates for water to the Pāpōhaku and Kaluako‘i households would be to extend the MPL Agreement to rent space in the MIS for a ten year period with an option for another automatic 5 year period to allow the negotiation with DHHL and compliance with regulations to construct a pipeline through the existing easement that MPL has with DHHL.

Measures and devices for the Pāpōhaku, Kaluako‘i and Maunaloa residents to conserve water would enhance overall community relations on the island. Another positive gesture would be for MPL to work with the community to replant the native forests that once graced Maunaloa in order to improve the water resources of the Kaluako‘i ahupua‘a.

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## **Appendix 1. Information Emailed to Community Informants**

### **Community Interviews**

**June and July 2011**

**To Gather Information on the Cultural Impacts of Using the Molokai Irrigation System  
(MIS) to Transmit Water from Well 17 by Kaluakoi Water LLC  
Owned by Molokai Properties Limited (MPL)**

**Contact: Davianna McGregor  
560-3611 ( or leave message) or  
davianna@hawaii.edu**

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Well 17, located in the Kualapu'u aquifer currently provides approximately 413,000 gallons per day of water to Kaluako'i on the West End of Molokai. This water is transported from Well 17, first through the MIS system to the Mahana pump station. From Mahana, water is pumped to Pu'u Nana for treatment, and then piped to a reservoir in Maunaloa and gravity fed to Kaluako'i. (See map on back)

The MIS was constructed under a special Act of Congress (Reclamation Act of 1954) to develop surface and high-level ground water in Waikolu Valley to irrigate farmlands in central and western Molokai. Hawaiian homesteaders have a prior right to two-thirds of the water developed by the MIS. The MIS transports 1.2 billion gallons per day to an open reservoir at Kualapu'u where it is stored prior to entering a distribution network extending throughout Ho'olehua. The reservoir has a capacity of 1.250 billion gallons. It is 50 feet deep and for each foot, 25 million gallons can be stored.

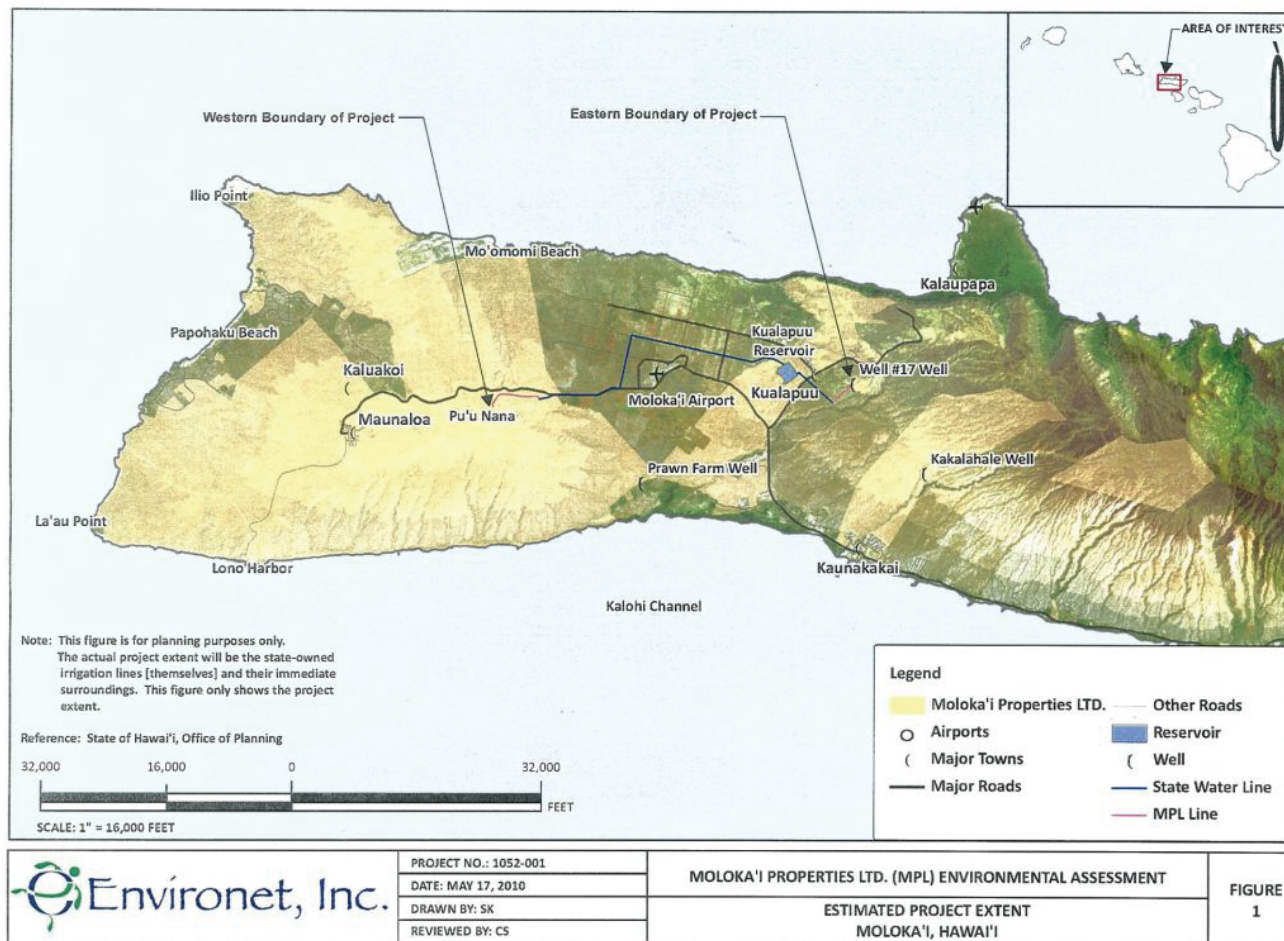
Kaluakoi Water LLC (MPL) **rents** 6 miles of space in the 25 mile MIS pipe system and space in the Kualapu'u Reservoir to transmit water from Well 17 to Mahana. In order to account for potential system losses and evaporation, MPL can only withdraw 900 gallons for every 1000 gallons that it transports through the MIS. The amount of water pumped into the MIS from Well 17 and the amount that is withdrawn at Mahana are metered. The meters at both ends are monitored by the Hawai'i Department of Agriculture. MPL pays a monthly rental fee of \$11,375 for the transport and storage of up to a maximum of 1.018 million gallons per day.

The permit to MPL was issued in 1975 by the Board of Land and Natural Resources and was transferred to the Hawai'i Department of Agriculture in 1989. This permit has expired and requires an environmental assessment in order to be renewed.

The purpose of these community interviews is to gather information about the cultural impacts of using the MIS to transmit water from Well 17 by Kaluakoi Water LLC. Dr. Davianna Pomaika'i McGregor will conduct the interviews, document input received and write the cultural impact assessment. For more information contact: Dathan Bicoy / [dbicoy@molokairanch.com](mailto:dbicoy@molokairanch.com) / ph: 552-2390



Question: What are the cultural impacts of the transmission of water from Well 17 through the Molokai Irrigation System, including the Kualapu'u Reservoir shown on the map below?



## **Appendix 2. Input From Community Meetings and Key Informants Re the Cultural Impacts of Transporting Water from Well 17 to the Kaluako'i Ahupua'a via the MIS**

*The following fifteen themes emerged from the discussion in the 2 community meetings, the key informant interviews and email responses. There are direct quotes listed under each theme. Informants chose to have their input reflected in the report, provided that the information was not attributed to them individually.*

### **1. Community of Pāpōhaku and Kaluako'i**

- Pāpōhaku has a growing fulltime residential community, it is growing yearly.
- I've been told by a housekeeper that there are more fulltime condo residents now because people who bought them a while ago are retiring now. We still have some snow birds. There is almost no tourism here. There are renters who work fulltime in town and housekeepers.
- Went through a period of growth - 36 hole golf course, condos, etc. The issue was the growth - not the water - 30,000 people, airport and shopping center - 18 holes golf course -- The community screamed and yelled = bedroom community of O'ahu. The issue was not water.
- We are characterized as outsiders who don't care about Moloka'i - but we have contributed to the community. We do volunteer work.
- We are consumers - mostly 2-member families. Not overusing in a domestic sense.
- There are a lot of caretakers in 30's and retirees. We are a caring people - a humane society .
- People move here and get dissatisfied quite easily.
- We have a really diverse community, including Native Hawaiians, who are paying the high rates.
- Denial of the permit would just eliminate the community.
- Kaluakoi is a 300 lot subdivision. There are 19 lots not built on, but the owners have water meters. People have applied for water meters with intent of building.

### **2. Relation to the Moloka'i Community**

- There is an attitude about the West End - the residents are not fully accepted as being part of Moloka'i. West End residents are not incorporated into the Hawaiian community. Yet some of the West End residents have been advocates for Civil Rights.
- Mele Carroll introduced a bill to forgive the MIS delinquencies, those who haven't paid for their use of the MIS. The Ranch payments keep the MIS system open.
- Not sure that the users who pay are happy with those who do not.



- Don't want class warfare - private system vs. county system.
- They don't want us here? I disagree with that.

### **3. Use and Conservation of Water By Residents**

- Our concern is that we have a supply of water. We are all frugal with the water. We are culturally accustomed to having water when we turn on the tap.
- Less water is being used now than when the studies for Wai Ola were conducted.
- Perception is the flagrant misuse of the system. But most homeowners in Pāpōhaku practice conservation. New owners try to set things up to be sustainable - alternative energy; native plants; use native plants. There are virtually no lawns; use drought resistant plants, drip systems only ( no overhead sprinklers); deer resistant plants; new replacement washer, dryers; new toilets; conscious of no leaks.
- Misstatements and kinda inflammatory - sound like water is wasted by people who don't care about it in a commercial way
- Not as many leaks along the system - as part of the PUC proceedings. Report leakages. Past performance of Ranch waste - leakage. It's Better since Harold put in new system and regulates the pressure.
- Everyone is metered. When new, plants getting established, do not use as much.
- The first people who moved in to Pāpōhaku - love lawns - but most residents do not do that anymore.
- Promised potable water and non-potable for gardens. Put in 2 pipes - for potable and non-potable.
- Almost lost everything in a fire - lived 2 or 3 years without grass, things came back on their own.
- Some have orchards, home orchard - fruit trees. Have to do an ag plan. Economically unfeasible to pay the water prices. Water prices have been going up.
- A few residents have catchments. There is an attempt to educate the community about catchment. Putting rain gutters and pump into plants. Use gray water for banana tree - bath tub and washing machine.
- Since March 2003 - \$1.85 per thousand gallons, now \$8.60. Maunaloa - close to this. MIS is 37cents per thousand.
- When built our home took a couple of measures to conserve water. Have an underground water storage tank which runs from gutters. Any installation of plants uses low volume drip irrigation.

Putting in a vegetable garden and very concerned about how much it will cost for the water. We are on a fixed income, and we need to be careful. Want to have own food crops. Have some citrus and traded for some produce at Kumu farms. In Hawaii, more time, because retired. Things grow better. Beautiful raised beds and put up deer fencing - look forward to having own crops.

#### **4. Pāpōhaku Park and Beach Access Points**

- A primary user of water is the Pāpōhaku Park and the toilets and sewer system. Used to have a shower at Dixie and at beach access points - 2 before Dixie. There is a shower at the hotel. - These are all public uses for cultural purposes.
- Water is provided for use of the access points and the parks for fishermen
- The park used to be used more extensively - it is used on weekends, heavily used by church groups, boy scouts, park usage, surfer and canoe events.
- Our system here allows beach access - to the county park. Not access, but water. Water from our system makes it more comfortable for local families who come to the park. The system provides water for the park.

#### **5. Need Water for fire control**

- Need for fire control down here. How many fire hydrants, how many workable?

#### **6. Alternate Route #1 Through DHHL Land**

- Years ago, the Ranch tried to do a bypass, because the homesteaders said that they didn't want the Ranch on the MIS. The Ranch tried to get a pipe built, but it was shut down by DHHL.
- MIS use was supposed to be temporary. There was a plan to put in another pipeline through DHHL property.

#### **7. Impacts of MPL Using MIS**

- Passing through the MIS - water quality deteriorates
- Will it fuel more development? Will it be used to construct the wind mills?
- No cultural sites where the MIS system runs.
- I don't see any adverse affects - I myself am a homesteader too. I don't see any adverse on the culture side.
- Important to keep the system functioning and solvent. With the economy, need to partner with the private sector to keep the MIS going.
- Concerned if the water will be taken away from the homesteaders. This year, there was hardly any rain.

How would it impact the homestead farmers. Concern how it will affect farm operations. This year, the concern is the deer.

- I just want Moloka'i to be Moloka'i, but give people choices.
- This is a private potable water system that flows through a public ag system.
- Cultural and social impact on private agriculture employees and activities - non-existent - no impact on the community here on Moloka'i.
- Put in more water than they take out, so there is no net loss experienced by any party. no net loss. Facility has excess capacity - no negative impact from a physical facility impact. Water resource not affected. Facility is not affected, has excess capacity. No cultural or social impact associated with the activity.
- The fact that they use the public facility for transmission - no negative or unfavorable - simply a pass through with all the necessary assurances.
- Homesteaders have benefit of the MIS water at substantially subsidized cost that would fall on the private sector. Cost will all be transferred to the private users of the system.
- All irrigation water for Monsanto is from MIS - occupy 50% of the land served by the MIS, but use less than 25% of the water that is used by the MIS.
- Use of MIS has a very favorable social and economic impact for the Hawaiian community and the non-homestead users.
- The MIS revenue is 300,000 a year, including contractual revenue. Earnings would be reduced in half - the cost won't go away, already at bare bones cost level - then the state would subsidize or it would be transferred to the users.
- What the West End users pay - would pass on. West End pay phenomenal fees. They pay the cost of water - Wai Ola. Wai Ola passes the cost to their users on the West End. If it ends the West End consumers don't pay the cost of the MIS and it transfers to the agricultural community.
- There will be no ability to fix or improve the system.
- The water system loses half its revenue and the cost needs to be covered - the state subsidizes it or the rates go up.
- The system now breaks even from the sale of water, assuming that the homestead community pays their equal share, with the transmission contract, which is about 50% of the revenue.
- With the new legislation, the homestead contribution is reduced.
- The impact on the system is extreme.

- From the Hawaiian side, same thing - the existence of the water in the system, adds a layer of stability to the MIS - disaster relief or emergency. We do have extreme drought some times.
- In order to move toward an ag lifestyle, important to be viewed as a dependable source for farmers to invest in ag and farming.
- Would impact the viability of ag as an industry on the island. Sustainable ag would be affected with increased costs of the system.
- If the cultural vision excludes agriculture, puts the cultural vision at greater risk.
- Technically, not acceptable to keep mixing the water from an engineering or public safety stand point.
- Allowed 20 mgd in the reservoir. Who would have first rights to the water if in the future the MIS ran into issues, as to no water. Continue to provide water to West End. If Well 17 ever had an issue with their well, and no longer be able to pump. - how provide water? Have a connection at red hill that allows the mountain water to pump in. have a connection point to allow the mountain water into the transmission line and into the reservoir - water can be stored up to 20 mgd a day. Only do this for Well 17.
- Buffer? is 20 million gallons a fair way to say - how to best address based on the fact that the complaints from the homesteaders - Ranch should only pump from well via transmission and to customers. Not pump into reservoir of 20 million gallons. Should not be allowed a buffer - what put in, take out, not store in the reservoir. 20 million gallons inclusive of everything else.
- In time of crisis - who has priority? the West end customers? or ag users. Issue when continue to provide water, was Maui County Board of Water Supply. they would be part of organizations and entities to best ensure health and well being of customers dependent on potable water. BOW would have to truck water for drinking water - flush toilets, use utilities, - decisions in a collaborative effort.
- Space not really an issue - the issue is the precedent between characterizing non-potable vs. potable and usage. Space is irrelevant 1.4 billion gallon reservoir never been over 30 feet and it is a 50 foot reservoir. Every foot 25 million - 1.4 billion gallon capacity. Never seen it close to half, 25 feet. Not seen for years. Been at most 22 feet - 24 feet. Had identified Pelekunu as a source, but not likely to be expanded there.
- Have pipe sizes that are 20 to 12 inches. Question and concern is how much water is actually flowing through those pipes at max capacity? what is the average flow during the pipes during normal flow rates and what is limiting max capacity through the pipeline. Take all of that into consideration. Not put in 20 inch pipe, with only capacity . Had phase 1 and 2 originally, so the pipe size was for phase 2. As long as Ranch in there, deprive of ag uses. It's dictated by source, right now, no way that you have the source capacity. Go to Phase 2 or supplement with another

source. Some discussion in the past was to look at Kakalahale - can access that source and put into MIS? as additional source?

## **8. Effect on the Kualapu'u Aquifer**

- The contractual relationship between the private and the public entities does not affect the aquifer - it doesn't change the amount of water being pumped out of the aquifer -= just affects if it is transmitted through a public or private facility.

- \* At today's level of use - there's the Kualapu'u aquifer - 3 deep wells - DHHL, County and Well 17. Given the current water use rates, the aquifer is stable. So we are not drawing down the aquifer - no sea water intrusion. It is classified as stable. Renewing the ground water use permit at its current level would not change this situation.

- \* If their request for renewal was to increase, the permitted ground water use from Well 17, then it becomes a technical question about the stability of the aquifer - there are hydrologists to answer these questions. Hydrologists define whether the increase would affect the aquifer.

- \* When MPL goes in to renew the well permit - then the aquifer capacity comes into question.

- \* No cultural impact that we can think of for either alternative, but there is a significant cultural and social impact if the water is not available to the community in some way.

- \* Well 17 chlorides is only 45 parts per million - chlorides.

- \* Longterm - will have to use desalination; won't always be able to afford having water pumped from the center of the island to West End.

- \* Elaborate on the culture. Right now, a lot of rain, everything is green. When summer comes, impact on endangered plants, ocean, and river - we as need all these animals and species for rehabilitation. We do a lot of cultural classes on the north side of Molokai. We don't want too much water taken. Will there be a limit? Right now we are in bad shape. This past summer, lot people had to sell their cattle. We had to get help from soil conservation. Because of El Nino - cannot predict what will happen.

- \* No intention to take other than for residents of Kaluakoi and hotel requirements. Won't go for any use that is not there now, but under requirement from commission to seek a reservation for people who build houses at Kaluakoi - nothing for hotels or build out. 413,000 plus 250,00 250,000 a reservation - only used as the houses are built. We are PUC, we have to supply people. Ag is not permitted under the CCRs, but people do it anyway. Regarding the CCRs - the CCRs for Kaluako'i say that farming is not allowed. It was never perceived when K was established that people would commercially farm. There are restrictions of large-scale commercial ag. Unless the association take action against the commercial operators. Required to submit an ag plan?

\* MPL has the best Well on the island. Concern that it will impact on DHHL and county well. Cultural concern that DHHL which 2.50 million gallons, which not using, will be under threat because of Well 17. No scientific evidence for that.

\* The 5 million sustainable yield by the USGS and is accepted by Water Commission and USGS as the sustainable yield of the aquifer. In the 5 million allocation, there is a reservation of 2.50 mgd - have 2 mill for use.

\* How did the state approve Kaluakoi, without allocation for 100 years? Any subdivision developed prior to the Water Commission has no commitment - is left out.

\* All the same aquifer - everyone drawing off same aquifer - BOW; DHHL; Well 17 clustered close to each other - pumping over time - increase in chlorides will occur.

\* Only issue with Well 17 - cluster BOW, DHHL (2) and Well 17 -- 4 straws for same glass, area. Any well has potential conflict with issues of limu, That is happening all over. No more enough recharge. All the coastline used to have spring water - several factors, water draw down has some potential impact - how much and to what degree upsets the ecosystem? Collectively effect of all the wells - not just one well, also the DHHL wells and DOW wells.

## **9. Alternate Route**

\* For private water company to remove themselves from the state facility and use their own private pipeline - different routes for the private pipeline.

\* In this scenario - Well 17 water is excluded from the public system - economic impact is that the public system loses that revenue - the negative impact spoken of earlier.

\* In an extreme drought/emergency, can't see that MPL would not make water available for life.

\* If they removed the water from the system - would make water available in the event of an extreme drought - provided the physical connectivity remains.

\* In the mixing of clean potable water with surface collected ag water. Not typically acceptable to mix. Makes no technical sense to mix clean potable water with surface water. There s a cost to cleaning it. From the technical standpoint, better for the Wai Ola private system to keep the water clean and use one of the alternative pipelines - from the public health and water treatment costs standpoint. The alternative is a better choice.

\* What are the cultural impacts of the alternative routes? The pipeline is installed, with the exception of crossing DDHL lands in both cases, (the dry pipeline is installed). Alternative A, it is installed, with exception of short crossing of DHHL property. Can't think of negative impact of the alternative pipeline, except for the loss of revenues already discussed. DHHL might get revenue for the easement? old easement, may not get revenue. Pipelines have already been constructed, slim chance of any arch sites in the easement route.

- \* Social impact on the West End, with the possibility of reducing water cost and assuring availability of water, remove resource from the political arena, a positive social outcome.
- \* Impact in the homestead community? can't think of any negative impact in the homestead community.
- \* It doesn't provide for any further expansion on the West end - 12" not enough capacity to expand the West End.
- \* Why not put an optimal pipeline for a developing community? Would want to know what the build out is. If it does not provide capacity for expansion, don't see any cultural impact. It can only go to existing users. There's no water for expansion, it can only go to existing uses. Then there is no incremental cultural impact. In the implementation of scenario A or B - no incremental cultural or social impact.
- \* Does it stay in a public facility or a private facility it's still the same community being supplied the same amount of water. The issue is the economic impact. But will have a big impact on the cost of the water. Other ag systems in the state are subsidized.
- \* Alternate is to apply for easement across DHHL land. No treatment at Pu'unānā would be needed. No need the energy required to pump. Less pumping at Well 17, because would pump less water .
- \* Clarification - the option of having the pipeline go through the DHHL easement is the more economic and viable option.
- \* In 2002 - asked to use the water easement for a 24 ' pipe. What is the proposal now? A 12 inch pipe.
- \* If gave some land to DHHL for Maunaloa - reason for DHHL to allow water to run across its land to the west end.
- \* Put new pipe, through DHHL lands - would not need to pump out of the reservoir or treat. Capital cost is \$3mill - but the savings would be substantial. - Would free up DHHL, with new pipe. Won't assist MIS with capacity much at all, the major users are corn seed and farmers.
- \* Cost of pumping up to Pu'u nana and treating it. Taking high quality water, putting it in MIS and having to treat it again. Negotiate an easement with DHHL to have a direct route. The V route is most expensive. Have a water line that is not in use that stops east of the easement.
- \* Should get off the MIS - lose out on revenue - but it would be good to have another source to transport water in there.

## **10. Re-Open Kaluako'i Hotel**

- \* Kaluako'i Hotel also had a positive cultural impact - local families would hold family gathering events there. local golfers came too.



## **11. Build Out or Expansion At Kaluako'i**

\* I'm not sure what the plan is for west Molokai and that scares me. Until that's resolved, we as homesteaders are forced to take a hard line on water. I believe the CWRM allocation is the first step in addressing water, because if you have nothing to carry to the west end, a transmission agreement is moot.

\* The greatest concern fear is that the delivery of water to the West End will open up development.

\* There has been a cultural and social impact in the development of the West End to date - new owners, new roads, - this has already happened.

\* The status quo today is that we have this community as it is and supplying water either through the MIS or these alternatives doesn't change the cultural status quo. They are there already. The lots are sold, the meters are in place.

\* All scenarios will provide the same amount of water to the West End community.

\* The alternatives are not to provide water for new development, but to sustain the status quo.

\* MPL is not talking about using the MIS for anything other than Kaluako'i now - not anything north of Kaluakoi. Only what need for Kaluako'i now - Have to keep the grounds as if open - under the agreement with the condo owners. Put water on grounds not used - that is the only requirement that is forced on MPL. Still negotiating to get out of that. Look at historic park use and potential build out. Not talk about golf course or hotel. Only really talking about is the 5, 10, 15 build in the subdivision itself. Get figures for the subdivision itself.

\* What is going to happen at Kaluakoi - existing lots is unknown - if ag, there won't be enough water to go around. What is zoned and can move forward and water needs for those as well.

## **12. Impacts of MPL Getting Off the MIS**

\* If MPL gets off the MIS, the county or state would have to pay for the MIS.

\* The permit to run through the MIS has been out of date for some time and it is a historical situation. There was a valid permit. Moloka'i Ranch didn't do what it must to renew it. Can't see someone at the state level denying the permit. It's an established system. What was is, whatever cultural impacts were determined at the time of the original permit have not changed. By denying the permit - eliminate a whole a community. Without the water cannot live here and that includes Maunaloa.

