ALAN M. ARAKAWA
Mayor

STEWART STANT
Director

MICHAEL M. MIYAMOTO
Deputy Director

MICHAEL RATTE
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

MAY 08 2018
FILE COPY

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

April 24, 2018

RECEIVED
'18 APR 25 P1:4
OFC. OF ENVIRONMENTAL QUALITY CONTROL

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

Dear Mr. Glenn:

SUBJECT: **TRANSMITTAL: DRAFT ENVIRONMENTAL ASSESSMENT FOR MOLOKAI INTEGRATED SOLID WASTE MANAGEMENT FACILITY**

With this letter, the County of Maui, Department of Environmental Management hereby transmits the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) for the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at Nā'iwa, Moloka'i, Hawai'i situated at (2)5-2-011:027 (por.), in Nā'iwa on the island of Moloka'i for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, one (1) copy of the DEA-AFONSI, and one (1) CD with three (3) Adobe Acrobat PDF files 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 our planning consultant, Charlene Shibuya of Munekiyo Hiraga at (808) 244-2015.

Sincerely,

for Stewart Stant,
Director of Environmental Management

Enclosures
cc: Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-Mehr, Inc.
Mark Alexander Roy, Munekiyo Hiraga

18-535

AGENCY
PUBLICATION FORM

Project Name:	Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at Nā'iwa, Moloka'i, Hawai'i
Project Short Name:	Molokai Landfill Improvements
HRS §343-5 Trigger(s):	Use of County funds
Island(s):	Moloka'i
Judicial District(s):	Moloka'i
TMK(s):	(2)5-2-011:027 (por.)
Permit(s)/Approval(s):	National Pollutant Discharge Elimination System General Permit (State of Hawai'i, Department of Health) Solid Waste Permit (State of Hawai'i, Department of Health) Community Noise Permit, as applicable (State of Hawai'i, Department of Health) Clean Air Branch Permit (State of Hawai'i, Department of Health) Grading and Grubbing Permit (County of Maui)
Proposing/Determining Agency:	County of Maui Department of Environmental Management
Contact Name, Email, Telephone, Address	Stewart Stant, Director environmental.mgmt@mauicounty.gov (808) 270-8230 2050 Main Street, Suite 2B Wailuku, Hawai'i 96793
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Munekiyo Hiraga
Contact Name, Email, Telephone, Address	Mark Alexander Roy, AICP planning@munekiyohiraga.com (808) 244-2015 305 High Street, Suite 104 Wailuku, Hawai'i 96793

Status (select one)	**Submittal Requirements**
__X__ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
____ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.

____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency 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 or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary

Provide a description of the proposed action and purpose and need in 200 words or less.

The County of Maui, Department of Environmental Management (DEM) proposes landfill-related improvements to the existing Moloka'i Integrated Solid Waste Management Facility in Na'iwa, Moloka'i, Hawai'i. The subject property is the sole municipal solid waste disposal facility serving the island of Moloka'i and is located on an approximately 38-acre portion of Tax Map Key (TMK) (2)5-2-011:027. The existing landfill cells (Phase 1 through 4) at the subject property utilizes approximately 11.6 acres and were opened for use in 1993, 1997, 2009, and 2014, respectively. These four (4) currently active landfill cells are projected to reach full capacity by mid-2020. The proposed improvements will include development and operation of Phase 5 and Phase 6 disposal cells, relocation of the existing green waste facility to a new location within the property, and other related improvements all within the existing, approved 38-acre facility. Phase 5 and Phase 6 disposal cells will provide additional capacity at the landfill to fulfill Moloka'i island's waste disposal needs up to the Year 2038.

Draft Environmental Assessment

PROPOSED MOLOKA'I INTEGRATED SOLID WASTE MANAGEMENT FACILITY IMPROVEMENTS AT NĀ'IWA, MOLOKA'I, HAWAI'I

(TMK (2)5-2-011:027 (por.))

Prepared for:

County of Maui,

Department of Environmental Management

April 2018

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by Munekiyo Hiraga

MUNEKIYO HIRAGA

Planning. Project Management. Sustainable Solutions.

Draft Environmental Assessment

PROPOSED MOLOKA'I INTEGRATED SOLID WASTE MANAGEMENT FACILITY IMPROVEMENTS AT NĀ'IWA, MOLOKA'I, HAWAI'I

(TMK (2)5-2-011:027 (por.))

Prepared for:

County of Maui,

Department of Environmental Management

April 2018

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MUNEKIYO HIRAGA

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List of Acronyms

AFONSI	Anticipated Finding of No Significant Impact
AIS	Archaeological Inventory Survey
ALISH	Agricultural Lands of Importance to the State of Hawai'i
AMSL	Above Mean Sea Level
BMPs	Best Management Practices
CAB	Clean Air Branch
CIA	Cultural Impact Assessment
COE	Corps of Engineers
CZM	Coastal Zone Management
DEM	Department of Environmental Management
DHHL	Department of Hawaiian Home Lands
DOFAW	Division of Forestry and Wildlife
DOH	Department of Health
DPL	Department of Planning
DPWWM	Department of Public Works and Waste Management
EA	Environmental Assessment
ECL	Early Consultation Letter
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEA	Final Environmental Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GIS	Geographic Information System
HAR	Hawai'i Administrative Rules
HCZMP	Hawai'i Coastal Zone Management Program
HEER	Hazard Evaluation and Emergency Response Office (DOH)
HHCA	Hawaiian Homes Commission Act
HRS	Hawai'i Revised Statutes
HUB3	Holomua Silt Loam
LCA	Land Commission Awards
LCRS	leachate collection and removal system
LUC	Land Use Commission
MCC	Maui County Code
MECO	Maui Electric Company, Ltd
MIP	Maui Island Plan
MISWMF	Moloka'i Integrated Solid Waste Management Facility
MKK	Moloka'i Airport
MSL	Mean Sea Level
MSWLF	Municipal Solid Waste Landfills
NFIP	National Flood Insurance Program
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OEQC	Office of Environmental Quality Control
rVT2	Very Stony Land
SCS	Scientific Consultant Services, Inc.

SDOT	State Department of Transportation
SDWB	Safe Drinking Water Branch
SHPD	State Historic Preservation Division
SIP	State Implementation Plan
SMA	Special Management Area
SP	Special Permit
SRF	State Revolving Fund
TAM	Technical Assistance Memorandum
TMK	Tax Map Key
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Executive Summary

Project Name:	Proposed Molokaʻi Integrated Solid Waste Management Facility Improvements at Nāʻiwa
Type of Document:	Draft Environmental Assessment
Legal Authority:	Chapter 343, Hawaiʻi Revised Statutes
Anticipated Determination:	Anticipated Finding of No Significant Impact (AFONSI)
Applicable Environmental Assessment review "Trigger":	Use of County Funds
Location:	Molokaʻi Island Molokaʻi Landfill Access Road (via Maunaloa Highway), Nāʻiwa, Molokaʻi, Hawaiʻi TMK No. (2)5-2-011:027 (por.)
Landowner:	Cooke Land Company Inc. P.O. Box 259 Maunaloa, Hawaiʻi 96770
Approving Agency:	County of Maui Department of Environmental Management 2050 Main Street, Suite 2B Wailuku, Hawaiʻi 96793 Contact: Stewart Stant, Director Phone No. (808) 270-8230
Consultant:	Munekiyo Hiraga 305 High Street, Suite 104 Wailuku, Hawaiʻi 96793 Contact: Mark Alexander Roy, AICP Phone: (808) 244-2015
Project Summary:	The County of Maui, Department of Environmental Management (DEM) proposes landfill-related improvements at the existing Molokaʻi Integrated Solid Waste Management Facility (MISWMF), west of Maunaloa Highway in Nāʻiwa, Molokaʻi, Hawaiʻi. The subject property is the sole municipal solid waste disposal facility serving the island of Molokaʻi and is located on an approximately 38-acre portion of Tax Map

Key (TMK) (2)5-2-011:027. In addition to providing disposal services, the subject property also provides important waste diversion and recycling services pursuant to the County's Integrated Solid Waste Management Plan.

The existing landfill footprint (active phases) at the subject property occupies approximately 11.6 acres of the 38-acre MISWMF property. Phase 1, Phase 2, Phase 3, and Phase 4 disposal landfill cells were opened for use in 1993, 1997, 2009, and 2014, respectively. These four (4) currently active landfill cells are projected to reach full capacity by mid-2020.

The proposed project includes completion of the facility master plan through the development and operation of Phase 5 and Phase 6 disposal cells, relocation of the existing green waste facility to a new location within the existing 38-acre property, and other related improvements. The proposed action will provide additional capacity at the existing landfill, which will allow solid waste generated on Moloka'i island to be accommodated up to the Year 2038 (based on the current municipal disposal rate).

The project site is not located within the County of Maui's Special Management Area (SMA). The subject property is located within the State's Agriculture District. The State of Hawai'i, Land Use Commission (LUC) issued a Special Permit in May 1993 to establish the MISWMF.

The proposed improvements will be funded by the County of Maui. The use of County funds is a trigger for the preparation of an Environmental Assessment (EA) pursuant to Chapter 343, Hawai'i Revised Statutes (HRS), and Title 11, Chapter 200, Hawai'i Administrative Rules (HAR). As such, an EA is being prepared to evaluate the potential impacts of the proposed improvements. The proposing and determining agency for the EA is the County of Maui, DEM. Funding from the State of Hawai'i's Clean Water State Revolving Fund (SRF) will be utilized for the project. As such, compliance with applicable Federal cross-cutter requirements will also be addressed during the Chapter 343 environmental review process.

PROJECT OVERVIEW

I. PROJECT OVERVIEW

A. PROJECT LOCATION, EXISTING USE AND OWNERSHIP

The Moloka'i Integrated Solid Waste Management Facility in Nā'iwa (hereinafter referred to as "subject property" or "MISWMF") is located on the island of Moloka'i, just off the Maunaloa Highway on an approximately 38-acre portion of Tax Map Key (TMK) (2)5-2-011:027 (Parcel 27). See **Figure 1** and **Figure 2**. The property is located approximately three (3) miles northwest of Kaunakakai and approximately 1.25 miles inland with elevations spanning between approximately 200 to 250 feet above Mean Sea Level (MSL).

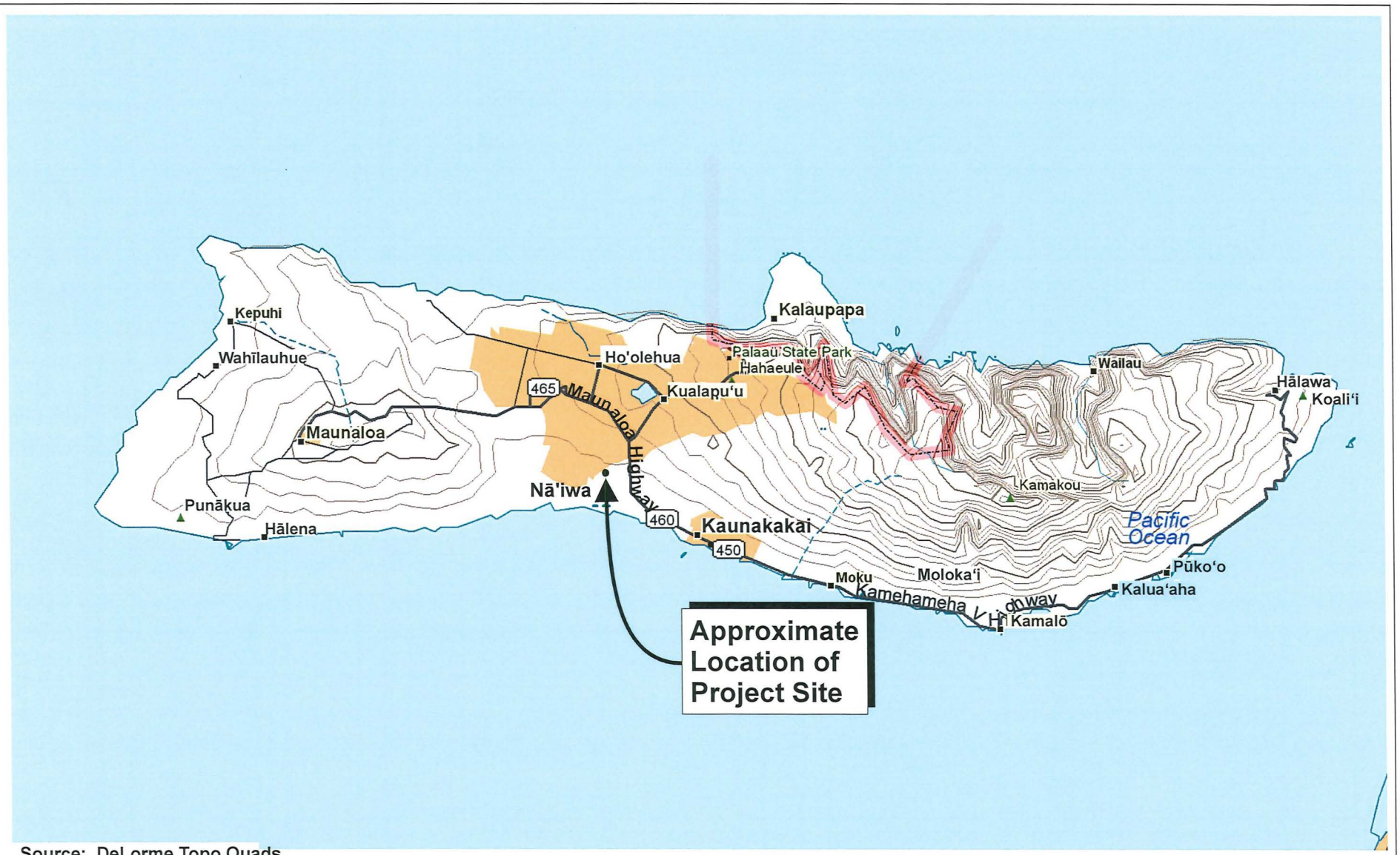
The subject property is the sole municipal solid waste disposal facility serving Moloka'i. In addition to providing disposal services, the subject property also provides important waste diversion and recycling services pursuant to the County's Integrated Solid Waste Management Plan. The landfill entrance area includes a recycling center for glass, aluminum, and plastic containers received under the HI-5 recycling program, and other materials including cardboard, newspaper, glass, and used motor oil. Green waste is accepted, stored, and periodically shredded for use as mulch onsite or is provided free to residents. Moloka'i Metals is a separate facility that accepts and processes scrap vehicles, white goods, and other scrap metal for storage and recycling. See **Figure 3**.

While the facility itself is operated by the County of Maui, the subject property is owned by Cooke Land Company Inc.

B. PROJECT NEED

In conformance with State of Hawai'i, Department of Health (DOH) requirements, the County of Maui, Department of Environmental Management (DEM) retained A-Mehr, Inc. to evaluate existing conditions at the subject property and prepare a master plan to guide ongoing improvements at the subject property and to ensure ongoing compliance with applicable solid waste management regulations into the future. The Preliminary Engineering and Master Plan has been prepared and updated in coordination with the County Integrated Solid Waste Management Plan. See **Appendix "A"**.

The existing landfill footprint (active phases) at the subject property is approximately 11.6 acres. To date, the areas designated as Phases 1, 2, 3, and 4, consisting of approximately 11.6 acres, are being filled with solid waste to an approved final elevation of 290 feet above sea level, approximately 50 feet above surrounding terrain. Phase 1, Phase 2, Phase 3, and Phase 4 were opened by the County of Maui for use in 1993, 1997, 2009, and 2014, respectively. These four (4) currently active landfill cells are projected to reach full capacity by mid-2020. Completion of the proposed improvements assessed herein



Source: DeLorme Topo Quads

Figure 1

MISWMF Improvements
Regional Location Map

NOT TO SCALE

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\regionallocation

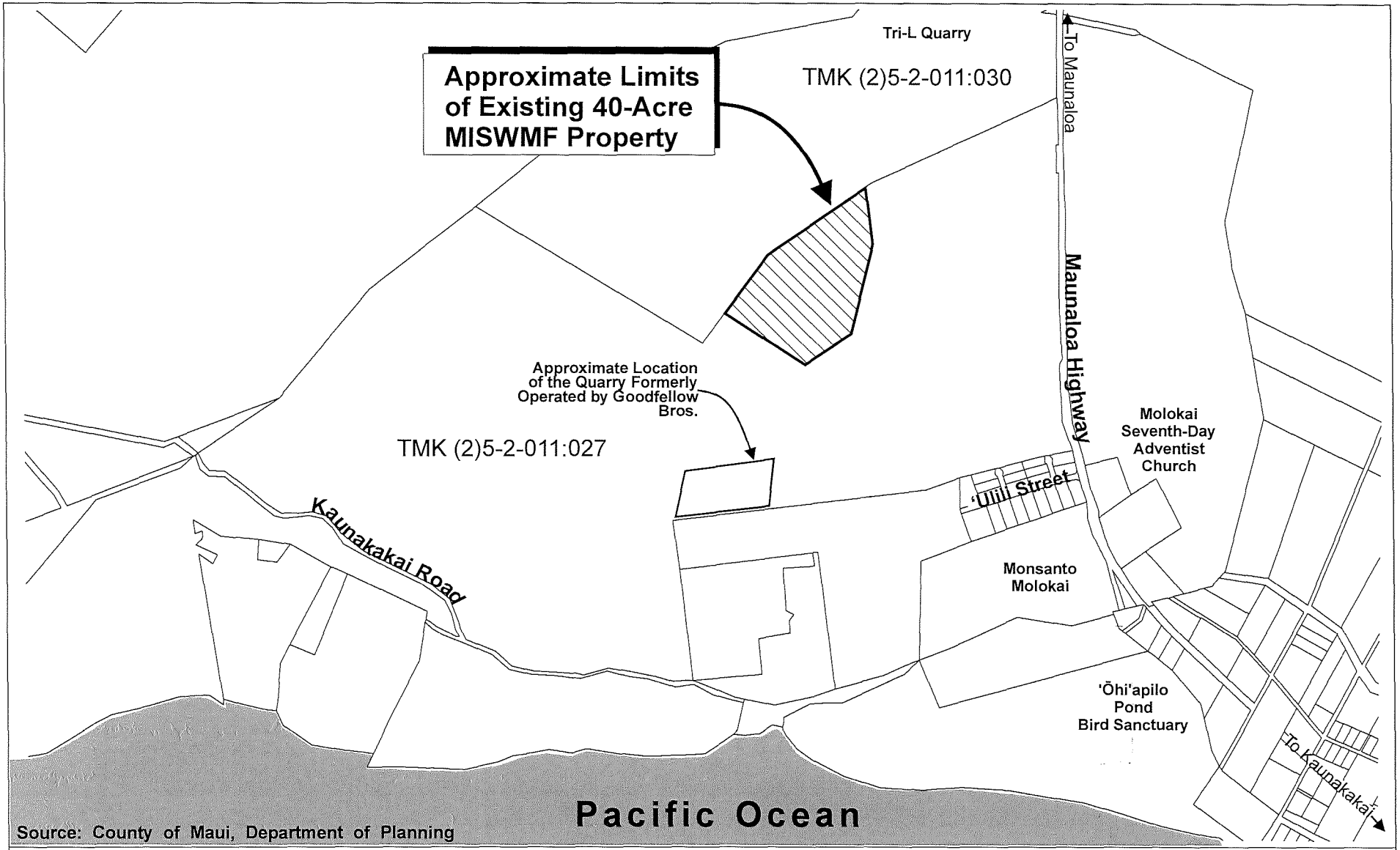


Figure 2

MISWMF Improvements
Property Location Map

0 375 750 1500 Feet

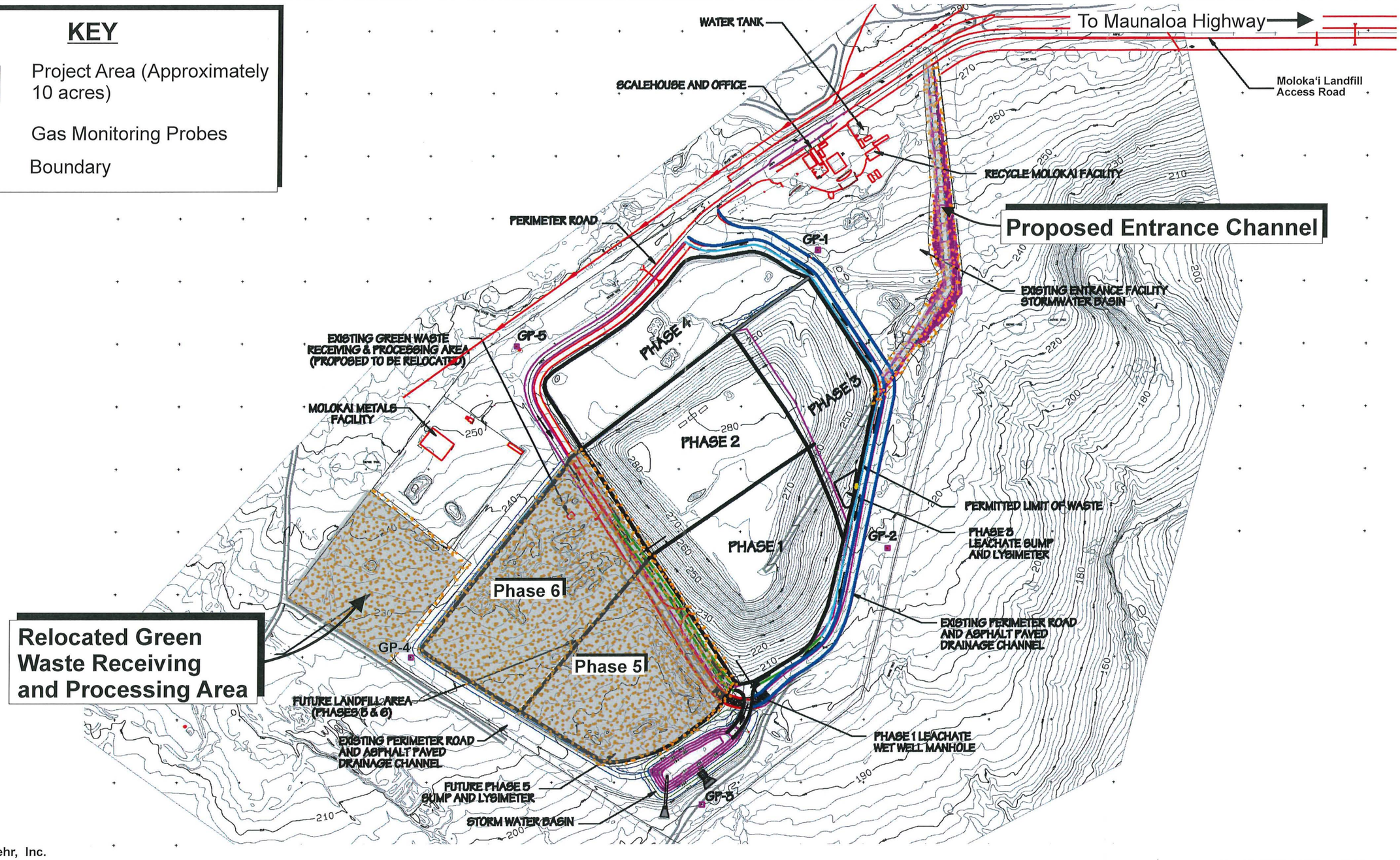
Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\PropertyLocationMap

KEY

- Project Area (Approximately 10 acres)
- Gas Monitoring Probes
- Boundary



Source: A-Mehr, Inc.

Figure 3

MISWMF Improvements
Site Plan

NOT TO SCALE

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\Site Plan (Draft EA)

have been identified as necessary to meet the anticipated disposal capacity needs of the island's community beyond mid-2020.

C. PROPOSED ACTION

1. Background

As mentioned above, the development and operation of Phase 5 and Phase 6 (in the vicinity of the existing green waste recycling facility) at the subject property are being undertaken by DEM as a necessary improvement to accommodate the future disposal needs of the island beyond 2020. The inclusion of Phase 5 and Phase 6 will provide additional capacity at the landfill to fulfill Moloka'i island's waste disposal needs up to the Year 2038. The addition of Phases 5 and 6 disposal cells will add approximately 3.1 acres and 3.7 acres of lined area to the existing landfill footprint, respectively, bringing the permitted landfill footprint from 11.6 acres (a cumulative capacity of 463,600 cubic yards) to the originally planned approximately 18.4 acres (a cumulative capacity of 815,200 cubic yards). The County is planning to submit applications to the DOH to permit Phase 5 and Phase 6 for use as a future solid waste disposal area.

2. Scope of Proposed Improvements

The following is a summary of the specific improvements (hereafter referred to collectively as the "proposed action") that will be undertaken as part of this project, which will utilize approximately a 10-acre portion of the 38-acre subject property (hereinafter referred to as "project site"). Refer to **Figure 3**.

1. Development and operation of Phase 5 and Phase 6 disposal cells with composite liner systems, a leachate collection and removal system (LCRS), and an internal lined leachate collection sump to ensure environmental integrity. Based on the disposal requirements, development of Phases 5 and 6 is proposed as two (2) construction projects beginning with the development of Phase 5 projected to commence in Fiscal Year (FY) 2019, and continuing with the development of Phase 6 in FY 2024.

2. Relocation of the existing green waste facility to a new location within the property. The existing green waste facility currently resides within the limits of the proposed Phase 6 area. DEM plans to relocate the facility to the west of the Moloka'i Metals Facility prior to developing Phase 6. Refer to **Figure 3**.

3. Related improvements including installation of permanent fencing, and, perimeter drainage and road improvements. An entrance channel will also

be installed to convey run-off from the entrance facility area of the subject property to an existing stormwater basin located in the southern corner of the site adjacent to the Phase 5 disposal cell.

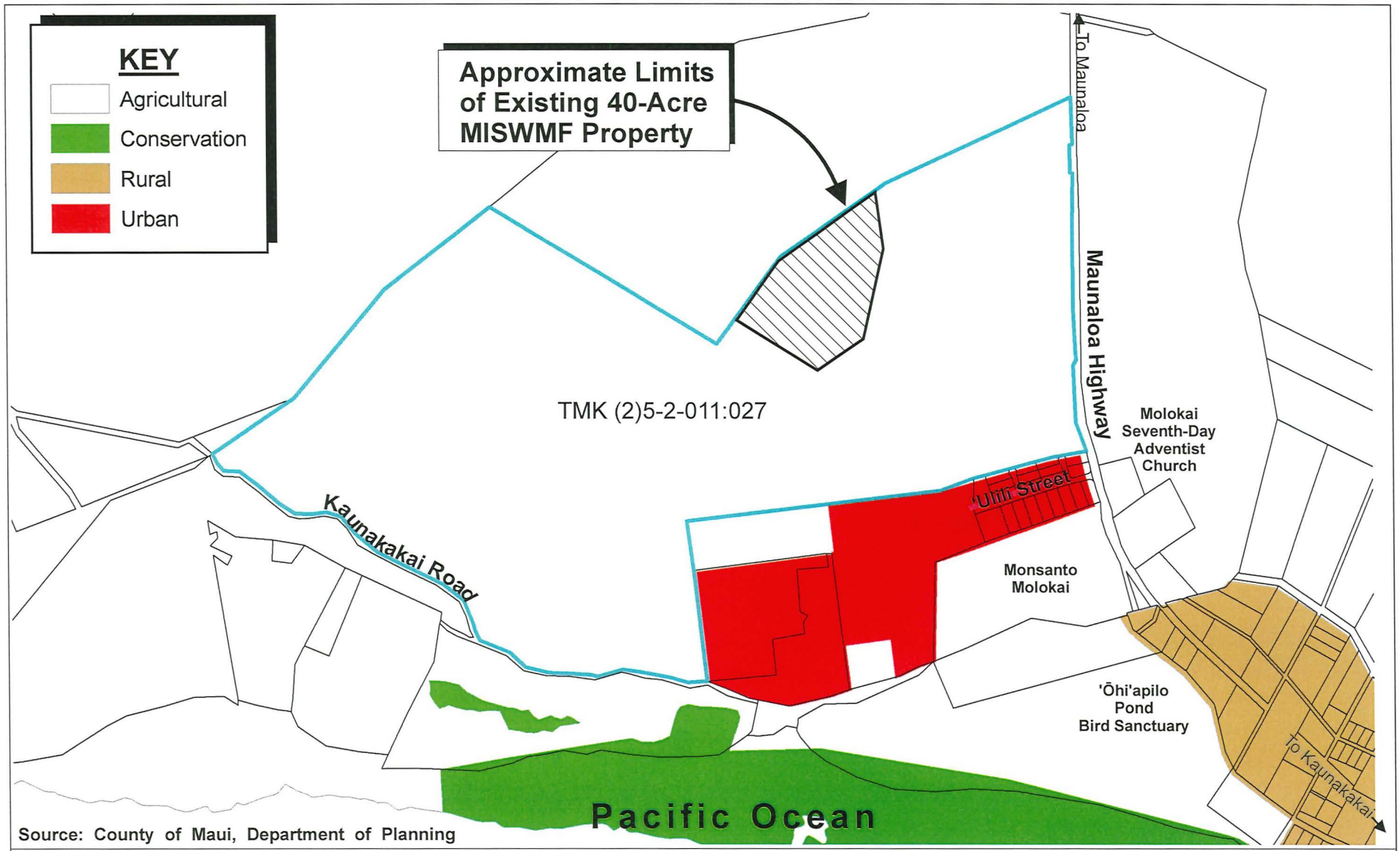
A copy of the project plans is presented in **Appendix "B"**.

D. LAND USE ENTITLEMENTS AND REGULATORY APPROVALS

The proposed action will be funded by the County of Maui. The use of County funds is a trigger for the preparation of an Environmental Assessment (EA) pursuant to Chapter 343, Hawai'i Revised Statutes (HRS) and Title 11, Chapter 200, Hawai'i Administrative Rules (HAR). A Final EA was prepared in 1993 for the subject property, which covered the establishment and operation of the existing approximately 38-acre facility. A Negative Declaration (Finding of No Significant Impact) for the project was published in the January 25, 1993 Office of Environmental Quality Control (OEQC) Bulletin. Although the entire 38-acre landfill facility was assessed in 1993, only Phase 1, Phase 2, Phase 3, and Phase 4 disposal landfill cells were opened thus far. To ensure the MISWMF continues to provide the critical solid waste and recycling services through its remaining service life, the County retained A-Mehr, Inc. to develop a Preliminary Engineering Report and Master Plan Improvement for the ongoing development and operation of the MISWMF. Refer to **Appendix "A"**. This new EA for the improvements presented herein will be prepared to evaluate the technical characteristics, environmental impacts, and alternatives, as well as to advance findings relative to the significance of the proposed action. The Approving Agency for the EA will be the DEM.

Monies from the State of Hawai'i's Clean Water State Revolving Fund (SRF) may also be utilized for the project. As such, compliance with applicable Federal cross-cutter requirements will also be addressed during the Chapter 343 environmental review process.

The approximately 38-acre subject property is located within the State's Agricultural District. See **Figure 4**. A Special Permit was issued in May 1993 by the State of Hawai'i, Land Use Commission to establish the subject property. See **Appendix "C"**. A Solid Waste Management Permit for the subject property was issued by DOH in October 1993 in conjunction with disposal operations beginning in the Phase 1 disposal cell. The MISWMF is currently covered by Department of Health Solid Waste Management and National Pollution Discharge Elimination System Permits. The subject property is designated "Public/Quasi-Public" by the Moloka'i Community Plan and "Interim" by Maui County Zoning. See **Figure 5**. The subject property is not located within the County of Maui's Special Management Area (SMA). See **Figure 6**.



Source: County of Maui, Department of Planning

Figure 4

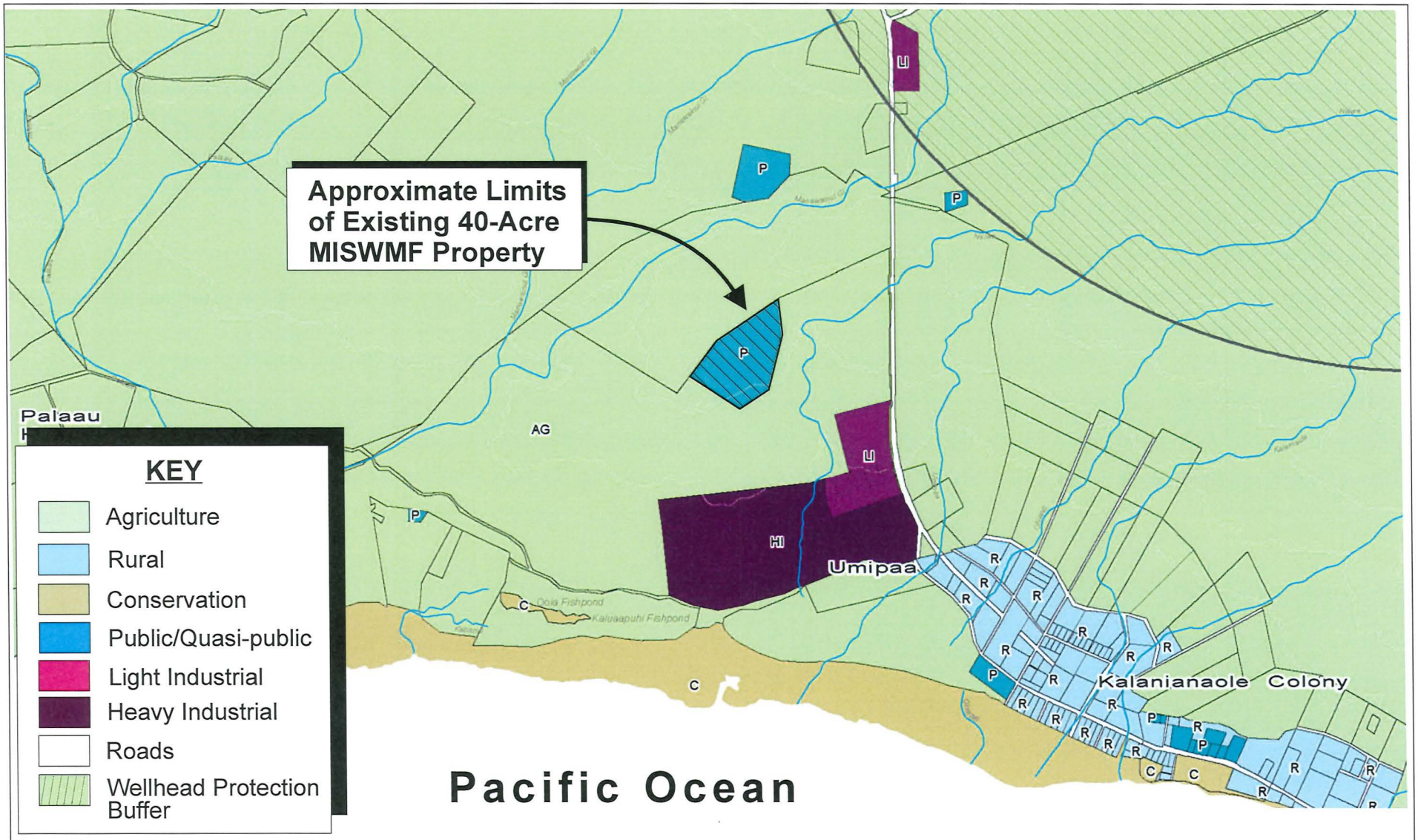
MISWMF Improvements
State Land Use Districts

0 750 Feet
375 1500

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\SLUD



Source: County of Maui, Molokai Community Plan

Figure 5

MISWMF Improvements
Moloka'i Community Plan Map

NOT TO SCALE

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\MolokaiCommunityPlanMap (REV)

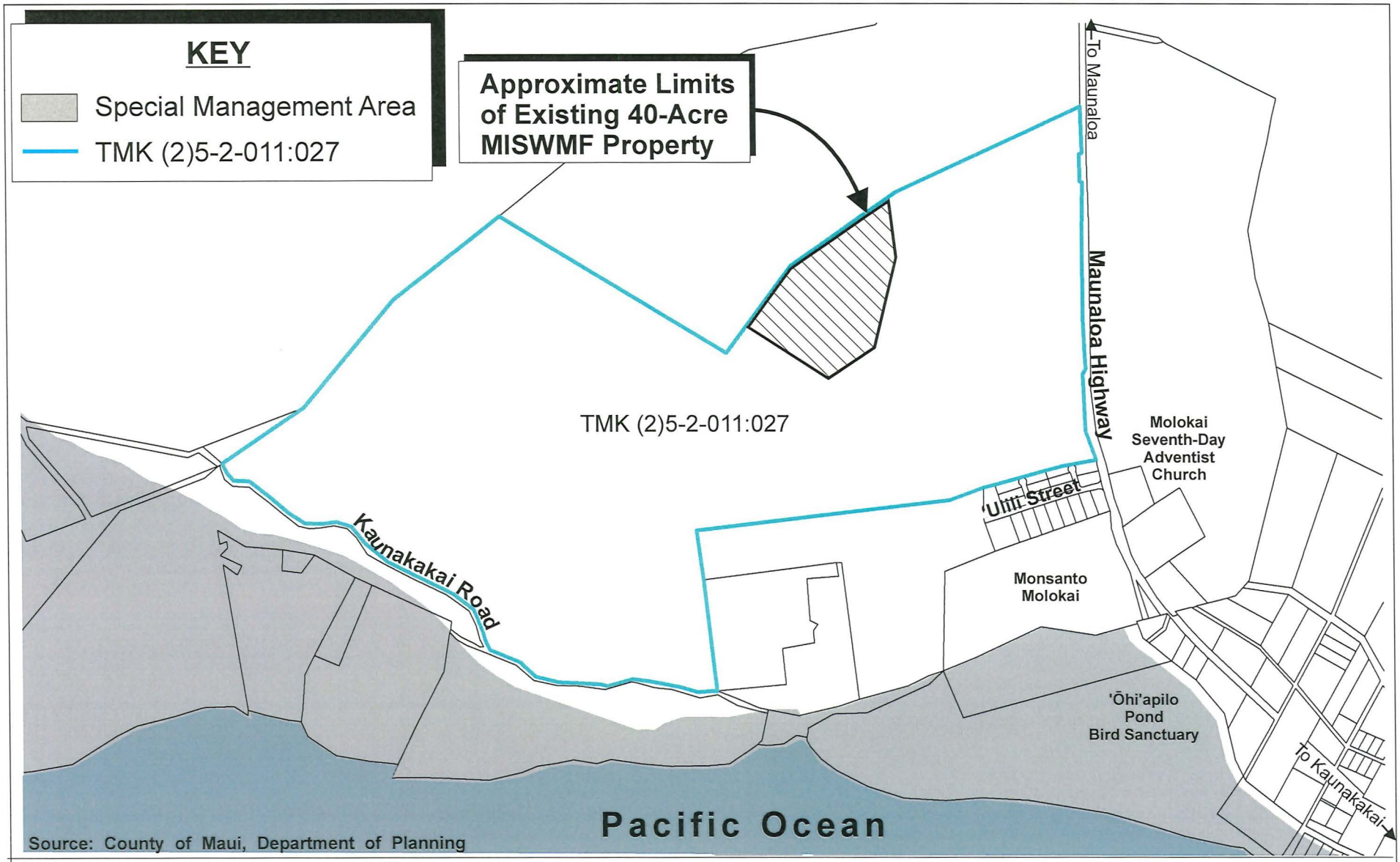


Figure 6

MISWMF Improvements
Special Management Area Map

0 375 750 1500 Feet

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\SMAMap

E. PROJECT FUNDING AND SCHEDULING

The total cost for the proposed action is estimated to be approximately $6.5M, including design, permitting, construction, and construction quality assurance. Based on projected disposal requirements, development of Phases 5 and 6 is proposed as two (2) construction projects beginning with the projected development of Phase 5 in FY 2019 and continuing with the development of Phase 6 in FY 2024.

DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS, AND PROPOSED MITIGATION MEASURES

II

II. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS, AND PROPOSED MITIGATION MEASURES

A. PHYSICAL SETTING

1. Surrounding Land Uses

a. Existing Conditions

The subject property is located just off the Maunaloa Highway in Nā'iwa. Access to the site is available from the Moloka'i Landfill Access Road running westerly from the Maunaloa Highway. The site is located northwest of Kaunakakai, the largest town on the island of Moloka'i and is about a 10 minute drive from the town.

The subject property is surrounded by vacant bushland, which character is typical of the Central Moloka'i Isthmus. Two (2) quarries are located in the vicinity of the subject property. Tri-L is an active quarry located to the northeast of the subject property on parcel TMK (2)5-2-011:030 (por.). The second quarry located to the south of the MISWMF is closed and lies within the same property parcel of the MISWMF (TMK (2)5-2-011:027). Refer to **Figure 2**.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action does not propose an increase in the daily or annual permitted disposal tonnage from the current levels and is limited to the continued operation of the existing landfill disposal cells and recycling/diversion activities. The additional development and operation of the Phase 5 and Phase 6 disposal cells, relocation of the green waste facility, and related improvements will be located within a 10-acre portion of the approved boundary of the 38-acre subject property. The Green Waste facility currently resides in the proposed Phase 6 location. The County plans to relocate the Green Waste facility to the west of the Moloka'i Metals Facility prior to developing Phase 6. Refer to **Figure 3**.

The four (4) currently active landfill cells are projected to reach full capacity by mid-2020, and the proposed action will provide necessary disposal capacity for the island of Moloka'i through the Year 2038. As the proposed action does not include an increase to the permitted daily or annual

disposal tonnage from the current permitted levels, the proposed improvements are not anticipated to present any significant adverse or additional impacts on surrounding land uses.

2. Climate, Topography, and Soils

a. Existing Conditions

Hawai'i's tropical location results in uniform weather conditions throughout the year. Climatic conditions on Moloka'i are characterized by mild and consistent year round temperatures, moderate humidity and steady northeasterly tradewinds. Variations in Moloka'i's weather are attributed to regional topographic and climatic conditions.

The proposed project is located on the Ho'olehua Plain, the central isthmus that joins the East Moloka'i Volcano and West Moloka'i Volcano. The site is on mildly sloping lands between the 280 and 220 topographic contours. The slope is from north to south at approximately six (6) percent. North of the site approximately 2,000 feet away is the Manawainui Gulch, and a smaller unnamed gulch is situated to the east of the subject property.

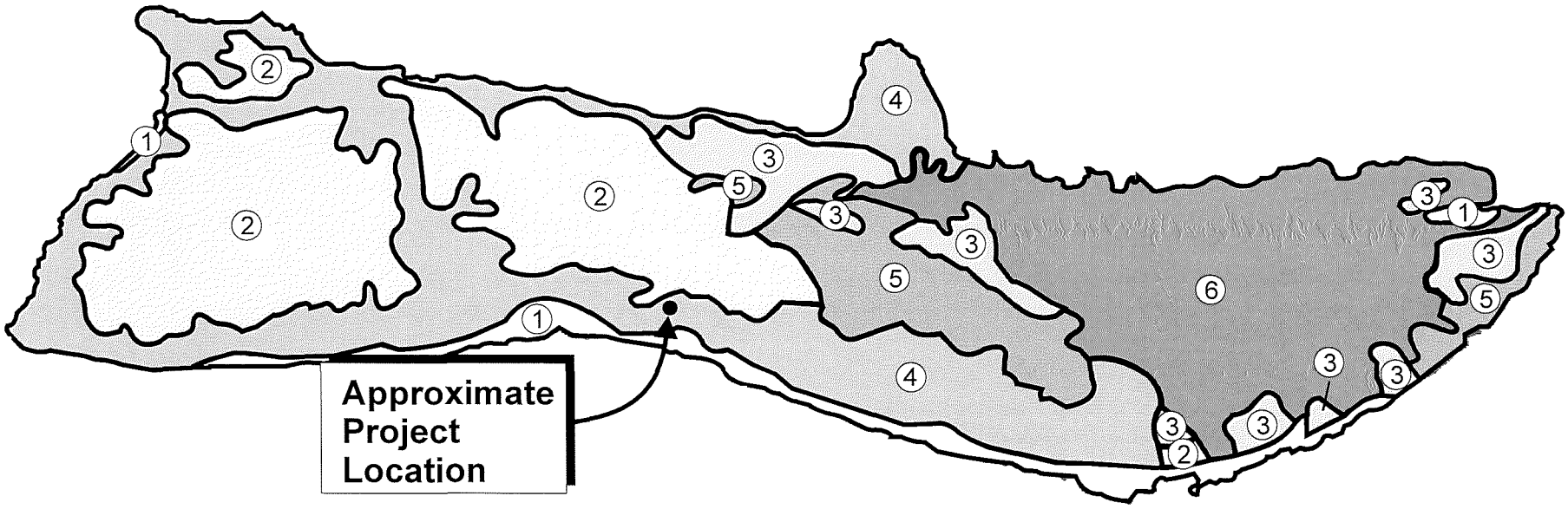
Annual rainfall in 2016 was approximately 14.96 inches in Nā'iwa as measured at Moloka'i Airport. The months of October through March are typically the wetter periods of the year, with April through September being typically the drier months. On average, January is the wettest month with 4.44 inches and June the driest month with 0.52 inch of rainfall. Mean temperatures in the area range from a low of 63.1 degrees Fahrenheit in February and a high of 85.4 degrees Fahrenheit in September (Maui County Data Book, 2016).

Wind conditions are predominantly characterized by northeasterly tradewinds. However, as these winds round the eastern tip of the island and veer west at the southern coast, they blow in an easterly direction.

Underlying the subject property site are soils belonging to the Very Stony Land-Rock Land Association. See **Figure 7**. The Very Stony Land-Rock Land Association is characterized by gently sloping to very steep, stony and rocky land on uplands and in gulches and valleys on the island of Moloka'i (U.S. Department of Agriculture, Soil Conservation Service, 1972).

LEGEND

① Jaucas-Mala-Pulehu Association	④ Very stony land-Rock land Association
② Molokai-Lahaina Association	⑤ Rough broken land-Oli Association
③ Kahanui-Kalae-Kanepuu Association	⑥ Rough mountainous land-Amalu-Olokui Association



Source: U.S. Department of Agriculture, Soil Conservation Service

Figure 7

MISWMF Improvements
Soil Association Map

NOT TO SCALE

MUNEKIYO HIRAGA

Prepared for: County of Maui, Department of Environmental Management

COM\DEM Molokai ISWMF LF\Applications\Figures\SoilAssociationMap

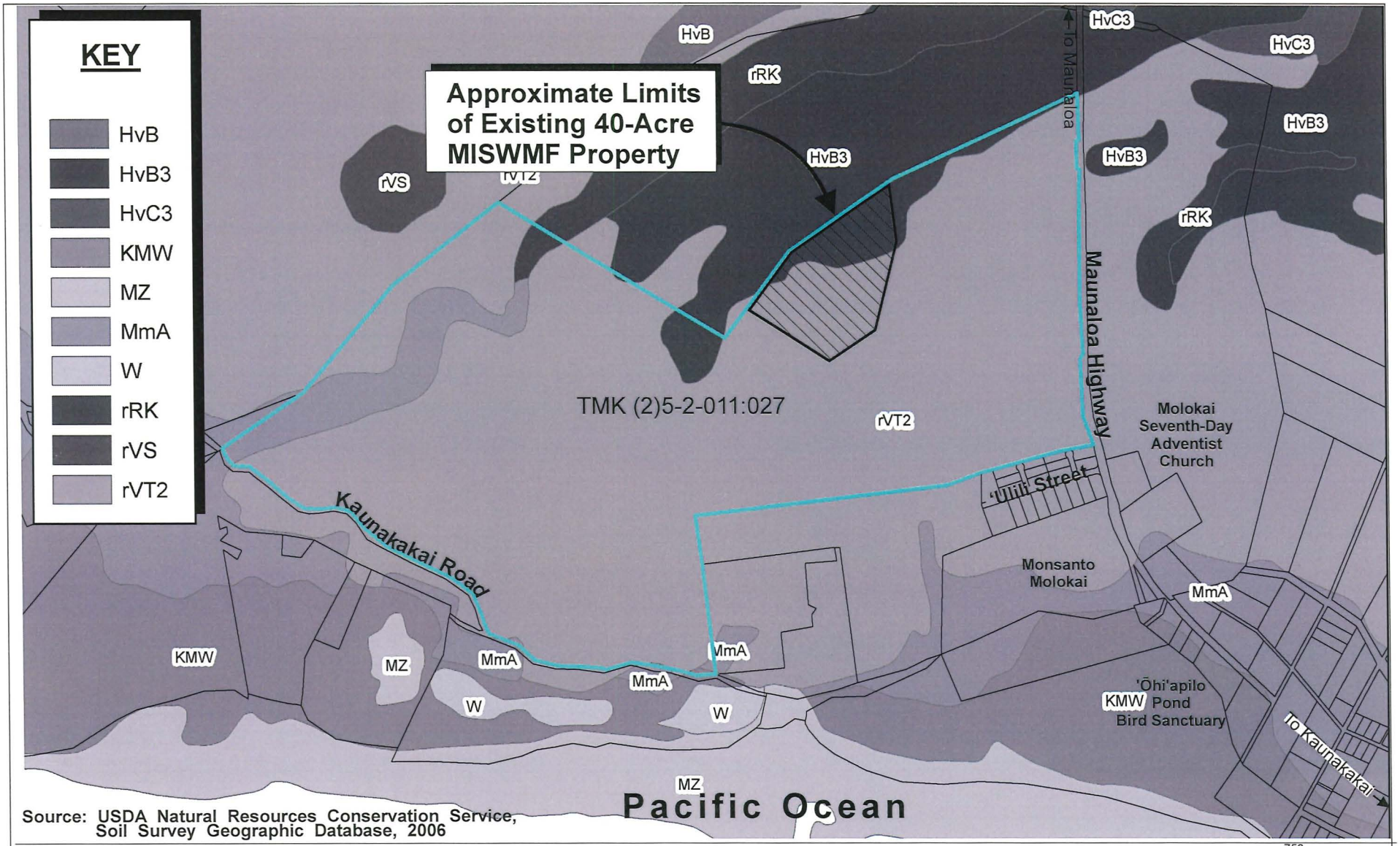
The site is characterized by two (2) distinct soil series. These are Holomua Silt Loam, 3 to 7 percent slopes, severely eroded (HvB3) and Very stony land, eroded (rVT2) (Parametrix, Inc.,1993). See **Figure 8**.

HvB3 consists of well drained soils on uplands on the island of Moloka'i. These soils developed in volcanic ash and material weathered from andesite rock. They are nearly level to strongly sloping. The elevation ranges from 100 to 1,000 feet, but in most places it is less than 500 feet. These soils are used for pineapple, pasture, truck crops, and wildlife habitat. The natural vegetation consists of kiawe, uhaloa, ilima, pili grass, and feather finger grass.

rVT2 consists of large areas of severely eroded soils on Moloka'i and Lāna'i. About 50 to 70 percent of the surface is covered with stone and boulders. There are common shallow gullies and a few deep gullies. The soil material is like that of the Holomua, Moloka'i, Pāmoa, and Waikapu soils. In most places, it is less than 24 inches deep to bedrock, but it is deeper in a few low-lying areas. Slopes are mainly 7 to 30 percent, but they range from 3 to 40 percent. These areas are used for pasture and wildlife habitat. Improvements for pasture is difficult due to the many stones and gullies, and in many areas, the carrying capacity is very low. The habitat is excellent for axis deer, and with little improvement, excellent habitat for game birds can be established (U.S. Department of Agriculture Soil Conservation Service, 1972).

The State Department of Agriculture has established three (3) categories of Agricultural Lands of Importance to the State of Hawai'i (ALISH). The ALISH system classifies lands into "Prime", "Unique", and "Other Important Agricultural Land". The remaining lands are "Unclassified".

Utilizing modern farming methods, "Prime" agricultural lands have the soil quality, growing season, and moisture supply needed to produce sustained crop yields economically, while "Unique" agricultural lands possess a combination of soil quality, location, growing season, and moisture supply currently used to produce sustained high yields of a specific crop. "Other Important Agricultural Land" includes those which have not been rated as "Prime" or "Unique". The subject property, located on land in the midst of the Ho'olehua Plain, approximately 1.25 miles inland from the south coast of the island of Moloka'i, is not classified within the ALISH rating system. See **Figure 9**.



Source: USDA Natural Resources Conservation Service, Soil Survey Geographic Database, 2006

Figure 8

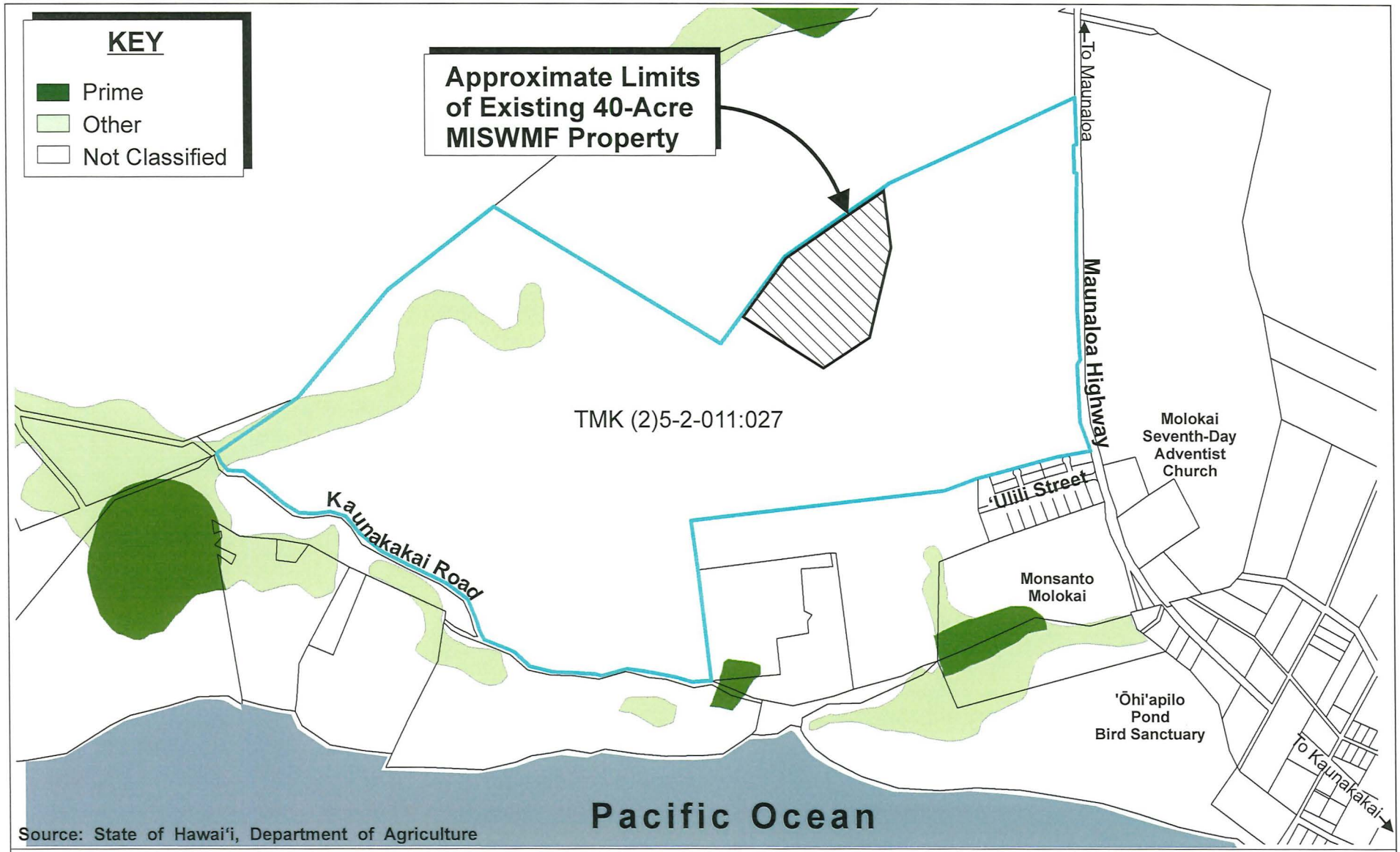
MISWMF Improvements
Soil Classification Map

750
0 Feet
375 1500

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\SoilsClassificationMap



Source: State of Hawai'i, Department of Agriculture

Figure 9

MISWMF Improvements
Agricultural Lands of Importance to the State of Hawai'i

0 375 750 1500 Feet

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\ALISH

The Land Study Bureau's Detailed Land Classification rates the agricultural suitability of soils. A 5-class productivity rating scale is applied using letters A, B, C, D, and E, with A representing lands of the highest productivity, or very good, and E the lowest, or very poorly suited for agricultural production. The Land Study Bureau identifies the land underlying the project site as E, indicating that the land is very poorly suited for agricultural production. See **Figure 10**.

b. Potential Impacts and Proposed Mitigation Measures

In order to avoid potential impacts to underlying soil conditions, the proposed action incorporates use of a composite liner system, a leachate collection and removal system (LCRS) and an internal lined leachate collection sump to ensure environmental integrity and prevent leachate from permeating into the underlying soils.

Further, appropriate Best Management Practices (BMPs) will be implemented during construction to mitigate impacts from excavation activities (e.g., dust fence, silt fences, watering for dust control).

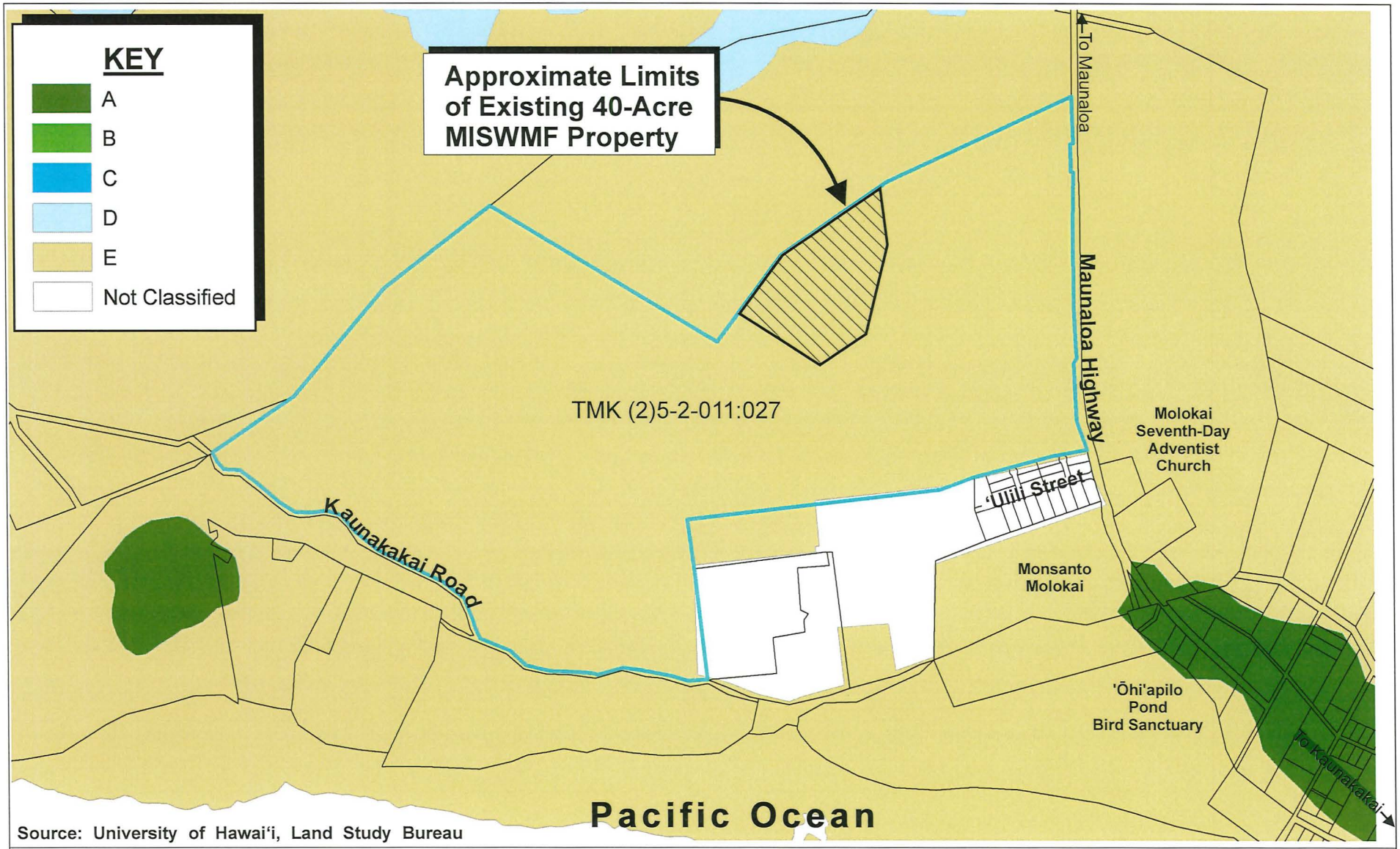
Given the foregoing, the proposed action is not anticipated to present any significant adverse impacts on climatic, topographic, or soils conditions in the region.