\* Would eliminate this population. If the state were to deny it - what benefit would it give them. The development of the original project was approved by the state, part of that development was assuring water to the residents. Moloka'i Ranch, in selling the property made contractual obligations to those who purchased the land and they need to meet that in whatever way is necessary to provide water to this community. I'm afraid of losing this water.



- We pay a huge rate. Without Kaluako'i and other MPL water systems rates being so high, the MIS would operate at a deficit. The rates paid, \$10 a unit, supports essential maintenance of the MIS. Should those rate payers be taken off the MIS, it would run into deficit.
- Some Native Hawaiians believe that the water should be free, and don't pay the water bill and this puts the system into deficit. The delivery of the water is different. One can take a bucket to the well and get free water. If want delivered to the house, need to help pay for the delivery system.
- My understanding, without collection of our rates, it would run into deficient. Not enough income from other uses to keep it running. If they take us off of the system, they would lose the rates.
- Saw in the paper that the department in charge of the water has instituted collection activity on people who have not paid their water bills for a long time. Did read that there was some sentiment that they should forgive the back bills and move forward.
- We are state tax payers. How can the state deny the permit and cut off the water?
- Given the Ranch's historical performance there are concerns. I was open. I heard disparaging remarks about the Ranch, and thought that it can't be that bad. But we've had a bad experience with the Ranch.
- I understand that this is an exercise that we need to go through .
- Would definitely be impact if the contract is terminated. Well 17 is an additional resource available in times of drought. Ag is acutely dependent on rainfall. It would decrease availability. People who own the private water system will be available to help out in emergency conditions. The potential impact of losing this facility is extreme.
- Removal of use of MIS - removes the resource from the community. Removes that insurance of the resource from the system as a whole - increases exposure to drought emergency. That's the cultural impact on the resources.
- Economically, removes 50% of the MIS revenue - economic impact. The MIS user rates would increase. All the users and beneficiaries would be liable for a twofold increase in the cost of using the MIS water. The existence of the this contractual agreement has no cultural or social impact, the loss of it would have a cultural or social impact.
- Large base of ag users, little by KWL. If leave MIS - pipeline, be like rest of ag lines throughout the state - in the red. Not unusual throughout the world. 33 cents per thousand gallons.

### **13. Rates**

- Also it would be good to know whether the financial side is pono. Meaning the homestead farmers are paying less than or comparable to the monthly fee of \$11,375 for the transport. There should be some equity to homesteaders even if they are paying for water use and not a monthly rental fee. I don't know if I'm making myself clear. But at the end of the day, are the homesteaders paying less in rate than what would be calculated from the approximately 413,000 gallons per day to Kaluakoi (6 miles of space in the 25 mile from MIS pipe@ 413,000 gallons)? If someone could figure this out, maybe then people would see this picture better?

- When they increased the water rates, it impacted the homesteaders, especially the people in business. Some of them couldn't afford it. During Cayetano's administration - increased it and people took a hard hit and it affected a lot of the farmers.

### **14. DHHL 2/3 Reserve**

- Also, as the reservoir gets lower levels, how is the measurement done to ensure that homesteaders get the 2/3rds reserve?

### **15. Role of MPL**

- As a side bar, is the Ranch a good corporate neighbor? Currently, I don't see anything happening to make this a positive nod.

- Some is more personal against the Ranch.

- Rex clarified that the mountain water does not go into the MIS. It is piped directly to Pu'unānā and treated at Pu'unānā. Emergency system that connects into MIS but not activated. Put mountain water into the MIS system in 2007. The precedent was set to put mountain water into the MIS. We work for corporate company and look after each other. Last year when the pump went down, I called Peter and got approval to support DHHL with water.

- Sure we appreciate Moloka'i Ranch for helping out the homesteaders. We don't look at handouts. We appreciate the poor management that DHHL handled things. We've been having problems with the pump for a long time. We appreciate that.

- MPL is seeking designation for important ag lands. Would that would affect what we are talking about today? Absolutely not - the ag water comes from the mountain system.

- Under the important land designation - MPL could get state ag water. As an incentive, if LUC approves the application - the ag resource management division is responsible to help with a plan and for giving the water. Incentive to get the designation. The chair, without having to go through process can in some places streamline the process by his authority. Issue I have is whole doing the EA also seeking designation for ag land. It is significant amount - 5,000 acres - all outside of Maunaloa town. Part of that incentive is for DOH to expedite permits. To help anyone with the designation to get water and permits. I would think that would have something to do with what the EA is for. I can't give clear feedback if can't see how all the pieces fit. If can get that designation. Ask MLT to get the easement. is that correct?

- MPL was totally unaware until tonight that you can go to MIS to get water. MPL will never go to MIS to get water. One of the issues, is if cattle ranching is important ag land. So far say no. A lot of the provisions relate to cropping, which is why we have no intention of applying for, asking for, wanting MIS water.

- You can go to Hawaii Dept of Ag - on the 7 incentives that MPL is seeking designation of important ag lands. These incentives do include rule changes, rule amendments, ag resource management division will hopefully take over or incorporate lands from DLNR, park. That is what the document says.

### **Appendix 3. Comments on Cultural Impact Assessment by Alan Murakami, esq.**

#### **Comments on Cultural Impact Assessment Proposed Lease of Space in Molokaʻi Irrigation System by Alan Murakami**

March 9, 2012

Mahalo for the opportunity to articulate my concern for the cultural impacts of the planned lease of space in the Molokaʻi Irrigation System by Molokai Properties, Ltd. (the Ranch) to use the pipeline to transport its water to the west end for resort, domestic and other uses. You've asked me to respond to the specific question, "What are the cultural impacts of the transmission of water from Well 17 through the Molokai Irrigation System, including the Kualapuʻu Reservoir shown on the map below?"

My comments span certain issues that on the surface might not appear to directly bear on this proposed lease, but are, necessarily, linked integrally to this proposal. The history of the Ranch's use of the MIS has been, at best, tumultuous for affected native Hawaiians, and, at worst, illegal, if not directly contrary to the interests of Hawaiian homestead farmers. The use of the source of the water transmitted from Well 17 has compounded the cultural impact on native Hawaiians homesteading in Hoʻolehua (and possibly end users of DHHL water in Kalamaʻula who cannot get sufficient water service in that community because of limitation imposed on the DHHL well field in Kualapuʻu). In addition, the water use from this source has impacts on cultural practitioners dependent on the natural groundwater outflow into the estuarine environment on Molokaʻi, and the Kamiloloa coastal ecosystem in particular.

**Impacts on Hawaiian Homesteads.** I start with the presumption that the impacts on homesteaders constitute cultural ones, even if they may not be on practices traceable to those followed by Hawaiians prior to 1892, because the program is so integral to the fabric of the Hawaiian community on Molokaʻi, where its significant land base cannot be ignored in any such analysis. The Hawaiian Homes Commission Act of 1920 established a potential land base for native Hawaiians to attain greater economic self-sufficiency by working the land. The approximately 200,000 acres set aside for them by Congress is part of the larger ceded land trust base which was illegally taken from the former Hawaiian kingdom during the 1892 overthrow. Engrained in the political and social history of Hawaiʻi, the HHCA is a prominent land base that Congress attempted to establish as a means of returning Hawaiians to land from which they were dispossessed since the Māhele occurred, with drastic negative consequences to the social and cultural fabric that once formed the base of the Hawaiian community. The loss of both the land and water that went with it lies at the foundation of many of the social ills Hawaiians encountered over the course of the 19<sup>th</sup> and 20<sup>th</sup> centuries. It was government's one attempt to restore cultural dignity to Hawaiians and to "rehabilitate" them from the deplorable social conditions that confronted Hawaiians with the transition to a western mercantile economic system. Accordingly, government agencies need to be extremely vigilant to avoid any threats to the integrity of the programs established by the HHCA, especially on Molokaʻi, where there are

over 25,000 acres set aside for this purpose in trust managed by the State of Hawai'i. Some of this political philosophy is reflected in provisions of state law that are designed to respect the solemn promise the State of Hawai'i made to achieve statehood. Congress chose to target Moloka'i in particular for particular solicitude, by funding the construction of the MIS, then imposing the 2/3 preference for water delivered by that system for homesteaders. It was one of the few places selected in 1920 to serve as the model for what the Hawaiian homesteads are now established. As a quid pro quo, Congress amended the HHCA sec. 221(c) which once provided the right to all water on Moloka'i for homestead use.

To date, one of the HHCA's explicit purposes is, "[p]roviding adequate amounts of water and supporting infrastructure, so that homestead lands will always be usable and accessible." HHCA sec. 101(b)(4). The general philosophy to incorporate the right to water to support homesteads is also enshrined in numerous other sections of the Hawai'i statutes, to ensure that the program has access to adequate amounts of water, by requiring:

- (1) county and state land and water plans to include provision for the "current and foreseeable needs" of the DHHL, HRS §174C-31(q),
- (2) consultation with the DHHL and its beneficiaries before the state commits its water resources to other uses, HRS sec. 171-58(g);
- (3) the avoidance of any conflict with the water needs of homesteaders by other competing uses through the issuance of water use permits in designated water management areas under the state water code, HRS 174C-49(a)(7) and (e); and
- (4) "adequate reserves of water for current and foreseeable development and use of Hawaiian home lands. HRS sec. 174C-101(a); HHCA sec. 221; *In Re Waiola O Molokai*, 103 Haw. 401, 431; 82 P.3d 664, 694 (2004) (recognizing that the reservation of water for homestead use is a public trust purpose, a state constitutional doctrine); see also, *In Re Kukui Molokai, Inc.*, 116 Haw. 481, 491; 174 P.3d 320, 330 (2007).

As these and other statutes reveal, it goes without saying the water used in support of homesteading activities is a public trust purpose. *Kukui*, 116 Haw. at 498-99; 174 P.3d at 337-38. Accordingly, the Court has already alerted public agency decision-makers that they protect "adequate reserves of water for current and foreseeable homestead development." *Id.* To make this mandate meaningful, the Court has articulated the contexts in which this mandate applies, including ensuring that the chloride levels in the DHHL wells in Kualapu'u are not compromised by even existing pumpage at Well 17, which is located in their immediate vicinity *Id.* at 499, 174 P.3d at 338. It must also include protection of the 2.905 mgd DHHL water reservation in Kualapu'u, which the CWRM can only compromise "with a level of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our state." *Id.* at 491, 174 P.3d at 330; *Waiola*, 103 Hawai'i at 433, 83 P.3d at 696.

These protections are uniquely *apropos* for Moloka'i, where the Ranch, as a competing water user, owns 44% of all developable land in the same Kualapu'u aquifer in which the DHHL has situated its sole potable well field. *Waiola*, 103 Haw. at 675; 82 P.3d at 412. Accordingly, any state agency with jurisdiction over water on Moloka'i must keep in mind this existing and potential conflict over available, but extremely limited, water and enforce the priority rights of homesteaders to that water so it is not disturbed. The DoA is in a prime position to implement these protections by controlling access by the Ranch to the MIS system.

As the potential breadbasket of Hawai'i, Molokai's land base, especially on the homestead areas, must be protected from compromise due to the lack of available water. This duty on state agencies is not confined to simply assuring source availability. It must extend to assuring that transmission problems and issues do not compromise it with the kind of problems homesteaders have faced with the Ranch's prior use of the MIS. These problem areas just as much affect the cultural foundation of the island as any direct impact on the water source itself. Accordingly, *this proposed lease must be evaluated for any potential negative impacts on the ability of farmers to use water from the MIS directly, as well as on the ability of the DHHL to tap its Kualapu'u water source and water reservation*. Ultimately, these issues are interwoven with the impacts they have on the cultural traditions on Moloka'i, one of the last vestiges of the ancient Hawaiian culture, where community traditions and customs enjoy constitutional protection private commercial uses of land and water that compete with homesteading. Haw. Const., Art. XII, § 7.

**Other Impacts on Traditional and Customary Practices.** Other laws protect the general right of Hawaiians to water in order to protect their traditional and customary practices. Haw. Const. Art. XI, §1, 7; HRS sec. 101; *Waiola*, 103 Haw. at 440; 82 P.3d at 703. Protecting the exercise of traditional and customary practices, and the water resources necessary for their continuance, is a public trust purpose. *In Re Kukui Molokai, Inc.*, 116 Haw. at 507-08; 174 P.3d at 347-48; *In re Water Use Permit Applications (Waiahole I)*, 94 Hawai'i 97, 137, 9 P.3d 409, 449 (citing Haw. Const. art. XII, § 7; *Public Access Shoreline Hawai'i v. County Planning Commission ("PASH")*, 79 Hawai'i 425, 903 P.2d 1246 (1995), *cert. denied*, 517 U.S. 1163, 116 S. Ct. 1559, 134 L. Ed. 2d 660 (1996)). Anyone attempting to divert a water source has the burden of establishing that the proposed water use will not negatively impact these traditional and customary practices dependent on water. *Waiahole I*, 94 Hawai'i 97, 142, 9 P.3d 409, 454 (2000) (holding that "the burden ultimately lies with those seeking or approving such uses to justify them in light of the purposes protected by the trust"); *see, also, Waiola*, 103 Haw. at 442; 82 P.3d at 705 (holding that "MR-Waiola had the burden of proving, inter alia, that the proposed water use would not abridge or deny traditional and customary native Hawaiian rights.").

That enunciated burden of proof remains on the Ranch if it wants to continue to pump Well 17 and use the MIS to get that water to Mahana.

**Properly Applying The Legal Burden of Proof.** Applying this rule, the Hawai'i Supreme Court has now twice recognized the uniqueness of Moloka'i, especially along its southern Kamiloloa coastline, as a special place in which the Hawaiian cultural traditions still flourish and remain an important source of subsistence food gathering. *Waiola*, 103 Haw. at 682; 82 P.3d at 419. When the Ranch proposed to drill a well in the aquifer adjacent to the Kualapu'u aquifer, the Court confirmed the constitutional rights attributable to the continued subsistence gathering along that shoreline. *Waiola*, 103 Haw. at 421; 82 P.3d at 684. Moreover, it rejected the CWRM's approval of the water use permit the Ranch sought because the CWRM failed to compel the Ranch to meet its affirmative burden of showing that there would be no harm to those interests. *Id.* at 442; 82 P.3d at 705 (holding that "MR-Waiola was obligated to demonstrate affirmatively that the proposed well would not affect native Hawaiians' rights; in other words, *the absence of evidence that the proposed use would affect native Hawaiians' rights was*



*insufficient to meet the burden imposed upon MR-Waiola by the public trust doctrine, the Hawai'i Constitution, and the Code") Id.*

During the 1997 contested case hearing on the Kukui Molokai, Inc. application for water use permits by the Commission on Water Resources Management (CWRM), under HRS §174C-49, homesteaders challenged the Ranch's over-pumping of Well 17 to service its customers on the west end of Moloka'i. *In Re Water Use Permit Application of Kukui Molokai, Inc.*, CCH-MO 97-1. They also produced evidence of the continuing impact of Well 17 diverting ground water outflow to the estuarine ecology along the Kamiloloa shoreline, where Moloka'i residents went to continue their traditional and customary practices centered a variety of limu including ogo, `ele`ele, wawae`iole, manaua, and huluhuluwaena; a variety of fish including weke, mullet, uhu, manini, kole, `o`io, papio and palani; as well as he`e, ulapapa, loli, wana and a variety of crab including kuhonu, `alamihi, and ala`eke from the nearshore waters of Kamiloloa, as your own expert testimony established. *See*, attached Ext. B-T-9, Testimony of Davianna McGregor 2-3, 6 ("Subsistence upon the natural resources of the land and ocean was integral to the cultural and spiritual customs and practices of Native Hawaiians on Moloka'i in the past and at present."). Your testimony was integral to establishing the degree to which Moloka'i residents, especially the kua`āina, rely on subsistence gathering for food. *Id.* at 3 (28% of Moloka'i residents' food is acquired through subsistence activities). Thus, there was no issue on this point that such practices exist and must be protected.

Upon establishing the existence of traditional and customary gathering practices along the Kamiloloa shoreline, the Court has also now twice reversed CWRM decisions that failed to apply that burden to the Ranch and its predecessor-in-interest Kukui Molokai, Inc. in their attempts to justify water use permit applications both sought. In both instances, the Court rejected the CWRM approach to dispense with findings that supported any conclusion that the proposed uses would not harm the traditional and customary practices that exist, and rely on the absence of contrary proof by the cultural practitioners that their practices will be harmed. It cannot be doubted that the Ranch must carry its clear burden of proving no harm to traditional and customary practices dependent on the water it is tapping from Well 17, including the effect on the fresh water outflow along the Kamiloloa shoreline. It cannot rely on the absence of contrary evidence of harm being caused by the existing pumping of Well 17. Similarly, the Ranch must carry its burden of showing that the pumping is not compromising the DHHL wells' productivity due to increases in chloride in those wells, nor compromising the ability of the DHHL to use its 2.905 mgd water reservation in the Kualapu`u aquifer. I do not believe that the DoA has any trust duty different than the CWRM to respect these constitutional rights in assessing the cultural impacts of its proposed lease to the Ranch.

**The Failure to Provide Analysis of Alternatives.** In the *Kukui* case, the Court has already once rejected the attempt to justify a water use permit because of the failure of the CWRM to require that the Well 17 user to provide any feasible alternatives that might be available to avoid the water use permit being sought. *Kukui*, 116 Haw. at 496; 174 P.3d at 335 (ruling that "the Commission entered no FOFs or COLs as to the existence or feasibility of any alternative sources of water whatsoever"). "Such a requirement is intrinsic to the public trust, the statutory instream use protection scheme ... and is an essential part of any balancing between competing interests . . . ." *Id.*, relying on *Waiahole I*, 94 Hawai'i at 161-62, 9 P.3d at 473-74. The Court

then reversed the approval of that permit because the Commission failed to hold KMI to its burden of demonstrating the absence of feasible alternative sources of water. *Id.*

In doing so, it relied on prior precedent in *Waiahole I*, where the CWRM had engaged in suggestions that alternatives to diverting Windward O`ahu streams would be too expensive to pursue and conditionally approved a water use permit for James Campbell Estate, "[i]f and until treated effluent or ground water is available[.]" *Kukui*, 116 Haw. at 495; 174 P.3d at 334, citing to *Waiahole I*, 94 Haw. at 165, 9 P.3d at 477. The court found the CWRM's decision unacceptable insofar as the CWRM's findings failed to "answer, with any reasonable degree of clarity, why it is not practicable for Campbell Estate to use ground water permitted to it and not otherwise in use as an alternative to diverting the sole source of water for windward streams, ..." *Id.* Accordingly, the Court vacated Campbell Estate's permit and remanded the matter for further proceedings. *Id.*

Despite that ruling, on remand, the CWRM again failed to substantiate its conclusion that Campbell Estate had no "practicable alternatives" but instead issued the estate a water use permit. *In re Water Use Permit Applications (Waiahole II)*, 105 Haw. 1, 16; 93 P.3d 643, 658 (2004). The Court soundly rejected the CWRM approval a second time, not persuaded by the CWRM's reliance on "some informal and very general discussions about possible scenarios if Ditch water were no longer available." *Id.* It then determined that "[t]he [CWRM]'s analysis should have ceased when the [estate] failed to meet its burden of establishing that no practicable alternatives existed" *Id.*; see, also, *Kukui*, 116 Haw. at 496; 174 P.3d at 335 (concluding that relying on same analysis to reach similar conclusion, because the CWRM failed to enter findings or conclusions related to "the existence or feasibility of any alternative sources of water whatsoever").

In *Kukui*, the Court also rejected the CWRM approach to reserve consideration of feasible alternative sources of water until after the permit was granted, rather than prior to its issuance. *Id.* (rejecting the notion that the CWRM could condition its permit on KMI producing an a feasibility study on the development of a new water source at Mahana within 24 months as being "fundamentally at odds with the [CWRM]'s public trust duties"). A public agency like the CWRM (and DoA) "cannot fairly balance competing interests in a scarce public trust resource if it renders its decision prior to evaluating the availability of alternative sources of water." *Id.* The Ranch must produce an alternatives analysis and the DoA must consider it in order to achieve the level of scrutiny demanded for the public trust resource it would otherwise compromise. In any review of this proposed lease, it must include a careful analysis of other ways to transport the Ranch's water to the west end or provide alternative sources to substitute for it.

**The Legacy of Past Abuses of MIS Lease by Ranch.** Despite this panoply of laws giving special protection to public trust uses of water to support Hawaiian homesteading and the traditional and cultural practices of Hawaiians, state agencies too often appear to be oblivious of them. If we are to seriously engage in a discussion and analysis of these responsibilities of the state, all state agencies, including the Department of Agriculture, (DoA) must live under the same laws, and impose on lessees of state properties, like the Ranch, the consequent legal duties and burdens that apply. We should not live under one set of laws, then allow another set of laws to apply to others. In the long run, this disregard of legal principles erode the confidence and



trust citizens have in any administration of laws designed to protect them.

The history of the Ranch's use of the MIS has been, at best, tumultuous for affected native Hawaiians, and, at worst, illegal, if not directly contrary to the interests of Hawaiian homestead farmers. The use of Well 17, in addition, has compounded the cultural impact on native Hawaiians homesteading in Ho`olehua (and possibly end users of DHHL water in Kalama`ula who cannot get sufficient water service in that community because of limitation imposed on the DHHL well field in Kualapu`u).

In the case of the use of water from Well 17, the practice of the DoA has been abysmal. For years, Molokai Ranch abused its lease arrangement with the DoA, which required the Ranch to replace water it extracts at Mahana for its west end developments with an equivalent amount from Well 17, plus an additional 10% to account for any leakage in its system. From the outset, homesteaders were alarmed at the possible implications of this arrangement, justifiably, as it turns out, suspicious of whether the arrangement could compromise their rights. This concern spawned two lawsuits aimed, albeit unsuccessfully, at blocking the arrangement. *Ah Ho v. Cobb*, 62 Haw. 546; 617 P.2d 1208 (1980); *Molokai Homesteaders Cooperative Assn v. Cobb*, 63 Haw. 453; 629 P.2d 1134 (1981); *Molokai Homesteaders Cooperative Assn v. Morton*, 506 F.2d 572 (9th Cir. 1974).

In ensuing years, the Ranch in fact illegally treated the MIS as a reservoir from where it could tap water resources, even when its own water pumps were inoperable to supply water to the MIS reservoir in Kualapu`u. *See*, attached Testimony of Glenn Teves (submitted to the Commission on Water Resources Management in the *In Re Kukui Molokai* contested case hearing). In 1998, homesteaders produced DoA evidence that the Ranch had illegally used 6 million gallons of MIS water in one week alone, during a drought period that seriously affected homestead farmers. Teves Testimony 2-3. Furthermore, at the same time, the DoA, rather than strictly enforce the lease term, allowed it without fanfare, and instead began imposing irrigation water use restrictions on homesteaders for whom the MIS was built in the first place. *Id.* at 3. In view of the 25,000 acres of homestead trust land on Molokai I, much of which has yet to be serviced with irrigation water from the MIS, this abuse of the system is atrocious. *Id.*

This violation of the lease arrangement was particularly galling, in view of the fact that the Ranch explicitly justified the arrangement as a *lease of space* within the MIS, **not** the actual *use of water* from sources tapped in Waikolu Valley, on Moloka'i's north shore, which under applicable rules at the time of the first lawsuit filed, required water supplied by the MIS to be used exclusively for "irrigation." *Morton*, 506 F.2d at 578 n. 4 (rejecting homesteaders' argument that the use of MIS water for Ranch purposes violated a rule that required that the water be used only for irrigation, because "[t]he rental arrangement here under consideration does not contemplate that the System will supply to the corporation any of the System's water"). Similarly, in rejecting a claim that a federal statute applied to restrict the MIS lease arrangement, the 9th Circuit declared:

The proposed contract here in issue does not involve the sale of the System's water, surplus or otherwise. It contemplates only ***the transportation of the corporation's water from its wells*** on the windward side of Molokai through the System's facilities to the proposed resort complex on the west end of that island. *Id.* at 580 (emphasis added). In other

words, despite these earlier assurances that the Ranch would NOT be taking any water dedicated for irrigation by its use of the space within the MIS to transport Well 17 water, in practice, it was chronically using that irrigation water for its commercial benefit operating resort-related functions on the west end.