3. Flood and Tsunami Hazards

a. Existing Conditions

According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), the proposed action on the subject property is located entirely in Flood Zone X (1500030170F - November 4, 2015, 1500030180E - September 25, 2009, 1500030186F - November 4, 2015, 1500030190E, September 4, 2009). Flood Zone X in the vicinity of the project area represents a Non-Special Flood Hazard Area that bears a low-to-moderate risk of flooding. See **Figure 11**.

The proposed action at the subject property is not located within the tsunami evacuation zone. See **Figure 12**. The landfill site is situated at an elevation between 220 and 280 feet above sea level. Therefore, the tsunami evacuation zones are located well below the project site approximately 3,000 feet away.



Source: University of Hawai'i, Land Study Bureau

Figure 10

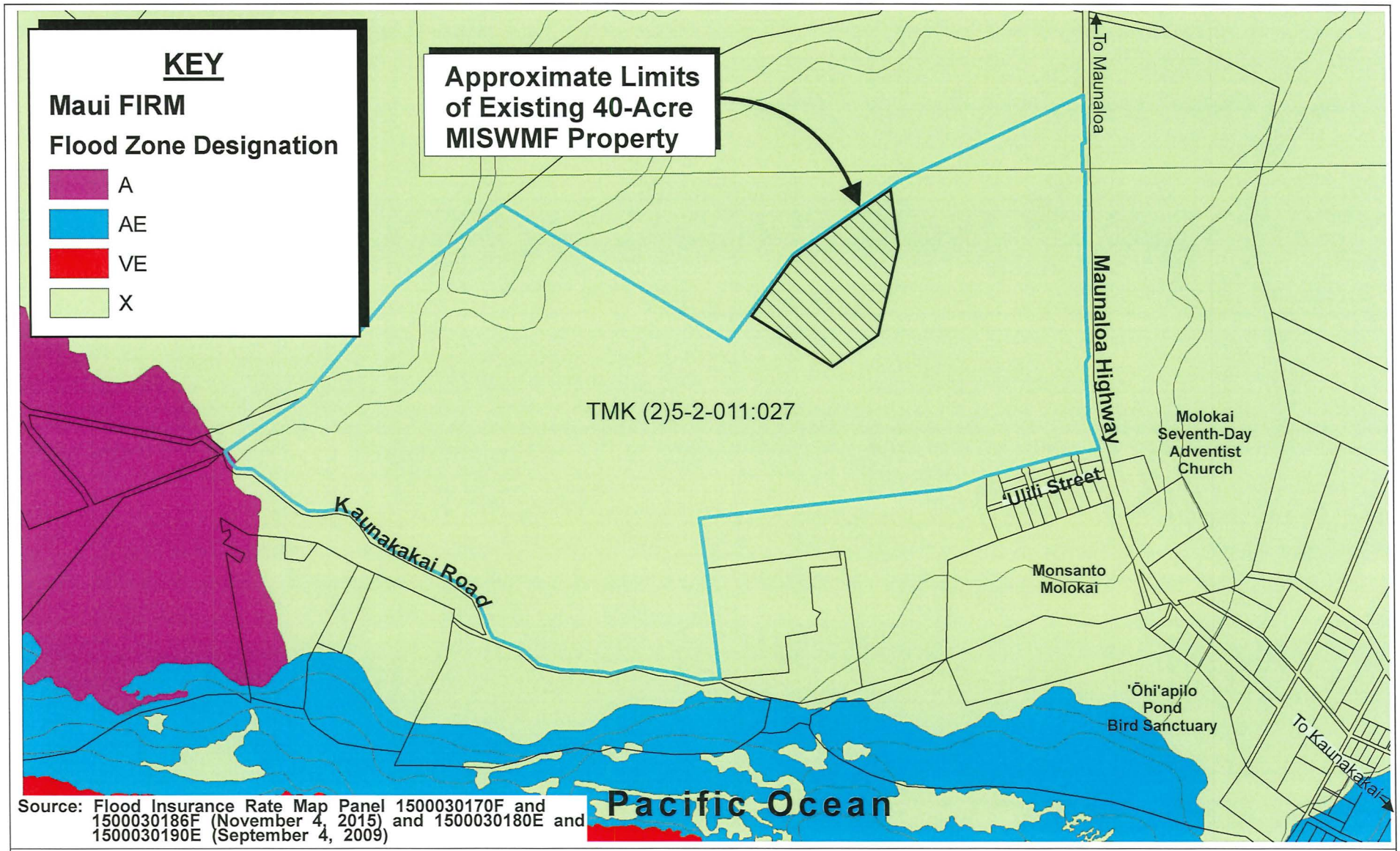
MISWMF Improvements
Land Study Bureau Map

0 375 750 1500 Feet

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\LandStudyBureauMap



Source: Flood Insurance Rate Map Panel 1500030170F and 1500030186F (November 4, 2015) and 1500030180E and 1500030190E (September 4, 2009)

Figure 11

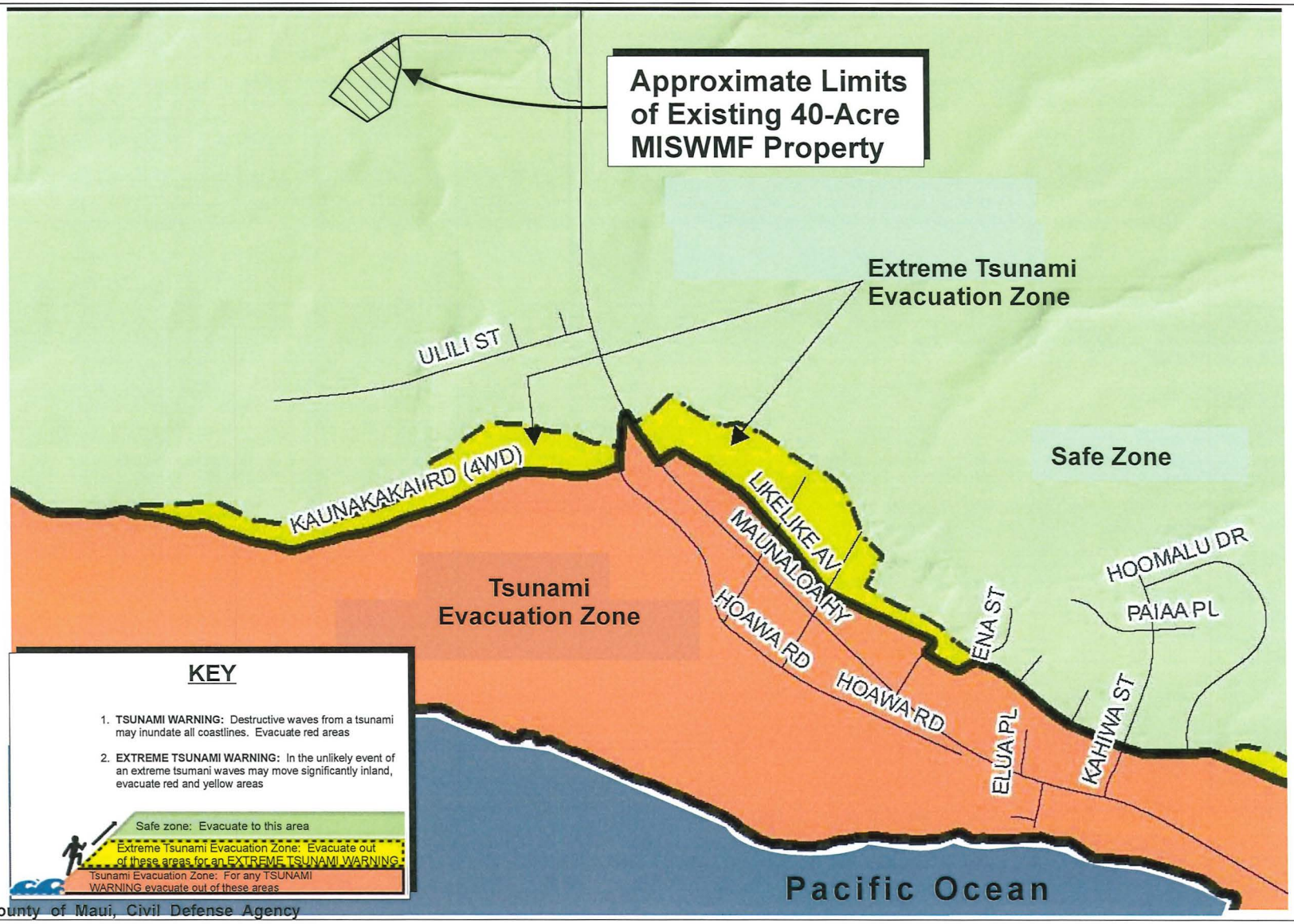
MISWMF Improvements
Flood Insurance Rate Map

0 375 750 1500 Feet

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\FIRM



Source: County of Maui, Civil Defense Agency

Figure 12

MISWMF Improvements
Tsunami Evacuation Map

NOT TO SCALE

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\TsunamiEvacuationMap (REV)

b. Potential Impacts and Proposed Mitigation Measures

As noted above, the proposed action is situated on lands falling entirely within Flood Zone X, which is a low-to-moderate risk flood zone. As such, a Special Flood Hazard Area Development Permit is not required for the project.

The proposed action is not located within the tsunami evacuation area and does not involve construction of habitable structures or facilities within the tsunami evacuation area.

No adverse impacts related to flooding or tsunami hazards are anticipated as a result of the proposed project.

4. Flora and Fauna

a. Existing Conditions

A Botanical Survey was carried out by Char & Associates as part of the 1993 EA for the subject property, including the scope of the proposed improvements, in December, 1990. See **Appendix "D"**. In general, the survey found that vegetation on the subject property and the surrounding areas is dominated by two (2) introduced or alien species, kiawe (*Prosopis pallida*) and buffel grass (*Cenchrus ciliaris*), while approximately 30 percent to 50 percent of the ground is bare and the shallow topsoil has been eroded in many places. The survey recorded that, of a total of 21 species inventoried on the site, 17 (81 percent) are introduced or alien and 4 (19 percent) are indigenous, i.e., native to the Hawaiian Islands and elsewhere. No plants native only to the Hawaiian Islands (endemic) or originally of Polynesian introduction were found during the survey. Further, no threatened or endangered plants were found or are known to occur in the vicinity of the subject property.

A Field Survey of the Avifauna and Feral Mammals was conducted by Phillip L. Bruner during the 1993 EA for the subject property, including the area to be used for the proposed improvements, in January 1991. See **Appendix "E"**. The study found that the subject property provides a limited range of habitats utilized by a typical range of exotic or introduced birds. Migratory Indigenous (Native) birds that were observed within the project site included Kōlea or Pacific Golden Plover (*Plyvialis fulva*) and 'Akekeke, or Ruddy Turnstone (*Arenaria Interpres*). Thirteen (13) exotic (introduced) birds were observed within the project area. The most numerous were Black Francolin (*Francolinus francolinus*), Zebra Dove

(*Geopelia striata*), and Red-crested Cardinal (*Paroaria coronate*). No resident native birds were observed at the site. Although not recorded in the survey, the species recorded in similar habitat elsewhere on Moloka'i include: Barn Owl (*Tyto alba*), Nutmeg Mannikin (*Lonchura punctulata*), Warbling Silverbill (*Lonchura Malabarica*), Eurasian Skylark (*Alauda arvensis*), and Japanese Bush-warbler (*Cettia diphone*).

Two (2) feral cats and abundant dog tracks were observed in the survey. Rats and mice were not observed but undoubtedly occur on the property. A total of four (4) small Indian Mongoose were also recorded. Based on the number of tracks and scats, Axis Deer are fairly common in this area. The numbers were likely comparable to similar habitats found elsewhere on Moloka'i. No bats were recorded on this project site despite evening observation. Most observed species were passing through foraging for food, and in general utilizing the site to the limited extent possible.

The State of Hawai'i, Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) commented that the State and Federally listed Hawaiian hoary bat or 'Ope'ape'a *(Lasiurus cinereus semotus)* and State and Federally listed waterbirds, such as the Hawaiian duck *(Anas wyvilliana)*, Hawaiian stilt *(Himantopus mexicanus knudseni)*, Hawaiian coot *(Fulica alai)*, and Hawaiian moorhen *(Gallinula chloropus sandvicensis)* have the potential to occur in the vicinity of the subject property.

b. <u>Potential Impacts and Proposed Mitigation Measures</u>

According to the Botanical Survey, very little botanical interest or concern were found as the vegetation consists primarily of introduced plant species. No threatened or endangered plants were found or are known to occur on the site. No sensitive native plant communities are known to occur on the site. In summary, the proposed action is not expected to have a significant adverse impact on flora resources on the subject property.

There are no Federal or State listed threatened and endangered species of wildlife that inhabit the project area detected during the survey, according to the Field Survey of Avifauna and Feral Mammals. Construction activities are expected to be limited to daylight hours. The project includes implementing measures to avoid and minimize adverse impacts on threatened and endangered species as recommended by DOFAW, as may be needed. These measures include the following:

- Hawaiian Hoary Bat

  There is no barbed wire fencing included as part of the proposed improvements. There are no woody plants greater than 15 feet (4.6 meters) tall in the vicinity of the project site. Should hoary bat tree habitats be found prior to construction, clearing and grubbing activities will be restricted during the hoary bat breeding season from June 1 to September 15.

- State and Federally Listed Waterbirds

  DOFAW will be consulted in the event a nest is discovered. Should a State and Federally listed waterbird be found during the construction, any activities within 100 feet (30m) of the bird will be ceased and the bird will not be approached.

Furthermore, appropriate BMPs will be implemented at the MISWMF to minimize the potential for wildlife attraction to avoid adverse impacts relative to aviation safety at the Moloka'i Airport, which is approximately three (3) miles away from the MISWMF.

5. Historical and Archaeological Resources

a. Existing Conditions

The proposed improvements are located within Nā'iwa Ahupua'a. An Archaeological Inventory Survey (AIS) was conducted by Aki Sinoto Consulting in October 1992 as part of the 1993 EA, including the area of the proposed improvements, and stated that the settlement pattern of Nā'iwa Ahupua'a consisted primarily of permanent occupation along the coastal area. This area would have been most favorable for supporting early settlements, evident from the numerous fishponds, heiau, ko'a, and habitation features. It is noted that early settlements occurred on coastal leeward areas in order to exploit the marine resources and late expansion into the inland areas occurred when dryland agriculture, such as sweet potato, intensified. The absence of any habitation complexes or intensive agricultural modifications in the inland portions of leeward Moloka'i indicated low intensity use of these areas and suggest a greater importance for marine resource exploitation. This type of settlement pattern; low intensity occupation along the coastal areas, primarily near fishponds, and low intensity agricultural activities in the inland portions, evident from isolated features and minimal historical content; appears to be consistent for the Nā'iwa Ahupua'a.

Based on previous archaeological and historical information, sites expected in the project area include features related to agricultural, ranching, and military activities. These features may include rock mounds, terraces, walls, alignments, and cairns. Additionally, the 1992 field survey involved walking systematic transects through the project site. No archaeological surface remains or other evidence of any significant cultural activities were encountered in the project site. It was observed that the north and west parts of the project site were extensively disturbed by past quarrying related activities. See **Appendix "F"**.

A new AIS was completed by Scientific Consultant Services, Inc. (SCS) in March 2018 for the development and operation of Phases 5 and 6 disposal cells at the MISWMF. This survey covers all anticipated ground disturbing subsurface activities associated with the development of the Phases 5 and 6 landfill disposal cells. A pedestrian survey and subsurface testing throughout the project area revealed no significant cultural deposits or historic properties. See **Appendix "G"**.

b. Potential Impacts and Proposed Mitigation Measures

As mentioned previously, the 1992 AIS conducted by Aki Sinoto Consulting did not lead to the identification of any surface cultural remains. Historic and modern era ranching, military, and quarrying activities have likely disturbed any previously existing sites or surface deposits. The 1993 AIS concluded that no further archaeological procedures prior to construction activities and archaeological monitoring during construction were recommended for the development of the MISWMF. Refer to **Appendix "F"**.

The State Historic Preservation Division (SHPD) was consulted for the proposed improvements and provided a comment letter dated August 16, 2017, recommending a new AIS with subsurface testing be conducted in addition to the AIS done back in October 1992. The 2018 AIS concluded that due to the lack of significant cultural or historic properties found, no further archaeological work is recommended, however, SHPD should be consulted concerning any future ground altering work planned within the project area. Refer to **Appendix "G"**.

In the event that any cultural resources, human skeletal remains or other cultural deposits are discovered during ground alteration work for the project, work will cease in the immediate area of the find and SHPD will be contacted to determine the appropriate mitigation.

6. Cultural Resources

a. Existing Conditions

i. Historical Overview

During the pre-contact era, Moloka'i's population base was primarily concentrated at the island's windward coasts. The area was rich in ocean resources and the deep valleys with perennial streams that supported a lifestyle based on subsistence agriculture, primarily associated with intensive taro production.

The 18th century saw great upheaval on Moloka'i as the island became subject to the ambitions of the rulers of neighboring islands. Political authority over Moloka'i passed back and forth between the chiefs of Maui and O'ahu throughout the century, only ceasing with the unification of all the islands under Kamehameha I.

With the onset of western contact, a western influence began to permeate through the island's social environment. The result was a reduced reliance on subsistence lifestyles and an increased dependence on a plantation and ranching-based economy. As a result, the island of Moloka'i experienced a westward population movement from the windward coast to the leeward side of the island.

Several important changes for Moloka'i occurred in the 19th century. Herd animals were introduced at this time: cattle in 1833, followed by deer and sheep 30 years later. Cattle had profound socio-economic and, thus, cultural impacts through ranching activities. Sheep, on the other hand, had a notably adverse impact on the landscape because of their grazing activities (Weisler and Kirch, 1982). The Moloka'i Ranch was founded at the end of the century, purchasing lands formerly owned by Kamehameha V.

During the westward movement, the island's political and commercial center developed in accordance with the population movement. The first western town was established at Puko'o, which included a County seat, a court house, a wharf, and several small stores. In 1925, 'Ualapu'e became the island's new major commercial center, where a new hospital was constructed. Finally in 1935, Kaunakakai was established as the political center and economic nucleus of the island.

In the 1920s, large pineapple plantations were established in the Maunaloa and Kualapu'u areas, further strengthening the westward movement. However, in the 1970's and 1980's, both plantations ceased operations and the island's economy became primarily dependent on diversified agriculture and ranching activities with an emerging visitor industry (County of Maui, Department of Planning, 2001).

ii. Geopolitical Organization

Prior to Western contact in Hawai'i, land was divided into moku, or districts. Each of these was further subdivided into units called *ahupua'a*. Ideally, each *ahupua'a* was self-sufficient, running from *mauka*, the mountain, to *makai*, the ocean (MacKenzie, 1991). These divisions served as both cultural and settlement systems as traditional Hawaiian life was tied intimately to the land. Hunting, gathering, cultivation, and habitation took place within the *ahupua'a*.

Moloka'i was traditionally divided into two (2) moku: Ko'olau district and Kona district, although there is some evidence of a third district having been used at some point (Weisler and Kirch, 1982; Summers, 1971). The Ko'olau district was centered on the windward coast of the island, with the Kona district essentially comprising the remainder of Moloka'i. These *moku* were subdivided into *ahupua'a* which ranged in size from 79 to 46,500 acres (Summers 1971).

Western contact brought changes to the Hawaiian land system with the introduction of private ownership of land, a concept foreign to the native Hawaiians. A Board of Land Commissioners was established in 1845 to uphold or reject all private land claims of both foreigners and Hawaiians. The Commission adopted rules pertaining to the proof of claims, right of tenants, and commutation to the government in attempts to achieve the goal of totally partitioning undivided lands. All lands not claimed by February 1848 were to be forfeited to the government (MacKenzie, 1991).

Following the enactment of these rules, the *Mahele* division of 1848 divided all lands of Hawai'i between the king and chiefs. Two (2) years later the *Kuleana* act completed the *Mahele* process by authorizing the Land Commission to award fee simple titles to native tenants for their land. These *kuleana* parcels, also known as

Land Commission Awards (LCA), were generally among the richest and most fertile in the islands and came from the king, government, or chief's land. All claims and awards were numbered and recorded in the *Mahele* Book (MacKenzie, 1991). In addition, government lands were sold as "Royal Patent Grants" or "Grants" in order to meet the increasing costs of government. These grants differed from LCAs, as it was not necessary for the recipients to obtain an award for their land from the Land Commission (Chinen, 1958).

In 1859, the traditional moku divisions were eliminated and the entire island made into one district, called the Moloka'i district. Fifty years later, the island was redivided, this time into the Kalawao district, which is comprised of those areas known as Kalaupapa, Kalawao, and Waikolu and is administratively distinct from Maui County, and the remainder of the island, which is still designated as the Moloka'i district.

iii. Stories and Traditions of Moloka'i

As is frequently the case with the islands, Moloka'i is the subject of multiple creation stories. Some say that all of the islands were born of the god Wakea and his wives; Moloka'i being the off-spring of that god and his third wife, Hina, after his previous wives had given birth to Hawai'i, Maui, Kaho'olawe, and Lāna'i. A separate tradition gives the formation of all the islands as having resulted from pieces of coral tossed back into the sea by the fisherman Kapuheeuanui (Fornander, 1916-17).

Past accounts refer to Kaunakakai as a preferred canoe landing for travelers given its favorable environmental conditions (e.g., landing, wind direction, natural channel, and central location). Based on these accounts, the Kaunakakai area was known throughout the islands as a safe resting place.

The traditional history of Moloka'i is only extant in fragmentary form. It begins with Kamauaua, reputedly the first *ali'i-nui* of the island, who is thought to have lived sometime in the 13th century. There are subsequently many stories which suggest that the island was repeatedly subject to domination by the rulers of Hawai'i and Maui, with lordship over Moloka'i passing back and forth between the kings of the other two (2) islands, as well as intervening periods of autonomy (Summers, 1971).

iv. Traditional and Customary Rights

The traditional and customary rights of Native Hawaiians can be broken down into access rights, gathering rights, burial rights, and religious rights.

v. Access

Native Hawaiians generally share the same access rights as the general public. However, they have the unique access rights to *kuleana* parcels and between *ahupua'a*. Access to *kuleana* parcels may involve access via ancient trails or expanded access not limited to any route. Additionally, the *Kuleana* Act granted unobstructed access within the *ahupua'a* to obtain items necessary to make the *kuleana* parcel productive. Access rights between *ahupua'a* involve access through ancient or well established trails (MacKenzie, 1991).

Gathering

In terms of gathering rights, the Hawai'i Supreme Court has upheld gathering rights within an *ahupua'a* for firewood, house-timber, *aho* cord, thatch, and *ki*-leaf under three (3) conditions. The tenant must physically reside within the *ahupua'a*, the right to gather can only be exercised upon undeveloped lands within the *ahupua'a*, and the right must be exercised only for the purpose of practicing Native Hawaiian customs and traditions (MacKenzie, 1991).

Burial

According to traditional Hawaiian burial beliefs, following death, the *uhane*, or spirit, must remain near *na iwi*, or bones. Burial sites are chosen by Hawaiians for symbolic purposes in places for safekeeping. Often, bones were hidden in caves, cliffs, sand dunes, or deposited in the ocean. Today, federal and state laws protect both unmarked and marked burial sites. Island Burial Councils assist SHPD with the inventorying and identification of unmarked Hawaiian burial sites and determine the preservation or relocation of native Hawaiian burial sites (MacKenzie, 1991).

Religious

Hawaiian religion and beliefs were intimately tied to the land. While some practices and traditions were lost over the years, basic

Hawaiian religious concepts remain. The terms *"aloha aina,"* love the land and *"mālama aina,"* care for and protect the land, convey the unity of humans, nature, and the gods in Hawaiian philosophy (Minerbi, 1993). Furthermore, Hawaiians honored and worshiped *aumakua*, deities, and *akua*, gods. There were numerous *akua* of farming, fishing, tapa making, dancing, sports, and any other activity of Hawaiian life. The concept of *mana* or sacred attachment to places, people, or things also remains as a significant aspect of Hawaiian religion (MacKenzie, 1991).

b. Potential Impacts and Proposed Mitigation Measures

Cultural Impact Assessment (CIA) interviews with three (3) individuals from the Moloka'i community familiar with the area were interviewed to assess potential impacts the project may have on cultural resources and practices. The following is a summary of the interviews:

Herman R. Coelho, Jr.

Mr. Herman R. Coelho, Jr. was born on Moloka'i 63 years ago at the Ho'olehua General Hospital. His father was from Oahu and his mother from Moloka'i and he is of a blended nationality of Portuguese and Japanese. He was raised on the island and attended Ho'olehua Elementary, Kualapu'u Elementary, and Moloka'i High School before enlisting in the Army.

He spent three (3) years in the army before returning to the islands to work for the County of Maui's Department of Public Works and Waste Management (DPWWM), Wastewater Reclamation Division at the Kīhei Wastewater Treatment Plant on Maui in December 1978. After about three (3) years, he transferred to the DPWWM, Highway Division and returned to Moloka'i Island to work as the Veteran's Cemetery Caretaker. Eventually he joined the Moloka'i road maintenance crew and got trained to operate heavy equipment. His experience as a heavy equipment operator enabled him to later work at the Kalama'ula landfill in May 1993. After the Kalama'ula landfill closed around 1998, he worked at the MISWMF in Nā'iwa to continue as a heavy equipment operator handling landfill operations at the relocated site. Thus, his last nine (9) years before retiring, were with the County of Maui, DPWWM and later with the Department of Environmental Management, Solid Waste Division, as a heavy equipment operator on both the Kalama'ula landfill and the Nā'iwa landfill until retirement in June 2002. His total employment with the County of Maui has given him twenty-five (25) years of service.

In the older days when the Kalama'ula landfill was in operation, he recalls how residents would haul their own trash to the landfill and help out neighbors too.

Mr. Coelho is not aware of any cultural practices carried out on or near the Nā'iwa landfill site. Before the landfill operation was transferred from the Kalama'ula site to the Nā'iwa site, the present landfill area was all overgrown. He recalls that when the Kalama'ula landfill was near capacity, the new site chosen by the public was the Nā'iwa site. Also, the Kalama'ula landfill did not have a scalehouse back then.

In observing the current operations at the Nā'iwa landfill, he believes that too much dirt is used to cover the waste layers. Otherwise, he has no objections to the project to improve the existing Nā'iwa landfill site and knows the facility is important for the residents of the island.

He currently owns and lives at a home in Kualapu'u Village, enjoying his retirement years.

Stacy Helm Crivello

Stacy Helm Crivello was born on Moloka'i about 72 years ago at the Ho'olehua General Hospital, also known as Shingles Hospital. Her father was originally from Haole Camp in Pu'unēnē, Maui and her mother was originally from Hāna side in Pukuilua. Both parents eventually moved to Moloka'i in the early 1940s. She is of a mixed nationality with over 50 percent Hawaiian and the remaining portion of Portuguese, German, and English descent.

Her career with Hawaiian Telephone Company started on O'ahu then to the Big Island and back to Moloka'i in 1974. She retired as a Hawaiian Telephone Company Manager of Moloka'i and Lāna'i operations with over thirty (30) years of service. Ms. Crivello also has held a number of positions with community service organizations. She currently is serving a third term as a Councilmember representing Moloka'i island and Chairs the Housing, Human Services and Transportation Committee.

Ms. Crivello lives in the Kalama'ula Homestead off Hoawa Road and grew up in an area which is about a mile south of the Nā'iwa landfill. Prior to the Nā'iwa landfill site being established, the site was all overgrown with Kiawe trees. Nā'iwa covers a large area that starts mauka and extends into Pālā'au on the makai side. Although there is County refuse pick-up, Ms.

Crivello takes her own trash directly to the Nā'iwa landfill. At one time, her son was employed at the landfill.

While Ms. Crivello was not aware of any cultural practices occurring within the landfill site itself, she did note that residents continue to hunt for deer in the areas close to the old quarry/crusher site next to the landfill site without being hampered by the landfill operations. Access to diving and fishing gathering practices makai of the landfill continues via Hoawa Road and down a road going towards the fishpond. As such, the landfill site does not prevent or obstruct access to any nearby hunting, diving, or fishing practices.

Ms. Crivello's impression of the Nā'iwa landfill is that it is a manmade mountain visible from the Maunaloa Highway. She feels that it would be good for there to be some control over the airspace that the landfill occupies. Ms. Crivello also mentioned that it would be better if the landfill site had a water source for dust control especially with dirt devils that frequently occur in the area. She wondered as to if some grass seeds could be planted as a dust control measure. Although she feels that a landfill site located further mauka would be more suitable, she understands and recognizes the need for the County of Maui, Department of Environmental Management to improve the existing approved Nā'iwa landfill site to extend its capacity so that it can continue to serve the solid waste disposal needs of the island into the future.

Eliza Kauila Reyes

Mrs. Kauila Reyes, also known as Eliza, explains that her name Kauila means "instant lightning". She retired as a Hawaiian specialist with Kamehameha Schools, and is currently a Hawaiian specialist for private pre-schools for Kamehameha Schools on a part-time basis. She is the past president of Queen Ka'ahumanu Society and sits on several boards of schools, as well as Na Pua Wai, a community health board. She continues to keep herself busy and takes care of her family. She also believes that it is important to have meetings and work out problems.

Mrs. Reyes was born in Kawela 91 years ago and raised on Moloka'i, in the area where Kalama'ula Church is, just outside of Kaunakakai. Her home is near the big coconut grove on the makai side of Maunaloa Highway across the churches. She currently lives in the Kalama'ula Hawaiian Homestead, the first homestead in Hawai'i, located about one mile east of the Nā'iwa landfill site. Mrs. Reyes is a well-respected Kupuna on Moloka'i available to the people of the island who reach out to her.