Continuing the legacy of objections to the use of the MIS, these homesteaders submitted testimony and evidence of apparent waste of water (some of which was MIS water obtained from Waikolu Valley sources, rather than Well 17), by KMI, a competing water user of the same well field as the DHHL well source in Kualapu`u. Your earlier research buttressed this evidence by serving as the foundation of your seminal finding that Hawaiians' persistence on maintaining discrete and remote rural areas, including Moloka`i, as "cultural kīpuka" serve as the important resource base for "healing and nurturing qualities of the land for the perpetuation of their families and their nation." Cultural Action Network for Developing Options, *Native Hawaiian and Local Cultural Assessment, Phase I, Problems/Assets Identification* (draft December 1992) at 17. This study specifically listed Moloka`i in category one, which you helped identify as "those areas with strongest evidence of cultural continuity and which are imminently threatened by proposed development. *Id.* Clearly, Moloka`i is at the forefront of the Hawaiian cultural revival that we've experienced these past 4 decades and is one of the most important resources areas for a "rural[] area[] of importance to the perpetuation of the Hawaiian [culture]." *Id.* Instead of contemplating the continuation of any lease of space in the MIS to facilitate more possible diversions of MIS water for non-irrigation purposes, the State of Hawai`i needs to seriously confront the need for tough enforcement of lease terms, as well as to "protect adequate reserves of water for the full current and foreseeable development and use of Hawaiian home lands" on Moloka`i, as contemplated under HRS § 174C-101(a).

**Failure to Address Cultural Impacts In Advance of Resource Use.** Since the *Superferry* decision, it should be clear that any government approval of an action should follow compliance with the Hawai`i Environmental Policy Act, HRS chapter 343. *Sierra Club v. State Dept of Transportation*, 115 Haw. 299, 319; 167 P.3d 292, 326 (2007). This sequence is particularly important where an environmental assessment (EA) might conclude that a more extensive environmental impact statement (EIS) is required due to significant impacts anticipated as a result of the action permitted. *Id.* (statute requires agency to prepare an EA "at the earliest practicable time to determine whether an [EIS] shall be required"), citing *Sierra Club v. Hawaii Tourism Authority*, 100 Haw. 242, 266-67; 59 P.3d 877, 901-02.

In 2007, I wrote to a deputy attorney general assigned to the DoA agreed with my analysis indicating that the DoA must stop the Ranch from continuing to use space within the MIS to transport Well 17 water until and unless it first completes an environmental assessment of the proposed renewal of an authorizing lease. *See*, attached letter dated 7/2/07. In response, the deputy attorney general assigned to the DoA appeared to agree with me that an EA was required and that the Ranch needed to get off the MIS in the absence of a valid lease of space within it to transport its Well 17 water to Mahana. *See*, attached letter dated 9/4/07 from Myra Kaichi to me dated 9/4/07. Hence, officially, it appears that the attorney general's office is taking steps to assure that this use terminate subject to completion of what is likely required, an EIS. Under the previous lease, an environmental assessment was not required because the proposal and the Board of Land and Natural Resources approval predated enactment of HRS ch. 343. *Moloka`i Homesteaders Coop. Ass'n v. Cobb*, 63 Haw. 453, 456, 629 P.2d 1134, 1138 (1981).

But the court notes, “We entertain no doubt that the pertinent statutory provisions would mandate the preparation of an EIS if Kaluako‘i’s application for “rental of space” in the System’s facilities were presented to the Board now.” Id. at 466, 629 P.2d 1134, 1144. Accordingly, it is clear that courts will not only require an environmental assessment, but also an EIS.

**Summary.** First, the lack of an alternatives analysis should end any inquiry, whether it is the CWRM considering a permit, or the DoA evaluating whether to continue the Ranch’s lease of space within the MIS. The same public trust principles, enhanced by the concern the DoA should exhibit for DHHL water rights and its 2/3 preference to MIS water, apply.

Secondly, the DoA should rigorously hold the Ranch to (1) providing the alternatives analysis, as specified by the Hawai‘i Supreme Court, to use of the MIS to transport Well 17 water; and (2) meeting its **affirmative** burden to establish no harm to (a) the 2.905 mgd water reservation of the DHHL to water from the Kualapu‘u aquifer and (b) traditional and customary practices dependent on that same water flowing into the Kamiloloa shoreline.

The Ranch’s continuing use of the MIS system years after its contract with DOA expired is frustrating agricultural development by the Hawaiians for whom the system was originally constructed, especially since it has no legal authority to either use the water it is pumping (no valid water use permit) or use the MIS to transport it. Nothing excuses this blatant illegal activity, especially before an EIS is completed. As more and more water is taken from the MIS by lessees of the Ranch, while the DoA refuses to take **TIMELY** action to prevent the use of the MIS by the Ranch (now in its 5<sup>th</sup> year after assuring me that action is forthcoming), the State is also ignoring foundational principles that led to the creation of the MIS in the first place, to serve as the primary irrigation source for homestead farming.

Accordingly, I urge, as any part of an EA or EIS on this proposed lease, that you address the propriety of the Ranch’s unauthorized use of Well 17 water, as well as the MIS to transport it.

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**BEFORE THE COMMISSION ON WATER RESOURCE MANAGEMENT**

**STATE OF HAWAII**

In the Matter of the Contested

Case Hearing on Water Use Permit

Application Filed by Kukui (Molokai), Inc.

))))))

CCH-MO 97-1

**INTERVENORS JUDY CAPARIDA AND**

**GEORGINA KUAHUIA'S**

**DIRECT TESTIMONY OF DAVIANNA**

**POMAIKAI MCGREGOR, PHD**

CASE NO.: CCH-MO96-1

WITNESS: DAVIANNA MCGREGOR, PHD

(TESTIMONY: B-T-9)

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**DIRECT TESTIMONY OF DAVIANNA POMAIKAI MCGREGOR, PHD**

1 Q: Please state your name.

2 A: Davianna Pomaikai McGregor.

3 Q: Where do you live?

4 A: I live in Kaiwiula, Kapalama, Oahu.

5 Q: Where do you work and what is your title?

6 A: I am an associate professor of Ethnic Studies at the University of Hawaii, Mānoa.

7 Q: What is your educational background and training?

8 A: I graduated from the University of Hawaii with a Bachelor of Education degree in

9 Secondary Education in 1972 and a Bachelor of Arts degree in Asian/Pacific History in 1973. I

10 did my graduate work at the UH, where I obtained a Master of Arts degree in Pacific Islands

11 Studies in 1979. I also earned a PhD in Hawaiian and Pacific History from the University of

12 Hawai'i in 1989.

13 Q: What was your doctoral dissertation topic?

14 A: The title of my doctoral dissertation is "rKupa`a I Ka `Aina: Persistence On The

15 Land." It examines the conditions of Hawaiians from 1898 to 1930, the first 32 years of direct

16 U.S. rule over Hawai'i. It compared the conditions of Hawaiians in urban O`ahu with that of

17 Hawaiians in rural Hawaiian communities on the island of Moloka`i, the moku of Hana, Maui

18 and the ahupua`a of Waipi`o, Hawai'i.

19 Q: Did you prepare a curriculum vitae to reflect your education and training?

20 A: I am attaching for incorporation as part of my testimony my curriculum vitae

21 which contains information on my academic training, my teaching, my research, and my

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publications. 1 (See, Exhibit B-6).

2 Q: Have you previously been qualified to testify as an expert witness?

3 A: I have served as an expert witness regarding traditional Hawaiian subsistence,

4 cultural, and religious customs and practices in the following Civil Cases: *Kamaka v.*

5 *Department of Defense; Pele Defense Fund v. Paty; Pele Defense Fund v. Campbell Estate.* I

6 have also testified as a cultural expert in the following criminal trespass cases: *State of Hawai'i*

7 *v. Spalding; State of Hawai'i v. Naeole; State of Hawai'i v. Kaleo Patterson; State of Hawai'i*

8 *v.*

8 *Keliikoa.*

9 Q: Were you ever qualified before administrative bodies to testify as an expert?

10 A: I appeared as an expert before the State of Hawai'i Water Commission in the

11 Waiahole Water Case; before the Public Utilities Commission in Docket # 7259 Relating to

12 Hawaiian Electric Light Company, Regarding Integrated Resource Planning, 1993; and

before

13 the Public Utilities Commission in Docket # 6617 To Require Energy Utilities in Hawai'i to

14 Implement Integrated Resource Planning, 1990.

15 Q: Have you had the opportunity to study the nature and extent of the subsistence

16 activity in which the ancient Hawaiians on Moloka'i engaged to support themselves?

17 A: Yes. I have studied the primary documents and oral history sources relating to

18 subsistence activities of Hawaiians on Moloka'i from pre-contact to present in the course of

19 conducting the research for my dissertation and for the Governor's Moloka'i Subsistence Task

20 Force Final Report.

21 Q: Are you familiar with the extent to which these activities supported the culture of

22 Hawaiians on Moloka'i?

23 A: Yes. Subsistence upon the natural resources of the land and ocean was integral to

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the cultural and spiritual customs and practices of Native Hawaiians 1 on Moloka'i in the past

and

2 at present.

3 Q: Can you please describe your work with the Governor's Moloka'i Subsistence

4 Task Force?

5 A: From Spring 1993 through Summer 1994 I, together with Jon Matsuoka of the

6 School of Social Work and Luciano Minerbi of the Department of Urban and Regional

Planning,

7 served as a consultants to the Governors Molokai Subsistence Task Force. We conducted a

8 multi-methods study of subsistence practices on Molokai which included a random sample

9 survey of the entire Molokai population; focus group discussions with Native Hawaiian

10 subsistence practitioners; and participatory mapping.

11 Q: Can you summarize the results of that study and mapping?

12 A: I am attaching for incorporation as part of my testimony the executive summary of  
13 the Governor's Molokai Subsistence Task Force Final Report, June 1994, Honolulu, Hawaii.  
(See

14 attached Exhibit B-8). In short, this study revealed that Hawaiians on Moloka'i rely heavily  
on

15 the natural resources of the land and the ocean. Their subsistence activities include extensive  
16 gathering of marine resources including fish, shellfish, `ula, he`e and limu to feed their `ohana  
17 (extended family). In addition, they rely on mountain areas for hunting and to gather plants  
for

18 medicinal, subsistence, and cultural purposes. Among the random sample group surveyed  
19 across the entire island, informants indicated that 28 percent of their food is acquired through  
20 subsistence activities. Among the Hawaiian families surveyed, informants indicated that 38  
21 percent of their food is acquired through subsistence activities. Respondents reported  
receiving

22 food acquired through subsistence activities approximately once a week. Virtually every  
23 respondent believed that subsistence was important to the lifestyle of Moloka'i.

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Q: Did your study focus on 1 any part of the Kamiloloa ahupua'a?

2 A: The map of Subsistence Sites indicates that the Kamiloloa shoreline and nearshore  
3 waters are used for fishing and ocean gathering and that the mauka area is used for hunting,  
and

4 forest and stream gathering. (See attached Exhibit B-17).

5 Q: How would you characterize the extent and scope of the traditional and customary  
6 practices of Hawaiians using the Kamiloloa ahupua'a?

7 A: Based upon input received from subsistence practitioners to the Governors  
8 Molokai Subsistence Task Force, it is evident that there is extensive fishing and ocean  
gathering

9 along the shore and in the nearshore waters of the Kamiloloa area, as well as gathering and  
10 hunting of the forest and stream areas mauka in Kamiloloa.

11 Q: In your research on cultural externalities done in conjunction with the Integrated  
12 Resource Planning for Hawaiian Electric Company, how did you map Hawaiian customs and  
13 practices for subsistence, cultural and spiritual purposes on Moloka'i?

14 A: I have attached as an Exhibit a section of the Hawaii Externalities Workbook,  
15 which describes the mapping technique using the Geological Information System. (See  
Exhibit

16 B-9). Essentially, the system allows the researcher to overlay various levels of information  
17 critical to portraying the use being made of geographic landscape areas. In this case, we  
plotted

18 high concentrations of the Hawaiian population on Moloka'i, the location of known historic  
sites

19 which would be used for cultural and spiritual practices , the location of natural resources  
utilized



20 for subsistence as reflected in the state conservation zones, the location of rare and endangered

21 species, and government lands.

22 Q: Based on these studies, how important is the gathering and subsistence activity on  
23 the island of Moloka'i?

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A: The GIS maps revealed a high concentration 1 of Hawaiian in the  
2 Kapa`akea-Kamiloloa-Makakupaia area. These Hawaiians would be engaged in subsistence  
3 activities in the neighboring areas. These same areas showed a high concentration of known  
4 historic sites. The prevalence of subsistence on Moloka'i was reflected in the amount of food  
5 that was derived from these practices and feelings about its overall importance to families. The  
6 fact that families were highly dependent on subsistence for survival, especially Hawaiians,  
points

7 to the value of subsistence as a sector of the economy. This dependency on subsistence  
8 resources is even more paramount when examined against the backdrop of relatively low  
income

9 levels on Moloka'i. Close to half of the sample made less than \$20,000 annually. Without  
10 subsistence as a major means for providing food, Moloka'i families would be in a dire  
situation.

11 Subsistence provides families with the essential resources that compensates for low incomes  
and

12 a means for obtaining food items that may be prohibitively costly under a strict cash  
economy.

13 Food items like fish, limu, and deer meat which are normally obtained through subsistence  
are

14 generally unavailable or are very costly in stores. If families on fixed incomes were required  
to

15 purchase these items, they would probably opt for cheaper, less healthy foods that would  
16 predispose them to disease and chronic health problems. In this respect, subsistence not only  
17 provides food, it also ensures a healthy diet.

18 Beyond the immediate economic and health advantages that come with subsistence are  
19 other qualities that serve to enhance family and community cohesion and perpetuate culture  
and

20 spirituality. Resources obtained through subsistence are used for a variety of special occasions  
21 that bond families and communities. Resources such as fish, limu, \_opae, deer meat, pork, etc.  
22 are foods served at important life cycle events (birthdays, graduations, funerals). \_Ohana and  
23 community residents participate in these affairs that cultivate a sense of family and  
community

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identity 1 and enhance social networks.

2 Q: Are the gathering practices you studied a reflection of the type of subsistence  
3 activity in which ancient Hawaiians on Moloka`i engaged?

4 A: Yes. Hawaiian families on Moloka`i conduct subsistence activities in accordance  
5 with ancestral knowledge learned from their elders who in turn acquired their knowledge from  
6 their elders in a continuous and unbroken chain to their earliest ancestors in the Hawaiian  
islands.

7 Q: Have you had the opportunity to review the testimonies of Georgina Kuahuia,  
8 Julia Hoe, Sheldon Hamakua, Walter Mendes, Wayde Lee, Martin Kahae, Bobby Alcain, and  
9 Judy Caparida?

10 A: Yes.

11 Q: Are the activities they describe consistent with the traditional and customary  
12 activities in which ancient Hawaiians engaged?

13 A: Yes, they describe the gathering of a variety of limu including ogo, `ele`ele,  
14 wawae`iole, manaua, and huluhuluwaena; a variety of fish including weke, mullet, uhu,  
manini,

15 kole, `o`io, papio and palani; as well as he`e, ulapapa, loli, wana and a variety of crab  
including

16 kuhonu, `alamihi, and ala`eke from the nearshore waters. They also describe the gathering of  
17 `opae from the springs in the area.

18 Q: How would you characterize the impact of interfering with the continuation of  
19 these traditional and customary cultural activities?

20 A: Interference with the continuation of these traditional customs and practices  
21 would reduce the amount of natural marine and forest resources available for subsistence  
22 activities. This would impact the diet of the families who have relied on these natural  
resources

23 for food. This would negatively impact the health and well-being of these families. It would

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also affect the ability of the families of the extended \_ohana to continue 1 their practices of  
sharing

2 and exchange and gathering and bonding during critical life cycle events.

3 Q: Are you familiar with HRS § 174C-101?

4 A: I am aware of it and have read it.

5 Q: On the basis of your training and education, are the items and activities listed in  
6 that statute consistent with Hawaiian tradition and custom?

7 A: Yes.

8 Q: Is there a cultural reason for assuring that any water withdrawal from the shoreline  
9 does not interfere with the type of practices enumerated in HRS § 174C-101?

10 A: The continued gathering of marine and forest resources in the Kamiloloa area is  
11 integral to the cultural life ways, health and well-being of the families who have relied upon  
12 these resources for subsistence. It is of critical significance to the diet of these families. The  
13 ability to alternate gathering areas in accordance with seasonal variations and level of use is  
14 essential to having resources available all year round. The sharing of foods gathered through  
15 subsistence activities reinforces good relations among members of extended families and with



16 neighbors. Subsistence is integral to the life ways of the Hawaiians of Moloka`i, popularly  
17 referred to as the "Last Hawaiian Island." Hawaiians comprise close to 50 percent of the  
18 population. Moreover, the persistence of subsistence on Moloka'i is of critical significance to  
19 the persistence of Hawaiian culture throughout our islands. The island of Moloka`i serves as a  
20 cultural kipuka for Hawaiian culture throughout Hawai`i. Bypassed by the mainstream of  
21 political and economic change in Hawai`i until the 1970's, it serves as a preserve of Hawaiian  
22 culture from which the contemporary generation of Hawaiians continue to draw strength and  
23 inspiration in the perpetuation of Hawaiian language, culture, and spirituality.

July 9, 2007

Sandra Kunimoto

Director

Department of Agriculture

State of Hawai'i

RE: Proposed Use of Moloka'i Irrigation System

Dear Ms. Kunimoto:

The Moloka'i Homestead Farmers' Alliance has asked this office to investigate potential breaches of trust they fear as a result of the execution of what I understand to be a renewal of the lease agreement between your department and Molokai Properties, Limited (the successor to Molokai Ranch, Ltd.) involving the Moloka'i Irrigation System (MIS). I am writing regarding one aspect of the exercise of your fiduciary duties to Native Hawaiian homesteaders.

Before your department executes any lease of space in the Moloka'i Irrigation System to Molokai Properties, Ltd. or any of its subsidiaries or agents, it must perform an environmental assessment pursuant to HRS chapter 343. HRS § 343-5(1) requires an assessment whenever there is a proposed use by an agency of state lands. The proposal for a 25-year lease of space within a state-owned and operated irrigation water transmission system built on and supporting Hawaiian homestead land is a use of state land. *See Kepo'o v. Kane*, 106 Haw. 270, 103 P.3d 939 (2005) (affirming that HRS ch. 343 applies to Hawaiian home lands).

Under the previous lease, an environmental assessment was not required because the proposal and the Board of Land and Natural Resources approval predated enactment of HRS ch. 343. *Moloka'i Homesteaders Coop. Ass'n v. Cobb*, 63 Haw. 453, 456, 629 P.2d 1134, 1138 (1981). But the court notes, "We entertain no doubt that the pertinent statutory provisions would mandate the preparation of an EIS if Kaluakoi's application for "rental of space" in the System's facilities were presented to the Board now." *Id.* at 466, 629 P.2d 1134, 1144. Accordingly, it is clear that courts will now require an environmental assessment.

The possible exception to this requirement, HAR 11-200-8(a)(1), which creates an exception to doing an environmental assessment so long as the proposed action authorizes the continued operation of existing structures, facilities, equipment, or topographical features and precludes any expansion or change of use beyond that previously existing operation is inapplicable. However, this exception does not apply.

Sandra Kunimoto

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First, any contrary statutory requirement trumps an otherwise valid rule. A rule cannot supersede a statute. Under HRS § 343-6(7), a rule can authorize an exemption to a requirement for an environmental assessment only where there is minimal or no significant effect on the environment. Without doubt, the transmission of all the water needed to support urban development on the West End of Moloka'i does not constitute a minimal or insignificant effect on the environment. *See Moloka'i Homesteaders Coop. Ass'n v. Cobb*, 63 Haw. 453, 465, 629 P.2d 1134, 1143 (1981) (use of the System's facilities to transport water to Kaluakoi's development constituted a probable "significant

effect”).

Moreover, under *Confederated Tribes and Bands of the Yakima Indian Nation v. Federal Energy Regulatory Commission*, 746 F.2d 466, 475-477 (9th Cir. 1984), a court will likely conclude that the continuation of an existing water transmission system needs to be analyzed as if it were the initiation of the project. It cannot be analyzed as a continuation of the transmission, limited to assessment of the marginal difference in impacts before and after the most recent proposed lease is executed. Instead, it must incorporate the full environmental and cultural impacts of using the transmission system as if it was for the first time.

More recently, and closer to home, Judge Hifo utilized this principle to conclude that the Board of Land and Natural Resources must analyze any foreseeable impacts of the continuation of the East Maui water lease based on the difference in effects to the environment and culture of the applicable area as if the water being diverted from East Maui was beginning with the subject new lease. In that situation, various governments had authorized the water diversions from East Maui for the past 130 years with little regard for the fiduciary duties the state owes to taro farmers who suffered from those massive diversions. See, attached decision of Judge Hifo. The judge rejected the attempt by state attorneys who argued that any environmental assessment would cover only the minimal impacts of continuing the existing diversions. Instead, she declared that the state’s duty was to examine impacts from the pre-diversion status of the stream. Secondly, HAR 11-200-8(a) requires the agency purporting to invoke the above exception to consult with other agencies. At a minimum, your department must consult with the CWRM and the DHHL before attempting to invoke this exception. I understand that the proposed lease is being negotiated and may be executed this month. Yet, no consultation of which I am aware has occurred with any agency. See, attached decision. My office has had a long involvement with the homestead farmers in Ho`olehua and Kalama`ula on Moloka`i, who have suffered various indignities from the previous lease arrangements between state agencies and MPL or its predecessors. One of those major conflicts resulted in the reversal of a Commission on Water Use Management’s water use permit for the Waiola O Molokai venture. Another involves the pending appeal of the CWRM water use permit granted to Kukui Molokai, Inc. In the latter case, Sandra Kunimoto

July 9, 2007

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the record on appeal is replete with examples of the repeated breaches of the MIS agreement. Clearly, any future actions by the agencies of the trustee of Native Hawaiians overseeing implementation of the Hawaiian Homes Commission Act, including your department, must be prudent and protective of beneficiary interests. Otherwise, there will be unnecessary conflict and potential litigation over the clear rights of homesteaders that may be overlooked in this instance.

I urge you to suspend your plan to execute the lease to MPL until your department at least performs the required environmental assessment, inclusive of a cultural assessment, as required under the statute. Furthermore, I urge you to carefully consider the past record of the potential lessee, in view of the fiduciary duties your department owes to the homesteaders who will be adversely affected by a lease that does not respect their rights or protects their interests adequately.

You may consider this letter the notice required under HRS § 673-3. I am

unaware of any rules your department may have promulgated on the administrative remedies the Alliance must exhaust under this statute, so please advise what remedies are available to challenge the pending lease agreement. If those procedures involve the setting of a contested case hearing, then please consider this letter to constitute a request for such a hearing under HAR § 4-1-36. Unless appropriate remedial action to uphold HRS chapter 343 and the fiduciary duties under the HHCA, the Alliance will have no alternative but to seek judicial remedies.

Should you have any concern or question, please feel free to call me.

Sincerely,

Alan T. Murakami

Attorney-at-law

ATM:mr

cc: Mark Bennett

Micah Kane

Lynn DeCoite

Glenn Teves

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BEFORE THE COMMISSION ON WATER RESOURCE MANAGEMENT

OF THE STATE OF HAWAII

In the Matter of the Contested

Case Hearing on Water Use

Permit Applications Filed by

Kukui (Molokai), Inc.

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))))))

Case No.: CCH MO 97-1

INTERVENORS JUDY CAPARIDA AND

GEORGINA KUAHUIA'S

DIRECT TESTIMONY OF GLENN TEVES

DIRECT TESTIMONY OF GLENN TEVES

Case No.: CCH MO 97-1

Witness: Glenn Teves

(Testimony: B-T-22)

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1 My name is Glenn Teves. I have been an  
2 agricultural extension agent on Moloka'i since 1981 and a  
3 small farmer for 19 years. I was born and raised on a farm.  
4 I hold a Bachelor's degree in Horticulture, and am a  
5 founding member of the Moloka'i Farm Bureau. I have farmed  
6 both on Moloka'i and O'ahu and am familiar with farming  
7 methods and markets for diversified agriculture. Attached  
8 hereto as Exhibit "B-43" is a true and correct copy of my  
9 current curriculum vitae.  
10 I was qualified as an expert in Community  
11 Development and Agricultural Planning in the Waiahole  
12 contested case hearing and as an expert in Moloka'i  
13 agriculture during the Waiola O Molokai contested case  
14 hearings.  
15 I have been involved in agriculture in Hawai'i all  
16 my life, following in the footsteps of my father and  
17 grandfather. I worked on my father's farm as a child. In the  
18 past, I have raised cattle, horses, pigs, chickens, goats,  
19 ducks, vegetables, and fruit crops. Prior to 1981, all my  
20 farming activities took place on O'ahu. In 1981, I moved to

21 Moloka'i and presently have an eight acre farm on Hawaiian  
22 Home Lands in Ho'olehua with six acres currently planted  
23 (two acres of banana, and four acres of tropical fruits).  
24 I reviewed Robbie Guard's testimony in support of  
25 Kukui Molokai's request from the Kualapu'u Aquifer. If  
26 Kukui is short of water, then why do they have two hook-ups  
27 with Molokai Ranch and giving them water? How could this  
28 hookup escape detection for so many years and only now be  
29 disconnected now that a contested case hearing is going on?  
30 Ron Hedani, who once worked for KMI, admitted to the hook31  
up, but there was never any confirmation. If he knew about  
32 the connection a few years back, why did it take KMI so long  
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1 to now officially acknowledge it. Mr. Hedani was fired soon  
2 thereafter.

3 Furthermore, with the amount of gray water at the  
4 resort, they could easily convert to that source. Everyone  
5 in the state is doing it. Why are we giving water for a golf  
6 course priority over Hawaiians domestic needs? The trend in  
7 the state is to utilize partially treated sewage water. KMI  
8 estimated that they need 675,000 gpd for the golf course,  
9 while the CWRM staff estimated that it needs only 475,600  
10 gpd. Exh. A-21.

11 In a telephone conversation with Tom  
12 Matayoshi, Manager of DOA-MIS on October 29, 1998. There  
13 have been several breakdowns this past year, during which  
14 time KMI fell behind by over 100 million gallons. In fact,  
15 he stated that Kukui's Well #17 pump has been broken for a  
16 week most recently. He estimated that KMI was taking over  
17 800,000 gpd. That means that KMI has taken at least 6  
18 million gallons of water over the past week alone with no  
19 replacement water from well #17.

20 To make things work we are in the worse  
21 drought in the history of the MIS. Right now there's only 2  
22 feet of water above the outlet pipe in the MIS reservoir.  
23 It's never been that low. He said that if we don't get a  
24 good rain in less than two weeks, homesteaders and other  
25 farmers will be out of water. The MIS is bringing out 1.2  
26 mgd from the tunnel (mostly pumped water except today since  
27 we had a good rain yesterday. About 1.5 mgd is being used by  
28 farmers. Just prior to the breakdown, Kukui Well #17 was  
29 pumping almost 2 mgd just to make-up for water they  
30 'borrowed' from the MIS for a pump breakdown this past  
31 summer. They've fallen way behind and may not be able to

32 catch up.

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1 This is illegal! The contract to transport water  
2 through the MIS is to put back 110% of the water KMI uses.  
3 The 10% is for losses due to leaks and evaporation. This  
4 water banking was never part of the KMI-Department of  
5 Agriculture agreement. Kukui has even surreptitiously given  
6 water to Molokai Ranch. Even though Kukui says it  
7 disconnected the line they discovered in recent weeks, there  
8 is still at least still connected!  
9 While KMI and the Ranch have been using MIS water  
10 illegally, the MIS manager is also asking farmers to cut  
11 back on water use. Just this month, MIS users were asked to  
12 cut back 25%. See, Exhibit "B-3".  
13 There are over 25,000 acres of Hawaiian Home kinds  
14 on Moloka'i. Of these, over 7,800 acres are in Ho'olehua.  
15 The Moloka'i Irrigation System is only capable of  
16 delivering, at full pumping capacity and during months of  
17 high, trade-wind generated rainfall, sufficient water for  
18 less than 2,000 acres of crop planted. There is also 1,000  
19 acres of Moloka'i Agricultural Park land, the majority of  
20 which is planted. Looking at these statistics, it's clear  
21 that agriculture will require more water, and pumped water  
22 is still a viable option, since it's more cost effective and  
23 socially acceptable to the community than developing more  
24 tunnels to bring water from the north shore.  
25 The Moloka'i Water Working Group ("MWWG")  
26 nominated, then Michael Wilson Director of the Department of  
27 Land and Natural Resources, appointed, me to represent the  
28 Hawaiian Homes farmers on the MWWG. I am a Ho'olehua  
29 homestead farmer and farm five acres of tropical fruits  
30 along with my family. In addition to my work on the MWWG, I  
31 have worked with water use estimates for Hawaiian Home Lands  
32 since the start meetings connected with the passage of the

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1 Hawai'i State Water Code and subsequent meetings by the  
2 Commission on Water Resource Management since 1990.  
3 Recently, the recommendations I developed with Alton Arakaki  
4 were accepted by the Maui County Council which was trying to  
5 tighten up restrictions against non-agricultural uses, such  
6 as bungee jumping, parasailing, camping, and commercial  
7 hunting, on gentlemen farm lots. My testimony is based on



8 my experience in agriculture over the last twenty years, and  
9 my involvement with agriculture on Moloka'i Hawaiian Home  
10 Lands since 1981, as well as my experience on the MWWG.  
11 The MWWG was appointed to recommend to the  
12 Commission on Water Resource Management a plan for water  
13 development on Moloka'i that assists the county and  
14 community in developing its Water Use and Development Plan.  
15 The MWWG's task was to enter into good faith deliberations  
16 aimed at producing the highest consensus possible on demand  
17 forecasts, bulk water allocations, recommendations to manage  
18 supply and demand, and balancing future water uses. After  
19 six months of meetings and discussions, the MWWG presented  
20 its report, a copy of which is attached as Exhibit "B-19."  
21 The report, which was revised in 1995 and again in 1996,  
22 includes the MWWG's findings and recommendations.  
23 There are at least three specific recommendations  
24 from the MWWG report that are important in considering KMI's  
25 permit application:

26  
27 a) "The working group recommends that all large28  
scale water planning/water management should consider that  
29 agriculture will continue to be the economic and cultural  
30 'heart' of Moloka'i.

31  
32 b) "The working group recommends that DHHL's water  
33 needs, which are currently tied to lands at Ho'olehua and  
34 Kalama`ula through 2010, be reserved first.

35  
36 c) "The working group recommends that all

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1 additional water supply should first be sought in the sector  
for which it should be used." 23

4 Another statement found in this report, and  
5 relevant to these proceedings, is the following:

6  
7 a) "Decisions by the State of Hawai'i or County of  
8 Maui relating to planning for, regulation, management, and  
9 conservation of water resources shall incorporate and  
10 protect adequate reserves of water for the full current and  
11 foreseeable development and use of Hawaiian Home lands."

12  
13 Three of the above statements relate to reserving  
14 water for Hawaiian homesteaders for all of their intended  
15 uses.

16 There are many scenarios to consider when



17 reserving water for Hawaiian Home Lands on Moloka'i, but the  
18 desired long range plan has been to keep the majority of  
19 lands in agriculture. Hawaiian home Lands have over 25,000  
20 acres on Moloka'i. If even a fraction of these lands were  
21 used for crops, coupled with water for other subsistence  
22 activities, household use, and irrigation of common areas,  
23 over 40 million gallons per day could easily be needed.  
24 Kalama'ula and Ho'olehua together cover an area of 12,800  
25 acres, but there are still two other large tracts of land in  
26 Oneali'i and Makakupa'ia encompassing 5000 acres, and  
27 Pala'au, also encompassing 5000 acres. The long-term water  
28 needs of these areas needs to be considered before any  
29 discussion of KMI and Moloka'i Ranch's water needs can be  
30 accommodated.

31 Presently, 50 percent of the water for the MIS is  
32 pumped groundwater, with the other 50 percent from surface  
33 catchments. This summer has been particularly dry, so  
34 pumped groundwater was relied upon even more than usual. The  
35 pumps are presently pumping at capacity, with pumps kicking

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(Testimony: B-T-22)

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1 off after they hit their pre-set daily sustainable yields.  
2 This summer, due to heavy demands by agriculture, the pumps  
3 were kicking off early in the day. At the same time,  
4 surface water sources have been drying up, causing the MIS  
5 pumps to work even harder, resulting in the breakdown of two  
6 pumps in recent weeks. This is cause for future concern as  
7 agricultural demands for water increase.  
8 At a September 1997 meeting sponsored by the U.H.  
9 College of Tropical Agriculture at U.H. Manoa, Christopher  
10 Smith, state soil scientist from the USDA-Natural Resources  
11 Conservation Service, commented the amount of ground water  
12 flowing into the ocean. He gave an example on Moloka'i,  
13 citing a swim he had taken at a beach called Make Horse  
14 (Dead Horse), a beach north of the Kaluakoi Resort. He was  
15 swimming there and couldn't believe bow much fresh water  
16 from artesian wells were flowing into the ocean there. This  
17 tells me this water source in the Kaluakoi area has not been  
18 sufficiently investigated.  
19 Kukui is not committed to the hotel and has not  
20 invested in it for sometime. In addition, it refuses to  
21 monitor water use and efficiency. Without efficient water  
22 monitoring, KMI has been wasting water. It appears that it  
23 just wants to increase water use so they can say they need  
24 more water up to the maximum allowable (2 mgd) under the MIS

25 contract for transmission of the water. Last summer, I went  
26 down there and they have a circle near the lobby where the  
27 golfers park. The circle has bougainvillea planted with a  
28 low stonewall around it. The circle had almost 1 foot of  
29 water in it.  
30

Attachment #4 to Letter from Alan Murakami

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September 4, 2007

Alan T. Murakami, Esq.  
Native Hawaiian Legal Corporation  
1 164 Bishop Street, Suite 1205  
Honolulu, Hawaii 9681 3

Dear Mr. Murakami:

Re: Proposed Use of Molokai Irrigation System

As we briefly discussed over the phone, your letter dated July 9, 2007 has been forwarded to this office for review. Thank you for granting us this extension of time within which to reply.

We have reviewed the authorities cited in your letter. We have also reviewed the decision in *airs Club v. Dept. of Transportation, State of Hawaii, et al.*, filed on Friday,

August 31, 2007. While we may not agree with all of your legal analyses in reaching your conclusion, we agree that Chapter 343, Hawaii Revised Statutes, is triggered in the matter of the Molokai Irrigation System pipeline agreement. The Hawaii Department of Agriculture has already been apprised of our opinion on this matter. Accordingly, we will be advising the Department of Agriculture on the procedures to be followed, and of all notices which must be given, throughout the process. We look forward to your and your clients' participation and input in this process. In the meantime, we will be assisting the HDOA in getting Molokai Properties off the system as quickly as possible, until all environmental effects, if any, are sufficiently and properly addressed.

If there are any further legal matters to discuss concerning the State's administration and operation of the Molokai Irrigation System, please feel free to contact me.

Deputy Attorney General

Myra Kaichi

cc: Sandra Lee Kunitomo

## Appendix 4. Tom Nance Water Resource Engineering Memorandum to Harold Edwards, 2-7-97

### MEMORANDUM

TO: Harold Edwards  
FROM: Tom Nance   
SUBJECT: Potential For Groundwater Development on the West End of Molokai

This memo summarizes groundwater conditions on West Molokai as they are known from the results of the 11 drilled wells in the Kaluakoi and Punakou aquifer systems. It also provides an evaluation of the groundwater development potential in the areas where no wells have been constructed.

Locations and Results of Existing Wells. Locations of the 11 existing wells are indicated on the enclosed map. Data on their ownership, water quality, temperature, and current status are compiled in the accompanying table. Alpha USA drilled five wells on its property in 1990-91 (Well Nos. 1 to 5 on the figure). Two had salinities of about 60 percent of seawater. Salinities in the other three were lower, better but the water was still far too saline for irrigation use. Chlorides of 700 to 1000 milligrams per liter (MG/L) are as high as practical for salt-tolerant plants. Chlorides in the three best Alpha wells were 4100 to 6300 MG/L. Temperatures in these three wells were 93° to 96° F, a result of geothermal heating.

Kaluakoi drilled four small diameter test holes at relatively low elevations in the Resort in the 1970s (Well Nos. 8 to 11 on the figure). Data from these are sketchy, but it is known that all four tapped groundwater too saline for irrigation use. Kaluakoi also developed and outfitted a production well near Mahana (Well No. 6 on the figure) which produced the best quality water of all the West Molokai drilled wells. However, its 1380 MG/L chloride level could not be used directly for irrigation. It would require blending with fresher source.

The oldest of West Molokai's drilled wells was constructed in 1945 at elevation 500 feet along Kakaako Gulch (No. 7 on the figure). With chlorides of 2900 MG/L, it was also too saline for irrigation use. As with the wells on the Alpha property, it was also geothermally heated. Its temperature was 93° F.

In summary, none of the existing wells produced water of usable quality, even for irrigation of salt-tolerant landscaping. All wells tapped into a thin, brackish to saline basal lens supported by only a modest amount of rainfall recharge. Almost all of the wells also exhibit geothermal heating. In the areas where these wells are located, the development potential of groundwater is nil.

Memo To: Harold Edwards  
February 7, 1997 -- 97TN-047  
Page two

Development Potential of Unexplored Areas of West Molokai. Geophysical surveys done by Blackhawk Geosciences for Alpha USA provide some insight on groundwater conditions in areas which have not been explored with test borings or production wells. The geophysical investigation included the northwest and southwest rift zones, the area east of the northwest rift zone (along the ridgeline between Kahuuwai and Kakaaukuu Gulches), and across the Alpha property itself. None of the results were encouraging enough to warrant the expense of a test hole.

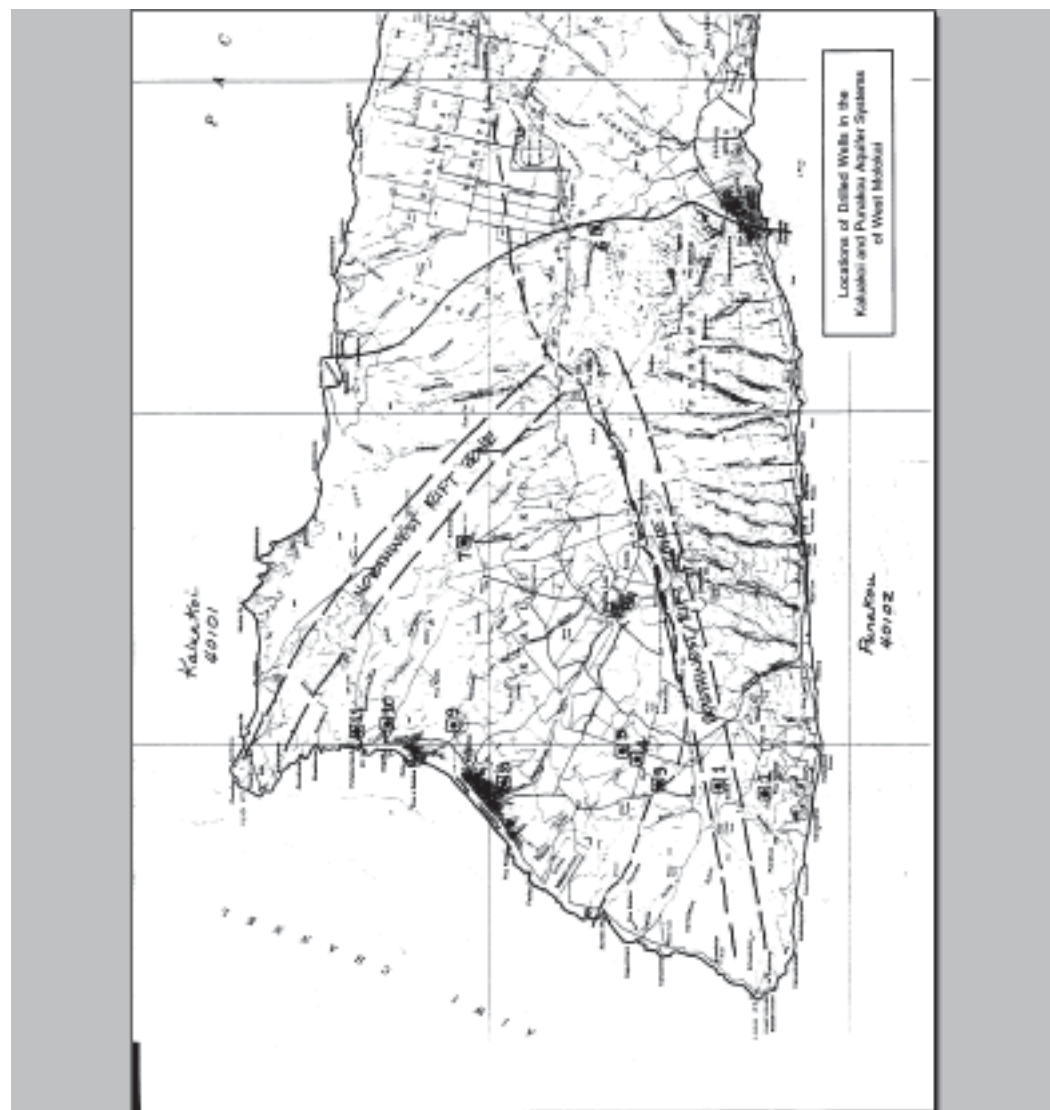
The limiting factor for the development of groundwater anywhere on West Molokai is the substantial imbalance of rainfall and evaporation. Rainfall is very limited. It is about 25 inches a year in the area between Maunaloa and Puu Nana and decreases to less than 20 inches in the coastal areas. In contrast, evaporation rates are four to five times greater, ranging from 85 to 105 inches per year. For recharge to occur, rainfall must exceed evaporation from bare soil and evapotranspiration by plants. In West Molokai, this only occurs during rainy season storm events. At other times of the year, the meager amounts of rainfall are caught in the soil mantle and then subsequently lost to evaporation rather than deep percolation. When this occurs, the dissolved salts in the rainfall are left behind in the soil. When there is a subsequent rain event of sufficient magnitude to cause deep percolation, it picks up the salts left in the soil, causing the water percolating to the groundwater lens to be brackish. This phenomenon is well documented in the Kualapuu aquifer on Molokai and at a number of other dry areas throughout the State. The unfortunate result is that the possibility of finding even irrigation quality groundwater anywhere on West Molokai is extremely remote, if not simply non-existent.

Enclosures

**Drilled Wells in the Kaluakoi and Punakou Aquifer Systems of West Molokai**

No. on Figure	State Well No.	Owner	Year Drilled	Ground Elev. (Feet)	Chlorides (MG/L)	Temperature (° F)	Current Status
1	0615-01	Alpha USA	1990	406	11,000	--	Unused
2	0615-02	Alpha USA	1991	344	11,000	--	Unused
3	0715-01	Alpha USA	1991	382	4,100	94	Unused
4	0715-02	Alpha USA	1991	367	6,300	93	Unused
5	0815-01	Alpha USA	1991	388	4,300	96	Unused
6	0807-01	Molokai Ranch	1975	348	1360	--	Unused
7	1011-01	Molokai Ranch	1945	503	2900	93	Unused
8	0915-01	Kaluakoi	1974	48	--	--	Unused
9	1014-01	Kaluakoi	1974	63	--	--	Unused
10	1114-01	Kaluakoi	1974	76	--	--	Unused
11	1114-02	Kaluakoi	1974	63	--	--	Unused

**Note:** Dashed lines in the table indicate that the information is not available.



**APPENDIX E**  
ARCHAEOLOGICAL ASSESSMENT



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# **DRAFT—Archaeological Assessment of Existing and Proposed Waterline Corridors, Kualapu‘u to Pu‘u Nānā, Island of Moloka‘i**

**TMK: (2)5-2 (por.)**



## **Prepared For:**

Molokai Properties, Limited  
119 Merchant Street, Suite 408  
Honolulu, HI 96813

September 2011

Keala Pono 

Keala Pono Archaeological Consulting, LLC • 53-412 Kamehameha Hwy., Hauula, HI 96717 • Phone 808.381.2361



**DRAFT—Archaeological Assessment of Existing and Proposed  
Waterline Corridors, Kualapu‘u to Pu‘u Nānā, Island of  
Moloka‘i**

**TMK: (2)5-2 (por.)**

**Prepared For:**

Molokai Properties, Limited  
119 Merchant Street, Suite 408  
Honolulu, HI 96813

**Prepared By:**

Manuwai Peters, MA  
and  
Windy K. McElroy, PhD

September 2011



## **MANAGEMENT SUMMARY**

At the request of Molokai Properties, Limited, Keala Pono Archaeological Consulting, LLC conducted an archaeological assessment of approximately 27 km of existing and proposed waterline routes that traverse a portion of TMK: (2)5-2 in Kona District on the island of Moloka'i. The purpose of this work was to identify historic properties that may be located along the corridor in anticipation of new waterline construction and use of existing lines. Archival research identified two archaeological sites along the waterline routes, although a walk-through of the routes produced no evidence of archaeological remains.



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## INTRODUCTION

At the request of Molokai Properties, Limited, Keala Pono Archaeological Consulting, LLC conducted an archaeological assessment for proposed and existing waterline corridors that extend over a portion of TMK: (2)5-2 in the Kona District of Moloka'i. Molokai Properties, Limited is planning a new waterline route and will also be using an existing line. The archaeological assessment was designed to identify historic properties that may be located along the routes.

The report begins with a description of the project area and an historical overview of land use, cultural history, and archaeology in the area. The next section presents details of a site visit to the waterline corridor. Project results are summarized and recommendations are made in the final section. Hawaiian words are defined in a glossary at the end of the document.

### The Project Location and Environment

The proposed and existing waterlines are located within the Kona District of Moloka'i (Figure 1). This district includes the western half of the island and south-eastern portion. The existing waterline cuts through seven *ahupua'a* land divisions. From east to west, this includes Kaunakakai, Kalama'ula, Kahanui 2, Nā'iwa, Ho'olehua 2, Pālā'au 2, and Kaluako'i. The proposed line runs along the boundaries of Nā'iwa, Ho'olehua 2, Pālā'au 2, and Kaluako'i (see Figure 1). The terrain in this region consists of arid slopes dissected by dry, narrow gulches and small gullies that experience rare water flow. The surface is highly eroded from grazing caused by livestock and feral ungulates, periodic fires, and natural forces. The Ho'olehua-Pālā'au lands consist mainly of rich lateritic soil that runs from 10 to 30 feet in depth (Meyer 1982).

Foote et al. (1972) list three soil associations occur along the waterline route. They include:

Molokai-Lahaina Association: Deep, nearly level to moderately steep, well-drained soils that have a moderately fine textured or fine textured subsoil; on uplands.

Very Stony Land-Rock Land Association: Gently sloping to very steep, rocky and stony land types; on uplands and in gulches and valleys.

Rough Broken Land-Oli Association: Shallow to deep, very steep to precipitous soils in gulches and moderately deep to deep, gently sloping to steep, well-drained soils that have a medium-textured and moderately fine textured subsoil; on uplands.

(Foote et al. 1972:General Soil Map)

A large variety of soil types occur along the route within these associations. The major soils include Rock Land, Gullied Land, Very Stony Land, Waikapu Silty Clay Loam, Holomua Silt Loam, Molokai Silty Clay Loam, Hoolehua Silty Clay, and Very Stony Land, Eroded (Foote et al. 1972).

Ground cover classification throughout this area is predominantly non-native grasses, *koa haole*, and *kiawe* with some native *'ilima* species. Landscaped plants can be found along the roads in residential areas, and large tracts are composed of agricultural crops in cultivated fields. Drought-like conditions and the natural aridness of Molokai's south-central region keeps flora to a minimum. Rainfall along the project corridor averages 15–30 inches per year (Juvik and Juvik 1998).