She is pure Hawaiian and comes from a family of 13 siblings, with her mother originally from Kona. She was the 10th of 13 children, and is the sole survivor. Her mother moved to Moloka'i after marrying her father who grew up on the east end of Moloka'i and was a police officer. On her father's side, the family goes back many generations on Moloka'i. Her father's grandparents who lived on the east side of Moloka'i were relocated by King Kamehameha to Kalaupapa before it became a leper colony.

She used to go to the Nā'iwa landfill but her son now takes her trash to the landfill for her. Her recollection of the landfill area is that some deer hunting was done. She is not aware of any cultural practices that are or have been carried out on or near the project site. The landfill itself does not pose a problem for her which she claims is far enough away from residential areas to not cause any odors. She expressed no objections or concerns with the proposed landfill improvements.

In summary, the interviewees were not aware of any cultural activities occurring specifically within the 10-acre project site for the proposed improvements, nor the 38-acre MISWMF. Therefore, the proposed action is not anticipated to present significant adverse impacts on cultural resources on the subject property.

7. Air Quality

a. Existing Conditions

The significant generators of air pollutants in the vicinity of the subject property is the existing quarry to the north, the Maui Electric Company power generating station to the south, and landfill operations. Prevailing winds normally direct away from Maunaloa Highway and urban areas.

Dust and odors associated with landfill operations are minimized by good housekeeping and operational practices. Most landfills generate some amount of dust. Operational dust control measures primarily include the application of water, but also include enforcing speed limits, and aggregate gradation. Several light applications of water are applied daily to control dust without creating slippery or erosive conditions. Enforcing the 5 mile per hour speed limit on unpaved access roads also helps to reduce dust while insuring maximum useful life of these roads. Gravel roads are constructed with select material ensuring that there are enough fines to provide cohesive strength, but enough aggregate to minimize dust generation. Odors are generally not an issue at the facility by ensuring that incoming waste loads are covered and landfilled wastes are covered at the conclusion of each operational day with soil or an alternative cover system

(as approved by the Department of Health). On occasion the facility receives odorous loads of incoming refuse. Whenever possible, the facility tries to identify these odorous loads before they are delivered to the site, so they can immediately be covered with other waste or soil upon arrival. In addition to immediately covering odorous loads, preparation for deliveries of these loads, such as animal carcasses, may also include pre-excavation of a disposal pit to minimize exposure of these waste materials to the atmosphere.

The decomposition of solid waste in a landfill produces landfill gas consisting primarily of carbon dioxide and methane. Because of potential presence of landfill gas, regulations require monitoring of subsurface soils around the perimeter of the landfill to ensure landfill gas is not migrating beyond the facility boundary. The MISWMF currently features a landfill gas monitoring network of five (5) subsurface probes located around the landfill perimeter. This network of probes is monitored on regular intervals to detect potential migration of landfill gas from the landfill towards the property boundary. The current network of gas probes is sufficient to monitor the proposed Phase 5 and 6 disposal cells.

The proposed project does not propose to increase daily or annual disposal limits from current levels. Emissions associated with current landfill operations and customer traffic are representative of the anticipated emissions associated with the project.

b. <u>Potential Impacts and Proposed Mitigation Measures</u>

Air quality impacts attributed to the project will include dust generated by short term construction related activities. Site work such as clearing, grubbing, and grading, for example, can generate dust. Dust control measures, such as water application and other Best Management Practices (BMPs), will be implemented in accordance with applicable rules and regulations to minimize dust emissions.

Impacts of air pollution on adjacent properties will be minimal. The combination of BMPs, good housekeeping, operational controls and setback will provide ample separation of the operation to potential receptors.

8. Noise Quality

a. Existing Conditions

Noise generated in this locale is predominately attributed to the combined noise levels of truck traffic, landfill heavy equipment, aircraft flyovers, and the neighboring quarrying operation. The neighboring quarrying operation includes mass grading, drilling, blasting, and stone crushing, which exceed the noise levels created by landfill operations.

Noise generated from landfill equipment operation is mitigated through regular maintenance in accordance with manufacturer recommendations and applicable rules and regulations. The proposed action will not increase customer traffic or incoming waste managed at the facility, therefore current levels are representative of noise to be generated during the operational period of the proposed project.

b. Potential Impacts and Proposed Mitigation Measures

Short term noise impacts associated with construction activities may occur. Since the immediate neighbors engage in industrial activities which produce noise, the contribution to the noise level from this project will be minor. Construction activities will be restricted to normal daylight working hours and internal combustion engine powered vehicles and equipment will be equipped with mufflers or other noise attenuation devices, as required.

To further mitigate impacts to offsite receptors, the design of Phases 5 and 6 incorporates a setback distance, between the limits of waste and the facility property boundary, of a minimum of 50 feet along the west/southwest edge of Phase 6 with the setback ranging as much as 190 feet on the east/southeast property boundary near the sedimentation basin. This setback, coupled with the nearest occupied structure being 1,800 feet to the south, will provide ample separation of the operation and potential receptors.

9. Streams and Groundwater

a. Existing Conditions

There are no streams or wetlands located within or in the immediate vicinity of the 10-acre project site or the larger 38-acre MISWMF property boundary. Manawainui Gulch, a perennial stream, lies approximately 2,000 feet north-northwest of the project site. There is also an unnamed

gulch located approximately 1,500 feet south-southeast of the project site. See **Figure 13**.

The aquifer beneath the subject property is part of the Mainawainui System of the Central Moloka'i sector, which represents moderately brackish character (U.S. Geological Survey, 1995).

The MISWMF is exempt from groundwater monitoring requirements for the municipal solid waste management facilities. Hawai'i Administrative Rules (HAR), Chapter 11.58.1-14 exempts small landfills that dispose of less than 20 tons of municipal solid waste daily, based on an annual average, from groundwater monitoring requirements. The County of Maui first petitioned the Department of Health, Solid and Hazardous Waste Branch for the exemption during development of 38-acre MISWMF in 1992. The MISWMF will continue to meet all criteria for the small landfill exemption during the projected operational life of Phases 5 and 6 disposal cells. Refer to **Appendix "A"**.

b. Potential Impacts and Proposed Mitigation Measures

As noted above, there are no streams or wetlands located in the immediate vicinity of the 10-acre project site for the proposed action. Furthermore, landfill operational controls (i.e., daily cover, diversion berms and swales, litter collection, and the stormwater collection systems) will divert stormwater away from the active landfill face, minimize the potential for waste to be exposed to or contact stormwater, and efficiently convey stormwater off the landfill footprint without erosion or wash out of the landfill surface. These operational controls collectively minimize landfill impacts to stormwater quality, minimize water infiltration into the landfill, and minimize leachate generation. As part of the groundwater monitoring exemption petition, a Hydrogeologic Assessment of the site was conducted by Parametrix, Inc. in 1992 to assess the potential impacts to beneficial uses of groundwater in the area. The assessment concluded that groundwater occurs in the basal groundwater table near sea level and that the potential for perched groundwater under the site is not expected in significant quantities. Groundwater in the basal groundwater layer is typically brackish which none of the communities near the project site use as a potable water source.

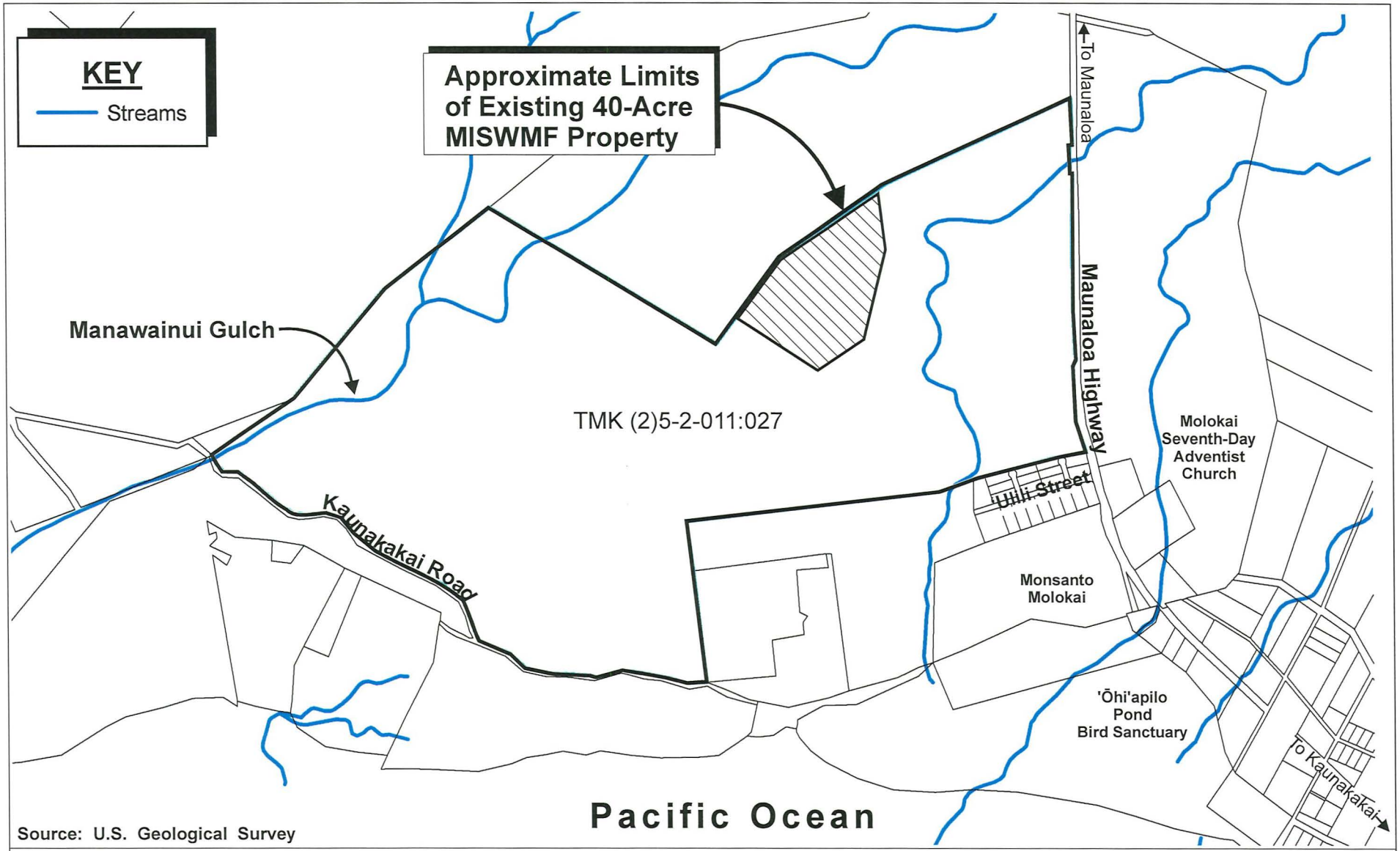


Figure 13

MISWMF Improvements
Streams/Wetlands Map

0 375 750 1500 Feet

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\Streams.WetlandsMap

In addition, a no-migration demonstration was conducted by Dames & Moore in 1998 and was updated by A-Mehr, Inc. in 2008 to evaluate the migration potential and other site-specific characteristics. The analysis by Dames & Moore and A-Mehr, Inc. concluded that migration of leachate constituents is theoretically possible, however, the character of the underlying groundwater is such that hazards to human health and environment are highly unlikely. Refer to **Appendix "A"**.

In summary, the proposed action is not expected to have a significant adverse impact on the streams and groundwater in the vicinity of the subject property.

10. Scenic and Open Space Resources

a. Existing Conditions

The project site is located on the Ho'olehua Plain, surrounded by vacant bushland, and this open space character is typical of the Central Moloka'i Isthmus. Elevations span between approximately 200 to 250 feet mean sea level (MSL), and the topography gently slopes toward the south-southwest with prevailing northeastern tradewinds blowing in from Maunaloa Highway.

b. Potential Impacts and Proposed Mitigation Measures

From the Maunaloa Highway, the project site, in its current configuration and in the proposed final configuration at build out, is not fully visible to the passing motorist, although a limited portion of the site is visible from the highway. The landfill is not part of and does not overlook any scenic corridor or aesthetic view plane (Parametrix, Inc., 1993). As such, the proposed action will not have a significant, adverse impact on existing views, nor will it adversely impact open space resources in the vicinity of the subject property.

Fugitive litter is an issue at any landfill, however, through operational controls litter will be mitigated. These operational controls include installation of downwind portable litter screens, routine litter collection, use of wetsprays, and compaction. These controls are currently being implemented at the MISWMF and, as aforementioned, the daily disposal quantity will not increase from current permitted levels.

11. Traditional Beach and Mountain Access

a. Existing Conditions

The project site is located approximately 1.25 miles inland from the south coast of the island of Moloka'i. Manawainui Gulch lies approximately 2,000 feet north-northwest of the site.

There are no traditional mountain access trails or beach access in the vicinity of the MISWMF.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action is limited to Phase 5 and Phase 6 disposal cells and related improvements. As there are no mountain access trails and beach access in the vicinity of the project, no adverse impacts to traditional beach or mountain access are anticipated as a result of the proposed action.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population and Economy

a. Existing Conditions

The resident population of the island of Moloka'i (excluding Kalawao), as determined by the 2010 Census, was 7,255. In the year 2000, the resident population was 7,257, representing no increase in population during the ten year period (U.S. Census 2010, Maui County Databook 2016). Moloka'i island's population is projected to increase to 7,772 by 2020 and 8,395 by 2030 (County of Maui, Planning Department, 2006).

On Moloka'i, the unemployment rate is higher than the rest of Maui County. In October 2017, the unemployment rate (not seasonally adjusted) was 2.0 percent for Maui County and 5.1 percent for Moloka'i island. The unemployment rate decreased 1.2 percent for Maui County and 4.5 percent for Moloka'i, since October 2016 when it was 3.2 percent and 4.5 percent, respectively (State of Hawai'i, Department of Labor and Industrial Relations, November 2017).

b. Potential Impacts and Proposed Mitigation Measures

In the short term, the proposed action will generate positive economic impacts associated with construction-related spending and employment.

From a long term perspective, the project will provide necessary solid waste disposal capacity for the island of Moloka'i up to the Year 2038. Adverse economic impacts are not anticipated with project implementation. There are also no long term impacts on population parameters associated with the project.

C. PUBLIC SERVICES

1. Police and Fire Protection

a. Existing Conditions

Police services on Moloka'i are provided by the Maui County Police Department. The Moloka'i station is located in the Mitchell Pauole Center in Kaunakakai.

Fire prevention, protection and suppression services are provided by the Maui County Department of Fire and Public Safety. The Fire Department maintains stations in Kaunakakai and Ho'olehua, with a substation in Puko'o.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action will not increase and is not anticipated to adversely impact existing police and fire protection services. The project site is located in Nā'iwa and is currently within the service area of police and fire protection.

2. Medical Facilities

a. Existing Conditions

Moloka'i General Hospital, which is operated by the Queen's Health Systems, is the only major medical facility on the island. Licensed for 13 beds, the hospital located in Kaunakakai provides acute, emergency, and obstetrics care services (County of Maui Data Book, 2016). The hospital also houses the Women's Health Center, which offers family planning services and prenatal care to local residents.

Other medical facilities include the Moloka'i Family Health Center in Kaunakakai.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action is limited to solid waste management and related improvements and is not anticipated to increase or have adverse impacts on existing medical facilities or services on Moloka'i.

3. Solid Waste

a. Existing Conditions

Except for remote areas, single family solid waste collection service is provided by the County of Maui once weekly.

Solid waste is collected by County refuse collection crews and disposed at the MISWMF. Commercial waste from private collection companies is also disposed of at the landfill.

b. Potential Impacts and Proposed Mitigation Measures

The subject property has been the sole municipal solid waste disposal facility serving the island of Moloka'i since it was developed by the County of Maui in 1993. The proposed action will positively benefit the existing solid waste management services on Moloka'i by expanding the capacity of the existing landfill and ensuring adequate disposal capacity for the island of Moloka'i up to the Year 2038. As such, the proposed project is not anticipated to have adverse impacts on the existing solid waste services on the island of Moloka'i. Furthermore, as mentioned previously, appropriate BMPs will be implemented at the MISWMF to minimize the potential for wildlife attraction to avoid adverse impacts relative to aviation safety at the Moloka'i Airport, which is approximately three (3) miles away from the MISWMF.

4. Recreational Resources

a. Existing Conditions

The island of Moloka'i offers a wide range of recreational opportunities. Outdoor activities include bicycling, boating, canoeing, camping, diving, fishing, golfing, hiking, horseback riding, hunting, surfing, swimming, tennis, and windsurfing.

There are no recreational facilities or parks located in the vicinity of the subject property. The closest recreational facilities are the Moloka'i Yacht Club and Malama Cultural Park, a 3.3-acre park with open fields, an

amphitheater, and restroom facilities in Kaunakakai town, which is located approximately three (3) miles southeast of the subject property.

b. Potential Impacts and Proposed Mitigation Measures

As mentioned above, there are no recreational facilities or parks located in the close vicinity of the subject property. Therefore, the proposed action is not anticipated to adversely impact recreational resources on the island of Moloka'i.

5. Educational Facilities

a. Existing Conditions

There are five (5) public schools on Moloka'i. Four (4) are public elementary schools, Kaunakakai, Kilohana, Kualapu'u, and Maunaloa, providing elementary school education for children from Kindergarten through Grade 6. There is one (1) secondary school, Moloka'i High and Intermediate School, located in Ho'olehua. School capacity and enrollment over recent years are summarized in **Table 1.**

Table 1. Enrollment for Moloka'i Schools

School	Enrollment 2016-2017 School Year	Enrollment 2017-2018 School Year
Kaunakakai Elementary School (Grades K-6)	280	275
Kilohana Elementary School (Grades K-6)	82	83
Maunaloa Elementary School (Grades K-6)	51	41
Kualapu'u Elementary School (Charter School – Grades K-6)	310	325
Moloka'i Intermediate School (Grades 7-8)	168	199
Moloka'i High School (Grades 9-12)	335	343
Source: Department of Education, 2017.		

Private schools include Moloka'i Christian Academy (Grades Kindergarten-12) and Moloka'i Mission School (Grades 1-8).

Moloka'i Education Center, a satellite facility of University of Hawai'i - Maui College, offers post-secondary, vocational and technical University of Hawai'i credit courses, and is located at the intersection of Alanui Ka Imi Ike and Kamehameha V Highway.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action is not a population generator. As such, it is not anticipated to adversely impact existing education facilities or services on Moloka'i.

D. INFRASTRUCTURE

1. Roadways

a. Existing Conditions

The State of Hawai'i's Maunaloa Highway links Kaunakakai Town with the western portion of the island. Maunaloa Highway becomes Kamehameha V Highway at Kaunakakai Place and extends toward and along the shoreline, providing access to eastern portions of Moloka'i.

Access to the subject property is provided via Moloka'i Landfill Access Road running westerly from Maunaloa Highway.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project is intended to provide additional capacity at the existing landfill in Nā'iwa and is intended to service Moloka'i's solid waste management needs up through the Year 2038. The proposed improvements are not expected to increase the number of vehicles entering the facility on a daily basis. As such, the proposed action is not expected to present significant impacts on roadways in the vicinity including Maunaloa Highway.

2. Water System

a. Existing Conditions

The County of Maui operates four (4) water systems at 'Ualapu'e, Kaunakakai, Kala'e, and Hālawa on the island of Moloka'i. Moloka'i Ranch also operates water systems serving households in West Moloka'i. There is currently no permanent water infrastructure or service provided at the MISWMF. Water for the operation of the facility, domestic sanitary needs,

and fire control is supplied via tanker trucks and is stored in a tank located near the entrance facilities. Drinking water is provided in bottled form.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project is limited to development and operation of the Phase 5 and Phase 6 disposal cells at the existing landfill and related improvements. The current water supply system is sufficient to meet the proposed project's operational and domestic needs.

3. Wastewater System

a. Existing Conditions

Most regions of Moloka'i are not served by a wastewater treatment system. Residents situated beyond the Kaunakakai service area utilize either cesspools or septic systems. Within Kaunakakai, the County operates a single wastewater treatment plant. Moloka'i Ranch also operates a wastewater treatment system serving households in West Moloka'i. Sewage is managed at the site through use of a subsurface sewage disposal system consisting of a septic tank and leach field.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project is limited to development and operation of the Phase 5 and Phase 6 disposal cells at the existing landfill and related improvements.

Domestic sewage disposal will continue to be managed through the existing onsite septic leach field. Leachate collected from the existing landfill disposal cells is currently disposed of at the Kaunakakai Waste Water Treatment Facility. Leachate generated and collected from the proposed Phase 5 and Phase 6 disposal cells would also be managed through this facility. Due to the dry conditions at the MISWMF, leachate generation volumes are quite low and do not represent a significant burden to the wastewater treatment facility at the current time and is not anticipated to increase substantially as Phase 5 and Phase 6 are developed.

As such, significant adverse impacts to the County's and Moloka'i Ranch's wastewater system are not anticipated as a result of the proposed project.

4. Drainage

a. Existing Conditions

Stormwater is currently managed at the MISWMF in two drainage watersheds. The drainage watersheds encompass the following areas: 1) the entrance facility area, and 2) the balance of the property, including the Moloka'i Metals facility, the green waste area, and the landfill footprint.

The entrance facility drainage watershed is approximately 3.7 acres in area, where the truck scales, scalehouse/office, maintenance shop, and the Recycle Moloka'i facility are located. At present, stormwater runoff from the entrance facility drainage watershed flows overland, across the undeveloped area, and is collected in a stormwater basin located approximately 200 feet south of the maintenance shop.

Stormwater from the balance of the property encompassing the Moloka'i Metals facility, the Green Waste Area, and the landfill footprint is managed by a system of berms, ditches, and channels that convey flow to the primary stormwater basin. The perimeter channel located along the footprint of the existing landfill Phases 1 through 4 and the proposed Phases 5 and 6 collects stormwater from the landfill, Moloka'i Metals facility, and the Green Waste Areas. All channel flow collects in the stormwater basin located at the south corner of the property. Refer to **Appendix "A"** and **Appendix "B"**.

b. Potential Impacts and Proposed Mitigation Measures

The modification to the stormwater management system for the entrance facility will be implemented as part of the proposed improvements in order to comply with HAR 11-58.1-15(g), which requires a run-off control system to control at least the water volume resulting from the 24-hour, 25-year storm event. An asphalt paved drainage channel will be installed to collect incidental rainfall and stormwater runoff from the entrance facility area and convey it to the perimeter channel bordering the Phase 3 disposal area, which ultimately flows into the permanent stormwater basin. Refer to **Appendix "A"** and **Appendix "B"**.

During the construction and operational phases of the project, Best Management Practices (BMPs) will be implemented to prevent pollution of downstream resources. Furthermore, a Stormwater Pollution Control Plan will be developed in accordance with HAR§ 11-54 and 11-55 to properly identify activities and operations with the potential to adversely impact

stormwater quality and outline necessary facility stormwater management practices and BMPs that will be implemented to minimize pollutant impact to the facility stormwater.

The proposed improvements to the Stormwater Management System are intended to comply with requirements of applicable State landfill and stormwater rules and regulations and, as such, the proposed project will mitigate adverse effects on the existing facility or on the surrounding environment.

5. Electrical, Telephone, Cable Television, and Navigation Services

a. Existing Conditions

Electrical power to the MISWMF is supplied via a line extension from a Maui Electric Company (MECO) transmission line located along Maunaloa Highway. Electrical power is currently used for the operation of the landfill entrance facilities, including the truck scales, scalehouse, office, and Recycle Moloka'i Facility. Telephone and data service is provided to the facility, however, no cable television and navigation services are provided at the subject property. Refer to **Appendix "A"**.

b. Potential Impacts and Proposed Mitigation Measures

There will be no expansion of electrical or telecom utilization or demand associated with the planned development and operation of the MISWMF. Therefore, no service improvements will be implemented. Refer to **Appendix "A"**. The proposed project will not require cable television or navigation services.

E. CUMULATIVE AND SECONDARY IMPACTS

Pursuant to Section 11-200-2 of the Hawai'i Administrative Rules, Chapter 200, entitled Environmental Impact Statement Rules, a cumulative impact means:

> *The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

The MISWMF is located approximately three (3) miles northwest of Kaunakakai and approximately 1.25 miles inland from the nearest area of coastline. The MISWMF allows for solid waste management services to be provided to the Moloka'i community in

accordance with the County Integrated Solid Waste Management Plan. The existing 38-acre facility was previously analyzed in a Final EA prepared in 1993. A Finding of No Significant Impact (FONSI) was issued and published in the Office of Environmental Quality Control (OEQC) Bulletin on January 25, 1993.

The proposed action is a standalone project and does not represent a commitment to larger actions. The proposed improvements will provide necessary additional disposal capacity in the existing landfill facility to ensure continued service, at levels consistent with the current, to the island of Moloka'i up to the Year 2038. The proposed action is not anticipated to create or contribute to significant adverse long-term environmental effects. The cumulative impact of the proposed action is expected to be positive as it would improve the landfill capacity at the subject property, which will allow continued service of the island's solid waste disposal needs into the future.

Secondary impacts are those which have the potential to occur later in time or farther in distance, but are still reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of a project. Secondary impacts from highway projects, for example, can occur because they can induce development by removing one of the impediments to growth. With the proposed mitigation measures, the project is not anticipated to have any significant adverse secondary impacts on the environment. The proposed action is limited to work within the existing, approved MISWMF and is intended to provide additional capacity to service Moloka'i's solid waste management needs up through the Year 2038. Furthermore, existing public service parameters will not be affected by project implementation.

In summary, the proposed action is not anticipated to result in significant adverse cumulative or secondary impacts.

RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

III

III. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE DISTRICTS

Chapter 205, Hawai'i Revised Statutes (HRS), relating to the Land Use Commission (LUC), establishes the four (4) major land use districts in which lands in the State are placed. These districts are "Urban", "Rural", "Agricultural", and "Conservation".

The 38-acre Moloka'i Integrated Solid Waste Management Facility (MISWMF) is located within the State "Agricultural" district. Refer to **Figure 4**. The State of Hawai'i, Land Use Commission issued a Special Permit in May 1993 to establish the MISWMF within the State "Agricultural" district. Refer to **Appendix "C"**.

B. CHAPTER 226, HRS HAWAI'I STATE PLAN

Chapter 226, HRS, also known as the Hawai'i State Plan, is a long-range comprehensive plan which serves as a guide for the future long-term development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. The Plan consists of three (3) parts. Part I includes the Overall Theme, Goals, Objectives, and Policies; Part II includes Planning, Coordination, and Implementation; and Part III establishes Priority Guidelines. Inasmuch as Part II of the State Plan covers its administrative structure and implementation process, discussion of the proposed project's applicability to Part II is not appropriate. Below is an analysis of the project's applicability to Part I and Part III of the Hawai'i State Plan.