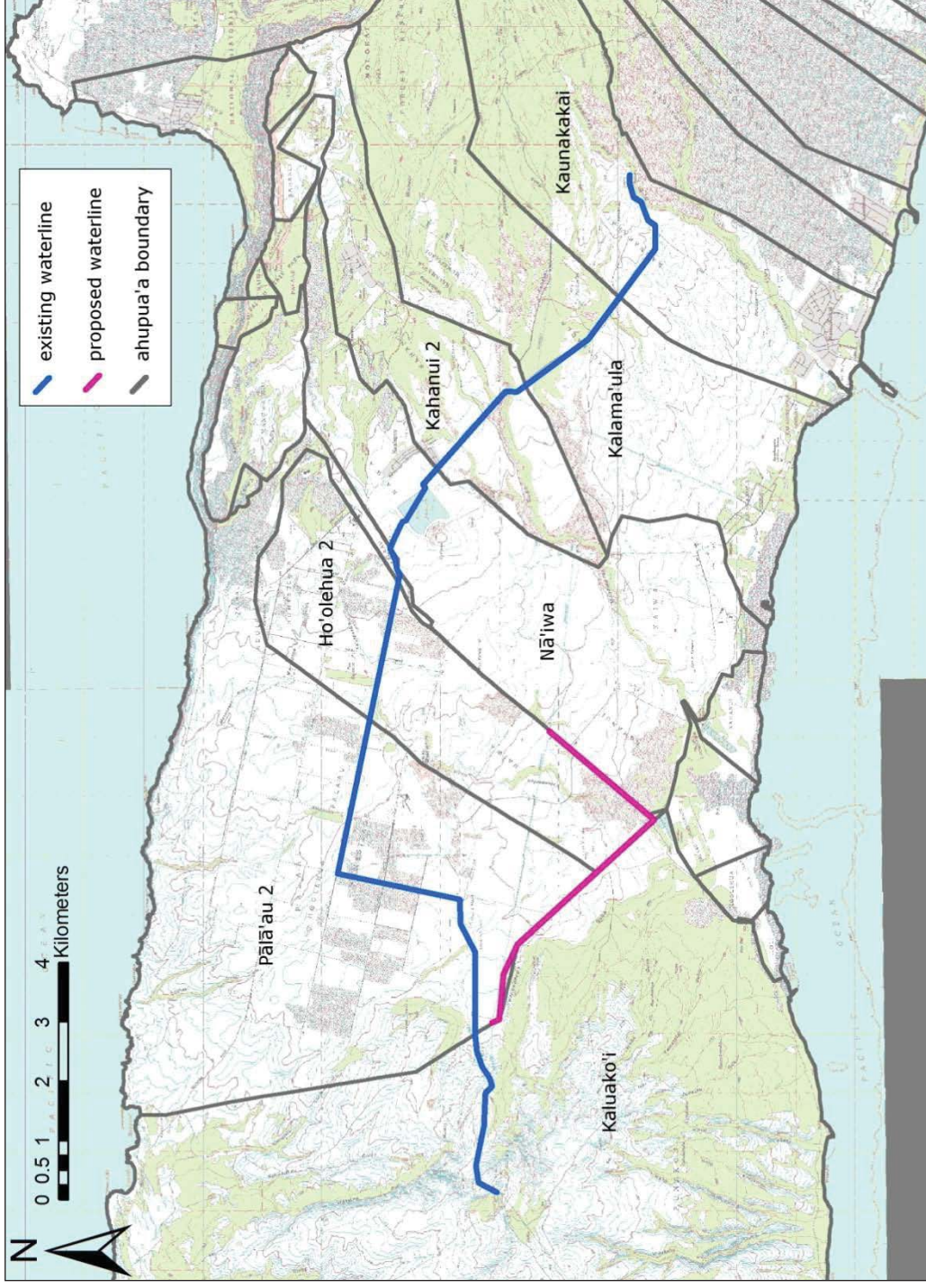


Figure 1. Location of the project area in central Moloka'i.

## BACKGROUND

This section includes information on traditional and historic land use in the vicinity of the project area, results of research on *mo'olelo*, place names, wind and rain names, *'ōlelo no'eau*, and Hawaiian language newspaper articles, as well as a summary of previous archaeology that has been conducted along the waterline route.

### Land Use

The project lands were traditionally used for the cultivation of sweet potato, with some areas planted in taro. The historic era saw widespread changes to the landscape with the introduction of cattle and deer, and the dawning of the sugar and pineapple industries. Today the lands in the vicinity of the project route are used for agriculture, ranching, housing, transportation, or lay idle.

### Traditional Land Use

In traditional times, Moloka'i had a reputation as "the land of plenty" (Handy and Handy 1991:515). Most histories of Molokai including literary and mythological sources stress the importance of sweet potato (*Ipomea batatas*) on leeward Moloka'i and in Ho'olehua and Pālā'au in particular. The notion of Moloka'i as being a "bread basket" that could supply food to large populations rests on the farming of *'uala*, taro, and the emergence of fishponds. Pālā'au on the south shore is an example where this kind of subsistence was practiced. Kaiolohia, the ancient name of these plains was known for agriculture production. Handy and Handy provide further insight on traditional land use:

Before the days of ranching, forests covered much of the uplands around Mauna Loa on western Molokai. Probably some dry taro was planted here. Dry taro is known to have been planted on the southern kula lands of eastern Molokai, from Kamalo to the eastern end of the island. On the western half of the island evidences of wet-taro cultivation were found only in the swampy lands below Manawainui Gulch, about three miles northeast of Kaunakakai. Probably there were small terraced areas upstream.

Formerly the small streams on the southeastern coast carried more water than they do now, and it is certain that in many of the interior valleys there are small sections of terraces...(Handy and Handy 1991:515)

Pālā'au and Ho'olehua were known for sweet potato cultivation, and it is likely that the lands later planted in pineapple were formerly in sweet potato (Handy and Handy 1991:517). Stone remains of sweet potato field plots line the hillsides of Mauna Loa, near Kahualewa, and there were paved trails that led from the coastal areas of western Moloka'i to the sweet potato patches in the uplands (Handy and Handy 1991:517, 519). Traditional subsistence in the vicinity of the project area can be summarized as follows:

For Pala'au ('Āpana 2), Kaluakoi, Ho'olehua, and Naiwa, planting areas for yams and sweet potatoes cannot be delimited but it is known that these were grown in that general area and were, with fish, the staples of the inhabitants. (Phelps 1941 in Handy and Handy 1991:518)

## The Project Lands in the Historic Era

A review of the area's history of land tenure reveals a minimal amount of land ownership transaction with little variation in land utilization over the past century. Since historical times, the lands under consideration can be classified as ranching and agriculture and were used primarily for these purposes. In the mid-1800s Kamehameha V used large areas on Moloka'i for cattle ranching (Cooke 1949). The first axis deer were introduced to the island in 1867. They multiplied so quickly, that by the late 1800s, hunters were brought in from the mainland U.S. to keep them from ravaging the forest. An approximated 5,000 deer a year were taken by these hunters (Whiting 1995). The deer soon moved westward, and goats and pigs became more of a problem.

In 1873 the Kalae Sugar Plantation was established by Rudolph Wilhelm Meyer. The plantation stayed in business for 12 years, when Meyer switched his interests to coffee and other crops. In 1897, a *hui* purchased 70,000 acres and leased 30,000 acres from Princess Bernice Pauahi and Charles Reed Bishop for what would later become Molokai Ranch (Cooke 1949). The following year, American Sugar Company, Ltd. (ASCO) incorporated with the *hui* and sugar production went into full swing in west and central Moloka'i. ASCO excavated wells and established more than 8 miles of irrigation ditches, but the operation suffered from crop failure because the salt content of the water was too high. ASCO turned to cattle and sheep ranching and honey farming.

A railroad system was established in the early years of cane on the island. It ran from the coast through Pālā'au and 'Īoli to the Ho'olehua plateau (Judd 1936 in Summers 1971). Remains of this endeavor could still be seen in 1931:

Fragments of this frustrated development are seen today in the graded railroad bed cutting through the gulches of Palaau...The irrigation ditches are still to be found on the Hoolehua plain, also distinct parallel furrows following the contour of the land. (Judd 1936 in Summers 1971:24)

In the 1920s the commercial pineapple industry came to Moloka'i. The California Packing Corporation began planting in lands on or near the proposed waterline in the districts of Nā'iwa, Kahanui, Kīpū, and Manowainui (Summers 1971). Soon, Libby also had pineapple interests on the island, and water was being pumped from the east end of Moloka'i to feed the fields. Large tracts of land were still used for cattle ranching at this time.

In 1922, the Kalama'ula flats were opened for homesteading. By the 1930s, problems with infiltration of salt water into the water system caused many of the Kalama'ula homesteaders to move to Pālā'au and Ho'olehua (Whiting 1995). The current Moloka'i irrigation system was first surveyed by engineer Hugh Howell in 1937 (Whiting 1995).

In 1943, in response to World War II, large expanses of Molokai Ranch lands were taken over by the military for training, and targets were established for artillery and aerial exercises. Following the war, another pineapple venture was initiated, this time by the Pacific Pineapple Company. In 1958 the Hawaii Water Authority's Molokai Water Tunnel project commenced, and water would later be stored in a 1.4 billion gallon reservoir in Kualapu'u (Whiting 1995). In 1969, the 5.5 mile tunnel system was established, bringing water from Waikolu to Kaunakakai.

Today, on the eastern corridor, traversing the Kalama'ula and Kahanui districts, Molokai Ranch, now known as Molokai Properties, Limited, continues to graze cattle. The southwestern corridor remains in a mixture of commercial agriculture, transportation use, and Department of Hawaiian Home Lands pastoral leases. In the Nā'iwa tract, Coffees of Hawai'i farms several acres of coffee adjacent to Kualapu'u village.



## Cultural History

Molokaʻi Island has a history of rich oral traditions, some of which are associated with areas bordering the proposed waterline. Summers notes the importance of the island's history:

The surviving traditional history of Molokai is fragmentary. The island itself, being the fifth largest in size of the Hawaiian group, was not of major political importance. Its importance lay in the connections its *aliʻi* made by marriage, and, in later years, the reputation of its sorcery and *kahuna*. (Summers 1971:11)

### *Moʻolelo*

Areas north of the Kualapuʻu reservoir near Puʻu ʻAnoʻano were used in ancient times to teach *kahuna* the spiritual and medicinal arts. The proverb, “Molokaʻi kuʻi lāʻau” (Molokaʻi, pounder of medicine) attests to the expertise of Molokaʻi *kahuna* in compounding medicines and poisonous potions (Pukui 1983). From a chant extolling the powers of Molokaʻi, Mrs. Vanda Hanakahi, a native of Hoʻolehua wrote in the late 20<sup>th</sup> century, “ ‘Ae nō ʻo Molokaʻi ka piko o ka paeʻāine o Hawaiʻi nei; he wahi laʻa ʻihi no ke anaina mea hoʻōla...” (Hanakahi) meaning that, Molokaʻi is agreed upon as the center of the Hawaiian archipelago and is a sacred and revered place of healing arts for the multitudes.

The area was part of a complex of learning centers that earned Molokaʻi its renown as being “Molokai Pule ʻOʻo” or, “Molokai of the potent prayer.” This university-like complex spanned from Nāʻiwa to Pālāʻau-Hoʻolehua, to Mahana in the west. Puʻu Nānā on the Maunaloa range, west of the proposed line is associated with Kapo and the Laʻilaʻi family and the birth of the *hula* on Molokaʻi. Traditions of sorcery and spiritual arts are rooted in Maunaloa with the god images carved from trees imbued with magic called Kālaipāhoa.

In the traditional Hawaiian epic Lonoikamakahiki, the literature speaks of Pākaʻa and Kū of Pākaʻa's sojourn in the waters and shores of Pālāʻau. The ocean waters fronting this area enjoyed frequent mention for their visits by high chiefs such as Lonoikamakahiki and his retinue. The Pālāʻau area contains Pālāʻau fishpond which is considered the largest fishpond in the entire Hawaiian archipelago. Most Hawaiian habitation in the area centered around this fishpond complex and its economy. Carlson writes of this area:

Throughout the year, in calm and in stormy weather, these fishponds furnished the chiefs with all the meat they needed and in addition there was enough to feed the fisher folk and the villagers. In the back of the fishponds in fields and on rock-walled terraces the farmers grew taro and sweet potatoes, bananas, breadfruit, sugar cane, and coconuts grew plentifully to give variety to the diet. In the hills the ti plant grew. (Carlson 1952)

The area that the proposed waterline will transect is north of the fishpond features and straddles a zone that was not highly populated due to its lack of surface water and distance from fish; the main protein source of traditional Hawaiians. Siltation caused by erosional forces impacted the complex greatly and by the 1950s the area that contained the 500-acre Pālāʻau pond was described as “covered with 4 to 8 feet of the topsoil that should have remained in place on the surrounding hills and plains. The area has been ruined and so far it is impossible to use the land for any purpose” (Carlson 1952). East of the waterline route is the town of Kaunakakai whose prehistoric settlers had access to excellent agricultural lands on the rich alluvial plain and therefore probably supported a larger population than the Pālāʻau district.

## Place Names

Place names often shed light on traditional views of an area and can provide important contextual information. The place name spellings and translations presented here come from Pukui et al. (1974) unless otherwise noted.

The island of Molokaʻi had several poetic names, including “Molokaʻi nui a Hina,” or “Great Molokaʻi, child of Hina,” and “Molokaʻi pule oʻo,” or “Molokaʻi, powerful prayer.” Hina is said to be the mother of the island, and Molokaʻi was known for sorcery and sports.

Kaluakoʻi is the westernmost *ahupuaʻa* through which the existing waterline route traverses (see Figure 1). The name translates to “the adze pit.” Maunaloa, or “long mountain,” is a mountain in Kaluakoʻi, of which one of its peaks, Puʻunānā, is the highest point in west Molokaʻi (1,381 feet). Maunaloa was known for its adze quarries and *hōlua* slides. It is also the place where the trees for making *kālai-pāhoa* images for sorcery are found. Puʻunānā translates to “observation hill,” for from here it is possible to see as far as east Molokaʻi, Maui, Lānaʻi, and even Hawaiʻi Island. Mahana is a place in Kaluakoʻi Ahupuaʻa, not far from the waterline route. Pukui et al. (1974) do not provide a translation for the name, but note that Molokai Ranch had a sheep-shearing shed here. In 1908 the ranch owned 17,000 sheep, but discontinued sheep farming by the 1920s. Waiahewahewa is a gulch and stream in Kaluakoʻi near the west end of the proposed waterline. The name translates to “water of Hewahewa.”

Pālāʻau 2 is the *ahupuaʻa* east of Kaluakoʻi. It is one of three land divisions of the same name on Molokaʻi. Pālāʻau translates to “wooden fence” or “enclosure.” Puʻu o Pipika is a hill in the *ahupuaʻa*, just south of the existing waterline. Pukui et al. (1974) provide no definition for the name, although the Hawaiian dictionary (Pukui and Elbert 1986) translates *pipika* as “to draw away, shrink away, to crinkle up, contract, or avoid.”

Hoʻolehua is the next *ahupuaʻa* to the east. Translating to “acting the expert,” the land division is said to have been named after an *aliʻi*. Chief Hoʻolehua was married to ʻĪloli, and their daughter was Hikauhi. These are also place names on Molokaʻi. Puʻukapeʻelua is a hill in Hoʻolehua Ahupuaʻa, just north of the existing waterline route. Literally “hill of the caterpillar,” a *moʻolelo* tells of a girl who was visited at night by a lover whom she later found was a caterpillar (see Site 11, or “Caterpillar Stones,” Previous Archaeology Section). When the caterpillar was burned, he burst into thousands of smaller caterpillars, infesting the hill. Kāluapeʻelua, or “baked caterpillar,” is a gulch near Puʻukapeʻelua. A version of the *moʻolelo* relates that the infestation was ended by baking the caterpillars.

Continuing east along the existing waterline route, the next *ahupuaʻa* is Nāʻiwa. This is one of three *ahupuaʻa* with that name. Nāʻiwa, or “the frigate birds,” might have been named for the birds’ beauty. Kualapuʻu is a hill in the *ahupuaʻa* adjacent to a reservoir with the same name. It translates to “hill overturned.”

Kahanui 2 is the next *ahupuaʻa* to the east. The name translates to “large place.” The existing waterline crosses Manawainui Gulch in Kahanui 2. Manawainui means “large water branch.”

The next *ahupuaʻa* to the east is Kalamaʻula, which translates to “the red torch” or “the red *lama* tree.” *Lama*, or *Diospyros sandwicensis*, is a native tree whose fruit was eaten and wood was fashioned into fish traps and sacred structures within *heiau*. *Lama* wood was also crushed and used for medicinal purposes. Puʻuluahine is just north of the existing waterline within Kalamaʻula Ahupuaʻa. Pukui et al. (1974) do not provide a translation but note that the hill is likely the last remaining *kahua maika* on Molokaʻi (see Site 127, Previous Archaeology Section). Kalualohe

Gulch lies just north of Pu‘uluahine. Again, Pukui et al. (1974) offer no translation. They do mention that this is an area where tunnels access ground water.

Kaunakakai is the easternmost *ahupua‘a* along the waterline route and also the name of the main town on Moloka‘i. Pukui et al. (1974) provide no name translation. Kāalahale is a hill near the east end of the waterline corridor in Kaunakakai Ahupua‘a. The name translates to “ridge house.”

### **Wind and Rain Names**

Several wind and rain names are known for the project lands (Ross 2011). These have been passed down through generations in chants and oral tradition and have become re-learned by Moloka‘i school children in protocol chants used daily at the Hawaiian immersion schools on the island. Both rain names are associated with the *‘uala*, showing the importance of that crop to the area.

Hehika‘uala is a rain name of Ho‘olehua. Literally it translates to “the rain that tramples sweet potato.” Lanikeha is another rain name of Ho‘olehua. It is a rain that shares its name with a native sweet potato variety of Moloka‘i. Puluea is a wind name for the Ho‘olehua area. It translates to “a damp breath.”

### ***‘Ōlelo No‘eau***

*‘Ōlelo no‘eau* were found for several of the *ahupua‘a* along the project corridor. These are directly quoted from Pukui (1983).

### ***Kaluako‘i***

Ke ala pūpū i Moloka‘i.

*The path of seashells of Moloka‘i.*

Among the noted things made by Kihaapi‘ilani, ruler of Maui, was a paved road lined with seashells at Kaluako‘i, Moloka‘i.

Keiki ‘ope‘ope nui o Kaluako‘i.

*The lad of Kaluako‘i with the big bundle.*

A person heavily laden with bundles. Kuapaka‘a, a boy of Kaluako‘i, made ready to go with Keawe-nui-a-‘Umi, chief of Hawai‘i, to Ka‘ula in search of Paka‘a. The lad knew all the time that Paka‘a was on Moloka‘i, for Paka‘a was his father. Before going he asked permission to bring his bundles on board. To everyone’s surprise they consisted of a large log filled with necessities, and a large rock which was later used as an anchor.

### ***Ho‘olehua***

Ku‘u manu lawelawe ō o Ho‘olehua.

*My bird of Ho‘olehua that cries out about food.*

Said of the *kioea*, whose cry sounds like “*Lawelawe ke ō! Lawelawe ke ō!*” (Take the food! Take the food!). The *kioea* is the bird that calls to the fishermen to set out to sea.

Mo‘a nupu ka lā ke kula o Ho‘olehua.

*The sun scorches the plain of Ho‘olehua.*

Refers to Ho‘olehua, Moloka‘i.

### ***Kalama‘ula***

‘Unu mai a ho‘onu‘anu‘a ke kilu o Kalama‘ula, ho‘ole‘ale‘a i ke kaha o Kaunalewa.

*Bring all the kilu for amusement at Kalama‘ula to make merry on the field of Kaunalewa.*

To come together for a gay time and bring whatever you have to add to the fun. There is a play on *lewa*, which refers to the swinging of the hips in *hula*.

### ***Kaunakakai***

Hele i Kaunakakai i Hikauhi.

*Go to Kaunakakai to seek Hikauhi.*

Go to seek that which is lost. One day, when a man of Moloka‘i was fishing, his wife felt the beginning of labor pains and went to the upland to seek help from her mother. When the husband returned, he searched everywhere in Kaunakakai for his wife. After a time she returned with their daughter, whom they named Hikauhi.

I Hikauhi, i Kaumanamana.

*At Hikauhi, at Kaumanamana.*

A man and his wife lived at Kaunakakai, Moloka‘i. While he was gone fishing one day, she felt the beginning of labor pains and went to her mother’s home in another village. When the husband arrived home and his wife was not there, he began to search for her. After he had searched fruitlessly for several days, his wife returned with their baby daughter, whom they named Hikauhi. Ever since that day, *hikauhi* has meant “in vain,” and when a person loses something and goes in search, one says, “I Hikauhi, i Kaumanamana.”

Wā ‘ōlelo i Kaunakakai

*Loud talking at Kaunakakai.*

Said of much boisterous talking. The chiefs liked to play games such as *kōnane* at Kaunakakai, and their shouts and laughter could be heard for some distance.

### **The Study Area in Hawaiian Language Newspapers**

Hawaiian language newspapers of the 19<sup>th</sup> century provide an important source of cultural and historical information of the area.

Several stories of Moloka‘i’s origins lay the foundations for the island’s mysterious and powerful past:

Na Kuluwaiea o Haumea he kane  
Na a Hinanuialana he wahine  
Loaa Molokai he akua he kahuna  
He pualena no Nuumea (Fornander 1916)



This cosmogony of Moloka‘i postures that Kuluwaiea, the husband of Haumea, went after Hinanuialana who then conceived Molokai, a god and priest.

An advertisement excerpted from Ka Makaainana newspaper, from March 1897 contained the following announcement from Rudolph W. Meyer of Moloka‘i (Molokai Ranch manager and trustee to Moloka‘i holdings of various lands of Bernice and Charles Reed Bishop):

Olelo Hoolaha.

E ike auanei na mea a pau he mau holoholona ka lakou [lio, miula a me na iakake], e holo ana maluna o na aina hanai holoholona ma Molokai-Kaluakoi, Palaau, Ioli, Naiwa, Kahanui Kalamaula, Kaunakakai, Makakupaiaiki a me ke kula o Kawela. E hooukuia aku ana mai ka la mua kau o Iulai, 1897, no kela a me keia holoholona e hele ana maluna o ua mau aina la he 25 keneta no ka holoholona hookahi o ka mahina, e hookaaia ma ke dala, a i ole, ma ka hana maoli paha maluna o ua mau aina la, ma ka ae like a ma ke kauoha a ka Luna Hooponopono o ua mau aina la i oleloia maluna. O na holoholona i hookaa ole ia, e hopuia aku ana ma ke ano komohewa. R.W. MEYER, Luna Hooponopono, Kalae, Molokai, Maraki 25, 1897. mar. 28-4ts. (Meyer 1897:1)

The announcement concerns the problem of other people’s animals (mule, horses, and donkeys) encroaching on land holdings, and clearly states the potential fines that will be levied on the owners of these animals. The land districts of Pālā‘au, ‘Īoli, Nā‘iwa, Kahanui, and Kalama‘ula are noted and support the previously mentioned use of such lands for ranching.

Prior to assuming duties as land manager for the Bishops, R.W. Meyer managed those lands for the heiress who bequeathed it to her, Princess Ruth Ke‘elikōlani. The following is an announcement stating her association with R.W. Meyer:

Mai keia manawa a mahope aku nei. Ke papa ia'ku nei na kanaka a pau, mai hookuu a hoololo i ka lakou mau holoholona maluna o na aina o ke Alii ka Mea Kiekie Ruta Keelikolani e waiho ia ma ka mokupuni o Molokai, ma Kapaakea a hiki i Kaluakoi, me ka ae like ole mamua me ko'u hope R.W. Meyer. Aina e kue kekahi i keia olelo papa, alaila, e hoopii ia no ma ke kanawai SIMON K. KAAI. Agena o ke Alii R. Keelikolani. (Ka Nupepa Kuokoa 1879:3)

Her lands extended from Kapa‘akea in the east to Kaluako‘i on the west. Readers are dutifully warned of the consequences of their animals found on her lands.

The mystic nature of the Kalaipahoa tradition made it a popular item in Hawaiian newspapers. Stories and poetical references of Kalaipahoa are found frequently in printed resources of the 19<sup>th</sup> century and all retell of its potency and renown from Hawai‘i to Kaua‘i:

He moolelo no Kalaipahoa.

He akua kii laau kaulana loa o Kalaipahoa i ka wa mamua. Hookahi wale no ia laau i loa ma ka mauna o Molokai. Penei ka loa mua ana o ua laau la ma ka wahahee mai o kanaka; He moe uhane ko kekahi kanaka o Molokai, o Kaneakama ka inoa. Iloko o ka moe, hele mai kekahi laau o kuahiwi a halawai me ia kanaka, a hai mai ia ia i kona wahi e ulu ana. Kauoha mai ia ia ua laau la e lawe aku i na mohai me ka hoomana imua ona, no ka mea, he akua ia, me ka mana e make ai ke kanaka.

A pau ka mohai ana, alaila kua iho la o Kaneakama i ka laau a kalai iho la me kona pahoa i kii akua nona. No laila ka inoa Kalaipahoa. Ma kona hoao ana i ka mana o ka laau, pai pu ia i kahi mea iki o ka laau me ka ai iloko o ka umiki, a ua pau i ka make koke ka mea i ai i kela poi.

Kaulana koke ae la ua akua la ma keia pae aina a pau no ka mana e make ai. Holo aku na alii a me na kanaka i Molokai e imi ana i kekahi pauku o ia laau i mau kii akua no lakou. Ua pau no ke kumu laau me na lala, a me na aa iloko o ka lepo i ka laweia, a ua laha ka laau mai Niihau a Hawaii. Ua lilo ia i mea makemake no na lii, i mea e make malu ai na mea i lawehala ia lakou. Ke lokahi nui ka olelo, he mea make io no ka mea ai i kahi mea iki o ka laau.

Hai mai o Honolii i ka mea kakau i keia, I kona wa kamalii, haawi mai Kamehameha ia ia ka oihana kahu no Kalaipahoa. Ua owiliia ke kii iloko o ke kapa, a moe pu kela me ia i ka po. I mai kela, i kekahi manawa akoakoa ia i kekahi mea iki o ka laau me ka maiuu a ai iho me kahi miki poi, Kona hiamoe ia a loihi, aole keiki hoalaia a pau ka mana o ka laau iloko o ka opu, alaila ala mai. Nolaila, ua akaka, no ka mea make o ka laau, aole no ka mana akua, ka make ana.

I ka hoopa ana i ka aikapu, ua hoiliiliia na kii a pau o Kalaipahoa, a ua pau i ke puhii i ke ahi. Aole laau hookahi i koe. Aole hoi i loa kekahi laau like e ae ma Molokai, i ikeia'i ke ano o ua laau la. Ua pomaikai na kanaka no ka loa ole. (Ka Hae Hawaii 1861:1)

The Kalaipahoa of Moloka'i is associated with the project lands and its tradition of sorcery. The tradition is well storied and comprises an important part of the canon of Moloka'i's literary traditions.

The fame of the spiritually toxic wood of Kalaipahoa also made its way into the literary vernacular of everyday Hawai'i of the 19<sup>th</sup> century as evidenced by this excerpt from an 1861 newspaper:

#### NA KANAKA HAWAII!

E na kanaka maoli, e hookipa oukou ia ia, e kipulu a momona, e hooikaika ia ia, a e loa auanei ia kakou i ka mea e lawa ai ko kakou iini nui, oia hoi he nupepa nana e hoolaha ae i na manao o na kanaka Hawaii, a oia no hoi ka nupepa a ka Ahahui kanaka Hawaii i hookumu iho nei. Nolaila, e hookaakaa kakou i ko kakou maka, me ka nana pono aku i na helehelena o keia pepa hou o kakou. Ina e ike paha kakou he nupepa ino keia, e hoolaha ana i na mea ku pono ole a e hoopoino ana i keia lahui, alaila e haalele. Aka, mai haale le kakou me ka noonoo ole, o ai auanei kakou i ka laau a Kalaipahoa. (Ka Hoku o ka Pakipika 1861:1)

The last sentence of the article speaks of defeat as akin to “eating the wood of Kalaipahoa.” The wood of Kalaipahoa was highly coveted by ancient chiefs for its ability to stealthily kill one's enemies. All carved wood pieces are said to have been destroyed by burning and none exist today (He Moolelo no Kalaipahoa 1861).

Another history that references the position of Moloka'i as a seat of sorcery from times ancient is the story of Pahulu.

## LEGEND OF PAHULU

About the time of Liloa and Umi, perhaps long before, chiefs flocked to Molokai. That island became a center for sorcery of all kinds. Molokai sorcery had more mana (power) than any other. Sorcery was taught in dreams. All these Molokai aumakua were descendants of the goddess Pahulu.

Pahulu was a goddess who came in very old times to these islands and ruled Lanai, Molokai, and a part of Maui. That was before Pele, in the days when Kane and Kanaloa came to Hawaii. Through her that “old highway” (to Kahiki), starts from Lanai. As Ke-olo-ewa was the leading spirit on Maui who possessed people and talked through them, so Pahulu was the leading spirit on Lanai. Lani-kaula, a prophet (kaula) of Molokai, went and killed off all the akua on Lanai. Those were the Pahulu family. Some say there were about forty left who came over to Molokai. The fishpond of Ka-awa-nui was the first pond they built on Molokai. Some came to Oahu and landed on the beach opposite Mokuli‘i. The heiau of Pahulu is on the Kaneohe side of the Judd place about six hundred feet away from the old sugar mill at Hakipu‘u and out in the water toward Mokuli‘i. That is where they landed on Oahu. Near the old Judd place was a heiau for Kane-hoa-lani.

Three of the descendants of Pahulu entered trees on Molokai. These were Kane-i-kaulana-ula (Kane in the red sunset), Kane-i-ka-huila-o-ka-lani (Kane in the lightning), and Kapo. About four hundred trees sprang up in a place where no trees had been before, but only three of these trees were entered by the gods. The Lo family of Molokai, a family of chiefs and kahunas, are descended from Pahulu. Many of them are well-known persons today (Fornander 1916).

Land tenure in the area was not just large ranch owners but also included smaller land grants. The newspaper announcement below is selling a lot in Nā‘iwa, Moloka‘i.

WAIWAI PAA KUAI A  
— KA —  
LUNA HOOPONOPONO

E KUAI ANA KA MEA NONA KA INOA malalo ma ke kuai kudala, ma ke kauoha a na Luna Hooponopono o na aina o ka Mea Hanohano Levi Haalelea i make aku nei, ma ka Poakahi, oia ka la 3 o Aperila, i ka hora 12 o ke awakea, ma ka puka o ka Hale Hookoloko ma ke kulanakauhale o Honolulu. Oia hoi keia aina waiwai ma ka mokupuni o Molokai i kapaia ke Ahupuaa o NAIWA ;

He aina keia e lawa ai ka makemake no ka aina kula, a me ka aina mahi, a he aina kupono no hoi no ka poe e makemake ana e mahiai a e hanai holoholona. No na mea i koe aku, e ninau ia H. W. SEVERANCE, 173-1t Luna Kudala. (Ka Nupepa Kuokoa 1865:2)

### Previous Archaeology

The island of Moloka‘i has not received the same amount of archaeological work as the other main islands and this is reflected in the limited number of printed materials relating to Molokai’s archaeological resources. The foundation of works that comprise the canon of Moloka‘i’s archaeological resources include *Heiau of Molokai* by John Stokes in 1909; *A Regional Study of Molokai* by Phelps in 1941; and the most comprehensive work to date, *Molokai: A Site Survey* by

Catherine C. Summers in 1971. A review of the archaeological sites documented in Summers (1971) indicates two significant sites in immediate proximity to the waterline corridors and seven sites in the vicinity of the corridor (approximately 1 km away or closer) (Figure 2). The following paragraphs describe those sites.

Site 11 is located at Pu‘u Kape‘elua, roughly 400 m north of the existing waterline corridor, between Mo‘omomi Avenue and Farrington Avenue. The site consists of two components. Site 11A is known as the “Caterpillar Stones” (Summers 1971:37). Summers (1971:37) quotes a *mo‘olelo* told by Cooke (1949:102), although no description is given for the stones:

...this beautiful girl was visited each night by a lover who left before daylight. She was unable to discover who he was. This suspense told on her, and she began to waste away. A priest, consulted by her parents, advised the girl to attach a piece of white tapa to a wart on her lover’s back. In the morning, sheds of tapa helped to trace the demi-god lover to the hill Puu Peelua, in the middle of Hoolehua. The kahuna (priest) and friends of the family found a large peelua (caterpillar) asleep on the hill. The kahuna ordered the people to collect wood which was placed around the sleeping peelua, and a fire was lit. As the heat of the fire increased, the caterpillar burst into myriads of small caterpillars which were scattered all over the plain. That accounts for the army-worm pest, called peelua.

Site 11B is a “stone at Pu‘u Kape‘elua” located just south of the Caterpillar Stones (Summers 1971:37). The stone was visited in 1959 and consisted of a flat rock, measuring 7 feet long, 6 feet wide, and 22 inches tall. The flat surface contained a 21 inch-long basin with two grooves leading into two sides of the hollowed-out area on the north. On the south, another set of grooves led from this basin to another basin, 18 inches long. Marine shell was scattered around the area. The stone may have been for sharpening adzes or for collecting water (Summers 1971:37).

Site 85 consists of multiple components of an adze quarry in Maunaloa, located roughly 800 m from the west end of the project corridor. The site is described as one quarry area that begins near ‘Amikopala and covers more than 30 acres (Summers 1971:66). Platforms, upright stones, and concentrations of quarried rock and basalt flakes are among the features included in the site. Another part of the site is at the head of Mānalo Gulch, where spalls and adze blanks are found in abundance.

Site 85A is another quarry located on the western part of ‘Amikopala and also to the north. Piles of quarried stone, spalls, adze blanks, and hammerstones characterize the site.

Site 85B consists of a series of low walls on the west and northwest slopes of the ‘Amikopala bluff. Piles of quarried stone and a possible house foundation are part of the site as well.

Site 85C is a compartmentalized structure located on the west side of the ‘Amikopala bluff. The structure measures 51 feet long and 30 feet wide, and contains at least seven compartments of various shape and size. Summers (1971:68) notes that the components of Site 85 are usually obscured by grass, but were visible after a brush fire cleared the area in 1969.



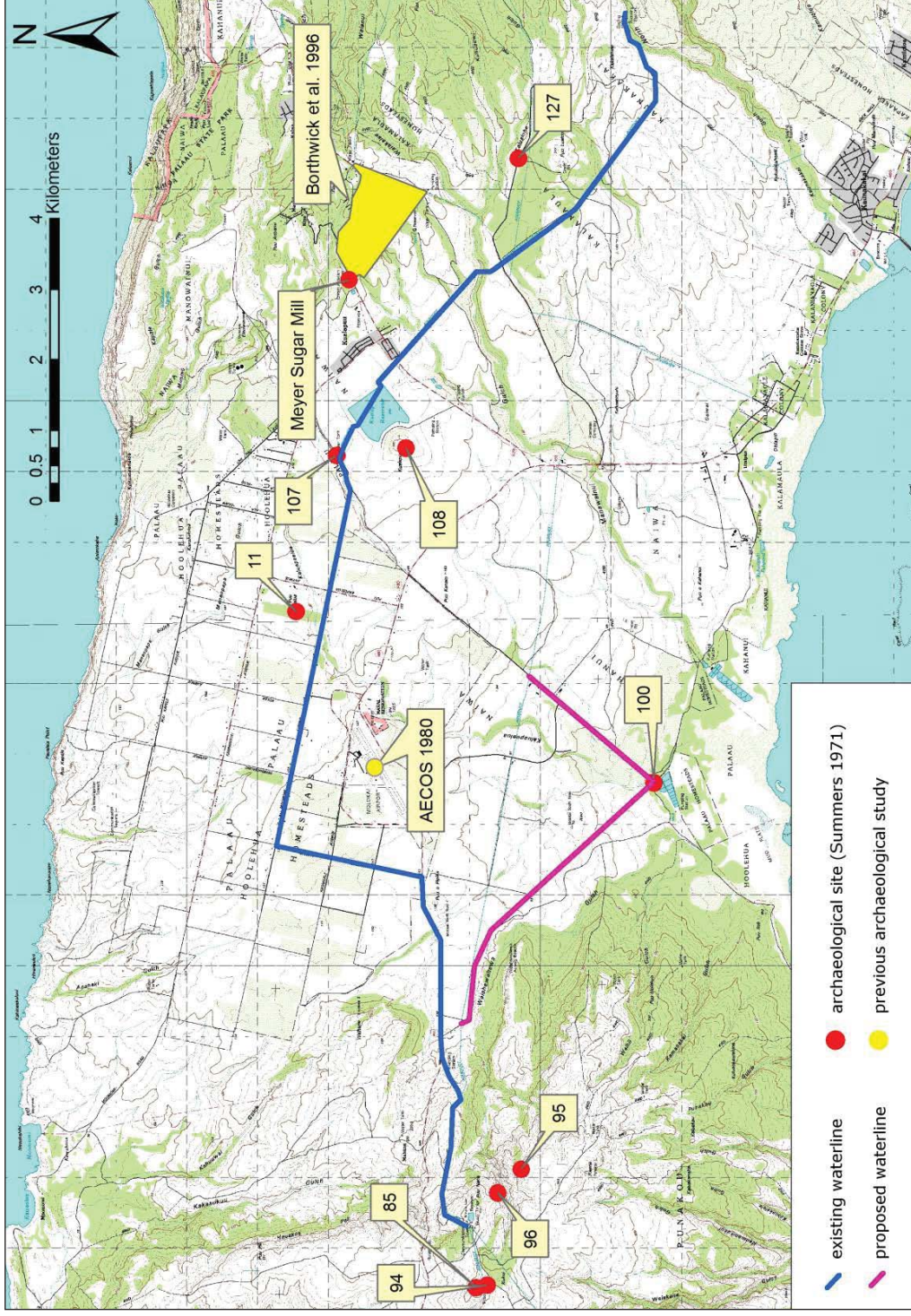


Figure 2. Archaeological sites and previous archaeological studies in the vicinity of the project corridors.

Site 94 is Kumukahi Heiau. It is located approximately 800 m west of the west end of the existing waterline near the summit of Maunaloa. The site consists of “a piece of ground, 30 by 80 feet in extent, enclosed or outlined by stone walls varying in height from one half to 2 feet” (Stokes n.d. in Summers 1971:70).

Site 95 is a school for learning *hula* known as Ka‘ana. The site is roughly 1 km southeast of the west end of the existing waterline. The name of the site can be translated to “divide and share” (Summers 1971:70). Ka‘ana is where every kind of *hula* was learned (Coelho 1922 in Summers 1971:70). It is said that the body of Kapo rests at Ka‘ana in the form of a stone. Another rock said to be the form of Kapo is at Wailua in Hana, Maui.

In chants, Ka‘ana is noted for its *lehua* blossoms. The saying “Love slaves for the *lehua* of Kaana” originates from the great care it takes to make a *lei* from the *lehua*:

*Kauwa ke aloha in a lehua o Kaana...*a spot where travelers were wont to rest and where they not infrequently made up wreaths of the scarlet lehua bloom which there abounded. It took a large number of lehua flowers to suffice for a wreath, and to bind them securely to the fillet that made them a garland was a work demanding not only artistic skill but time and patience. (Emerson 1909 in Summers 1971:71)

The site is said to have originated when Kapo‘ulakina‘u, her brother Kahuilaokalani, and their friends were on Maunaloa and, after watching Kapo‘ulakina‘u chant incessantly during sleep, asked if they could be taught to do the same (Manu in Summers 1971:202). Kapo‘ulakina‘u replied that she could teach them if they would observe her *kapus* and do things that would help her teaching, as there are many *kapus* relating to the art. If the desire is great, however, one would be able to learn quickly. The people wanted to learn, so Kapo‘ulakina‘u enlisted her sister Na-wahine-li‘ili‘i, or Kewelani, to help her instruct and chant. Kewelani was the first person to dance *hula* on Ni‘ihau. She was also called Laea, Ulunui, and Laka.

To learn the *hula*, the students memorized a chant from Laka and then presented an offering of a pig and dark ‘awa to her. A prayer would be recited to trek to the mountains to collect greenery for building the *hula* altar. After the prayer was said, the *lehua* root could be cut. The *lehua* tree was the symbol of Kapo‘ulakina‘u and her brothers. A chant was recited before cutting the tree. Finally, when the *hula* altar was built, the plants would be placed in it, and the following was chanted:

Faintly as from a distance comes the voice of the woman,  
Of Kania‘ula, of Maheanu,  
The woman who dwells where the wind arises.  
Kapo lives in a beautiful grove  
Standing up on Ma‘ohelaia,  
As an ‘ohi‘a tree growing on Maunaloa.  
Have compassion on us, O Kaulana‘ula  
Here is a gift, an offering of the voice  
O Kapokulani, O Moe-haua-ike.  
I call to you- O answer me. (Manu in Summers 1971:202–203)

This is how Kapo became the *hula* goddess and the laws of Pi‘i-kuahu (Altar-ascending) and Moku-lehua (Cut *lehua*) began. Kapo‘ulakina‘u and Kahuilaokalani remained on Maunaloa to “establish themselves for endless time” (Manu in Summers 1971:203). It is said that the gods Kane

and Kanaloa opened springs on the island for the *‘awa* to be prepared by the *kumu hula* (Handy and Handy 1991:512). Handy and Handy provide further insight on the *hula* school:

Even before it was forested, Mauna Loa was a sweet potato rather than taro-planting area. The fact that the original and most sacred school of *hula* was there adds weight to evidence that the *hula* was part of the cult of rain making. (Handy and Handy 1991:512).

Site 96 is a *heiau* that stands roughly 600 m southeast of the west end of the existing waterline, on the cliffside of Waiahewahewa Gulch. A permanent spring once watered the gulch, but it has since dried up.

Site 100 is a boundary stone that marks the meeting point of Pālā‘au 1, Kaluako‘i, Ho‘olehua 2, and Nā‘iwa. It is also the southern point of the proposed waterline. Cooke describes the stone as follows:

In 1898 the stone stood waist high, or about 3 ft above the ground surface. When it was relocated in 1923, it was a foot under the ground, covered by silt that had washed down over it from above in the intervening 25 years. (Cooke 1949 in Summers 1971:77)

Site 107 is a *hōlua* slide on the south-southwest side of Kualapu‘u Hill. Note that the site map in Summers (1971) places the *hōlua* on the north side of the existing waterline, as is shown in Figure 2, while the site description says the *hōlua* lies on Kualapu‘u Hill. In 1966, no paving could be identified at the site, but traces of the *hōlua* slide could be seen on the hillside. It is also said that the hillside was once covered in sweet potato fields, which were delineated by rows of stones (Cooke 1949 in Summers 1971:80).

Site 108 is a *heiau* known as Kalakupale or Palakupale located on the south side of Kualapu‘u Hill, south of the existing waterline. The site is simply described as a “small heiau” (Monsarrat n.d. in Summers 1971:80).

Site 127 is a *kahua maika* located 2,000 feet north of the benchmark on Pu‘u Luahine, just north of the road. This is approximately 1 km north of the existing waterline. The site was studied in detail in 1933 (Northwood n.d. in Summers 1971:86–97). The course was described as a shallow 35 foot-wide trench that runs in a relatively straight line toward the east-southeast. Three large partially buried boulders mark the beginning of the course. The course is well marked for the first 350 yards, where it has a slight down grade. The grade increases after this initial section. A substantial amount of excavation was required to construct the beginning portion, but there is no trace of the excavated earth. Three broken and one intact *‘ulu maika* were found near the course. A possible house site also occurs in the vicinity.

A survey of the archaeological literature at the State of Hawaii Department of Land and Natural Resources Historic Preservation Division library turned up several short reports and surveys, most of which were conducted in the second half of the 20<sup>th</sup> century. None of these reports dealt specifically with archaeological features associated within the land corridor under consideration and no comprehensive historic or archaeological reports exist for the area. Two archaeological projects were carried out within the vicinity of the waterline corridor (1 km away or closer) (Table 1; see Figure 2).



**Table 1. Previous Archaeology in the Vicinity of the Project Area**

Author & Year	Work Completed	Findings
AECOS 1980	Reconnaissance	World War II sites.
Borthwick et al. 1996	Inventory Survey	Three sites: platform remnant, historic wall segment, terrace.

The first project was an archaeological reconnaissance conducted in 1980 for possible expansion of the Molokai Airport (AECOS 1980). Two alternative sites were surveyed on foot: one at the current Molokai Airport and another *mauka* of Mo‘omomi Beach. Only the current airport site is near the waterline corridor. Several historic features were found there, including World War II bunkers, earthen revetments, Quonset huts, and old roads. They were thought to date from 1942–1947.

The second project was an archaeological inventory survey completed in 1996 for the Pu‘u Kolea subdivision (Borthwick et al. 1996). A total of 350 acres were surveyed at the 850–1,300 ft. elevation in Kahanui 2 Ahupua‘a. Three archaeological sites were found, including a platform remnant (Site 1633), an historic wall segment (Site 1634), and a terrace (Site 1635). Extensive bulldozing was observed in the area, and historic ranching remains were noted, including the remnants of the 1912 Pu‘u Kolea Ranch guest house.

In addition to the above archaeological studies, an Historic American Engineering Report (HAER) was done for the Meyer Sugar Mill, located northeast of Kualapu‘u, off of Kala‘e Highway (Bluestone 1978). When the report was written in 1978, the mill was slated as “the only surviving 19<sup>th</sup> Century Hawaiian sugar mill with its original machinery intact and its original design essentially unaltered” (Bluestone 1978:1). The mill was small in size compared to those of its time (ca. 1888), but it survives as a good example of Hawai‘i’s sugar-era constructions.

A comprehensive study was conducted for the conservation of the Manawainui Watershed, an 8,886-acre expanse that begins in the 3,150 ft. Forest Reserve and outlets over the Pālā‘au table lands (Whiting et al. 1995). The natural history and land use history of the watershed were compiled for this study.



## SITE VISIT

On June 14, 2011 Keala Pono archaeologists Windy McElroy, PhD, and Manuwai Peters, MA, conducted a site visit and walk through of the waterline corridor. The team was met by Rex Kamakana of Molokai Properties, Limited, who showed the team the route of the existing and proposed waterlines. No surface archaeological resources were encountered along any part of the route.

A drive through site visit was carried out for the portions of the corridor that lie along paved or dirt roads. This includes almost the entire existing waterline route, which runs approximately 20 km, from the Pu'u Nānā Reservoir and Treatment Plant on the west, through the Ho'olehua Homestead and Kualapu'u Reservoir, to the vicinity of the Kākahale Well on the east. Accessibility via four-wheel drive vehicle provided clear visibility to the area, particularly on areas in active agricultural production or along the existing waterline. The drive through ended approximately 700 m short of the Kākahale gaging station, where a locked gate restricted access to the road leading to the water tunnel and the end of the route. Certain areas of the five-mile route were traversed on foot, following the route of the proposed waterline.

The survey route presented easy accessibility as a large portion of the proposed waterline follows the Moloka'i Irrigation System line built in 1959. In the lower southerly section of the route, rolling hillsides and small gulches marked by rocky outcroppings, grasses, and *koa haole* characterize much of the area. Although some areas were covered by non-native grasses, visibility along these sections were excellent.

The area along the existing waterline route consists of paved or dirt roads that run through residential neighborhoods, farms, and ranchland (Figure 3). The waterline veered from the road in several areas of the ranchland to traverse gulches (Figure 4). No surface archaeological remains were observed. Any traditional surface architecture that might have occurred along the roads has almost certainly been destroyed by bulldozing.

The new alternative route was driven and walked on foot. This route runs for approximately 7 km, beginning near the Mahana Pump Station, heading southeast toward the Pālā'au Homestead, then turning northeast toward existing agricultural farms along Hua'ai Road in the Kualapu'u-Nā'iwa districts. The western segment was driven, where the corridor runs along an existing fenceline with an adjacent dirt road. Areas of bulldozer push occur on either side of the road and fence, and no surface archaeological resources were observed. The eastern segment was traversed on foot. The route follows a fenceline for approximately 1,250 m, and the fence is bordered by a rough dirt road with areas of bulldozer push on either side (Figure 5). The northernmost 1,000 m do not follow the fenceline or road, but bulldozer disturbance was evident in the vicinity and no surface archaeological features were found (Figure 6).

The two previously recorded archaeological sites along the route were not found (see Previous Archaeology Section). Site 100 is a boundary stone that should have been located at the southern point of the proposed waterline route. In 1923, the stone was already partially covered by silt. It is likely that the stone is completely covered today or is obscured by the tall grass in the area. It is also possible that the stone was moved or covered over when the dirt road was bulldozed.

Site 107 is a *hōlua* slide that is plotted near the existing waterline corridor in Summers' (1971) site map. The description of the site, however places it on the slopes of Kualapu'u Hill, which is a much more likely spot for a *hōlua* slide. The site was not observed in either location, although Kualapu'u Hill was not thoroughly inspected, as it does not lie directly on the waterline route.



**Figure 3. Eastern segment of existing waterline, through ranchlands south of Pu'u Luahine. Note that the waterline parallels the dirt road. View is to the east.**



**Figure 4. Eastern segment of existing waterline, through ranchlands south of Pu'u Luahine, where the waterline crosses a gulch. View is to the east.**





**Figure 5. Route of the proposed waterline, southeastern segment of the corridor, facing north. The waterline will follow the fenceline on the left of the rough dirt road.**



**Figure 6. End of the fenceline in the eastern segment of the proposed waterline corridor. The waterline continues northeast here. View is to the north.**

In sum, the entire route of the existing and proposed waterline showed evidence of previous disturbance, in the form of roads, grading for farmland, and bulldozer push piles. No traditional surface architecture was observed in any part of the corridor. If in the course of the proposed project human osteological remains are uncovered, the developer must contact the Hawai‘i State Historic Preservation Division, in compliance with Chapter 6E of the Hawai‘i Revised Statutes.

### **Summary of Findings**

Background research produced a wealth of information on the traditional and post-Contact history of the project lands. In pre-Contact times, the area was used for sweet potato farming, with some taro grown in the wetter areas. Traditional archaeological sites in the vicinity include adze quarries and associated features, at least three *heiau*, a *hōlua* slide, a *kahua maika*, a boundary marker, and storied places, such as a renowned *hula* school and the Caterpillar Stones of Pu‘u Kape‘elua.

Moloka‘i has a rich history of oral traditions, and *mo‘olelo* tell of sorcery, and medicine, and the birth of *hula*. Hawaiian language newspaper articles include colorful stories of what life was like on the island. Traditions of sorcery are recounted in the articles, as well as stories of everyday importance, such as ranch announcements and land management concerns.

Historically, ranching and sugarcane and pineapple cultivation dominated the landscape. World War II structures and the Meyer Sugar Mill are among the historic sites known to occur near the project area. Today, the project lands are still used for ranching and agriculture, and roads and residential areas occur along the route as well.