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
HRS 226-1: Findings and Purpose			
HRS 226-2: Definitions			
HRS 226-3: Overall Theme			
HRS 226-4: State Goals. In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self determination, it shall be the goal of the State to achieve: (1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations. (2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people. (3) Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life.			
Analysis: **This project supports the goal of a desirable physical well-being by providing additional capacity to fulfill Moloka'i island's future waste disposal needs up to the Year 2038.**			
Chapter 226-5 Objective and Policies for Population			
Objective: It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic and social objectives contained in this chapter.	✓		
Policies:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.	✓		
(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.	✓		
(3) Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.			✓
(4) Encourage research activities and public awareness programs to foster an understanding of Hawaii's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawaii's population.			✓
(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members.			✓
(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population.			✓

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(7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.			✓
Analysis: **The project is to increase waste disposal capacity to fulfill Moloka'i island's disposal need beyond mid-2020 and to support population growth and economic activities on the island of Moloka'i. As such, the proposed action is consistent with the intent of this section of the Hawai'i State Plan.**			
Chapter 226-6 Objectives and policies for the economy – – in general			
Objectives: Planning for the State's economy in general shall be directed toward achievement of the following objectives:			
(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.			✓
(2) A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands.			✓
Policies:			
(1) Promote and encourage entrepreneurship within Hawaii by residents and nonresidents of the State.			✓
(2) Expand Hawaii's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.			✓
(3) Promote Hawaii as an attractive market for environmentally and socially sound investment activities that benefit Hawaii's people.			✓
(4) Transform and maintain Hawaii as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities.			✓
(5) Promote innovative activity that may pose initial risks, but ultimately contribute to the economy of Hawaii.			✓
(6) Seek broader outlets for new or expanded Hawaii business investments.			✓
(7) Expand existing markets and penetrate new markets for Hawaii's products and services.			✓
(8) Assure that the basic economic needs of Hawaii's people are maintained in the event of disruptions in overseas transportation.			✓
(9) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.			✓

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(10) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawaii's small scale producers, manufacturers, and distributors.			✓
(11) Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.			✓
(12) Encourage innovative activities that may not be labor-intensive, but may otherwise contribute to the economy of Hawaii.			✓
(13) Foster greater cooperation and coordination between the government and private sectors in developing Hawaii's employment and economic growth opportunities.			✓
(14) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.			✓
(15) Maintain acceptable working conditions and standards for Hawaii's workers.			✓
(16) Provide equal employment opportunities for all segments of Hawaii's population through affirmative action and nondiscrimination measures.			✓
(17) Stimulate the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.			✓
(18) Encourage businesses that have favorable financial multiplier effects within Hawaii's economy, particularly with respect to emerging industries in science and technology.			✓
(19) Promote and protect intangible resources in Hawaii, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.			✓
(20) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new or innovative potential growth industries in particular.			✓
(21) Foster a business climate in Hawaii--including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			✓
Analysis: **Not Applicable.**			
Chapter 226-7 Objectives and policies for the economy – – agriculture.			
Objectives: Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:			
(1) Viability of Hawaii's sugar and pineapple industries.			✓
(2) Growth and development of diversified agriculture throughout the State.			✓

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(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.			✓
Policies:			
(1) Establish a clear direction for Hawaii's agriculture through stakeholder commitment and advocacy.			✓
(2) Encourage agriculture by making the best use of natural resources.			✓
(3) Provide the governor and the legislature with information and options needed for prudent decision-making for the development of agriculture.			✓
(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.			✓
(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawaii's economy.			✓
(6) Seek the enactment and retention of federal and state legislation that benefits Hawaii's agricultural industries.			✓
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawaii's food producers and consumers in the State, nation, and world.			✓
(8) Support research and development activities that strengthen economic productivity in agriculture, stimulate greater efficiency, and enhance the development of new products and agricultural by-products.			✓
(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.			✓
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.			✓
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.			✓
(12) In addition to the State's priority on food, expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.			✓
(13) Promote economically competitive activities that increase Hawaii's agricultural self-sufficiency, including the increased purchase and use of Hawaii-grown food and food products by residents, businesses, and governmental bodies as defined under section 103D-104.			✓
(14) Promote and assist in the establishment of sound financial programs for diversified agriculture.			✓
(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.			✓

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(16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.			✓
(17) Perpetuate, promote, and increase use of traditional Hawaiian farming systems, such as the use of loko i'a, māla, and irrigated lo'i, and growth of traditional Hawaiian crops, such as kalo, 'uala, and 'ulu.			✓
(18) Increase and develop small-scale farms.			✓
Analysis: **Not Applicable.**			
Chapter 226-8 Objective and policies for the economy – – visitor industry.			
Objectives: Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.			✓
Policies:			
(1) Support and assist in the promotion of Hawaii's visitor attractions and facilities.			✓
(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people.			✓
(3) Improve the quality of existing visitor destination areas by utilizing Hawaii's strengths in science and technology.			✓
(4) Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.			✓
(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawaii's people.			✓
(6) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the visitor industry.			✓
(7) Foster a recognition of the contribution of the visitor industry to Hawaii's economy and the need to perpetuate the aloha spirit.			✓
(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawaii's cultures and values.			✓
Analysis: **Not Applicable.**			
Chapter 226-9 Objective and policies for the economy – – federal expenditures.			
Objective: Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawaii's economy.	✓		
Policies:			

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(1) Encourage the sustained flow of federal expenditures in Hawaii that generates long-term government civilian employment;			✓
(2) Promote Hawaii's supportive role in national defense, in a manner consistent with Hawaii's social, environmental, and cultural goals by building upon dual-use and defense applications to develop thriving ocean engineering, aerospace research and development, and related dual-use technology sectors in Hawaii's economy;			✓
(3) Promote the development of federally supported activities in Hawaii that respect statewide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawaii's environment;	✓		✓
(4) Increase opportunities for entry and advancement of Hawaii's people into federal government service;			✓
(5) Promote federal use of local commodities, services, and facilities available in Hawaii;			✓
(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawaii; and			✓
(7) Pursue the return of federally controlled lands in Hawaii that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.			✓
Analysis: **The project is partly funded by the Clean Water State Revolving Fund (SRF) and its purpose is to fulfill Moloka'i island's disposal needs beyond mid-2020. As such, the proposed action is consistent with the intent of this section of the Hawai'i State Plan.**			
Chapter 226-10 Objective and policies for the economy – – potential growth and innovative activities.			
Objective: Planning for the State's economy with regard to potential growth and innovative activities shall be directed towards achievement of the objective of development and expansion of potential growth and innovative activities that serve to increase and diversify Hawaii's economic base.			✓
Policies:			
(1) Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawaii's economy, including but not limited to diversified agriculture, aquaculture, renewable energy development, creative media, health care, and science and technology-based sectors;			✓
(2) Facilitate investment in innovative activity that may pose risks or be less labor-intensive than other traditional business activity, but if successful, will generate revenue in Hawaii through the export of services or products or substitution of imported services or products;			✓
(3) Encourage entrepreneurship in innovative activity by academic researchers and instructors who may not have the background, skill, or initial inclination to commercially exploit their discoveries or achievements;			✓

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(4) Recognize that innovative activity is not exclusively dependent upon individuals with advanced formal education, but that many self-taught, motivated individuals are able, willing, sufficiently knowledgeable, and equipped with the attitude necessary to undertake innovative activity;			✓
(5) Increase the opportunities for investors in innovative activity and talent engaged in innovative activity to personally meet and interact at cultural, art, entertainment, culinary, athletic, or visitor-oriented events without a business focus;			✓
(6) Expand Hawaii's capacity to attract and service international programs and activities that generate employment for Hawaii's people;			✓
(7) Enhance and promote Hawaii's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts;			✓
(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste;			✓
(9) Promote Hawaii's geographic, environmental, social, and technological advantages to attract new or innovative economic activities into the State;			✓
(10) Provide public incentives and encourage private initiative to attract new or innovative industries that best support Hawaii's social, economic, physical, and environmental objectives;			✓
(11) Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research;			✓
(12) Develop, promote, and support research and educational and training programs that will enhance Hawaii's ability to attract and develop economic activities of benefit to Hawaii;			✓
(13) Foster a broader public recognition and understanding of the potential benefits of new or innovative growth-oriented industry in Hawaii;			✓
(14) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawaii's social, economic, physical, and environmental objectives;			✓
(15) Increase research and development of businesses and services in the telecommunications and information industries;			✓
(16) Foster the research and development of nonfossil fuel and energy efficient modes of transportation; and			✓
(17) Recognize and promote health care and health care information technology as growth industries.			✓
Analysis: **Not Applicable.**			
Chapter 226-10.5 Objectives and policies for the economy – – information industry.			
Objective: Planning for the State's economy with regard to telecommunications and information technology shall be directed toward recognizing that broadband and wireless communication capability and			✓

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infrastructure are foundations for an innovative economy and positioning Hawaii as a leader in broadband and wireless communications and applications in the Pacific Region.			
Policies:			
(1) Promote efforts to attain the highest speeds of electronic and wireless communication within Hawaii and between Hawaii and the world, and make high speed communication available to all residents and businesses in Hawaii;			✓
(2) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawaii to accommodate future growth and innovation in Hawaii's economy;			✓
(3) Facilitate the development of new or innovative business and service ventures in the information industry which will provide employment opportunities for the people of Hawaii;			✓
(4) Encourage mainland- and foreign-based companies of all sizes, whether information technology-focused or not, to allow their principals, employees, or contractors to live in and work from Hawaii, using technology to communicate with their headquarters, offices, or customers located out-of-state;			✓
(5) Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;			✓
(6) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people;			✓
(7) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the information industry;			✓
(8) Foster a recognition of the contribution of the information industry to Hawaii's economy; and			✓
(9) Assist in the promotion of Hawaii as a broker, creator, and processor of information in the Pacific.			✓
Analysis: **Not Applicable.**			
Chapter 226-11 Objectives and policies for the physical environment – – land based, shoreline, and marine resources.			
Objectives: Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:			
(1) Prudent use of Hawaii's land-based, shoreline, and marine resources.	✓		
(2) Effective protection of Hawaii's unique and fragile environmental resources.	✓		
Policies:			

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(1) Exercise an overall conservation ethic in the use of Hawaii's natural resources.	✓		
(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.			✓
(3) Take into account the physical attributes of areas when planning and designing activities and facilities.	✓		
(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.	✓		
(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.			✓
(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.			✓
(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.			✓
(8) Pursue compatible relationships among activities, facilities, and natural resources.			✓
(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.			✓
Analysis: **The proposed action involves improvements at an existing, permitted solid waste management facility that are intended to allow the County of Maui to meet the disposal needs of the Moloka'i community into the future. The subject property is situated inland approximately 1.25 miles from the nearest area of shoreline. Furthermore, Phase 5 and Phase 6 disposal cells' proposed designs for a containment liner system, leachate collection system, and landfill gas monitoring probe network will avoid adverse effects to the physical environment with regard to land based, shoreline, and marine resources. As such, the proposed action is consistent with the intent of this section of the Hawai'i State Plan.**			
Chapter 226-12 Objective and policies for the physical environment -- scenic, natural beauty, and historic resources.			
Objective: Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.			✓
Policies:			
(1) Promote the preservation and restoration of significant natural and historic resources.			✓
(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.			✓
(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.			✓

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(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.			✓
(5) Encourage the design of developments and activities that complement the natural beauty of the islands.			✓
Analysis: **Not Applicable.**			
Chapter 226-13 Objectives and policies for the physical environment – – land, air, and water quality.			
Objectives: Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives.			
(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.	✓		
(2) Greater public awareness and appreciation of Hawaii's environmental resources.			✓
Policies:			
(1) Foster educational activities that promote a better understanding of Hawaii's limited environmental resources.			✓
(2) Promote the proper management of Hawaii's land and water resources.	✓		
(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.	✓		
(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaii's people.	✓		
(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.			✓
(6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.			✓
(7) Encourage urban developments in close proximity to existing services and facilities.			✓
(8) Foster recognition of the importance and value of the land, air, and water resources to Hawaii's people, their cultures and visitors.			✓
Analysis: **The proposed action involves improvements at an existing, permitted solid waste management facility that are intended to allow the County of Maui to meet the disposal needs of the Moloka'i community into the future. The subject property is situated inland approximately 1.25 miles from the nearest area of shoreline. Furthermore, Phase 5 and Phase 6 disposal cells' proposed designs for a containment liner system, leachate collection system, and landfill gas monitoring probe network will avoid adverse effects to the physical environment with regard to land, air, and water quality. As such, the proposed action is consistent with the intent of this section of the Hawai'i State Plan.**			
Chapter 226-14 Objective and policies for facility systems – – in general.			

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Objective: Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.	✓		
Policies:			
(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.	✓		
(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.	✓		
(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	✓		
(4) Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.	✓		
Analysis: **The project is in accordance with the County of Maui, Department of Environmental Management's MISWMF Master Plan. This master plan has been prepared and updated in coordination with the County Integrated Solid Waste Management Plan. The project will partly be funded by the State of Hawai'i's Clean Water State Revolving Fund (SRF) to utilize low interest loans. As such, the proposed action is consistent with the intent of this section of the Hawai'i State Plan.**			
Chapter 226-15 Objectives and policies for facility systems – – solid and liquid waste.			
Objectives: Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:			
(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	✓		
(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.			✓
Policies:			
(1) Encourage the adequate development of sewerage facilities that complement planned growth.			✓
(2) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.	✓		
(3) Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.			✓
Analysis: **The purpose of the project is to provide additional capacity of the landfill in the existing MISWMF. In addition to disposal services, important waste diversion and recycling services will continue to be provided. As such, the proposed action is consistent with the intent of this section of the Hawai'i State Plan.**			
Chapter 226-16 Objective and policies for facility systems – – water.			

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Objective: Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.			✓
Policies:			
(1) Coordinate development of land use activities with existing and potential water supply.			✓
(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.			✓
(3) Reclaim and encourage the productive use of runoff water and wastewater discharges.			✓
(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.			✓
(5) Support water supply services to areas experiencing critical water problems.			✓
(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.			✓
Analysis: **Not Applicable.**			
Chapter 226-17 Objectives and policies for facility systems – – transportation.			
Objectives: Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:			
(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.			✓
(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.			✓
Policies:			
(1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;			✓
(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;			✓
(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;			✓
(4) Provide for improved accessibility to shipping, docking, and storage facilities;			✓
(5) Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;			✓

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(6) Encourage transportation systems that serve to accommodate present and future development needs of communities;			✓
(7) Encourage a variety of carriers to offer increased opportunities and advantages to interisland movement of people and goods;			✓
(8) Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;			✓
(9) Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;			✓
(10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment;			✓
(11) Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation;			✓
(12) Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and			✓
(13) Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.			✓
Analysis: **Not Applicable.**			
Chapter 226-18 Objectives and policies for facility systems – – energy.			
Objectives: Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:			
(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;			✓
(2) Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawaii's dependence on imported fuels for electrical generation and ground transportation.			✓
(3) Greater diversification of energy generation in the face of threats to Hawaii's energy supplies and systems;			✓
(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use; and			✓
(5) Utility models that make the social and financial interests of Hawaii's utility customers a priority.			✓
(b) To achieve the energy objectives, it shall be the policy of this State to ensure the short- and long-term provision of adequate, reasonably prices, and dependable energy services to accommodate demand.			✓
Policies:			
(1) Support research and development as well as promote the use of renewable energy sources;			✓

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(2) Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;			✓
(3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;			✓
(4) Promote all cost-effective conservation of power and fuel supplies through measures, including:			✓
(A) Development of cost-effective demand-side management programs;			✓
(B) Education;			✓
(C) Adoption of energy-efficient practices and technologies; and			✓
(D) Increasing energy efficiency and decreasing energy use in public infrastructure			✓
(5) Ensure, to the extent that new supply-side resources are needed, that the development or expansion of energy systems uses the least-cost energy supply option and maximizes efficient technologies; and			✓
(6) Support research, development, demonstration, and use of energy efficiency, load management, and other demand-side management programs, practices, and technologies;			✓
(7) Promote alternate fuels and transportation energy efficiency;			✓
(8) Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications;			✓
(9) Support actions that reduce, avoid, or sequester Hawaii's greenhouse gas emissions through agriculture and forestry initiatives;			✓
(10) Provide priority handling and processing for all state and county permits required for renewable energy projects;			✓
(11) Ensure that liquefied natural gas is used only as a cost-effective transitional, limited-term replacement of petroleum for electricity generation and does not impede the development and use of other cost-effective renewable energy sources; and			✓
(12) Promote the development of indigenous geothermal energy resources that are located on public trust land as an affordable and reliable source of firm power for Hawaii.			✓
Analysis: **Not Applicable.**			
Chapter 226-18.5 Objectives and policies for facility systems – – telecommunications.			

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
Objectives: (a) Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.			✓
(b) To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand.			✓
Policies:			
(1) Facilitate research and development of telecommunications systems and resources;			✓
(2) Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;			✓
(3) Promote efficient management and use of existing telecommunications systems and services; and			✓
(4) Facilitate the development of education and training of telecommunications personnel.			✓
Analysis: **Not Applicable.**			
Chapter 226-19 Objectives and policies for socio-cultural advancement – – housing.			
Objectives: Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:			
(1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawaii's population.			✓
(2) The orderly development of residential areas sensitive to community needs and other land uses.			✓
(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawaii's people.			✓
Policies:			
(1) Effectively accommodate the housing needs of Hawaii's people.			✓
(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.			✓
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.			✓

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.			✓
(5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.			✓
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.			✓
(7) Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.			✓
(8) Promote research and development of methods to reduce the cost of housing construction in Hawaii.			✓
Analysis: **Not Applicable.**			
Chapter 226-20 Objectives and policies for socio-cultural advancement – – health.			
Objectives: Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives:			
(1) Fulfillment of basic individual health needs of the general public.			✓
(2) Maintenance of sanitary and environmentally healthful conditions in Hawaii's communities.	✓		
(3) Elimination of health disparities by identifying and addressing social determinants of health.			✓
Policies:			
(1) Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.			✓
(2) Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.			✓
(3) Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.			✓
(4) Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.			✓
(5) Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.			✓
(6) Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.			✓

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(7) Prioritize programs, services, interventions, and activities that address identified social determinants of health to improve native Hawaiian health and well-being consistent with the United States Congress' declaration of policy as codified in title 42 United States Code section 11702, and to reduce health disparities of disproportionately affected demographics, including native Hawaiians, other Pacific Islanders, and Filipinos. The prioritization of affected demographic groups other than native Hawaiians may be reviewed every ten years and revised based on the best available epidemiological and public health data.			✓
Analysis: **The proposed action involves improvements to an existing, permitted solid waste management facility that are intended to allow the County of Maui to meet the disposal needs of the Moloka'i community into the future. As such, the proposed action is consistent with the intent of the health and sanitation objective of the Hawai'i State Plan.**			
Chapter 226-21 Objectives and policies for Socio-cultural advancement – – education.			
Objective: Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.			✓
Policies:			
(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.			✓
(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.			✓
(3) Provide appropriate educational opportunities for groups with special needs.			✓
(4) Promote educational programs which enhance understanding of Hawaii's cultural heritage.			✓
(5) Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands.			✓
(6) Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.			✓
(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.			✓
(8) Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.			✓
(9) Support research programs and activities that enhance the education programs of the State.			✓
Analysis: **Not Applicable.**			

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
Chapter 226-22 Objective and policies for socio-cultural advancement – – social services.			
Objective: Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being.			✓
Policies:			
(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			✓
(2) Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.			✓
(3) Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawaii's communities.			✓
(4) Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.			✓
(5) Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.			✓
(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.			✓
Analysis: **Not Applicable.**			
Chapter 226-23 Objective and policies for socio-cultural advancement – – leisure.			
Objective: Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.			✓
Policies:			
(1) Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.			✓
(2) Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.			✓
(3) Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.			✓
(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.			✓

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(5) Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.			✓
(6) Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.			✓
(7) Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawaii's people.			✓
(8) Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.			✓
(9) Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawaii's population to participate in the creative arts.			✓
(10) Assure adequate access to significant natural and cultural resources in public ownership.			✓
Analysis: **Not Applicable.**			
Chapter 226-24 Objective and policies for socio-cultural advancement – – individual rights and personal well-being.			
Objective: Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.			✓
Policies:			
(1) Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.			✓
(2) Uphold and protect the national and state constitutional rights of every individual.			✓
(3) Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.			✓
(4) Ensure equal opportunities for individual participation in society.			✓
Analysis: **Not Applicable.**			
Chapter 226-25 Objective and policies for socio-cultural advancement – – culture.			
Objective: Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaii's people.			✓
Policies:			

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(1) Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii.			✓
(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.			✓
(3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii.			✓
(4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawaii's people and visitors.			✓
Analysis: **Not Applicable.**			
Chapter 226-26 Objectives and policies for socio-cultural advancement – – public safety.			
Objective: Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:			
(1) Assurance of public safety and adequate protection of life and property for all people.			✓
(2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.			✓
(3) Promotion of a sense of community responsibility for the welfare and safety of Hawaii's people.			✓
Policies (Public Safety):			
(1) Ensure that public safety programs are effective and responsive to community needs.			✓
(2) Encourage increased community awareness and participation in public safety programs.			✓
Policies (Public Safety-Criminal Justice):			
(1) Support criminal justice programs aimed at preventing and curtailing criminal activities.			✓
(2) Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.			✓
(3) Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.			✓
Policies (Public Safety-Emergency Measures:			

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.			✓
(2) Enhance the coordination between emergency management programs throughout the State.			✓
Analysis: **Not Applicable.**			
Chapter 226-27 Objectives and policies for socio-cultural advancement – – government.			
Objectives: Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:			
(1) Efficient, effective, and responsive government services at all levels in the State.	✓		
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.	✓		
Policies:			
(1) Provide for necessary public goods and services not assumed by the private sector.	✓		
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.			✓
(3) Minimize the size of government to that necessary to be effective.			✓
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawaii.			✓
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.	✓		
(6) Provide for a balanced fiscal budget.			✓
(7) Improve the fiscal budgeting and management system of the State.			✓
(8) Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.			✓
Analysis: **The proposed action involves improvements to an existing, permitted solid waste management facility that are intended to allow the County of Maui to meet the disposal needs of the Moloka'i community into the future. As such, the proposed action is consistent with the intent of this section of the Hawai'i State Plan.**			

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
Chapter 226-101: Purpose. The purpose of this part is to establish overall priority guidelines to address areas of statewide concern.			
Chapter 226-102: Overall direction. The State shall strive to improve the quality of life for Hawaii's present and future population through the pursuit of desirable courses of action in seven major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, quality education, principles of sustainability, and climate change adaptation.			
Chapter 226-103: Economic priority guidelines.			
(a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawaii's people and achieve a stable and diversified economy:			
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.			✓
(A) Encourage investments which:			✓
(i) Reflect long term commitments to the State;			✓
(ii) Rely on economic linkages within the local economy;			✓
(iii) Diversify the economy;			✓
(iv) Reinvest in the local economy;			✓
(v) Are sensitive to community needs and priorities; and			✓
(vi) Demonstrate a commitment to provide management opportunities to Hawaii residents; and			✓
(B) Encourage investments in innovative activities that have a nexus to the State, such as:			✓
(i) Present or former residents acting as entrepreneurs or principals;			✓
(ii) Academic support from an institution of higher education in Hawaii;			✓
(iii) Investment interest from Hawaii residents;			✓
(iv) Resources unique to Hawaii that are required for innovative activity; and			✓
(v) Complementary or supportive industries or government programs or projects.			✓

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(2) Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.			✓
(3) Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.			✓
(4) Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.			✓
(5) Streamline the processes for building and development permit and review, and telecommunication infrastructure installation approval and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where scientific evidence indicates that public health, safety and welfare would not be adversely affected.			✓
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawaii's small-scale producers, manufacturers, and distributors.			✓
(7) Continue to seek legislation to protect Hawaii from transportation interruptions between Hawaii and the continental United States.			✓
(8) Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:			✓
(A) An industry that can take advantage of Hawaii's unique location and available physical and human resources.			✓
(B) A clean industry that would have minimal adverse effects on Hawaii's environment.			✓
(C) An industry that is willing to hire and train Hawaii's people to meet the industry's labor needs at all levels of employment.			✓
(D) An industry that would provide reasonable income and steady employment.			✓
(9) Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawaii business.			✓
(10) Enhance the quality of Hawaii's labor force and develop and maintain career opportunities for Hawaii's people through the following actions:			✓
(A) Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.			✓

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(B) Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.			✓
(C) Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.			✓
(D) Promote career opportunities in all industries for Hawaii's people by encouraging firms doing business in the State to hire residents.			✓
(E) Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on- the-job training opportunities.			✓
(F) Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.			✓
(b) Priority guidelines to promote the economic health and quality of the visitor industry:			
(1) Promote visitor satisfaction by fostering an environment which enhances the Aloha Spirit and minimizes inconveniences to Hawaii's residents and visitors.			✓
(2) Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.			✓
(3) Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.			✓
(4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawaii's significant natural, scenic, historic, and cultural resources.			✓
(5) Develop and maintain career opportunities in the visitor industry for Hawaii's people, with emphasis on managerial positions.			✓
(6) Support and coordinate tourism promotion abroad to enhance Hawaii's share of existing and potential visitor markets.			✓
(7) Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.			✓
(8) Support law enforcement activities that provide a safer environment for both visitors and residents alike.			✓
(9) Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.			✓

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:			
(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.			✓
(2) Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawaii.			✓
(3) Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.			✓
(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:			
(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.			✓
(2) Assist in providing adequate, reasonably priced water for agricultural activities.			✓
(3) Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.			✓
(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.			✓
(5) Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawaii's agricultural community.			✓
(6) Seek favorable freight rates for Hawaii's agricultural products from interisland and overseas transportation operators.			✓
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.			✓
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.			✓
(9) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.			✓
(10) Support the continuation of land currently in use for diversified agriculture.			✓

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(11) Encourage residents and visitors to support Hawaii's farmers by purchasing locally grown food and food products.			✓
(e) Priority guidelines for water use and development:			
(1) Maintain and improve water conservation programs to reduce the overall water consumption rate.			✓
(2) Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes.			✓
(3) Increase the support for research and development of economically feasible alternative water sources.			✓
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements.			✓
(f) Priority guidelines for energy use and development:			
(1) Encourage the development, demonstration, and commercialization of renewable energy sources.			✓
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.			✓
(3) Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.			✓
(4) Encourage the development and use of energy conserving and cost-efficient transportation systems.			✓
(g) Priority guidelines to promote the development of the information industry:			
(1) Establish an information network, with an emphasis on broadband and wireless infrastructure and capability that will serve as the foundation of and catalyst for overall economic growth and diversification in Hawaii.			✓
(2) Encourage the development of services such as financial data processing, a products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.			✓
(3) Encourage the development of small businesses in the information field such as software development; the development of new information systems, peripherals, and applications; data conversion and data entry services; and home or cottage services such as computer programming, secretarial, and accounting services.			✓

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(4) Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.			✓
(5) Encourage research activities, including legal research in the information and telecommunications fields.			✓
(6) Support promotional activities to market Hawaii's information industry services.			✓
(7) Encourage the location or co-location of telecommunication or wireless information relay facilities in the community, including public areas, where scientific evidence indicates that the public health, safety, and welfare would not be adversely affected.			✓
Analysis: **Not Applicable.**			
Chapter 226-104: Population growth and land resources priority guidelines.			
(a) Priority guidelines to effect desired statewide growth and distribution:			
(1) Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii's people.	✓		
(2) Manage a growth rate for Hawaii's economy that will parallel future employment needs for Hawaii's people.			✓
(3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.	✓		
(4) Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.			✓
(5) Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.			✓
(6) Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.			✓
(7) Support the development of high technology parks on the neighbor islands.			✓
(b) Priority guidelines for regional growth distribution and land resource utilization:			

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.			✓
(2) Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.			✓
(3) Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.			✓
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			✓
(5) In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.			✓
(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.			✓
(7) Pursue rehabilitation of appropriate urban areas.			✓
(8) Support the redevelopment of Kakaako into a viable residential, industrial, and commercial community.			✓
(9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.			✓
(10) Identify critical environmental areas in Hawaii to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.			✓
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.			✓
(12) Utilize Hawaii's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.	✓		

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(13) Protect and enhance Hawaii's shoreline, open spaces, and scenic resources.			✓
Analysis: **The proposed action involves improvements to an existing, permitted solid waste management facility that are intended to allow the County of Maui to meet the disposal needs of the Moloka'i community into the future. Furthermore, the proposed improvements will have systems in place to avoid adverse effects on the physical environment. As such, the proposed action is consistent with the intent of this section of the Hawai'i State Plan.**			
Chapter 226-105: Crime and criminal justice.			
Priority guidelines in the area of crime and criminal justice:			
(1) Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.			✓
(2) Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.			✓
(3) Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.			✓
(4) Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.			✓
(5) Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.			✓
(6) Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.			✓
Analysis: **Not Applicable.**			
Chapter 226-106: Affordable housing.			
Priority guidelines for the provision of affordable housing:			
(1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.			✓
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.			✓
(3) Improve information and analysis relative to land availability and suitability for housing.			✓

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawaii's low- and moderate-income households, gap-group households, and residents with special needs.			✓
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawaii's people for the purchase of initial owner-occupied housing.			✓
(6) Encourage public and private sector cooperation in the development of rental housing alternatives.			✓
(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.			✓
(8) Give higher priority to the provision of quality housing that is affordable for Hawaii's residents and less priority to development of housing intended primarily for individuals outside of Hawaii.			✓
Analysis: **Not Applicable.**			
Chapter 226-107: Quality education.			
Priority guidelines to promote quality education:			
(1) Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;			✓
(2) Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;			✓
(3) Initiate efforts to improve the quality of education by improving the capabilities of the education work force;			✓
(4) Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision making responsibilities;			✓
(5) Increase and improve the use of information technology in education by the availability of telecommunications equipment for:			✓
(A) The electronic exchange of information;			✓
(B) Statewide electronic mail; and			✓
(C) Access to the Internet.			✓
(6) Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;			✓
(7) Pursue the establishment of Hawaii's public and private universities and colleges as research and training centers of the Pacific;			✓

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(8) Develop resources and programs for early childhood education;			✓
(9) Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and			✓
(10) Strengthen and expand educational programs and services for students with special needs.			✓
Analysis: **Not Applicable.**			
CHAPTER 226-108: Sustainability			
Priority guidelines and principles to promote sustainability shall include:			
(1) Encouraging balanced economic, social, community, and environmental priorities;			✓
(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;			✓
(3) Promoting a diversified and dynamic economy;			✓
(4) Encouraging respect for the host culture;			✓
(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;			✓
(6) Considering the principles of the ahupuaa system; and			✓
(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawaii.			✓
Analysis: **Not Applicable.**			
CHAPTER 226-109: Climate change adaptation			
Priority guidelines and principles to promote climate change adaptation shall include:			
(1) Ensure that Hawaii's people are educated, informed, and aware of the impacts climate change may have on their communities;			✓
(2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies;			✓
(3) Invest in continued monitoring and research of Hawaii's climate and the impacts of climate change on the State;			✓
(4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change;			✓

HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(5) Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change;			✓
(6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments;			✓
(7) Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options;			✓
(8) Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities;			✓
(9) Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans; and			✓
(10) Encourage planning and management of the natural and built environments that effectively integrate climate change policy.			✓
Analysis: **Not Applicable.**			

C. GENERAL PLAN OF THE COUNTY OF MAUI

The Maui County General Plan (1990 Update) sets forth broad objectives and policies to help guide the long-range development of the County. As stated in the Maui County Charter:

> *The general plan shall indicate desired population and physical development patterns for each island and region within the county; shall address the unique problems and needs of each island and region; shall explain the opportunities and the social, economic, and environmental consequences related to potential developments; and shall set forth the desired sequence, patterns, and characteristics of future developments. The general plan shall identify objectives to be achieved, and priorities, policies, and implementing actions to be pursued with respect to population density, land use maps, land use regulations, transportation systems, public and community facility locations, water and sewage systems, visitor destinations, urban design, and other matters related to development.*

Chapter 2.80B of the Maui County Code (MCC), relating to the General Plan and Community Plans, implements the foregoing Charter provision through enabling

legislation which calls for a Countywide Policy Plan and a Maui Island Plan (MIP). The Countywide Policy Plan was adopted as Ordinance No. 3732 on March 24, 2010. The MIP was adopted as Ordinance No. 4004 on December 28, 2012 and does not apply to the island of Moloka'i.

With regard to the Countywide Policy Plan, which does apply to Moloka'i, Section 2.80B.030 of the MCC states the following:

> *The countywide policy plan shall provide broad policies and objectives which portray the desired direction of the County's future. The countywide policy plan shall include:*
>
> 1. *A vision for the County;*
> 2. *A statement of core themes or principles for the County; and*
> 3. *A list of countywide objectives and policies for population, land use, the environment, the economy, and housing.*

Core principles set forth in the Countywide Policy Plan are listed as follows:

1. *Excellence in the stewardship of the natural environment and cultural resources;*
2. *Compassion for and understanding of others;*
3. *Respect for diversity;*
4. *Engagement and empowerment of Maui County residents;*
5. *Honor for all cultural traditions and histories;*
6. *Consideration of the contributions of past generations as well as the needs of future generations;*
7. *Commitment to self-sufficiency;*
8. *Wisdom and balance in decision making;*
9. *Thoughtful, island appropriate innovation; and*
10. *Nurturance of the health and well-being of our families and our communities.*

In accordance with these core principles, the Countywide Policy Plan identifies goals objectives, policies and implementing actions for pertinent functional planning categories, which are identified as follows:

1. *Natural environment*
2. *Local cultures and traditions*
3. *Education*
4. *Social and healthcare services*
5. *Housing opportunities for residents*
6. *Local economy*
7. *Parks and public facilities*
8. *Transportation options*
9. *Physical infrastructure*
10. *Sustainable land use and growth management*
11. *Good governance*

With respect to the proposed action, the following goals, objectives, policies, and implementing actions are illustrative of the project's compliance with the Countywide Policy Plan.