The length of the project corridor was inspected for archaeological resources and none were found. Much of the route was disturbed by modern development or previous agriculture, and evidence of bulldozer activity was noted in many areas.

## SUMMARY AND CONCLUSIONS

This archaeological assessment was conducted to identify historic properties along existing and proposed waterline routes in the Kona District of Moloka‘i, on a portion of TMK: (2)5-2, that traverses seven *ahupua‘a*: Kaunakakai, Kalama‘ula, Kahanui 2, Nā‘iwa, Ho‘olehua 2, Pālā‘au 2, and Kaluako‘i. This is an arid region, with much of the corridor following paved or dirt roads that run through residential neighborhoods, farms, and ranchland.

Background research revealed a wealth of information on traditional and historic land use, *mo‘olelo*, place names, wind and rain names, *‘ōlelo no‘eau*, the area as represented in Hawaiian language newspapers, as well as previous archaeology conducted along the project corridor. Traditionally, sweet potato cultivation was an important subsistence activity, with some taro grown in the wetter areas. Pre-Contact archaeological sites in the vicinity of the waterline routes include adze quarries and associated features, at least three *heiau*, a *hōlua* slide, a *kahua maika*, a boundary marker, and storied places, such as a renowned *hula* school and the Caterpillar Stones of Pu‘u Kape‘elua.

A variety of *mo‘olelo*, *‘ōlelo no‘eau*, place names, and wind and rain names were compiled for this study. They tell of major events such as the founding of *hula*, and the practice of sorcery, as well as every day activities, such as the importance of sweet potato cultivation on the arid landscape.

Historically, ranching and sugarcane and pineapple cultivation were major industries on Moloka‘i. Remnants of these activities extend over much of the project corridor, and ranching and agriculture are still in practice in the area today. World War II structures and the Meyer Sugar Mill are among the historic sites known to occur near the waterline route. Today, in addition to ranchlands and agricultural fields, roads and residential areas characterize much of the route.

The length of the project corridor was inspected for archaeological resources and none were found. Large tracts of land along the route were disturbed by modern development or previous agriculture, and evidence of bulldozer activity was noted in many areas. The two archaeological sites documented on the project corridor include a boundary marker and *hōlua* slide. The marker consists of a single stone that was already partially silted over in the 1920s. It is likely that the stone is completely buried today or has been moved or obscured by bulldozer activity. The *hōlua* slide was likely mislabeled on the site map presented in Summers (1971) and is located farther away from the waterline route on Kualapu‘u Hill.

In sum, a wealth of oral tradition and written history exists for the project lands. Physical evidence of the past is more difficult to identify, however, as a result of historic and modern alteration of the landscape. Two archaeological sites were documented directly on the project route, but no surface archaeological remains were observed during a site visit of the area. If ground disturbance is required for construction of the proposed waterline or alteration of the existing line, it is recommended that a formal archaeological inventory survey is conducted of the entire route. This should include a program of subsurface testing to identify stratigraphic deposits and areas that might contain buried archaeological sites or human remains.

## GLOSSARY

<b><i>ahupua‘a</i></b>	Traditional Hawaiian land division usually extending from the uplands to the sea.
<b><i>akua</i></b>	God, goddess, spirit, ghost, devil, image.
<b><i>ali‘i</i></b>	Chief, chiefess, monarch.
<b><i>‘āpana</i></b>	Piece, slice, section, part, land segment, lot, district.
<b><i>‘aumakua</i></b>	Family or personal gods. The plural form of the word is <i>‘aumākua</i> .
<b><i>‘awa</i></b>	The shrub <i>Piper methysticum</i> , or <i>kava</i> , the root of which was used as a ceremonial drink throughout the Pacific.
<b><i>heiau</i></b>	Place of worship and ritual in traditional Hawai‘i.
<b><i>hōlua</i></b>	Traditional Hawaiian sled used on grassy slopes.
<b><i>hui</i></b>	A club, association, society, company, or partnership; to join, or combine.
<b><i>‘ilima</i></b>	<i>Sida fallax</i> , the native shrub whose flowers were made into <i>lei</i> , and sap was used for medicinal purposes in traditional Hawai‘i.
<b><i>kahua</i></b>	Open place for sports, such as <i>‘ulu maika</i> .
<b><i>kahuna</i></b>	An expert in any profession, often referring to a priest, sorcerer, or magician.
<b><i>kapu</i></b>	Taboo, prohibited, forbidden.
<b><i>kiawe</i></b>	The algarroba tree, <i>Prosopis</i> sp., a legume from tropical America, first planted in 1828 in Hawai‘i.
<b><i>kioea</i></b>	The bristle-thighed curlew, or <i>Numenius tahitiensis</i> , a large brown bird with a curved beak.
<b><i>koa haole</i></b>	The small tree <i>Leucaena glauca</i> , historically-introduced to Hawai‘i.
<b><i>kula</i></b>	Plain, field, open country, pasture, land with no water rights.
<b><i>kumu hula</i></b>	<i>Hula</i> teacher.
<b><i>kōnane</i></b>	A traditional Hawaiian game played with pebbles on a wooden or stone board.
<b><i>lama</i></b>	The native tree, <i>Diospyros sandwicensis</i> , that had many uses in traditional Hawai‘i. Fruit was eaten, wood was fashioned into fish traps and sacred structures within <i>heiau</i> . <i>Lama</i> wood was also crushed and used for medicinal purposes.
<b><i>lehua</i></b>	The native tree <i>Metrosideros polymorpha</i> , the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.

<i>mana</i>	Divine power.
<i>mauka</i>	Inland, upland, toward the mountain.
<i>mo‘olelo</i>	A story, myth, history, tradition, legend, or record.
<i>‘ōhi‘a</i>	Two kinds of forest trees. See also <i>o ‘ōhi‘a‘ai</i> and <i>‘ōhi‘a lehua</i> .
<i>‘ōhi‘a ‘ai</i>	The mountain apple tree, <i>Eugenia malaccensis</i> , a forest tree to 50 ft.high.
<i>‘ōhi‘a lehua</i>	The native tree <i>Metrosideros polymorpha</i> , the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.
<i>pu‘u</i>	Hill, mound, peak.
<i>tī (kī)</i>	The plant <i>Cordyline terminalis</i> , whose leaves were traditionally used in house thatching, raincoats, sandals, whistles, and as a wrapping for food.
<i>‘uala</i>	The sweet potato, or <i>Ipomoea batatas</i> , a Polynesian introduction.
<i>‘ulu maika</i>	Stone used in the <i>maika</i> game, similar to bowling.



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**APPENDIX F**  
**INFRASTRUCTURE AND UTILITIES STUDY**

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**Infrastructure Study**

**For**

**Draft Environmental Assessment**  
**For the Continued Use of the Molokai Irrigation**  
**System**

**Molokai Properties Limited**  
**Kualapuu, Island of Molokai, Hawaii**

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**Prepared By:**  
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**Honolulu, Hawaii 96813**

## **1.0 INTRODUCTION**

This Infrastructure Study has been prepared for the Draft Environmental Assessment for the Continued Use of the Molokai Irrigation System by Molokai Properties Limited Kualapuu, Island of Molokai. Molokai Properties Limited (MPL) is in the process of renewing its lease agreement with the State of Hawaii, Department of Agriculture (DOA) for continued use of the Molokai Irrigation System (MIS). The lease agreement will allow MPL to continue transporting irrigation water from Well 17 to MPL customers in western Molokai via the MIS. Previous agreements and court rulings have required an environmental study to assess the continued use of the MIS.

The purpose of this report is to evaluate the feasibility of alternatives for MPL to provide irrigation water to its users in Maunaloa and Kaluakoi. Alternatives being considered are as follows:

1. The continued use of the existing Molokai Irrigation System (MIS)
2. Transmission line through Department of Hawaiian Home Lands (DHHL) property
3. Transmission line around Department of Hawaiian Home Lands (DHHL) property
4. The construction of a desalination plant and two deep groundwater wells.

## **2.0 EXISTING CONDITION**

The State Commission on Water Resource Management (CWRM) has divided the island of Molokai into 16 aquifer systems. Each aquifer varies significantly in quality. Western Molokai is comprised of completely brackish water. Somewhat brackish water is found in Central Molokai and generally high quality potable water is found in Eastern Molokai.

Aquifers Kaluakoi and Punakou comprise of brackish water that is presumed to be unsuitable for irrigation use without treatment. The Kualapuu aquifer in Central Molokai comprises of water that is suitable for irrigation and potable use. MPL's need to transmit irrigation water from Well 17 to its customers in western Molokai is in direct relation to the water source, see Exhibit 1.

The MIS originally served large-scale pineapple operations, but was converted to serve diversified agriculture after pineapple operations closed in the late 1970s. The system's current priority service is for the Native Hawaiian Homesteads in Hoolehua for irrigation use. The MIS was designed to collect water from Waikolu Valley, and then transport, store, and distribute the collected water to central Molokai. The water collection system consists of surface water diverted by dams, ground water from drilled wells and dike-confined water intercepted by the MIS tunnel. The water collected from the Waikolu Watershed is transported via the MIS tunnel, a covered concrete flume and transmission pipeline to the existing 1.4 billion gallon Kualapuu open reservoir. Water is then distributed from the Kualapuu Reservoir via 26-inch and 30-inch water mains through the Department of Hawaiian Home Lands (DHHL) Hoolehua Subdivision.

In the mid 90's, MPL contracted Warren S. Unemori Engineering, Inc.<sup>2</sup> to design a 12-inch transmission line from Well 17 to Puu Nana. Subsequently, MPL contracted Tom Nance Water Resource Engineering<sup>3</sup> to design the improvements at the site of Well 17 to remove MPL from the MIS. The designed route for the transmission line took a direct path which passed through DHHL property. MPL constructed the transmission line, but the line was never completed due

HYDROLOGIC UNITS  
Sustainable Yield / Aquifer Code

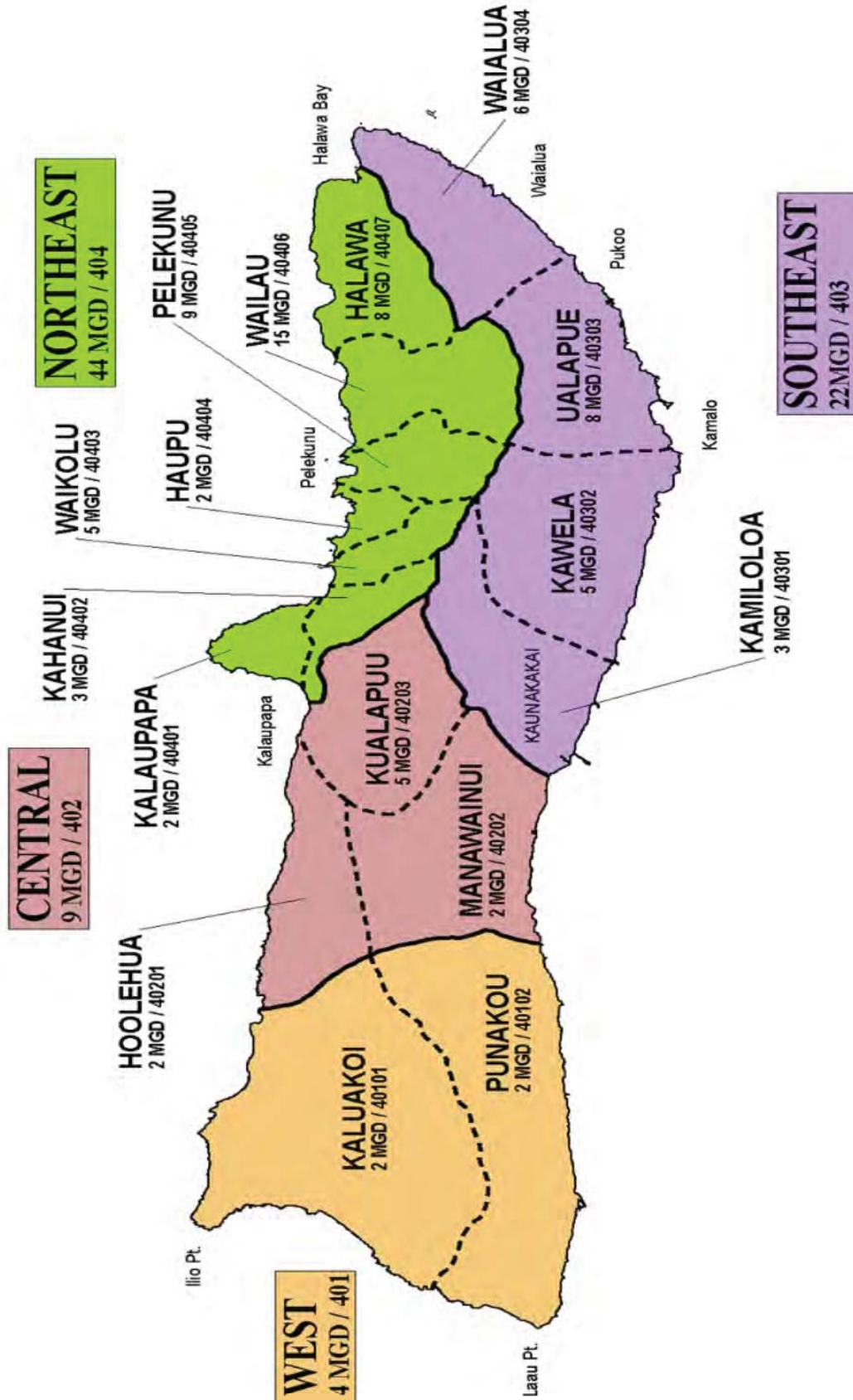


EXHIBIT 1: Ground Water Hydraulic Unit Map, Island of Molokai<sup>1</sup>

to community opposition and easement agreements with DHHL. Only portions of the 12-inch line up to DHHL property and portions after DHHL property were constructed. Consequently, the improvements at the site of Well 17 were never constructed. The uncompleted line has remained dry for approximately 10 - 15 years. Due to the line remaining idle and the condition of the line being unknown an assessment would be required to know if the line is suitable for operation.

### **3.0 ALTERNATIVE I**

Alternative I proposes the use of the existing MIS to transport water from Well 17 to the west side of Molokai, see Exhibit 2.

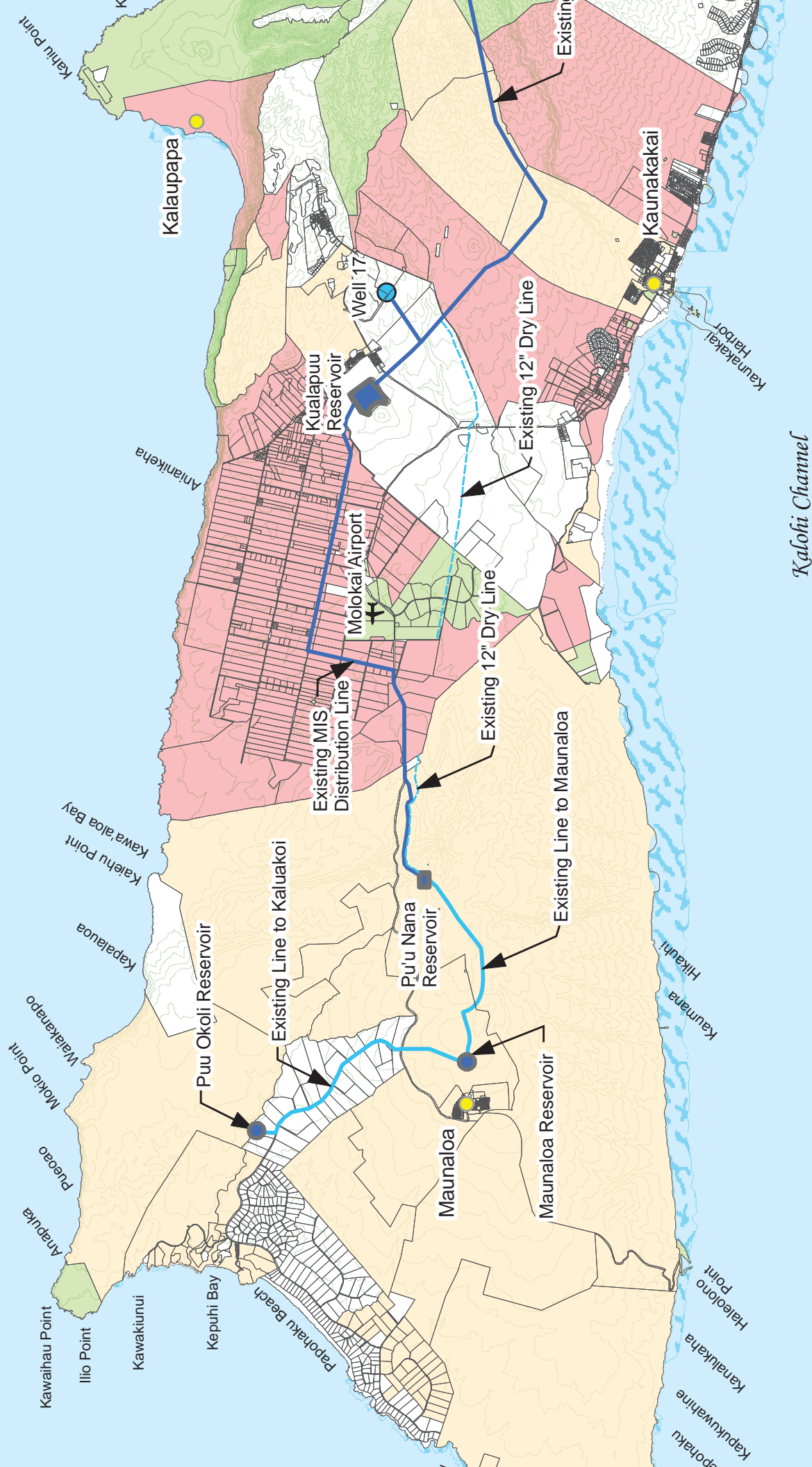
MPL is proposing to continue to lease 6 miles of the MIS and space in the Kualapuu Reservoir. Water from Well 17, which is operated by MPL, would be transmitted to the Kualapuu Reservoir where it will establish an average buffer of approximately 18 million gallons. Water would then enter the MIS distribution system where it would terminate in Mahana. From Mahana the water will enter MPL owned systems beginning with a booster pump and transmission line to the Puu Nana Reservoir. The water will then enter an existing transmission system to Maunaloa and eventually gravity fed to Kaluakoi.

Well 17 has an allocation of 1.018 million gallons per day (MGD) from Kualapuu aquifer, but currently only produces 413,000 gallons per day to provide water to users in Maunaloa and Kaluakoi. Renewing the lease agreement with DOA will allow MPL to use the total allocated amount from Well 17. The amount of water pumped into the MIS from Well 17 and the amount of water withdrawn at Mahana are metered and monitored by the DOA. However in order to account for system losses and evaporation at the reservoir, MPL can only withdraw 900 gallons for every 1000 gallons that it transports through the MIS.

Native Hawaiian Homesteaders have prior right to two-thirds of the water currently developed by the MIS. Only excess capacity of the MIS and Kualapuu Reservoir is allowed use by other consumers that are not DHHL homesteaders. However, it should be noted that the removal of the 18 million gallon buffer reserved for the Kualapuu Reservoir could impact agriculture users of the MIS. The 18 million gallon buffer not only provides against a breakdown at Well 17, but also is available to agriculture users of the MIS should the availability of water be limited in times of drought. The impact of losing this water resource in emergency drought conditions could be detrimental to users of the MIS who rely on this water for agriculture.

Currently the system transports approximately 2.5 to 4.5 MGD. All of the users of the MIS combined including what is transmitted by MPL utilize only 21.4% of the system's capacity. Kualapuu Reservoir has a capacity of 1.4 billion gallons, and can rise to an elevation up to 54 feet, but has never been over 30 feet. At 22 million gallons per foot of the 54-foot deep reservoir, MPL would only be using excess capacity in the reservoir. An analysis of the existing MIS was performed to ensure the system can accommodate the allocated flow from MPL's Well 17 and can be found in Appendix 1.







The MIS is an existing water system and would not require construction, thus there will be no capital costs for construction. Without construction, the cost for Alternative 1 would be minimal and limited to the required studies and permits needed to continue the use of the MIS to transport water; consequently no cost estimate was performed.

#### **4.0 ALTERNATIVE II**

Alternative II is the design of a transmission main to facilitate water from Well 17 in Kualapuu to Puu Nana Reservoir through DHHL properties, see Exhibit 3.

Alternative II proposes a direct route through DHHL property to transport water from Well 17 to Puu Nana bypassing the MIS. Water would be drawn from Well 17 and deposited in existing Well 17 Reservoir #1 and existing Well 17 Reservoir #2. The water is then boosted at Kaluakoi Well 17 Booster Station and transmitted through a 12-inch line to the reservoir at Puu Nana. At Puu Nana the water from Well 17 will be distributed through existing systems to Maunaloa and Kaluakoi. The 12-inch transmission line will travel across MPL lands, State lands, DHHL lands, Maunaloa Highway and Palaa Avenue.

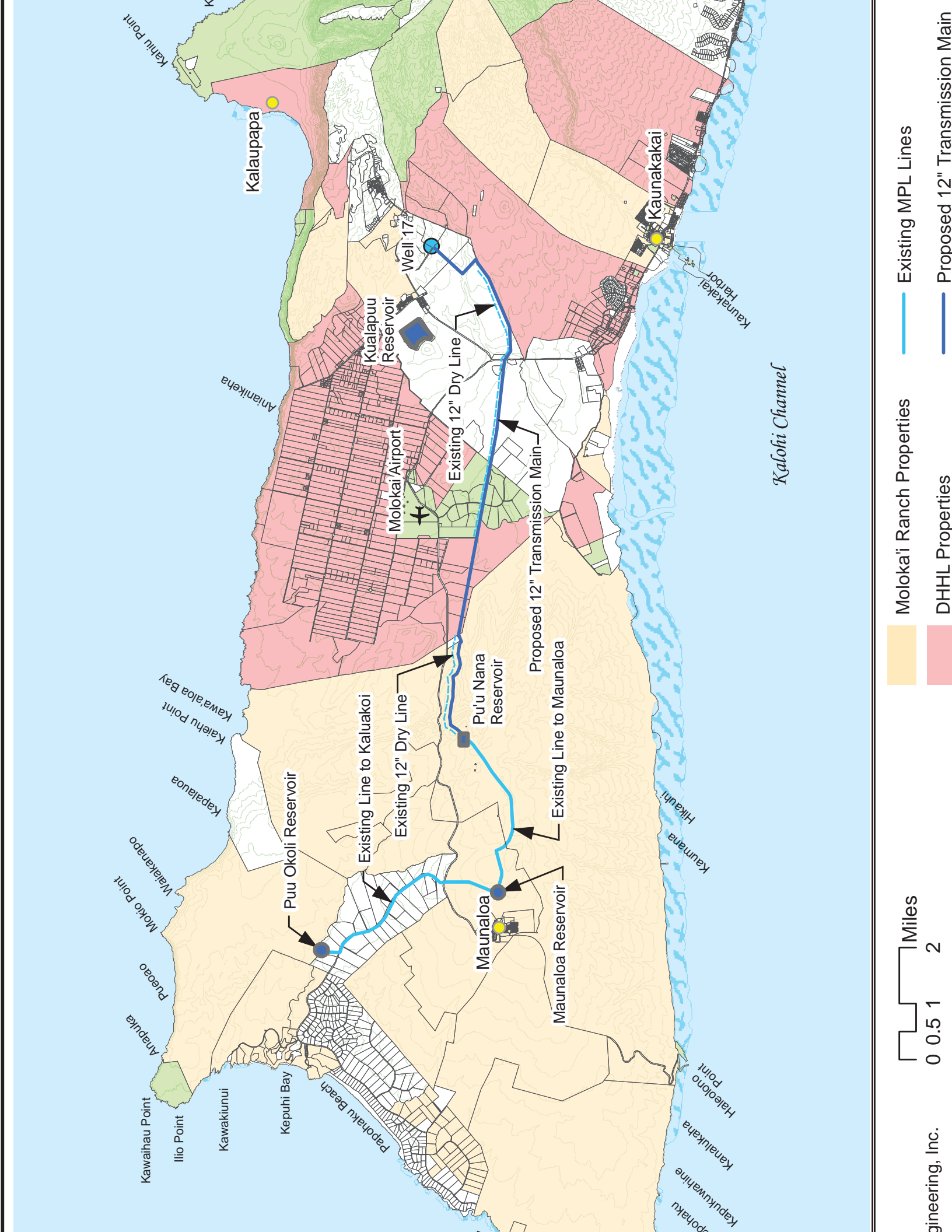
The analysis performed was based on Warren S Unemori Engineering, Inc.<sup>2</sup> and Tom Nance Water Resource Engineering's<sup>3</sup> design plans. The design plans consider a 12-inch transmission line through DHHL property from Well 17 to Puu Nana and improvements at the site of Well 17. The overflow elevation of the two existing Well 17 reservoirs is 1,000 feet and the elevation of the reservoir at Puu Nana is approximately 1,380 feet creating an elevation head of 380 feet. The 12-inch transmission main will travel over 53,580 feet with losses in the system equating 92.73 feet. The water is boosted by an 875 gallon per minute (gpm), 300 horse power (HP) pump. The construction of a second pump in parallel would need to be constructed as a reserve. At 875 gpm the booster pump has the capacity to pump the allocated 707 gpm from Well 17. The 300 HP pump will have sufficient horse power to boost the water through the 12-inch diameter transmission line and the elevation difference between the two reservoirs. The analysis for this alternative verified the design of the transmission system through DHHL property. The analysis can be found in Appendix 1.

Although portions of the design of this alternative were previously constructed by MPL the condition of the constructed portion is currently unknown. Therefore, Alternative II considers the construction of an entirely new system and replacing the water lines that were previously constructed. The cost of \$9,400,000 was estimated for purposes of this study only. A cost breakdown can be found in Appendix 2.

#### **5.0 ALTERNATIVE III**

Alternative III is the design of a transmission main to facilitate water from Well 17 in Kualapuu to Puu Nana Reservoir that travels around DHHL properties, see Exhibit 4.

Alternative III proposes to transport water from Well 17 to Puu Nana bypassing the MIS and DHHL property. The transmission line will be routed through land owned by MPL, the State of



Moloka'i Ranch Properties

DHHL Properties

Existing MPL Lines

Existing 12" Dry Line

Existing 12" Transmission Main

Proposed 12" Transmission Main

Miles

0

0.5

1

2

Engineering, Inc.





Hawaii and Monsanto. Although this alternative avoids an easement through DHHL lands, easements would be required through Monsanto and State lands.

Similar to Alternative II water would be pumped from Well 17 and stored in the two existing reservoirs located onsite. Water from the reservoirs is then boosted at Kaluakoi Well 17 Booster Station and transmitted through a 12-inch transmission line to the reservoir at Puu Nana and eventually to the Maunaloa and Kaluakoi users.

Warren S Unemori Engineering, Inc.<sup>2</sup> and Tom Nance Water Resource Engineering's<sup>3</sup> design plans were the basis for a portion of the analysis. Similar to Alternative II the overflow elevation of the two existing Well 17 reservoirs is 1,000 feet and the elevation of the reservoir at Puu Nana is approximately 1,380 feet creating an elevation head of 380 feet. Traveling an additional 7,790 feet around DHHL property the 12-inch transmission main will travel a total 60,670 feet with an equivalent loss in the system totaling 105 feet. The water is boosted by an 875 gpm, 300 HP pump, with a second identical pump in parallel as a reserve. At 875 gpm the booster pump has the capacity to pump the allocated 707 gpm from Well 17. The 300 HP pump will have sufficient horse power to boost the water through the 12-inch diameter transmission line around DHHL property and the elevation difference between the two reservoirs. The analysis for this alternative verified the design of the transmission system around DHHL property. The analysis can be found in Appendix 1.

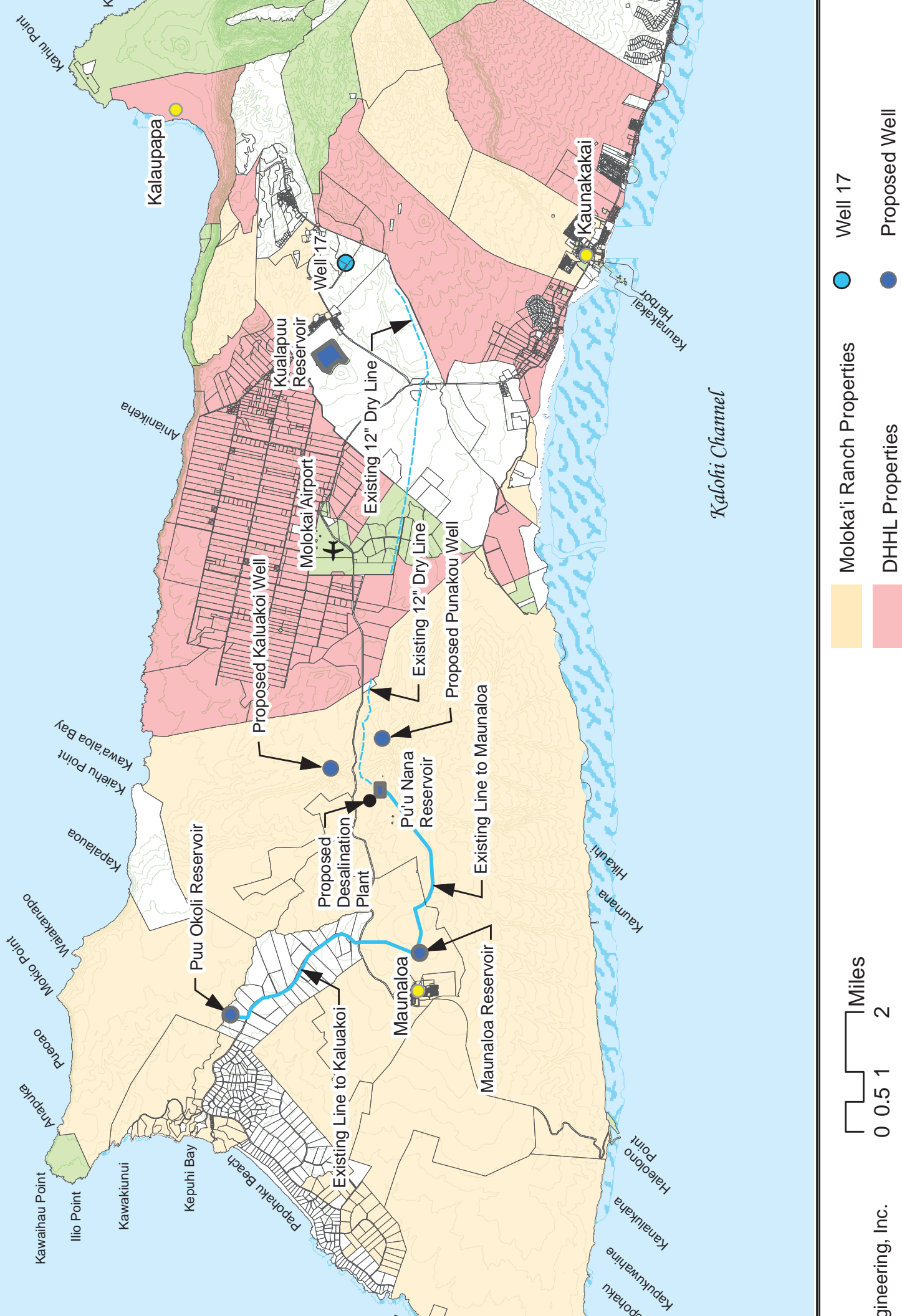
A portion of the previously constructed 12-inch transmission line by MPL could be of use for this alternative; however the condition of the constructed portion is unknown. Therefore, Alternative III considers the construction of an entirely new system and replacing the water lines that were previously constructed. The cost of \$10,500,000 was estimated for purposes of this study only. A cost breakdown can be found in Appendix 2.

## **6.0 ALTERNATIVE IV**

Alternative IV would consist of the construction of a desalination plant and two deep groundwater wells that will draw brackish water from the West End aquifers, see Exhibit 5.

Ideally, West End users would be able to draw irrigation water from the west aquifers to minimize transmission and distribution distances. However, the water in the west aquifers are brackish water and may need some level of treatment to produce useable irrigation water. A study would be required to confirm the quality of the brackish water. Currently it is assumed that the saline levels in the groundwater from the west aquifers are too high for irrigation use for most crops and livestock. An option considered for this study is desalinating the brackish water as a method of treatment.

Two deep groundwater wells would be constructed to access the water from the west aquifers. A hydrogeological investigation would need to be conducted to determine the location of the wells. For this study the assumption of minimizing the transport of water drawn from the wells to the location for treatment will be considered. The two deep ground water wells will be drilled to an approximate depth of 1,400 feet. One well would draw brackish water from the Kaluakoi Aquifer and the other would draw brackish water from the Punakou Aquifer. Each aquifer has a sustainable yield of 2 MGD<sup>1</sup>.



The brackish water would then be transported approximately two miles to Puu Nana for treatment. The existing infrastructure at Puu Nana would be utilized such as the reservoir, tanks and transmission lines. At Puu Nana the water would pass through a pre-treatment procedure to remove any of the larger particles and any organic material in the brackish water. Subsequently the water will be subject to the desalination process to separate salts out of the brackish water, producing irrigation and potable water. At this point the water would be distributed to users in Maunaloa or Kaluakoi using the existing distribution and transmission systems.

There are multiple desalination technologies including electrodialysis, reverse osmosis and thermal evaporation. In order to decide an appropriate desalination process, factors such as the salt content and quality of the initial water, quality of water produced, quantity of water needed and site specific conditions must be taken into consideration. In addition to any capital costs that desalination treatment requires, operation and maintenance costs should also be considered. All desalination processes require large amounts of energy for operation. The cost for the energy will be absorbed into the cost to provide consumers with water and will increase consumer rates. Until there is advancement in the technologies to greatly reduce the amount of energy used in desalination processes the share of desalination costs attributable to energy will rise as energy prices rise. Considering that Molokai has some of the highest electricity rates in the state largely due to the reliance on imported fossil fuels, the anticipation is that water costs will increase in direct relation as energy costs increase. The cost for desalination would be greater than pumping and transporting ground water.

The preliminary investigation of the energy and operation costs along with the budgetary cost estimate, determined that desalination was not a reasonable economic alternative. Therefore an analysis was not performed. A detailed cost estimate of \$26,500,000 for Alternative IV can be found in Appendix 2.

## **7.0 CONCLUSION AND RECOMMENDATIONS**

This report evaluated the feasibility of alternatives for MPL to provide irrigation water to its users in Maunaloa and Kaluakoi. To evaluate the feasibility of the alternatives cost estimations, construction services, and additional impacts were analyzed and compared.

Alternative I proposed the continued use of the MIS to transport water from Well 17 to MPL customers in western Molokai. The MIS is an existing system and the current method of providing users in Kaluakoi and Maunaloa irrigation water, therefore no construction is required. The use of the MIS by MPL does require renewing a lease agreement and relevant permits. As a result minimal costs are associated with Alternative I.

The construction of a transmission line through DHHL property from Well 17 to Puu Nana was the proposed Alternative II. For Alternative II to transpire, negotiation on easement agreements between MPL and DHHL would need to be resolved. The construction of the 53,580 feet of 12-inch transmission line and 875 gpm/300 HP pump resulted in a cost of \$9,400,000.

To avoid easement agreements with DHHL the construction of a transmission line around DHHL property was proposed as Alternative III. The additional 7,090 feet of pipeline totaling 60,670 feet of 12-inch transmission line and 875 gpm/300 HP pump resulted in a cost of \$10,500,000.

Alternative IV proposed the construction of two deep groundwater wells and a desalination plant. The deep water wells will draw brackish water from the Kaluakoi and Punakou aquifers to produce irrigation water by desalinating the brackish water. The desalination process requires large amounts of energy directly relating to the cost of the water produced. The cost for Alternative IV resulted in \$26,500,000.

There will be a direct impact to the residents of Maunaloa and Kaluakoi if the use of the MIS to transmit water is discontinued. The need to provide western Molokai irrigation water and the fact that the MIS is the current form of transport Alternative 1 is the most feasible alternative. The decision to advance this alternative was based on economic feasibility and that no construction is needed. The conclusions to the infrastructure study and the analysis completed with this report Alternative I is the recommended alternative.

## 8.0 REFERENCES

1. DLNR Commission on Water Resource Management. *Ground Water Hydraulic Unit Map, Island of Molokai*, August 2008.
2. Warren S. Unemori Engineering, Inc. *Molokai Ranch, LTD. Water Transmission Replacement Line at Kalamaula, Naiwa, Hoolehua, Punakou, Molokai, Hawaii*, March 1996.
3. Tom Nance Water Resource Engineering. *Kaluakoi Potable Water System Improvements Located at: Molokai, Hawaii*, December 2002.
4. McGregor, Davianna Pomaikai, PhD, 2012. *Draft Cultural Impact Assessment: Continued Use of the Molokai Irrigation System to Transport Water from Well 17 to the West End of Molokai by Kaluakoi Water LLC Owned by Molokai Properties Limited, Kualapuu, Island of Molokai*, March 2012.
5. Santo, Lance T., Hawaii Agriculture Research Center, 2001. *Assessment and Improvement Recommendations for the Molokai Irrigation System*, October 2001.



# APPENDIX 1

Project: Draft Environmental Assessment – Molokai Properties Limited  
Date: July 06, 2012  
Alternative I

Purpose: To verify capacity in Kualapuu Reservoir and the MIS.

References:

Kualapuu Reservoir is at an elevation of 30' and can rise to 54'.  
The reservoir can hold 22 million gallons per foot.  
MPL maintains an 18 million gallon buffer.

Smallest pipe diameter = 26"  
Shallowest Slope = 0.005 ft/ft  
Capacity with MPL's Well 17 water = 4.5MGD = 6.96 cfs

Mannings Equation

$$Q = \frac{1.486}{n} A R^{\frac{2}{3}} S^{\frac{1}{2}} \quad n = \text{Ductile Iron} = 0.012$$

Calculations:

Reservoir Capacity

$$\frac{18\text{MG}}{22\text{MG/ft}} = 0.82 \text{ ft}$$

Reservoir will rise to 30.82' < 54' O.K.

Distribution System Capacity

$$Q = \frac{1.49}{0.012} [\pi(1.083)^2] \frac{(\pi(1.083)^2)^{2/3}}{(\pi(2.167))} (0.005)^{1/2}$$

$$Q = 21.48 \text{ cfs} = 13.88 \text{ MGD}$$

4.5MGD < 13.88 MGD O.K.

Summary:

The MIS and the Kualapuu Reservoir have sufficient capacity to continue to accommodate MPL water from Well 17.

Project: Draft Environmental Assessment – Molokai Properties Limited  
 Date: July 06, 2012  
 Alternative II

Purpose: To verify pipe sizes and pump capacity and operation.

References:

Elevation 1 (Well 17) = 1000'  
 Elevation 2 (Puunana) = 1380'  
 Length = 53,580'

Pump = 875 gmp/300 HP/1750 RPM  
 Diameter = 12", 8"

Allocated water = 1.018 MGD = 706.94 gpm = 1.575 cfs

Pump Capacity = 1.26 MGD = 875 gpm = 1.95 cfs

Bernoulli's Equation:

$$Z_1 + \frac{P_1}{\rho_g} + \frac{V_1^2}{2g} = Z_2 + \frac{P_2}{\rho_g} + \frac{V_2^2}{2g} + h_f - h_p$$

Assume reservoirs to be at atmospheric pressure and to have no velocity in the reservoir:

$$Z_1 + \cancel{\frac{P_1}{\rho_g}} + \cancel{\frac{V_1^2}{2g}} = Z_2 + \cancel{\frac{P_2}{\rho_g}} + \cancel{\frac{V_2^2}{2g}} + h_f - h_p$$

$$h_p = (Z_2 - Z_1) + h_f$$

Hazen-Williams Equation:

$$h_f = \frac{3.012 v^{1.85} L}{C^{1.85} D^{1.165}}$$

C = Ductile Iron = 140

Horse Power:

$$HP = \frac{(\rho_g)(h_p)(Q)}{550 (e)}$$

Assume pump efficiency to be 50%, e = 0.5  
 ρg of water = 62.4 lb/ft<sup>3</sup>

Calculations:

12" Diameter

$$Q = VA$$

$$1.95 \text{ cfs} = V (\pi (0.5)^2)$$

$$V = 2.48 \text{ ft/s}$$

$$h_f = \frac{3.012 (2.48)^{1.85} 53580}{(140)^{1.85} (1)^{1.165}}$$

$$h_f = 92.73'$$

$$h_p = (1380 - 1000) + 92.74$$

$$h_p = 472.74'$$

$$HP = \frac{(62.4) (472.74) (1.95)}{550 (0.5)}$$

$$HP = 209.17 < 300 \text{ HP O.K.}$$

8" Diameter

$$Q = VA$$

$$1.95 \text{ cfs} = V (\pi (0.33)^2)$$

$$V = 5.70 \text{ ft/s}$$

$$h_f = \frac{3.012 (5.70)^{1.85} 53580}{(140)^{1.85} (0.67)^{1.165}}$$

$$h_f = 689.46'$$

$$h_p = (1380 - 1000) + 689.46'$$

$$h_p = 1,069.46'$$

$$HP = \frac{(62.4) (1069.46) (1.95)}{550 (0.5)}$$

$$HP = 473.20 > 300 \text{ HP NOT O.K.}$$

Summary:

The 875 gpm/300 HP pump will work as the allocated amount of water is 706.94 gpm. The 12-inch pipe size is sufficient and is the recommended size.

Project: Draft Environmental Assessment – Molokai Properties Limited  
 Date: July 06, 2012  
 Alternative III

Purpose: To verify pipe sizes and pump capacity and operation.

References:

Elevation 1 (Well 17) = 1000'  
 Elevation 2 (Puunana) = 1380'  
 Length = 60,670'

Pump = 875 gmp/300 HP/1750 RPM  
 Diameter = 12", 8"

Allocated water = 1.018 MGD = 706.94 gpm = 1.575 cfs

Pump Capacity = 1.26 MGD = 875 gpm = 1.95 cfs

Bernoulli's Equation:

$$Z_1 + \frac{P_1}{\rho_g} + \frac{V_1^2}{2g} = Z_2 + \frac{P_2}{\rho_g} + \frac{V_2^2}{2g} + h_f - h_p$$

Assume reservoirs to be at atmospheric pressure and to have no velocity in the reservoir:

$$\cancel{Z_1} + \cancel{\frac{P_1}{\rho_g}} + \cancel{\frac{V_1^2}{2g}} = \cancel{Z_2} + \cancel{\frac{P_2}{\rho_g}} + \cancel{\frac{V_2^2}{2g}} + h_f - h_p$$

$$h_p = (Z_2 - Z_1) + h_f$$

Hazen-Williams Equation:

$$h_f = \frac{3.012 v^{1.85} L}{C^{1.85} D^{1.165}}$$

C = Ductile Iron = 140

Horse Power:

$$HP = \frac{(\rho_g)(h_p)(Q)}{550 (e)}$$

Assume pump efficiency to be 50%, e = 0.5  
 ρg of water = 62.4 lb/ft<sup>3</sup>

Calculations:

12" Diameter

$$Q = VA$$

$$1.95 \text{ cfs} = V (\pi (0.5)^2)$$

$$V = 2.48 \text{ ft/s}$$

$$h_f = \frac{3.012 (2.48)^{1.85} 60670}{(140)^{1.85} (1)^{1.165}}$$

$$h_f = 105.01'$$

$$h_p = (1380 - 1000) + 105.01'$$

$$h_p = 485.01'$$

$$HP = \frac{(62.4) (485.01) (1.95)}{550 (0.5)}$$

$$HP = 214.60 < 300 \text{ HP O.K.}$$

8" Diameter

$$Q = VA$$

$$1.95 \text{ cfs} = V (\pi (0.33)^2)$$

$$V = 5.70 \text{ ft/s}$$

$$h_f = \frac{3.012 (5.70)^{1.85} 60670}{(140)^{1.85} (0.67)^{1.165}}$$

$$h_f = 780.70'$$

$$h_p = (1380 - 1000) + 780.70'$$

$$h_p = 1,160.70'$$

$$HP = \frac{(62.4) (1160.70) (1.95)}{550 (0.5)}$$

$$HP = 513.58 > 300 \text{ HP NOT O.K.}$$

Summary:

The 875 gpm/300 HP pump will work as the allocated amount of water is 706.94 gpm. The 12-inch pipe size is sufficient and is the recommended size.

# APPENDIX 2

Alternative II Cost Estimate					
Item No.	Description	Quantity	Unit of Measure	Unit Price	Total Cost
	Unclassified Trench Excavation and Backfill	19822	CY	150.00	2,973,300.00
	12" Ductile Iron Pipe	53580	LF	70.00	3,750,600.00
	Reinforced Concrete Jacket w/CRM Pipe Protection	110	LF	500.00	55,000.00
	12" Concrete Jacket	94	LF	350.00	32,900.00
	4" Ductile Iron Pipe	40	LF	50.00	2,000.00
	12" Butterfly Valve & Box	3	EA	4000.00	12,000.00
	12" Gate Valve & Box	20	EA	2000.00	40,000.00
	6" Gate Valve & Box	2	EA	1000.00	2,000.00
	4" Gate Valve & Box	3	EA	920.00	2,760.00
	Air Relief Valve & Box	17	EA	2840.00	48,280.00
	Booster Pump	2	LS	250000.00	500,000.00
	Connection to Existing 12" Waterline	1	EA	10000.00	10,000.00
	Control Building	1	LS	200000.00	200,000.00
	Cast Iron Fittings	9670	LBS	5.00	48,350.00
	Concrete Reaction Blocks	150	CY	500.00	75,000.00
	Chlorination Building	1	LS	100000.00	100,000.00
	Well 17 Site Improvements	1	LS	550000.00	550,000.00
	A.C. Pavement Resurfacing	40	SY	50.00	2,000.00
	Erosion Control Measures	1	LS	100000.00	100,000.00
	Traffic Control Measures	1	LS	30000.00	30,000.00
CONSTRUCTION SUBTOTAL					8,534,190.00
Construction Contingencies @ 10 %					853,419.00
<b>TOTAL CONSTRUCTION</b>					<b>9,387,609.00</b>
<b>SAY</b>					<b>9,400,000.00</b>



Alternative III Cost Estimate					
Item No.	Description	Quantity	Unit of Measure	Unit Price	Total Cost
	Unclassified Trench Excavation and Backfill	22470	CY	150.00	3,370,500.00
	12" Ductile Iron Pipe	60670	LF	70.00	4,246,900.00
	Reinforced Concrete Jacket w/CRM Pipe Protection	160	LF	500.00	80,000.00
	12" Concrete Jacket	120	LF	350.00	42,000.00
	4" Ductile Iron Pipe	40	LF	50.00	2,000.00
	12" Butterfly Valve & Box	6	EA	4000.00	24,000.00
	12" Gate Valve & Box	24	EA	2000.00	48,000.00
	6" Gate Valve & Box	2	EA	1000.00	2,000.00
	4" Gate Valve & Box	3	EA	920.00	2,760.00
	Air Relief Valve & Box	21	EA	2840.00	59,640.00
	Booster Pump	2	LS	250000.00	500,000.00
	Connection to Existing 12" Waterline	1	EA	10000.00	10,000.00
	Control Building	1	LS	200000.00	200,000.00
	Cast Iron Fittings	10850	LBS	5.00	54,250.00
	Concrete Reaction Blocks	170	CY	500.00	85,000.00
	Chlorination Building	1	LS	100000.00	100,000.00
	Well 17 Site Improvements	1	LS	550000.00	550,000.00
	A.C. Pavement Resurfacing	40	SY	50.00	2,000.00
	Erosion Control Measures	1	LS	100000.00	100,000.00
	Traffic Control Measures	1	LS	30000.00	30,000.00
CONSTRUCTION SUBTOTAL					9,509,050.00
Construction Contingencies @ 10 %					950,905.00
<b>TOTAL CONSTRUCTION</b>					<b>10,459,955.00</b>
<b>SAY</b>					<b>10,500,000.00</b>

Alternative IV Cost Estimate					
Item No.	Description	Quantity	Unit of Measure	Unit Price	Total Cost
	Well Drilling	2,800	LF	850.00	2,380,000.00
	Well Pump Installation	2	EA	350,000.00	700,000.00
	Control Building	2	EA	230,000.00	460,000.00
	Plumbing System	2	EA	30,000.00	60,000.00
	Electrical Equipment/MCC SCADA	2	EA	500,000.00	1,000,000.00
	Desalination Plant	1.1	MGD	11,500,000.00	12,650,000.00
	12" Transmission Line including all appurtenances	21,200	LF	200.00	4,240,000.00
	Unclassified Trench Excavation and Backfill	7,850	CY	70.00	549,500.00
	Booster Pump including housing and all appurtenances	2	EA	1,000,000.00	2,000,000.00
CONSTRUCTION SUBTOTAL					24,039,500.00
Construction Contingencies @ 10 %					2,403,950.00
<b>TOTAL CONSTRUCTION</b>					<b>26,443,450.00</b>
<b>SAY</b>					<b>26,500,000.00</b>