IMPROVE PHYSICAL INFRASTRUCTURE

Goal:

Maui County's physical infrastructure will be maintained in optimum condition and will provide for and effectively serve the needs of the County through clean and sustainable technologies.

Objective:

Improve waste-disposal practices and systems to be efficient, safe, and as environmentally sound as possible.

Policies:

- *Provide sustainable waste-disposal systems and comprehensive, convenient recycling programs to reduce the flow of waste into landfills.*
- *Support innovative and alternative practices in recycling solid waste and wastewater and disposing of hazardous waste.*
- *Pursue improvements and upgrades to existing wastewater and solid-waste systems consistent with current and future plans and the County's Capital Improvement Program.*

The proposed action will improve the existing waste management system by providing additional landfill capacity to service the island of Moloka'i's waste disposal needs up to the Year 2038.

As such, the proposed improvements are consistent with the themes and principles of the Countywide Policy Plan as noted above.

D. MOLOKA'I COMMUNITY PLAN

Within Maui County, there are nine (9) community plan regions. From a General Plan implementation standpoint, each region is governed by a Community Plan which sets forth desired land use patterns, as well as goals, objectives, policies, and implementing actions for a number of functional areas, including infrastructure-related parameters.

The MISWMF is located within the Moloka'i Community Plan region and is designated as "P, Public/Quasi-Public" by the community plan's land use map. Refer to **Figure 5**. The ten-year update of the Moloka'i Community Plan was initiated in 2010 by the Maui Planning Department and is currently in process.

The proposed project is consistent with the following goals, policies, and objectives of the Moloka'i Community Plan:

ENVIRONMENT

Goal:

Preserve, protect and manage Moloka'i's exceptional natural land and water resources to ensure that future generations may continue to enjoy and protect the island environment.

Objectives and Policies:

Incorporate mandatory waste recycling and reuse as major elements of the Island's environmental resource management and protection program.

INFRASTRUCTURE

Goal:

Culturally and environmentally sensitive infrastructure systems, developed and maintained in a timely fashion, which protect and preserve the safety and health of Moloka'i's residents and visitors.

Objectives and Policies:

Encourage comprehensive waste management for the island which includes recycling and reuse of solid waste and wastewater as major plan components.

The proposed action is intended to improve the existing facilities at the MISWMF to ensure that sufficient capacity is provided at the landfill to service Moloka'i's waste disposal needs through the Year 2038. The proposed project is, therefore, consistent with the intent of the Moloka'i Community Plan.

E. ZONING

Permitted uses and development standards are set forth by Title 19 of the Maui County Code relating to Zoning. Infrastructural systems, including roadway and supporting structures (e.g., drainage basins), are permitted in each of the County zoning districts. The MISWMF is zoned "Interim" by the County of Maui. The "Interim" zoning ordinance provides temporary regulations over areas pending the formal adoption of a comprehensive zoning ordinance and map which are deemed as necessary in order:

1. To encourage the most appropriate use of land;
2. To conserve and stabilize the value of property;
3. To prevent certain uses that will be detrimental to existing uses; and
4. To promote the health, safety, and general welfare of the respective districts.

Permitted uses in the "Interim" zoning district include the construction of new or the expansion of existing parks, playgrounds, community centers or public/quasi-public facilities that are owned or operated by private or governmental agencies. As such, the existing and proposed uses at the County owned and operated MISWMF are permitted uses within the "Interim" zoning district.

F. LANDS OWNED BY STATE OF HAWAI'I DEPARTMENT OF HAWAIIAN HOME LANDS

This section evaluates the proposed project in the context of lands owned by DHHL. DHHL owns over 25,000 acres in five major areas on the island of Moloka'i; 1) 'Ualapu'e, 2) Kapa'akea, Makakupa'ia, and Kamiloloa, 3) Kalama'ula, 4) Kalaupapa-Pālā'au, and 5) Ho'olehua-Pālā'au. DHHL develops and maintains General, Island, Regional, and Water Policy Plans to effectively manage the Hawaiian Home Lands Trust and to develop and deliver lands to native Hawaiians. DHHL's General Plan (February 2002) provides for the development and use of land needed for fulfilling the purposes of the Hawaiian Homes Commission Act of 1920, as amended (HHCA). DHHL developed the Moloka'i Island Plan (June 2005), which identifies DHHL land use designations for its Moloka'i lands. DHHL's Regional Plans identify land use development factors, issues, opportunities, and each region's top priority projects for implementation within three (3) years of regional plan development for each island. DHHL's Water Policy Plan's (July 2014) priority policy is to

ensure the availability of adequate, quality water to fulfill the future water needs for Hawaiian homesteads.

The MISWMF is located approximately one (1) mile away from the closest DHHL's land, which is Kalama'ula homestead. See **Figure 14**. The proposed action is limited to work within the existing MISWMF and is not anticipated to have significant adverse impacts on the ability of DHHL to develop and utilize the lands owned by DHHL.

G. HAWAI'I COASTAL ZONE MANAGEMENT PROGRAM OBJECTIVES AND ENFORCEABLE POLICIES

This section addresses the project's relationship to applicable Coastal Zone Management considerations, as set forth in HRS, Chapter 205A.

The Hawai'i Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawai'i's coastal zone. As noted above, the proposed project is not located within the County of Maui's SMA. Refer to **Figure 6**. Nonetheless, this section addresses the project's relationship to coastal zone management considerations, set forth in Chapter 205A, HRS.

1. Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies:

a. *Improve coordination and funding of coastal recreational planning and management; and*

b. *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*

   i. *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*

   ii. *Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*

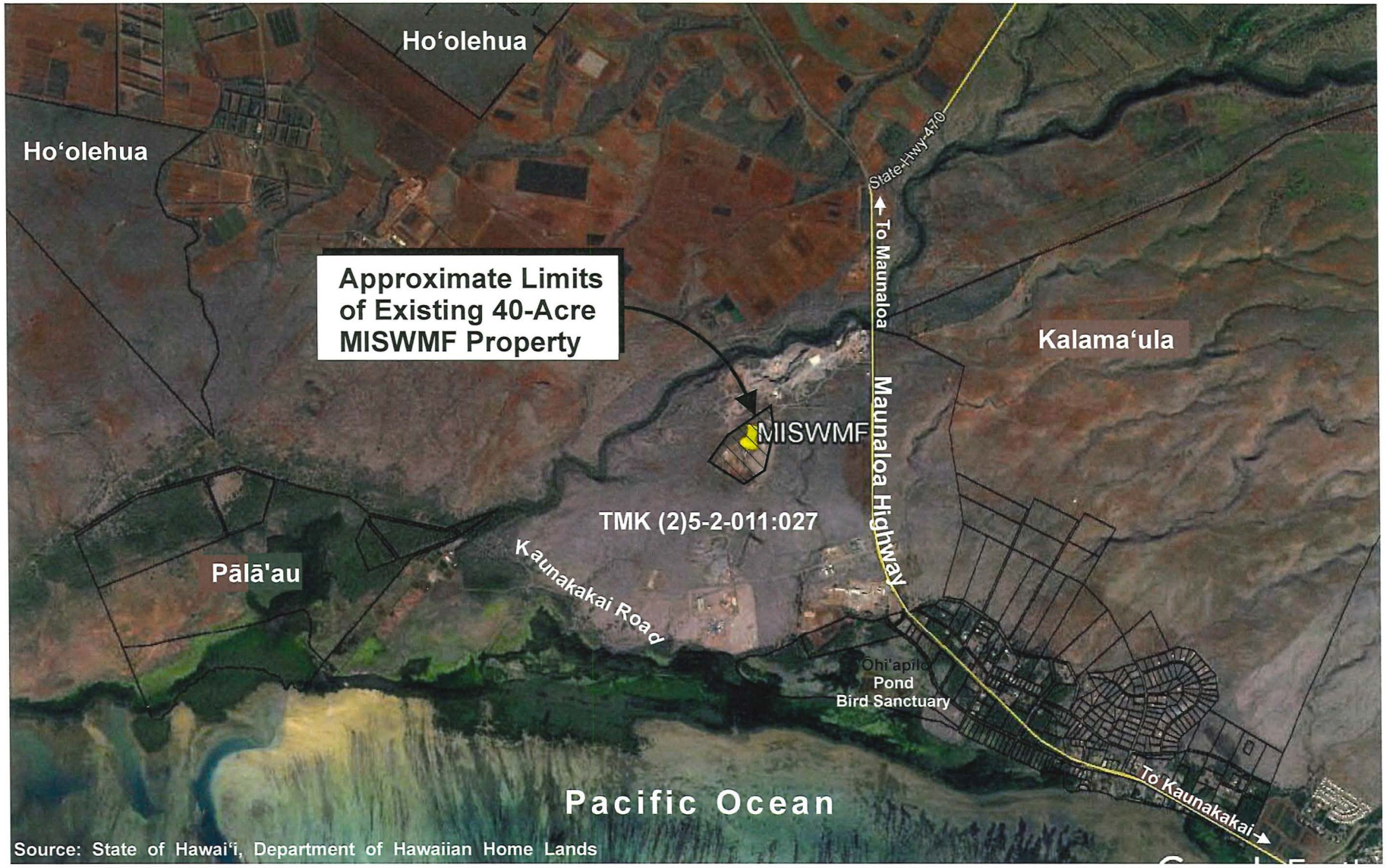

Figure 14

MISWMF Improvements

Hawaiian Home Lands in Kalamaʻula and Hoʻolehua-Pālā'au in Relation to MISWMF

NOT TO SCALE

Prepared for: County of Maui, Department of Environmental Management

MUNEKIYO HIRAGA

COM\DEM Molokai ISWMF LF\Applications\Figures\Hawaiian Home Lands in Kalamaʻula and Hoʻolehua-Pālā'au in Relation to Molokai ISWMF

iii. *Providing and managing adequate public access, consistent with conservation of natural resources, to and a shorelines with recreational value;*

iv. Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

v. *Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*

vi. *Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*

vii. *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*

viii. *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6.*

Response: The MISWMF is located inland, approximately 1.25 miles from the nearest area of coastline. As such, there are no anticipated impacts on coastal recreational opportunities or existing public access to the shoreline with implementation of the proposed action.

2. Historic Resources

Objective:

Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

a. *Identify and analyze significant archeological resources;*

b. *Maximize information retention through preservation of remains and artifacts or salvage operations; and*

c. *Support state goals for protection, restoration, interpretation, and display of historic resources.*

Response: An Archaeological Inventory Survey (AIS) was conducted as part of the 1993 EA (that was completed for the existing MISWMF) by Aki Sinoto Consulting in October 1992. As a result of the survey, no archaeological surface remains or other evidence of any significant cultural activities were encountered on the subject property.

A new AIS was conducted in March 2018 which consisted of a pedestrian survey and subsurface testing through the project area. The AIS revealed no significant cultural deposits or historic properties.

Furthermore, three (3) CIA interviews with individuals knowledgeable about the Nā'iwa area were conducted. As discussed previously, the interviewees were not aware of any cultural activities occurring within the 10-acre project site for the proposed improvements. Therefore, the proposed action is not anticipated to present significant adverse impacts on cultural or historic resources in the subject property.

3. **Scenic and Open Space Resources**

Objective:

Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

a. *Identify valued scenic resources in the coastal zone management area;*

b. *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*

c. *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*

d. *Encourage those developments that are not coastal dependent to locate in inland areas.*

Response: The subject property does not lie within a coastal scenic view corridor nor along the shoreline. The proposed action will primarily entail the development and operation of low-profile landfill disposal cells. For these reasons, no significant adverse impacts on scenic or open space resources are anticipated with implementation for the proposed action.

4. Coastal Ecosystems

Objective:

Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

a. *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*

b. *Improve the technical basis for natural resource management;*

c. *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*

d. *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*

e. *Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.*

Response: As previously noted, due to the project site's location at an elevation spanning between approximately 200 to 250 feet MSL and approximately 1.25 miles away from the shoreline, there are no anticipated impacts to coastal ecosystems from the proposed action.

5. Economic Uses

Objective:

Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

a. *Concentrate coastal dependent development in appropriate areas;*

b. *Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*

c. *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*

i. *Use of presently designated locations is not feasible;*

ii. *Adverse environmental effects are minimized; and*

iii. *The development is important to the State's economy.*

Response: The proposed project will have short-term positive economic impact from the generation of construction-related employment and services. The proposed action does not contradict the objectives and policies for economic uses.

6. **Coastal Hazards**

Objective:

Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:

a. *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*

b. *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;*

c. *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*

d. *Prevent coastal flooding from inland projects.*

Response: The subject property is located entirely within Flood Zone X, an area of minimal flooding, as indicated by the Flood Insurance Rate Map for the County of Maui. Refer to **Figure 11**. The modification to the stormwater management system for the entrance facility in the MISWMF will be implemented in order to comply with HAR§ 11-58.1-15(g), which requires a run-off control system to manage at least the water volume resulting from the 24-hour, 25-year storm event. An asphalt paved perimeter drainage channel will be installed to collect incidental rainfall and stormwater runoff from the entrance facility area and convey it to the perimeter channel bordering the Phase 3 disposal area, which ultimately flows into the permanent stormwater basin. Refer to **Appendix "B"**. Furthermore, Best

Management Practice (BMPs) will be implemented during the construction and operational phases to mitigate potential erosion and stormwater impacts. And finally, a Stormwater Pollution Control Plan will be developed to properly identify activities and operations with the potential to adversely impact stormwater quality and outline necessary facility stormwater management practices and BMPs that will be implemented to minimize pollutant impact to the facility stormwater.

7. Managing Development

Objective

Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

a. *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*

b. *Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and*

c. *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Response: The proposed action will undergo agency and public review during the Chapter 343 HRS EA review process. All aspects of the proposed project will be conducted in accordance with applicable Federal, State, and County standards. Early consultation with agencies and interested parties was conducted as part of preparing this Draft EA. Copies of early consultation letters received and responses to those letters are provided as part of this document.

A copy of the Draft EA will be provided to the Moloka'i Planning Commission for review and comment.

8. Public Participation

Objective:

Stimulate public awareness, education, and participation in coastal management.

Policies:

a. *Promote public involvement in coastal zone management processes;*

b. *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and*

c. *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Response: As previously mentioned, public awareness and participation are being facilitated through the EA review process. The proposed action is being processed in accordance with the objectives of public awareness, education, and participation.

9. Beach Protection

Objective:

Protect beaches for public use and recreation.

Policies:

a. *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;*

b. *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*

c. *Minimize the construction of public erosion-protection structures seaward of the shoreline;*

d. *Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and*

e. *Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation or encroach upon a beach transit corridor.*

Response: The subject property is located inland, approximately 1.25 miles from the shoreline. As a result, there are no anticipated adverse impacts to beach resources.

10. Marine Resources

Objective:

Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies:

a. *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*

b. *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*

c. *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*

d. *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*

e. *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Response: As previously stated, the subject property is located at an elevation spanning between approximately 200 to 250 feet MSL and approximately 1.25 miles away from the shoreline, and is, therefore, not anticipated to have any adverse impact on marine or coastal resources.

In addition to the foregoing objectives and policies and pursuant to Act 224 (2005):

> *No special management area use permit or special management area minor permit shall be granted for structures that allow artificial light from floodlights, uplights, or spotlights used for decorative or aesthetic purposes when the light:*
>
> *(1) Directly illuminates the shoreline and ocean waters; or*
>
> *(2) Is directed to travel across property boundaries toward the shoreline and ocean waters.*
>
> *Further, this prohibitation shall not apply to authorized users for government operations, security, public safety, or navigational*

needs; provided that a government agency or its authorized users shall make reasonable efforts to properly position or shield lights to minimize adverse impacts.

Response: The proposed project is located inland of the shoreline. No outdoor lighting will be installed within the MISWMF and along the access road and all activities, including construction of the proposed improvements and operation of the MISWMF, will be conducted during daylight hours.

H. HAWAI'I CLEAN WATER STATE REVOLVING FUND ENVIRONMENTAL CROSSCUTTERS

The proposed project will be funded in part by the Hawai'i Clean Water State Revolving Fund (SRF). As such, the project must comply with the Environmental Cross-Cutters and Federal Requirements for Clean Water SRF projects. **Table 2** below provides a listing of the environmental cross-cutters as well as the documentation received for the proposed action at the MISWMF in addressing the requirement criteria.

Table 2. Environmental Cross-Cutters and Project Documentation

Environmental Authority	Procedure	Responsible Agency	Response	Project Documentation
Archaeological and Historical Preservation Act of 1974	Obtain review for all projects	State Historic Preservation Division (SHPD)	An Archaeological Inventory Survey was prepared in 1992 and 2018. The Draft EA will be provided to SHPD for review and comment. The Archaeological Inventory Survey was submitted to SHPD for approval.	Refer to 1992 Archaeological Inventory Survey in **Appendix "F"** and 2018 Archaeological Assessment Report in **Appendix "G"**.
Clean Air Act	Coordinate to assure project conforms with State Implementation Plan (SIP)	State Department of Health, Clean Air Branch	The Draft EA will be provided to the Department of Health for review and comment.	See Chapter II (Section A-7) of Draft EA for discussion of potential air quality impacts and mitigation measures.
Coastal Barrier Resources Act	Obtain review if project is located on a coastal barrier island	State Coastal Zone Management Agency	Not applicable. Project site is not located on a coastal barrier island.	Not applicable.
Coastal Zone Management Act	Obtain review if project is located in coastal zone	State Coastal Zone Management Agency	Pursuant to Chapter 205A-1, the project site is within the Coastal Zone Management Area. The project site is, however, outside of the Special Management Area (SMA). A SMA permit is not required.	See Chapter III (Section G) of this EA document for discussion of the Coastal Zone Management Program review criteria.
Endangered Species Act	Obtain review by U.S. Fish and Wildlife Service for all projects	U.S. Fish and Wildlife Service (USFWS)	A copy of the early consultation letter (ECL) was sent to USFWS on July 7, 2017.	See Chapter IX of this EA document for the early consultation agency list.
Environmental Justice	Are low income and minority groups affected?	U.S. Environmental Protection Agency	No low-income or minority groups will be adversely affected as a result of the proposed project. The Draft EA will be provided to the U.S. Environmental Protection Agency for review and comment.	Refer to Chapter II (Section B) of this EA document for a discussion of socioeconomic and demographic parameters.
Floodplain Management	Obtain review if project is located in or affects 100-year flood plain	Federal Emergency Management Agency	Not applicable. Project site is located in Flood Zone X and is not located in nor will it affect a 100-year flood plain.	Refer to Chapter II (Section A-3) of this EA document for a discussion of flood and tsunami hazard.

Environmental Authority	Procedure	Responsible Agency	Response	Project Documentation
Protection of Wetlands	Obtain review if project area contains wetlands	U.S. Army Corps of Engineers (COE)	Not applicable. The project site does not contain any wetlands.	Refer to Chapter II (Section A-8) of this EA document for a discussion of streams and groundwater.
Farmland Protection Policy Act	Obtain review if project area contains prime farmland	Natural Resources Conservation Service (NRCS)	The project site is located within the State "Agricultural" district, however, it is not classified within the Agricultural Lands of Importance to the State of Hawai'i (ALISH) rating system.	Refer to Chapter II (Section A-2) of this EA document for a discussion of climate, topography, and soils.
Fish and Wildlife Coordination Act	Obtain review for all projects	USFWS	A copy of the ECL was sent to USFWS on July 7, 2017	Refer to Chapter IX of this EA document for the early consultation agency list.
National Historic Preservation Act	Obtain review for all projects	SHPD	An Archaeological Inventory Survey was prepared in 1992 and 2018. The Draft EA will be provided to SHPD for review and comment. The 2018 Archaeological Inventory Survey was submitted to SHPD for approval.	Refer to the 1992 Archaeological Inventory Survey in **Appendix "F"** and 2018 Archaeological Assessment Report in **Appendix "G"**.
Safe Drinking Water Act	Obtain review if project could affect sole source aquifer	State Department of Health, Safe Drinking Water Branch (SDWB)	The proposed project will not affect a sole source aquifer. The Draft EA will be provided to the Department of Health for review and comment.	Refer to Chapter II (Section A-8 and Section D-2) of this EA document for a discussion of water quality mitigation measures.
Wild and Scenic Rivers Act	Obtain review if project is located in area with Wild and Scenic Rivers	National Park Service	The project site is not located in an area with Wild or Scenic Rivers. There are no Wild or Scenic Rivers in the State of Hawai'i.	Not applicable.
Consultation Process Under the Magnuson-Stevens Fishery Conservation and Management Act	Obtain review if it will affect essential fish habitat	National Marine Fisheries Service	Not applicable. The project site is located approximately 1.25 miles inland of the nearest coastline. The proposed project will not affect essential fish habitats.	Not applicable.

SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

IV

IV. SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

In the short term, the proposed action will result in a certain amount of unavoidable construction-related impacts. These include noise generated impacts and air quality impacts associated with the operation of equipment during the construction and operational phases. Air quality will also be impacted by dust generated from site work. The construction-related impacts will be temporary and mitigated through implementation of appropriate Best Management Practices (BMPs). The operation-related impacts will be similarly mitigated through implementation of appropriate BMPs as well.

The proposed action will involve a commitment of fuel, labor, funding, and material resources. However, the commitment of resources necessary to implement the proposed project will be justified, given the eventual benefits to be realized through the completion of Phases 5 and 6 of the landfill operation. The proposed action is expected to have a positive impact on the community as it will provide additional capacity at the landfill to fulfill Moloka'i island's waste disposal needs up to the Year 2038.

The commitment of approximately six (6) acres of land for Phases 5 and 6 will eliminate it from other uses until 2038. Following landfill closure, site uses will be limited due to settlement and generation of landfill gas. Earthen cover material will need to be supplied for daily cover material from virgin sources.

In the long term, construction of the proposed action is not anticipated to create any significant adverse effects on the environment.

ALTERNATIVES TO THE PROPOSED ACTION

V

V. ALTERNATIVES TO THE PROPOSED ACTION

The County of Maui, Department of Environmental Management (DEM) has evaluated the following alternatives as part of the process of arriving at the Preferred Alternative that is assessed herein:

A. PREFERRED ALTERNATIVE

The proposed action, as described and assessed in the preceding chapters, represents the Preferred Alternative. The Preferred Alternative involves the construction and operation of Phases 5 and 6 landfill disposal cells, relocation of the existing green waste facility to a new location within the subject property, and other related improvements. The preferred alternative will provide additional disposal capacity to the existing landfill and fulfill the anticipated disposal capacity needs of the Moloka'i community beyond mid-2020 (up to the Year 2038).

B. MAXIMUM FILL ELEVATION ALTERNATIVE

Another alternative considered by DEM to utilize the same landfill disposal cell footprint, consisting of Phases 1 through 6, with a maximum fill elevation of 330 feet above mean sea level. Refer to **Appendix "A"**. This alternative would provide additional disposal capacity to extend the operational life of the landfill to approximately nine (9) more years, from 2038 to mid-2047. However, the current landfill final grades are limited to a maximum elevation of 290 feet above mean sea level. Thus, new applications for a State Land Use Commission Special Permit and County Special Use Permit would need to be prepared, filed, and undergo a lengthy review and approval process through appropriate bodies. The significant regulatory processing timeline would present considerable risk in having additional landfill capacity ready before year 2020 when the landfill reaches full capacity.

C. NO ACTION ALTERNATIVE

The currently active landfill cells at the Moloka'i Integrated Solid Waste Management Facility (MISWMF) in the subject facility are projected to reach full capacity by mid-2020. The No Action Alternative would mean the subject property would not be able to accommodate the anticipated disposal capacity needs of Moloka'i's community in the near future. The construction and operation of Phase 5 and Phase 6 landfill cells will provide capacity at the landfill to fulfill Moloka'i island's waste disposal needs up to the Year 2038. As such, the No Action Alternative is not considered viable in this instance.

D. DEFERRED ALTERNATIVE

The Deferred Action Alternative would have similar consequences as a "No Action" Alternative as the subject property would not be able to accommodate the anticipated disposal capacity needs after the existing landfill cells reach full capacity in mid-2020 for a period of time until the improvements at the subject property were pursued. For this reason, the Deferred Action Alternative was not deemed appropriate.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

VI

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposed action is anticipated to result in the irreversible and irretrievable commitment of certain natural and fiscal resources, including land, fuel, labor, funding, and material resources. The project will be funded by the County of Maui and State Revolving Fund. Given the need for a sufficient disposal capacity beyond mid-2020, the commitment of resources is justified based on the eventual community benefits to be realized through project implementation and continuation of convenient and reliable solid waste services to the island of Moloka'i.

SIGNIFICANCE CRITERIA ASSESSMENT

VII

VII. SIGNIFICANCE CRITERIA ASSESSMENT

The "Significance Criteria", Section 12, of the Administrative Rules, Title 11, Chapter 200, "Environmental Impact Statement Rules", were reviewed and analyzed to determine whether the proposed action will have significant adverse impacts on the environment. The following analysis is provided:

1. **Involves an irrevocable commitment to loss or destruction of any natural or cultural resource**

   An Archaeological Inventory Survey (AIS) was conducted as part of the 1993 EA that was completed for the existing Molokai Integrated Solid Waste Facility (MISWMF) by Aki Sinoto Consulting in October 1992. As a result of the survey, no archaeological surface remains or other evidence of any significant cultural resources were encountered within the subject property. Refer to **Appendix "F"**

   Following consultation with SHPD, a new AIS was completed by Scientific Consultant Services, (SCS) in March 2018 for the proposed improvements. The AIS consisted of conducting a pedestrian survey and subsurface testing that revealed no significant cultural deposits or historic properties. Therefore, no further archaeological work was recommended. Refer to **Appendix "G"**.

   A Cultural Impact Assessment (CIA), involving interviews with residents knowledgeable about the area, was also carried out for the proposed action. However, as none of the interviewees were aware of any ongoing traditional cultural practices at the project site, adverse impacts to cultural resources or practices are not expected to result from implementation for the proposed action. Refer to **Appendix "H"**.

   Based on findings of previous Botanical Survey and Field Survey of the Avifauna and Feral Mammals and the existing conditions with the currently active MISWMF, there are no known threatened or endangered species of flora or fauna present within the subject property.

   Based on these findings, the proposed action is not anticipated to involve an irrevocable commitment to loss or destruction of any natural or cultural resource.

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

   The proposed action is not anticipated to curtail the range of beneficial uses of the environment. A program of Best Management Practices (BMPs) will be implemented during both construction and operations to mitigate potential environmental impacts associated with the project. Refer to **Appendix "B"**.

3. **Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders**

The State's Environmental Policy and Guidelines are set forth in Chapter 344, Hawai'i Revised Statutes (HRS). The proposed action does not conflict with provisions of Chapter 344, HRS, court decisions, or executive orders.

4. **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State**

On a short-term basis, the proposed action will support construction and construction-related employment and have a beneficial impact on the local economy during the period of construction. The construction of the proposed action will provide a social benefit, as it will serve the community, including residents and businesses, by providing an additional disposal capacity in the landfill to meet the solid waste disposal needs of the island of Moloka'i up to the Year 2038. As previously noted, based on the CIA, there are no significant adverse long-term cultural impacts anticipated to result from the proposed action.

5. **Substantially affects public health**

No significant adverse impacts to public health are anticipated to result from the proposed action.

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

The proposed action is not anticipated to result in secondary impacts such as population changes or increased demands on regional public facilities. The proposed action will ensure continuation of convenient and reliable solid waste services to the Island of Moloka'i.

7. **Involves a substantial degradation of environmental quality**

During project construction and operations, appropriate measures such as BMPs will be utilized to mitigate potential environmental impacts associated with the proposed action. As mentioned previously, the proposed action incorporates use of a composite liner system, a Leachate Collection and Removal System (LCRS) and an internal lined leachate collection sump to ensure environmental integrity and prevent leachate from permeating into the underlying soils. As such, no substantial degradation of the environment is anticipated as a result of project implementation.

8. **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions**

The proposed project does not represent a commitment to larger actions. The proposed action will provide necessary additional disposal capacity in the existing landfill facility to ensure continued service to the island of Moloka'i up to the Year 2038. The proposed action is not anticipated to create or contribute to significant adverse long-term environmental effects.

9. **Substantially affects rare, threatened or endangered species or its habitat**

No rare, threatened, or endangered species of fauna, flora, or their habitat have been identified within the project site. Therefore, significant adverse impacts to biological resources are not anticipated as a result of the proposed project.

10. **Detrimentally affects air or water quality or ambient noise levels**

As discussed previously, appropriate BMPs will be implemented during the construction and operation of the proposed improvements to ensure that adverse environmental impacts on air quality and ambient noise levels are mitigated. There are no streams or wetlands located within or in the immediate vicinity of the 10-acre project site.

Given the foregoing, the proposed project is not expected to present significant adverse impacts on air/water quality or ambient noise levels.

11. **Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a floodplain, tsunami zone, beach, erosion prone area, geological hazardous land, estuary, fresh water or coastal waters**

The subject property is not considered to be erosion prone or geologically hazardous, nor is it located within a Special Flood Hazard Area or the tsunami evacuation area. There are no estuaries or coastal waters which are adversely impacted by daily landfill operations. The proposed action is, therefore, not anticipated to adversely impact environmentally sensitive areas.

12. **Substantially affects scenic vistas and viewplanes identified in County or State plans or studies**

The proposed action is not identified as a scenic vista or viewplane. The proposed action will not affect scenic corridors and coastal scenic and open space resources.

13. **Requires substantial energy consumption**

The proposed action will involve the commitment of fuel for equipment, vehicles, and machinery during construction and operational phases. However, the energy demand is not considered substantive or excessive within the context of the region's overall energy consumption.

Based on the foregoing findings, the proposed action is anticipated to result in a Finding of No Significant Impact (FONSI) determination.

LIST OF PERMITS AND APPROVALS

VIII

VIII. LIST OF PERMITS AND APPROVALS

The following permits and approvals are anticipated to be required prior to the implementation of the project:

State of Hawai'i

1. Hawai'i Revised Statutes, Chapter 343 Compliance
2. National Pollutant Discharge Elimination System (NPDES) General Permit
3. Solid Waste Management Permit (Department of Health)
4. Community Noise Permit, as applicable (Department of Health)

County of Maui

1. Construction Permits (i.e. Grubbing/Grading, as applicable)

AGENCIES, ORGANIZATIONS, AND PERSONS CONSULTED DURING THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED AND RESPONSES TO SUBSTANTIVE COMMENTS

IX

IX. AGENCIES, ORGANIZATIONS, AND PERSONS CONSULTED DURING THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED AND RESPONSES TO SUBSTANTIVE COMMENTS

The following agencies, organizations, and persons were consulted during the preparation of the Draft Environmental Assessment (EA). Comment letters and responses to substantive comments received during the early consultation process are included herein.

FEDERAL AGENCIES

1. Larry Yamamoto, State Conservationist
U.S. Department of Agriculture
Natural Resources Conservation Service
P.O. Box 50004
Honolulu, Hawai'i 96850-0001

2. Wally Jennings
U.S. Department of Agriculture
Natural Resources Conservation Service
P. O. Box 396
Ho'olehua, Hawai'i 96729

3. Tunis W. McElwain, Acting Chief
U.S. Department of the Army
U.S. Army Engineer District, Honolulu
Regulatory Branch, Building 230
Fort Shafter, Hawai'i 96858-5440

4. Alexis Strauss, Acting Regional Administrator
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

5. Dave Wesley, Deputy Regional Director
U.S. Fish and Wildlife Service
Pacific Region
911 NE 11th Avenue
Portland, Oregon 97232

6. Michelle Bogardus, Island Team Leader
U.S. Fish and Wildlife Service
300 Ala Moana Blvd., Rm. 3-122
Honolulu, Hawai'i 96850

STATE AGENCIES

7. Roderick Becker, Comptroller
State of Hawai'i
Department of Accounting and General Services
1151 Punchbowl Street, #426
Honolulu, Hawai'i 96813

8. Scott Enright, Chair
State of Hawai'i
Department of Agriculture
1428 South King Street
Honolulu, Hawai'i 96814-2512

9. Luis P. Salaveria, Director
State of Hawai'i
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, Hawai'i 96804

10. Virginia "Ginny" Pressler, MD, MBA, FACS, Director
State of Hawai'i
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawai'i 96814

11. Lene Ichinotsubo
State of Hawai'i
Department of Health
919 Ala Moana Blvd., Room 212
Honolulu, Hawai'i 96814

12. Alec Wong, P.E., Acting Chief
Clean Water Branch
State ofHawai'i
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawai'i 96814

13. Laura McIntyre, AICP
State of Hawai'i
Department of Health
Environmental Planning Office
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14. Patti Kitkowski
State of Hawai'i
Department of Health
Maui Sanitation Branch
54 South High Street, Room 300
Wailuku, Hawai'i 96793

15. Suzanne Case, Chairperson
State of Hawai'i
Department of Land and Natural Resources
P. O. Box 621
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16. Alan Downer, Administrator
State of Hawai'i
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, Hawai'i 96707

17. Barker Farris
State of Hawai'i
Department of Land and Natural Resources
State Historic Preservation Division
101 Maalaea Boat Harbor Road
Wailuku, Hawai'i 96793

18. Nolan Espinda, Director
State of Hawai'i
Department of Public Safety
919 Ala Moana Boulevard, 4th Floor
Honolulu, Hawai'i 96814

19. Ford Fuchigami, Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813

20. Brigadier General Arthur "Joe" Logan, Adjutant General
Hawai'i State Civil Defense
3949 Diamond Head Road
Honolulu, Hawai'i 96816

21. Jobie Masagatani, Chair
State of Hawai'i
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawai'i 96805

22. Scott Glenn, Director
State of Hawai'i
Office of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu, Hawai'i 96813

23. Dr. Kamana'opono Crabbe, Chief Executive Officer
State of Hawai'i
Office of Hawaiian Affairs
560 N. Nimitz Highway, Suite 200
Honolulu, Hawai'i 96817

24. Leo R. Asuncion, Jr., AICP, Director
State of Hawai'i
Office of Planning
P. O. Box 2359
Honolulu, Hawai'i 96804

25. Dan Orodenker, Executive Officer
State of Hawai'i
State Land Use Commission
P.O. Box 2359
Honolulu, Hawai'i 96804

26. Representative Lynn DeCoite
House of Representatives
Hawai'i State Capitol, Room 405
415 S. Beretania Street
Honolulu, Hawai'i 96813

27. Senator J. Kalani English
Hawai'i State Senate
Hawai'i State Capitol, Room 205
415 S. Beretania Street
Honolulu, Hawai'i 96813

COUNTY AGENCIES

28. Jeffrey A. Murray, Chief
County of Maui
Department of Fire and Public Safety
200 Dairy Road
Kahului, Hawai'i 96732

29. Carol Reimann, Director
County of Maui
Department of Housing and Human Concerns
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Wailuku, Hawai'i 96793

30. Ka'ala Buenconsejo, Director
County of Maui
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Wailuku, Hawai'i 96793

31. William Spence, Director
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2200 Main Street, Suite 315
Wailuku, Hawai'i 96793

32. Moloka'i Planning Commission
c/o County of Maui
Department of Planning
2200 Main Street, Suite 315
Wailuku, Hawai'i 96793

33. Tivoli Faaumu, Chief
County of Maui
Department of Police
55 Mahalani Street
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34. David Goode, Director
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200 South High Street, 4th Floor
Wailuku, Hawai'i 96793

35. Don Medeiros, Director
County of Maui
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Wailuku, Hawai'i 96793

36. David Taylor, Director
County of Maui
Department of Water Supply
200 South High Street, 5th Floor
Wailuku, Hawai'i 96793

37. Anna Foust
County of Maui
Maui Civil Defense Agency
200 South High Street
Wailuku, Hawai'i 96793

38. Honorable Stacy Crivello
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

39. Teena Rasmussen
County of Maui
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2200 Main Street, Suite 305
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ORGANIZATIONS/INDIVIDUALS

40. Hawaiian Telcom
60 South Church Street
Wailuku, Hawai'i 96793

41. Michael Grider, Manager, Engineering
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawai'i 96733

42. Moloka'i Chamber of Commerce
40 Ala Malama Avenue
Kaunakakai, Hawai'i 96748

43. Maui Contractors Association
270 Lalo Street, #102
Kahului, Hawai'i 96732

44. Kamalu Poepoe
Moloka'i Po'o-Moku O Pule O'o
Aha Moku Advisory Committee
– Moloka'i
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Kualapuu, Hawai'i 96757

45. Gayla M. Haliniak-Lloyd,
President
Kalama'ula Homesteaders
Association
P.O. Box 1025
Kaunakakai, Hawai'i 96748

46. Bishop Estate Trustees
P.O. Box 3466
Honolulu, Hawai'i 96801

47. Moloka'i Fisheries Inc.
P.O. Box 89
Annabella, Utah 84711

48. Moloka'i Properties Limited
P.O. Box 259
Maunaloa, Hawai'i 96770

49. Monsanto Company
1351 Maunaloa Highway
P.O. Box 40
Kaunakakai, Hawai'i 96748

50. Cooke Land Company Inc.
P.O. Box 259
Maunaloa, Hawai'i 96770

51. Ulili Industrial Condo – Condo
Master
Cooke Land Company Inc.
1003 Bishop Street, Suite 1170
Honolulu, Hawai'i 96813

52. Bob Creps
Grace Pacific Corporation
P.O. Box 78
Honolulu, Hawai'i 96813

53. Hawai'i Association of Seventh
Day Adventist
2728 Pali Highway
Honolulu, Hawai'i 96817

54. The Nature Conservancy
23 Pueo Place
Kaunakakai, Hawai'i 96748

55. Hawaii Kai LLC
HK Enterprise Group Inc
6540 Lusk Blvd, Suite C270
San Diego, California 92121

56. Hisashi Unemori, Trust
Nancy S.Y. Unemori
P.O. Box 205
Kaunakakai, Hawai'i 96748

57. Kurt Matsu Nagano
2678 Apapane Street
Lihue, Hawai'i 96766

58. Pauline Y. Nagano, Trustee
2678 Apapane Street
Lihue, Hawai'i 96766

59. Randall Yoshi Nagano
45-589 Kanaka Plance
Kaneohe, Hawai'i 96744

60. Sandra Tsutae Nagano
2678 Apapane Street
Lihue, Hawai'i 96766

61. George Kahinu
c/o Eric Kahinu
P.O. Box 361
Kaunakakai, Hawai'i 96748

62. George Jr. Kahinu
Attn: Michael Kahinu
P.O. Box 650
Kaunakakai, Hawai'i 96748

63. Raymond Eugene Miller Trust
P.O. Box 893
Kaunakakai, Hawai'i 96748

64. Steven Chaikin
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Kaunakakai, Hawai'i 96748

JUL 27 2017

DAVID Y. IGE
GOVERNOR

RODERICK K. BECKER
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1257.7

JUL 25 2017

Mr. Mark Alexander Roy, AICP
Munekiyo Higara
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Molokai Integrated Solid Waste Management Facility Improvements
TMK: (2) 5-2-011:027 (por.)
Naiwa, Molokai, Hawaii

Thank you for the opportunity to comment on the subject project. Based on the information provided we have no comments to offer at this time as the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities.

If you have any questions, your staff may call Mr. Kimo Marion of the Public Works Division at 586-0491.

Sincerely,

RODERICK K. BECKER
Comptroller

c: Mr. Stewart Stant, Dept. of Environmental Management
Mr. Wade Shimabukuro, DAGS Maui District

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Roderick K. Becker, Comptroller
State of Hawai'i
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawai'i 96819-0119

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Facility Management Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i (P)1257.7

Dear Mr. Becker:

Thank you for your letter dated July 25, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management, we appreciate your letter of confirmation that the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities and you have no comments to offer at this time.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft Environmental Assessment for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at 983-1233.

Very truly yours,

Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
K:\DATA\COM\DEM Molokai ISWMF LF\Applications\ECL Responses\DAGSres.letter.doc

JUL 2 4 2017

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
EMD/CWB

07023PCTM.17

July 20, 2017

Mr. Mark Alexander Roy, AICP
Vice President
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

SUBJECT: Comments on the Early Consultation Request in the Preparation of a Draft Environmental Assessment (DEA) for the Proposed Molokai Integrated Solid Waste Management Facility Improvements
Naiwa, Island of Molokai, Hawaii
TMK: (2) 5-2-011:027 (por.)

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated July 7, 2017, requesting comments on the subject project. The DOH-CWB has reviewed the document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. The County of Maui, Department of Environmental Management (Applicant) may be responsible for fulfilling additional requirements related to our program. We recommend that they also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. The Applicant may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, the Applicant must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). The Applicant can open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. They will be asked to do a one-time registration to obtain their login and password. After they register, they can click on the Application Finder tool and locate the appropriate form. They can then follow the instructions to complete and submit the form.

3. If the Applicant's project involves work in, over, or under waters of the United States, it is highly recommended that they contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and HAR, Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project

planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g., minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at: http://health.hawaii.gov/cwb, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

Alec Wong

ALEC WONG, P.E., CHIEF
Clean Water Branch

c: DOH-EPO [via e-mail only]

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Alec Wong, P.E., Chief
State of Hawai'i
Department of Health
Clean Water Branch
P.O. Box 3378
Honolulu, Hawai'i 96810-3378

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'I (07023PCTM.17)

Dear Mr. Wong:

Thank you for your letter dated July 20, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. As recommended, the County of Maui, Department of Environmental Management (DEM) will review the standard comments on your website and applicable comments will be complied with. Further, on behalf of the DEM, we offer the following information in response to your comments as listed in your letter.

1. We acknowledge that the project must meet the Department of Health (DOH) water quality requirements of Hawai'i Administrative Rules (HAR), Chapter 11-54, as applicable.

2. The facility stormwater discharge is currently authorized under the National Pollutant Discharge Elimination System (NPDES) General Permit. The proposed project will also be subject to the General Permit. An updated Notice of Intent (NOI) will be submitted to DOH prior to initiation of development of the proposed project.

   If determined to be required, an application for an individual NPDES permit will be submitted to the DOH for approval no less than 180 days prior to the commencement of discharge.

3. We acknowledge that work in, over, or under waters of the United States may require additional permitting from the U.S. Army Corps of Engineers

(USACE), Regulatory Branch. A copy of the early consultation letter for the project has been sent to the USACE to request comments on the proposed project. We note that there are no waters of the United States anticipated to be present within the 38-acre Moloka'i Integrated Solid Waste Management Facility.

4. We acknowledge the project must comply with the State's Water Quality Standards, as applicable, and non-compliance may be subject to penalties of $25,000.00 per day per violation.

5. We acknowledge the State's position that all projects must reduce, reuse, and recycle to protect, restore and sustain water quality and beneficial uses of State waters. As such, the applicant's design team will review this information, and as appropriate, will incorporate recommended measures into the project.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft Environmental Assessment for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at 983-1233.

Very truly yours,



Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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JUL 31 2017

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 17-168

July 27, 2017

Mr. Mark Alexander Roy, AICP
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793
Email: planning@munekiyohiraga.com

Dear Mr. Roy:

SUBJECT: Early Consultation for Draft Environmental Assessment (EC DEA) for Proposed Molokai Integrated Solid Waste Management Facility Improvements, Naiwa, Molokai
TMK: (2) 5-2-011:027 (portion)

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your EC DEA to our office via email on July 12, 2017.

The following is a summary of the specific improvements that will be undertaken as part of this project, which will utilize an approximately 10-acre portion of the MISWMF property.

1. Development and operation of Phase 5 and Phase 6 disposal cells with composite liner systems, a Leachate Collection and Removal System (LCRS), and an internal lined leachate collection sump to ensure environmental integrity. Based on the disposal requirements, development of Phases 5 and 6 is proposed as two (2) construction projects beginning with the development of Phase 5 in FY 2019, and continuing with the development of Phase 6 in FY 2024.

2. Relocation of the existing green waste facility to a new location within the property. The existing green waste facility currently resides in the proposed Phase 6 location with stockpiling of oversized green waste in the Phase 5 area. DEM plans to relocate the facility to the west of the Molokai Metals Facility prior to developing Phase 6.

3. Related improvements including installation of permanent fencing as well as perimeter drainage and road improvements. An entrance channel will also be installed to convey run-off from the northern portion of the MISWMF to an existing storm-water basin located in the southern corner of the site adjacent to Phase 5 of the landfill operation. Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of impacts, §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

We advocate that you consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and wellbeing. Community well-being can be impacted by access to physical activity, health care, feelings of social connectedness and safety. Design solutions that take these factors into consideration positively contribute to the social determinants of health in a community, improving the well-being of

those who live there by influencing health promoting behaviors. Social determinants contribute to preventable chronic diseases such as asthma, diabetes, obesity, and cardiovascular disease.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments. EPO has an updated environmental Geographic Information System (GIS) website page http://health.hawaii.gov/epo/egis It compiles various maps and viewers from our environmental health programs.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish to review the Minimizing Construction & Demolition Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb.

The DOH-Solid Waste Section (SWS) offers the following comments on the proposed project:

1. The proposed Phases 5 and 6 should provide a sufficient set back distance between the landfill property line and the disposal area. The setback may be used for landfill functions, such as access roads, storm water systems, groundwater monitoring wells, gas detection probes, and if needed, systems such as a leachate storage, or the expansion of the current sedimentation basin. The setback will also help to minimize odors, vectors, and litter from impacting neighbors, and allow optimal placement for gas and groundwater monitoring wells. Historically, DOH-SWS has held the landfill operators to maintain self-imposed "buffer zones" to help address these issues, but such zones have also utilized neighboring properties. Since State solid waste regulations do not specify set-back requirements, we are asking the county to consider establishing appropriate set-backs within their own property. We welcome a discussion on this topic.
2. The DOH-SWS will be requiring a solid waste permit modification application to be submitted for the proposed landfill expansion and changes to the green waste operation at least one year prior to the construction of the proposed project. We will address all of our other concerns through this permitting process.

For specific questions call Patrick Tuter, DOH-SWS Environmental Engineer at (808) 586-4226.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design. Thank you for the opportunity to comment.

Mahalo nui loa,

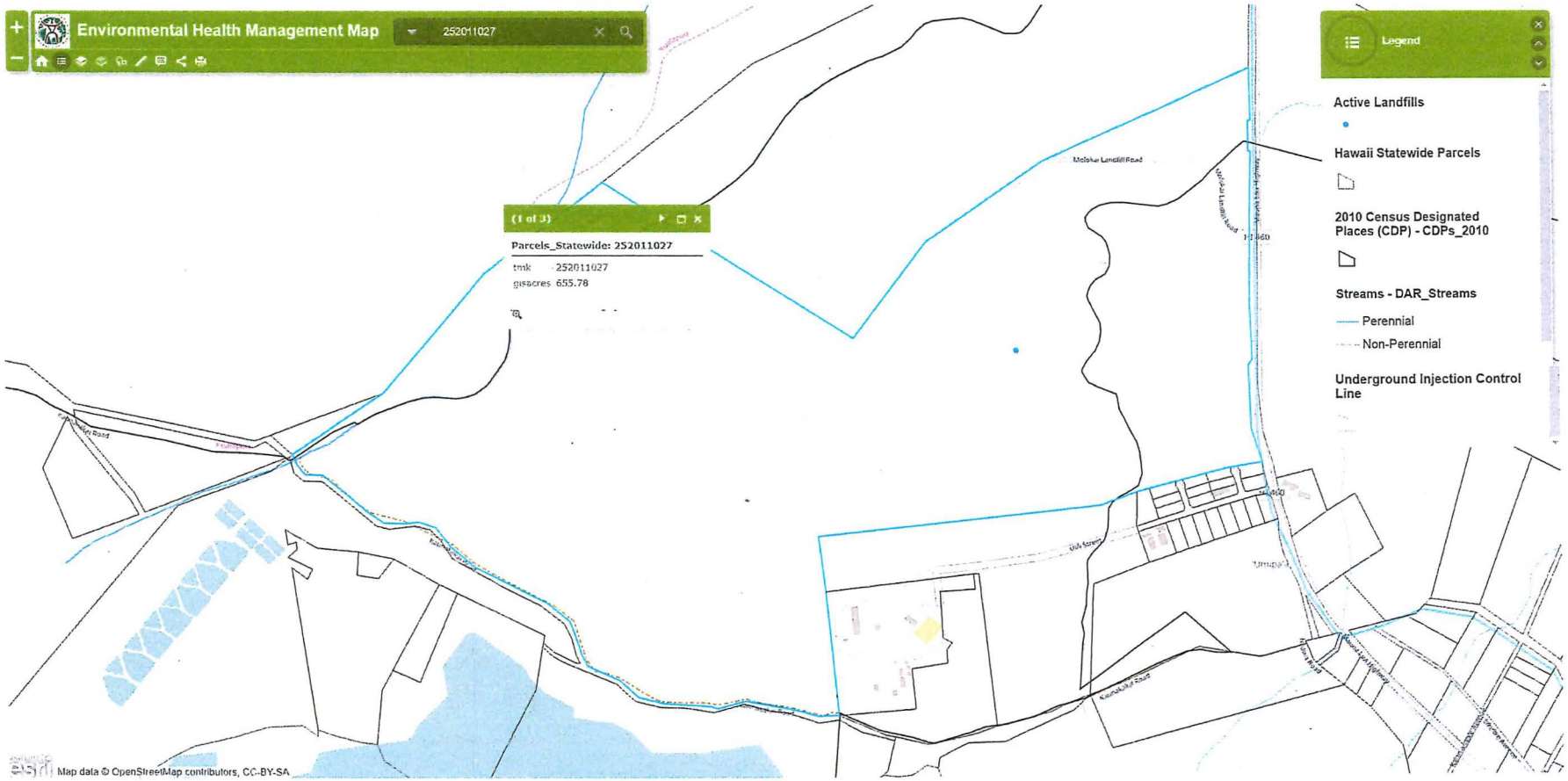
Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

LM:nn

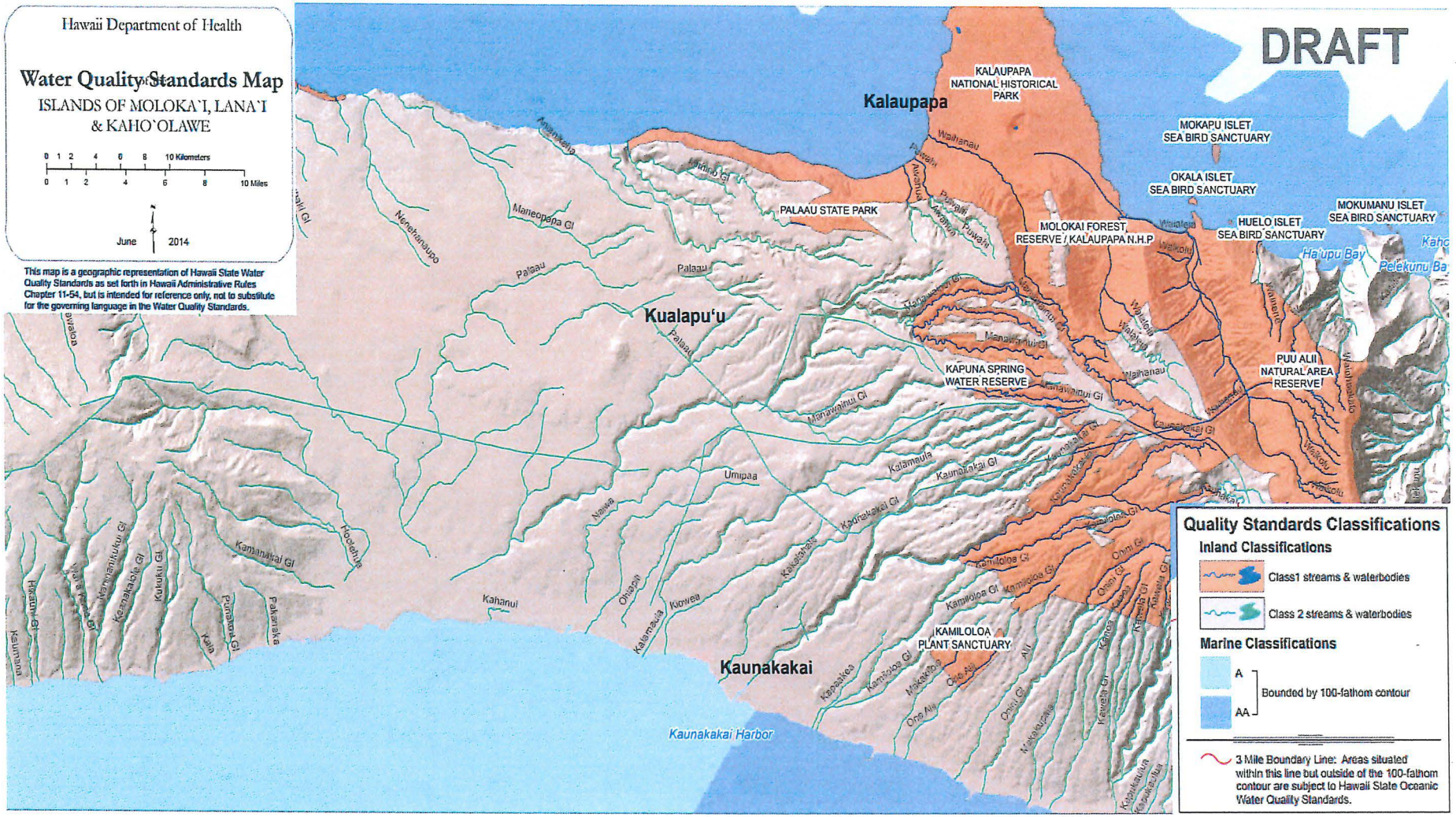
Attachment 1: Environmental Health Management Web App Snipit of Project Area: http://health.hawaii.gov/epo/egis
Attachment 2: Clean Water Branch: Water Quality Standards Map – Molokai
Attachment 3: DOH - Clean Water Branch Letter

c: DOH: DHO Maui, SHWB, CWB, SDWB, CAB, Vector, HEER {via email only}

Attachment 1: Environmental Health Management Web App Snipit of Project Area: http://health.hawaii.gov/epo/egis



Attachment 2: Clean Water Branch: Water Quality Standards Map - Molokai



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Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Laura Leialoha Phillips McIntyre, AICP, Program Manager
State of Hawai'i
Department of Health
Environmental Planning Office
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Facility Management Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'I (EPO 17-168)

Dear Ms. McIntyre:

Thank you for your letter dated July 27, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management, we offer the following information in response to the comments noted in your letter.

Comment No.1:

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments. EPO has an updated environmental Geographic Information System (GIS) website page http://health.hawaii.gov/epo/egis. It compiles various maps and viewers from our environmental health programs.

Response: Thank you for this information. The Standard Comments found at the Department's website will be reviewed by the design team and comments applicable to the project will be adhered to.

Comment No.2:

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

Response: Thank you for providing this information. A copy of your comment letter has been provided to the project engineer for review.

Comment No.3:

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

Response: The proposed project will comply with applicable Clean Water Branch and the National Pollutant Discharge Elimination System (NPDES) permit requirements.

We also note your comment regarding U.S. Army Corps of Engineers (USACE) permitting requirements. A copy of the early consultation letter for the project has been provided to the USACE for review and comment. It is noted that the proposed project is located approximately 1.25 miles inland from the south coast of Island of Moloka'i and does not involve waters of the U.S.

Comment No.4:

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations) needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish to review the Minimizing Construction & Demolition Waste Management Guide at:

http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb.

Response: We understand that any waste generated by the project needs to be disposed of at a solid waste management facility that complies with the applicable provisions and the open burning of any of these wastes, on or off site, is strictly prohibited. The Minimizing Construction & Demolition Waste Management Guide and the information provided on the website noted in your comment above will be reviewed by the project engineer for consideration for the proposed project.

Comment No.5:

The proposed Phases 5 and 6 should provide a sufficient set back distance between the landfill property line and the disposal area. The setback may be used for landfill functions, such as access roads, storm water systems, groundwater monitoring wells, gas detection probes, and if needed, systems such as a leachate storage, or the expansion of the current sedimentation basin. The setback will also help to minimize odors, vectors, and litter from impacting neighbors, and allow optimal placement for gas and groundwater monitoring wells. Historically, DOH-SWS has held the landfill operators to maintain self-imposed "buffer zones" to help address these issues, but such zones have also utilized neighboring properties. Since State solid waste regulations do not specify set-back requirements, we are asking the county to consider establishing appropriate set-backs within their own property. We welcome a discussion on this topic.

Response: The design of the proposed Phases 5 and 6 incorporates a setback distance, between the limits of waste and the facility property boundary, of a minimum of 50 feet along the west/southwest edge of Phase 6 with the setback ranging as much as 190 feet on the east/southeast property boundary near the sedimentation basin. These setback distances coupled with installation of a permanent fence at the property boundary and the additional distance to the nearest occupied structures of approximately 1,800 feet to the south will provide ample separation of the operation and potential receptors and minimize potential project-related impacts to these offsite receptors.

Comment No.6:

The DOH-SWS will be requiring a solid waste permit modification application to be submitted for the proposed landfill expansion and changes to the green waste operation at least one year prior to the

construction of the proposed project. We will address all of our other concerns through this permitting process.

Response: The DEM will submit a solid waste permit modification application for the proposed landfill expansion and changes to the green waste operation. We acknowledge that the application should be submitted at least one year prior to the construction of the proposed project.

Comment No.7:

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

Response: A copy of your comment letter has been provided to the project engineer to review the need and/or requirements for a Clean Air Branch (CAB) permit for the proposed project. We acknowledge that effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. A Preliminary Engineering and Drainage Report which addresses a list of Best Management Practices (BMPs) will be prepared for the project, a copy of which will be included in the Draft EA.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft Environmental Assessment for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at 983-1233.

Very truly yours,



Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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JUL 27 2017

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, HAWAII 96793-3378

July 25, 2017

Mr. Mark Alexander Roy, AICP
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: **Chapter 343, Hawaii Revised Statues, Early Consultation Request for Proposed Molokai Integrated Solid Waste Management Facility Improvements at TMK (2) 5-2-001:027 (por.), Naiwa, Molokai, Hawaii**

Thank you for the opportunity to review this project. We have the following comments to offer:

Please contact the Department of Health, Solid and Hazardous Waste Division, for more information on Hawaii Administrative Rules (HAR), Title 11, Chapter 58.1, "Solid Waste Management Control" at 808 586-4226.

It is strongly recommended that the Standard Comments found at the Department's website: http://health.hawaii.gov/epo/home/landuse-planning-review-program/ be reviewed and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please contact me at 808 984-8230 or email me at patricia.kitkowski@doh.hawaii.gov.

Sincerely,

Patti Kitkowski
District Environmental Health Program Chief

c EPO

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Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Patti Kitkowski
District Environmental Health Program Chief
State of Hawai'i
Department of Health
Maui District Health Office
54 High Street
Wailuku, Hawai'i 96793-3378

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Ms. Kitkowski:

Thank you for your letter dated July 25, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management, we offer the following information in response to the comments noted in your letter.

The proposed project will comply with applicable requirements of Hawai'i Administrative Rules (HAR), Title 11, Chapter 58.1 (Solid Waste Management Control). A copy of the Draft Environmental Assessment (EA) will be provided to the Department of Health, including the Solid and Hazardous Waste Division, for review. The Standard Comments on the Department's website will be considered for the project, as applicable.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft EA for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at (808) 983-1233.

Very truly yours,

Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 28, 2017

Munekiyo & Hiraga, Inc.
Attention: Mr. Mark Alexander Roy, AICP
305 High Street, Suite 104
Wailuku, Hawaii 96793

via email: planning@mhplanning.com

Dear Mr. Roy

SUBJECT: Early Consultation for the Proposed Molokai Integrated Solid Waste Management Facility, Naiwa, Island of Molokai; TMK: (2) 5-2-011:027 (por.)

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 early consultation request pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (a) Division of Aquatic Resources and (b) Engineering Division on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at 587-0417. Thank you.

Sincerely,

for Russell Y. Tsuji
Land Administrator

Enclosures
cc: Department of Environmental Management
Attn: Mr. Stewart Stant, Director (via email: environmental.mgmt@mauicounty.gov)
Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
JUL 13 2017
Division of Aquatic Resources
DAR 5577

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 11, 2017

MEMORANDUM

TO: DLNR Agencies:
X Div. of Aquatic Resources
___ Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
___ Div. of State Parks
X Commission on Water Resource Management
___ Office of Conservation & Coastal Lands
X Land Division – Maui District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation for the Proposed Molokai Integrated Solid Waste Management Facility
LOCATION: Naiwa, Island of Molokai; TMK: (2) 5-2-011:027 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **July 26, 2017.**

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: Bruce S. Anderson
Bruce S. Anderson, Ph.D., DAR Administrator
Print Name: _____
Date: _____

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: 7/25/2017

DAR # 5577

MEMORANDUM

TO: Bruce S. Anderson, PhD
DAR Administrator

FROM: Skippy Hau, Aquatic Biologist

SUBJECT: Early Consultation for the Proposed Molokai Integrated Solid Waste Management Facility

Request Submitted by: Russell Y. Tsuji, Land Administrator

Location of Project: Naiwa, Island of Molokai; TMK: (2) 5-2-011:027 (por.)

Brief Description of Project:

The active landfill cells are expected to reach full capacity by mid-2020. The development and operation of Phase 5 and Phase 6 will add approximately 3.1 and 3.7 acres of lined capacity to the landfill footprint and increase disposal needs until 2038. The County of Maui is planning to submit applications to the DOH to permit Phase 5 and Phase 6 for use as future solid waste disposal area. Approximately 10 acres of the MISWMF will be used to develop and operate Phase 5 and Phase 6 disposal cells with composite liner systems, a Leachate Collection and Removal System (LCRS) and an internal lined leachate collection sump.

(continued on following page)

Comments:

☐ No Comments ☒ Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: Bruce S. Anderson Date: 7/27/17
Bruce S. Anderson, PhD
DAR Administrator

DAR # 5577

Brief Description of Project

The two construction projects will begin with Phase 5 in FY2019 continuing with Phase 6 in FY2024. The green waste facility currently in Phase 6 and stockpiling of oversized green waste in Phase 5 will be moved to a new location.

DAR # 5577

Comments

We suggest integration of rain gardens that have been used in West Maui. The rain garden at Wahikuli Park, for example, appears to be very effective in reducing shower runoff from flowing into the beach and ocean. The use of native and indigenous plants has improved landscaping kept the park green.

DAVID Y. IGE
GOVERNOR OF HAWAII

'17 JUL 12 PM01:47 ENGINEERING

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION
2017 JUL 24 AM 11:08
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

July 11, 2017

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
From: X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__ Office of Conservation & Coastal Lands
X Land Division – Maui District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation for the Proposed Molokai Integrated Solid Waste Management Facility
LOCATION: Naiwa, Island of Molokai; TMK: (2) 5-2-011:027 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **July 26, 2017**.

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print Name: for Carty S. Chang, Chief Engineer
Date: 7/20/17

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Early Consultation for the Proposed Molokai Integrated Solid Waste Management Facility

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within an area of special Flood Hazard.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4896.

Signed: _____
for CARTY S. CHANG, CHIEF ENGINEER

Date: 7/20/17

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Russell Y. Tsuji, Land Administrator
State of Hawai'i
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawai'i 96809

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Mr. Tsuji:

Thank you for your letter dated July 28, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management (DEM), we offer the following information in response to the comments noted in your letter.

Comment from Division of Aquatic Resources:

Thank you for the suggestion regarding rain gardens. A copy of your comment letter has been provided to the project engineer for review.

Comment from Engineering Division:

We understand that the rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR) are to be followed if the project site is within the Flood Hazard Zone designation. The Draft Environmental Assessment (EA) will include the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM) for the project location, potential flood and tsunami hazards, and proposed mitigation measures, as well as characteristics of the project site.

We acknowledge that the local flood ordinances that may take precedence over the National Flood Insurance Program (NFIP) standards. A copy of the early consultation letter for the project has been provided to the County of Maui, Department of Planning (DPL) for review and comment. A copy of the Draft EA will also be provided to the DPL for further review.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft EA for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at 983-1233.

Very truly yours,



Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 25, 2017

Munekiyo & Hiraga, Inc.
Attention: Mr. Mark Alexander Roy, AICP
305 High Street, Suite 104
Wailuku, Hawaii 96793

via email: planning@mhplanning.com

Dear Mr. Roy

SUBJECT: Early Consultation for the Proposed Molokai Integrated Solid Waste Management Facility, Naiwa, Island of Molokai; TMK: (2) 5-2-011:027 (por.)

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments previously sent you on July 28, 2017, enclosed are comments from the Division of Forestry and Wildlife on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure
cc: Department of Environmental Management
Attn: Mr. Stewart Stant, Director (via email: environmental.mgmt@mauicounty.gov)
Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

August 14, 2017

TO: Russell Tsuji
Land Administrator

ATTN: Lydia Morikawa

FROM: James Cogswell
Wildlife Program Manager

SUBJECT: Division of Forestry and Wildlife Comments on Proposed Molokai Integrated Solid Waste Management Facility

The Division of Forestry and Wildlife has received your inquiry regarding the proposed Molokai integrated solid waste management facility located in Naiwa, at TMK (2) 5-2-011:027. The County's Integrated Solid Waste Management Plan would provide additional capacity at the landfill and would add 3.1 acres (phase 5) and 3.7 acres (phase 6) of lined area to the landfill footprint. The proposed action would include development and operation of disposal cells with composite liner systems and an internal lined leachate collection sump, relocation of existing green waste facility, installation of a permanent fencing and entrance channel to an existing stormwater basin. The proposed Phase 5 would begin construction in FY 2019 and phase 6 would begin in FY 2024.

The State and Federally listed Hawaiian hoary bat or ʻŌpeʻapeʻa (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the proposed project. DOFAW recommends avoiding using barbed wire, as bat mortalities have been documented as a result of becoming ensnared by barbed wire during flight. Hawaiian hoary bats roost in both exotic and native trees. If any trees are planned for removal during the bat breeding season there is a risk of injury or mortality to juvenile bats. To minimize the potential for impacts to this species, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid disturbance to breeding Hawaiian hoary bats.

State and Federally listed waterbirds such as the Hawaiian duck (*Anas wyvilliana*), Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), and Hawaiian moorhen (*Gallinula chloropus sandvicensis*) are may occur in the vicinity of the proposed project sites. To minimize the potential for take, surveys for waterbirds by a qualified biologist are recommended before any land clearing or excavation activities occur, and should be repeated if these activities are delayed more than three days. If a nest is discovered at any point, please contact DOFAW biologist, John Medeiros. If a bird is present during ongoing activities, then all activities within 100 feet (30 m) of the bird should cease, and the bird should also not be approached. Work may continue after the bird leaves the area of its own accord.

We appreciate your efforts to work with our office for the conservation of native species. Should the scope of the project change, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Katherine Cullison, Conservation Initiatives Coordinator at (808)587-4148 or Katherine.cullison@hawaii.gov.

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Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Russell Y. Tsuji, Land Administrator
State of Hawai'i
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawai'i 96809

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Mr. Tsuji:

Thank you for your letter dated August 25, 2017 responding to the request for early consultation comments on the Proposed Molokai Integrated Solid Waste Management Facility (MISWMF) Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management (DEM), we offer the following information in response to the comments noted in your letter.

Comment from Division of Forestry and Wildlife

A Botanical Survey and Field Survey of avifauna and feral mammals was conducted during the Final Environmental Assessment (EA) that was prepared for the entire MISWMF in 1993. The reports concluded that the project is not expected to have any significant negative impacts on the flora and fauna resources in the vicinity of the project site.

Despite the negative findings of the Botanical Survey and the Field Survey of avifauna and feral animals, DEM will address each of the concerns outlined in your letter as follows:

Hawaiian Hoary Bat:

The Field Survey of avifauna and feral mammals made a special effort to look for

the Hawaiian hoary bat, but no evidence of bat activity was detected. There is no barbed wire fencing included as part of the proposed improvements. Also, there are no woody plants greater than 15 feet (4.6 meters) tall in the vicinity of the project site. Should hoary bat tree habitats be found prior to construction, clearing and grubbing activities will be restricted during the hoary bat breeding season from June 1 to September 15.

State and Federally Listed Waterbirds:

It is noted that no evidence of State and Federally listed waterbirds was found in the Field Survey of avifauna and feral mammals. In case of the discovery of a nest, DEM will contact Division of Forestry and Wildlife biologist, Mr. Medeiros. If a bird is found during the construction, any activities within 100 feet (30m) of the bird will be ceased and the bird will not be approached.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft EA for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at 983-1233.

Very truly yours,



Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
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ROBERT K. MASUDA
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AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
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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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

August 16, 2017

IN REPLY REFER TO:
Log No. 2017.01466
Doc No. 1708GC03
Archaeology

Stewart Stant, Director
Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Maui 96793
Stewart.Stant@co.maui.hi.us

Dear Mr. Stant:

SUBJECT: **Chapter 6E-8 and National Historic Preservation Act (NHPA) Section 106 Review – Proposed Molokai Integrated Solid Waste Management Facility Improvements – Request for Early Consultation – Chapter 343, Hawai'i Revised Statutes**
Na'iwa Ahupua'a, Kona District, Island of Moloka'i
TMK: (2) 5-2-011:027 por.

Thank you for the opportunity to comment on your request for early consultation for the proposed Molokai Integrated Solid Waste Management Facility Improvements (MISWMF). The facility is located within a 40-acre portion of County-owned lands identified as TMK: (2) 5-2-011:027. The County of Maui, Department of Environmental Management (DEM) proposes to establish and operate Phases 5 and 6 at the existing 11.6-acre portion of the permitted MISWMF. The development, operation and implementation of Phases 5 and 6 will provide additional capacity at the landfill to fulfill Molokai Island's waste disposal needs up to the year 2038; and will add approximately 3.1 acres and 3.7 acres to the existing 11.6-acre facility, bringing the total area of the MISWMF to approximately 18.4 acres. The State Historic Preservation Division (SHPD) received this submittal on July 10, 2017.

The MISWMF has been in existence since 1993, providing waste disposal services, waste diversion and recycling services. The current landfill cell footprints (Phases 1 through 4) of 11.6 acres are being filled with solid waste to an approved final elevation of 290 feet above sea level, and approximately 50 feet above the surrounding terrain. These cells are expected to reach full capacity by mid-2020.

The proposed improvements to the MISWMF will involve a 10-acre portion of the MISWMF and will include development of Phases 5 and 6 disposal cells with a Leachate Collection and Removal System (LCRS), relocation of the existing green waste facility, and installation of permanent fencing, perimeter drainage, road improvements, and of an entrance channel.

The submittal indicates that the County of Maui may use funding from the State of Hawaii's Clean Water State Revolving Fund (SRF) for the proposed project. Additionally, the County indicates that it will comply with applicable federal requirements, including Section 106 consultation requirements pursuant to the National Historic Preservation Act, in addition to the State of Hawaii Revised Statutes 343 review process.

At this time, the SHPD has insufficient information to make a determination regarding the impact of the proposed project to potential historic properties within the project area.

Pursuant to HAR §13-275-5(b)(5), **SHPD requests that an archaeological inventory survey (AIS) with a subsurface testing component be conducted and that an AIS report meeting the requirements of HAR §13-276-5 be submitted to SHPD for review and acceptance prior to initiation of project related work**.

The AIS shall be conducted by a qualified archaeologist in order to adequately identify and document any archaeological historic properties that may be present, to assess their significance, to determine the potential impacts of this project on any identified archaeological historic properties, and to identify and ensure appropriate mitigation is implemented, if needed. A list of permitted archaeological firms is provided on the SHPD website at: http://dlnr.hawaii.gov/shpd/about/branches/archaeology/.

SHPD requests the project proponent and archaeological firm consult with our office regarding an appropriate testing strategy prior to initiation of the AIS.

SHPD will notify you when the required reports and/or plans have been reviewed and accepted and project work may proceed.

Additionally, the use of federal funding from the Department of Health's Clean Water State Revolving Fund Program (CWSRF), triggers the NHPA Section 106 process. Attached are steps that the applicant needs to address under NHPA Section 106:

(1) Name of the federal and state funding or licensing agency/agencies involved with this project. The State Historic Preservation Officer is required to respond to the federal agency or to the agency's designated authority. Consultants contracted to prepare information, analyses, or recommendations are not recognized as a federally-delegated authority. Every project subject to section 106 has a federal funding, licensing, or permitting agency. Please include the name, address, and telephone number of the contact person/s at the federally delegated authority. A federal agency or federally delegated authority contact is mandatory pursuant to 36 CFR §800.2(a);

(2) A delegation letter from the federal agency that identifies the activities and responsibilities they have delegated to you on its behalf;

(3) Information documenting that the agency has evaluated and determined that the project constitutes an undertaking as defined in 36 CFR 800.16(y);

(4) Information indicating that a reasonable and good faith effort to identify historic properties (architectural, archaeological, or traditional cultural properties [TCPs]) within the area of potential effect (APE) pursuant to 36 CFR §800.4(a) and 4(b) has been completed. The identification effort must include consultation efforts with Native Hawaiian Organizations (NHOs) [36 CFR §800.4(a)(4)] and consultation with individuals, organizations and the public with a demonstrated interest in the undertaking [36 CFR §800.2(c)] and should include documentation of the nature of the consultation, the names of the consulted parties, and their comments/concerns; and

(5) A determination of eligibility and significance for any properties or potential historic districts within the APE [36 CFR§800.4(c)]; assessment of project effect [36 CFR §800.4(d)]; and if necessary resolution of adverse effects [36 CFR §800.6] for any sites located within the APE.

Per 36 CFR 800, SHPD looks forward to receiving a request from the lead federal agency or their delegated authority to initiate NHPA Section 106 consultation with SHPD on the proposed undertaking.

Please contact Ikaika Nakahashi at (808) 243-4600 or at Chris.Nakahashi@hawaii.gov for questions or concerns regarding traditional Hawaiian cultural resources or consultation with NHOs, and Dr. M. Barker Fariss at (808) 243-4626 or at Matthew.B.Fariss@hawaii.gov for questions or concerns regarding archaeological. Please contact Dr. Susan A. Lebo at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov for any questions regarding this letter.

Aloha,



Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Lydia Morikawa, DLNR-Land (Lydia.M.Morikawa@hawaii.gov)
Sina Pruder, DOH (sina.L.Pruder@doh.hawaii.gov)

Sage Kiyonaga
Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Maui 96793
Sage.Kiyonaga@co.maui.hi.us

Mark Alexander Roy
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

ALAN M. ARAKAWA
Mayor

STEWART STANT
Director

MICHAEL M. MIYAMOTO
Deputy Director

MICHAEL RATTE
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

March 21, 2018

Alan S. Downer, PhD, Administrator
Deputy State Historic Preservation Officer
State of Hawai'i
Department of Land and Natural Resources
State Historic Preservation Division
Kakuhihewa Building, Suite 555
601 Kamokila Blvd.
Kapolei, Hawai'i 96707
Attention: Barker Fariss, Ph.D., Lead Archaeologist, Maui County

SUBJECT: **CHAPTER 343, HAWAI'I REVISED STATUTES, EARLY CONSULTATION REQUEST FOR PROPOSED MOLOKA'I INTEGRATED SOLID WASTE MANAGEMENT FACILITY IMPROVEMENTS AT TMK (2)5-2-011:027 (POR.), NĀ'IWA, MOLOKA'I, HAWAI'I (LOG NO. 2017.01466, DOC NO. 1708GC03 ARCHAEOLOGY)**

Dear Dr. Downer:

Thank you for your letter dated August 16, 2017 responding to the request for early consultation comments on the Proposed Molokai Integrated Solid Waste Management Facility (MISWMF) Improvements in Nā'iwa, Moloka'i, Hawai'i. The County of Maui, Department of Environmental Management (DEM) offers the following information in response to the comments noted in your letter.

As requested in your comment letter and in accordance with guidance provided by Dr. Fariss in a meeting held on February 27, 2018, an Archaeological Inventory Survey (AIS) with a subsurface testing component was completed by our archaeologist, Scientific Consultant Services, Inc. The AIS report, meeting the requirements of HAR §13-276-5, will be included in the Draft Environmental Assessment for the project.

With regard to the National Historic Preservation Act (NHPA) Section 106 process, the Department of Health's Clean Water State Revolving Fund (CWSRF) program issued a clarification letter to the DEM on October 27, 2017 (See **Exhibit "A"**). Following consultation with DOH on applicable triggers, DEM's understanding is that Section 106 requirements do not apply to the proposed project.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft EA for the project.

Should you have any questions or require additional information, please feel free to contact our planning consultant, Charlene Shibuya of Munekiyo Hiraga at (808) 244-2015.

Sincerely,

Stewart Stant, Director

CSS:lh
Enclosure
cc: Sage Kiyonaga, County of Maui, Department of Environmental Management (w/enclosure)
Ali Mehrazarin, A-MEHR, Inc. (w/enclosure)
Mike Dega, Scientific Consultant Services (w/enclosure)
Charlene Shibuya, Munekiyo Hiraga
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DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

October 27, 2017

Mr. Stewart Stant, Director
Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793
Email: Stewart.Stant@co.maui.hi.us

Dear Mr. Stant:

Subject: State of Hawaii Clean Water State Revolving Fund (CWSRF) Program Treatment Works Definition

The State of Hawaii CWSRF Program's definition of a Treatment Works is the following:

> Treatment works means any treatment unit and its associated collection system and disposal system, excluding non-point source and individual wastewater systems. Treatment unit means any plant, facility, or equipment used in the treatment of wastewater, including the necessary pumps, power equipment, blowers, motors, holding tanks, flow splitter, and other process equipment.

Projects that do not fall under this definition are not required to comply with the Section 106 *National Historic Preservation Act* review and consultation process, American Iron and Steel and Davis Bacon requirements.

The following are types of projects that are not considered Treatment Works under the CWSRF Program.

1. Capping and closure of municipal solid waste landfills, landfill reclamation, landfill leachate collection, storage and treatment, and landfill gas collection, and control systems.
2. Brownfield projects involving site assessments, underground storage tank removal and disposal, contaminated soil or sediment removal and disposal, capping wells, soil remediation, controlling stormwater runoff, and monitoring groundwater and surface water for contaminants.
3. Water quality projects involving leachate and stormwater management at municipal solid waste transfer stations.
4. Stormwater management projects.

The definition of Treatment Works will be included in Amendment 3 to the Intended Use Plan for the State Fiscal Year 2018.

EXHIBIT A

Should you have any questions, please contact Ms. Sue Liu of our office at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

SL:sp

c: WRFS
Mr. Eric Nakagawa (via email at Eric.Nakagawa@co.maui.hi.us)
Mr. Scott Rollins (via email at Scott.Rollins@co.maui.hi.us)
Mr. Juan Rivera (via email at Juan.Rivera@co.maui.hi.us)
Mr. Michael Kehano (via email at Michael.Kehano@co.maui.hi.us)
Mr. Sage Kiyonaga (via email at Sage.Kiyonaga@co.maui.hi.us)

STP(5-2-011-027
09/22/17 gmm

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
DIR 0872
STP 8.2222

September 14, 2017

Mr. Mark Alexander Roy, AICP
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Molokai Integrated Solid Waste Management Facility Improvements
Early Consultation
Naiwa, Molokai, Hawaii
TMK: (2) 5-2-011:027

Our Department of Transportation's (DOT) comments on the subject project are as follows:

Airports Division

1. The nearest portion of the proposed site improvements to Runway 35 at the Molokai Airport (MKK) is approximately 3 miles. All applicants, agencies and construction contractors need to be aware of the duties of the state and county agencies to implement the Technical Assistance Memorandum (TAM) related to this project and all projects within 5 miles of an airport. More information about the TAM can be found at the State of Hawaii Office of Planning Website: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf.

   The TAM also responds to the Federal Aviation Administration (FAA) Order 5190.6B and implements FAA's Advisory Circular (AC) 150/5200-33B *Hazardous Wildlife Attractants On or Near Airports* and AC 150/5200-34A *Construction or Establishment of Landfills near Public Airports.* The State is obligated to implement the measures described in the FAA advisory circulars.

2. DOT opposes the proposed project. The existing solid waste management facility and the proposed improvements creates the potential to attract wildlife near MKK. The attraction of wildlife near the airport presents an unacceptable risk to the safety of the travelling public.

Highways Division

While the subject project is not anticipated to have a significant impact to State highways, appropriate measures must be implemented to assure that spill materials are not released within the State highway right-of-way (Maunaloa Highway -Route 460).

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

EKT:gm

c: Stewart Stant, Maui County Department of Environmental Management

bc: AIR-EP, HWY-M, HWY-P, STP (5-2-011-027)

ALAN M. ARAKAWA
Mayor

STEWART STANT
Director

MICHAEL M. MIYAMOTO
Deputy Director

MICHAEL RATTE
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

March 21, 2018

Mr. Jade Butay, Interim Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097
Attention: Norren Kato, Statewide Transportation Planning Office

Dear Mr. Butay

SUBJECT: **CHAPTER 343, HAWAI'I REVISED STATUTES, EARLY CONSULTATION REQUEST FOR PROPOSED MOLOKA'I INTEGRATED SOLID WASTE MANAGEMENT FACILITY IMPROVEMENTS AT TMK (2)5-2-011:027 (POR.), NĀ'IWA, MOLOKA'I, HAWAI'I (DIR 0872; STP 8.2222)**

Thank you for your department's letter dated September 14, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility (MISWMF) Improvements in Nā'iwa, Moloka'i, Hawai'i. The County of Maui, Department of Environmental Management (DEM) offers the following information in response to the comments noted in your letter.

Airports Division

Comment No. 1.:

The nearest portion of the proposed site improvements to Runway 35 at the Molokai Airport (MKK) is approximately 3 miles. All applicants, agencies and construction contractors need to be aware of the duties of the state and county agencies to implement the Technical Assistance Memorandum (TAM) related to this project and all projects within 5 miles of an airport. More information about the TAM can be found at the State of Hawaii Office of Planning Website: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf.

Response: We have reviewed the State of Hawai'i, Office of Planning Website covering the referenced TAM. Both the Federal Aviation Administration (FAA) Advisory Circular 150/5200-33B and FAA Advisory Circular 150/5200-34A prohibit construction or establishment of a *new* MSWLF established after April 5, 2000. Please note that the (MISWMF) was established in 1993, therefore these standards and siting restrictions do not apply to current MISWMF operation or the proposed improvements. However we will continue to consult with DOT Airports Division during preparation of the EA for the proposed project to solicit additional feedback on the Best Management Practices (BMPs) that are currently implemented at the MISWMF to control and to minimize the potential for wildlife attraction impacts to occur. Upon completion, a copy of the Draft EA will be provided to your department for review and comment.

Comment No. 2:

DOT opposes the proposed project. The existing solid waste management facility and the proposed improvements creates the potential to attract wildlife near MKK. The attraction of wildlife near the airport presents an unacceptable risk to the safety of the travelling public.

Response: While DEM notes DOT's position in regards to the proposed improvements, the MISWMF was developed in accordance with applicable regulations at the time of its establishment in 1993 and is currently the only approved facility on the island that can provide critical solid waste and recycling. As such, we will continue to consult with DOT Airports Division during preparation of the EA for the proposed project to solicit additional feedback on the Best Management Practices (BMPs) that are currently implemented at the MISWMF to control and minimize the potential for wildlife attraction impacts to occur. Upon completion, a copy of the Draft EA will be provided to your department for review and comment.

Highways Division

Comment:

While the subject project is not anticipated to have a significant impact to State highways, appropriate measures must be implemented to assure that spill materials are not released within the State highway right-of-way (Maunaloa Highway – Route 460).

Response: Proper precautions are taken by the County DEM and its contracted personnel operating trucks that transport solid waste and recycled materials in and out of the MISWMF, to not cause spills onto Maunaloa Highway. The MISWMF site is located about 2,000 feet away from the highway and onsite operations are also not anticipated to result in release of material onto the highway.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft EA for the project. Should you have any questions or require additional information, please feel free to contact Charlene Shibuya of Munekiyo Hiraga at (808)244-2015.

Sincerely,

Stewart Stant, Director

cc: Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
Mark Alexander Roy, Munekiyo Hiraga
K:\DATA\COM\DEM Molokai ISWMF LF\Applications\ECL Responses\SDOTres(DEM).letter.doc

JUL 24 2017

DAVID Y. IGE
GOVERNOR

ARTHUR J. LOGAN
MAJOR GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

July 19, 2017

Mr. Mark Alexander Roy, AICP
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Early Consultation Request for Proposed Molokai Integrated Solid Waste Management Facility Improvements at TMK (2) 5-2-011:027 (por.) Naiwa, Molokai, Hawaii

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the proposed project.

Should you have any questions or concerns, please have your staff contact Ms. Shao Yu Lee, our Land Manager on Oahu, at (808) 733-4222.

Sincerely,

for NEAL S. MITSUYOSHI, P.E.
Colonel, Hawaii National Guard
Chief Engineering Officer

c: Mr. Stewart Stant, County of Maui, Department of Environmental Management
Mr. David Kennard, Hawaii Emergency Management Agency (HI-EMA)
Ms. Havinne Okamura, HI-EMA
Mr. Albert Chong, HI-EMA

MUNEKIYO HIRAGA
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Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Neal S. Mitsuyoshi, P.E.
Colonel, Hawai'i National Guard
Chief Engineering Officer
State of Hawai'i
Department of Defense
Office of the Adjutant General
3949 Diamond Head Road
Honolulu, Hawai'i 96816-4495

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Colonel Mitsuyoshi:

Thank you for your letter dated July 19, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management, we appreciate your letter of confirmation that you have no comments to offer at this time.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft Environmental Assessment for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at 983-1233.

Very truly yours,

Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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DAVID Y. IGE
GOVERNOR
STATE OF HAWAII

SHAN S. TSUTSUI
LT. GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P. O. BOX 1879
HONOLULU, HAWAII 96805

July 31, 2017

Mark Alexander Roy, AICP
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Proposed Molokai Integrated Solid Waste Management Facility Improvements Early Consultation Request; Nā'iwa, Moloka'i, Hawai'i TMK (2)5-2-011:027 (por.)

Mahalo for allowing the Department of Hawaiian Home Lands (DHHL) the opportunity for early consultation in preparation of a Draft Environmental Assessment (DEA) for the above-referenced undertaking. DHHL owns over 24,000 acres within the surrounding ahupua'a of Ho'olehua, Kalama'ula and Pālā'au, with homesteads in Kalama'ula located less than a mile away. See Exhibit 'A'

After reviewing the project description, we do not anticipate significant impacts to our lands or beneficiaries from the project. However, we offer the following comments:

Comment #1: DHHL's general, island, regional, and water policy plans should be consulted in assessing the significant, cumulative, and secondary impacts of the proposed project.

DHHL, in consultation with its beneficiaries, develops and maintains a series of land use and water policy plans, which should be consulted to determine reasonably foreseeable cumulative and secondary impacts of the proposed project.

DHHL develops and maintains a general plan providing for the development and use of land needed for fulfilling the purposes of the Hawaiian Homes Commission Act of 1920, as amended (HHCA). Hawaii Administrative Rule (HAR) §10-4-2; *see* "Department of

Hawaiian Home Lands General Plan," (approved Feb. 26, 2002). DHHL developed its Moloka'i Island Plan (June 2005), which identifies DHHL land use designations for its Molokai lands and whose designations function similarly to county land-use zoning. See Exhibits 'B' and 'C'

DHHL also developed regional plans, which identify land use development factors, issues, opportunities, and each region's top priority projects for implementation within three years of regional plan development for each island. Most pertinent to the proposed ISWMF improvements are DHHL's Water Policy Plan (Jul. 2014)[1] and the DHHL Moloka'i Island Plan (June 2014).

A priority policy of DHHL's Water Policy Plan is to "[e]xpressly determine and plan for future water needs and actively participate in broader water management, use and protection efforts in Hawai`i in order to secure water." Water Policy Plan at 2. Consistent with this policy, this comment raises DHHL's foreseeable future water needs in order to ensure these needs are adequately planned for.

Comment #2: *DHHL's rights and interests in the Molokai sole-source aquifer system resources and potential development needs for those water resources should be considered in assessing the significance of the proposed project's impacts.*

Hawai'i's environmental review law, HRS Chapter 343, contains clear language requiring that EAs examine the impacts of proposed actions on Hawaiian rights, including those of DHHL. Our interpretations of significance assessment as required by HRS Chapter 343 indicate DHHL land use plans should be considered in the DEA. HAR §11-200-12(3) concerns: "conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders." Hawai'i's Environmental Policy Act, Chapter 344, HRS (HEPA) includes conserving natural resources by safeguarding "natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under

[1] *See* The Hawaiian Homes Commission Water Policy Plan, adopted July 22, 2014 *available at:* http://dhhl.hawaii.gov/wp-content/uploads/2013/09/HHC-Water-Policy-Plan-140722.pdf

which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawai'i." HRS §344-3(1).

Comment #3: *Consult with N(n)ative Hawaiian organizations when assessing potential impacts to cultural and natural resources, access and other Native Hawaiian rights.*

We highly encourage all agencies to consult with Hawaiian Homestead community associations and other (N)native Hawaiian organizations when assessing environmental impacts in order to better assess potential impacts to cultural and natural resources, access and other rights of Native Hawaiians as well as to better design suitable mitigation measures to minimize those impacts.

The DHHL Planning Office can assist with current contact information for Homestead community associations if needed. The DEA should also discuss measures that will be taken to ensure adequate and thorough Section 106 Consultation for NEPA compliance.

Comment #4: *Discuss how the Molokai Integrated Solid Waste Landfill is an allowable use within State Land Use of Agriculture without a Special Permit, and whether or not a Special Permit will be applied for through the State Land Use Commission.*

Under normal circumstances, this type of use in the Agricultural District requires a State Land Use Special Permit. The DEA should discuss how the existing use, as well as the expansion plans, are consistent with the Agricultural District and what additional permitting may be required to comply with HRS CH. 205.

Conclusion:

Mahalo nui for requesting Early Consultation comments in preparation of an EA on the proposed Molokai Integrated Solid Waste Management Facility Improvements. DHHL requests that the Draft EA fully and expressly address impacts on DHHL's reasonably foreseeable rights, interests, and plans for water and land development, as well as potential impacts to cultural and natural resources, access and other rights of Native Hawaiians.

Please direct any questions to me at (808) 620-9501, or your staff may contact Kaleo Manuel in our Planning Office at (808) 620-9481 or at Kaleo.L.Manuel@hawaii.gov.

Aloha,

Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

Enc.

Hawaiian Home Lands in Kalama'ula & Ho'olehua-Pālā'au in relation to Molokai ISWM Facility



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EXHIBIT 'A'

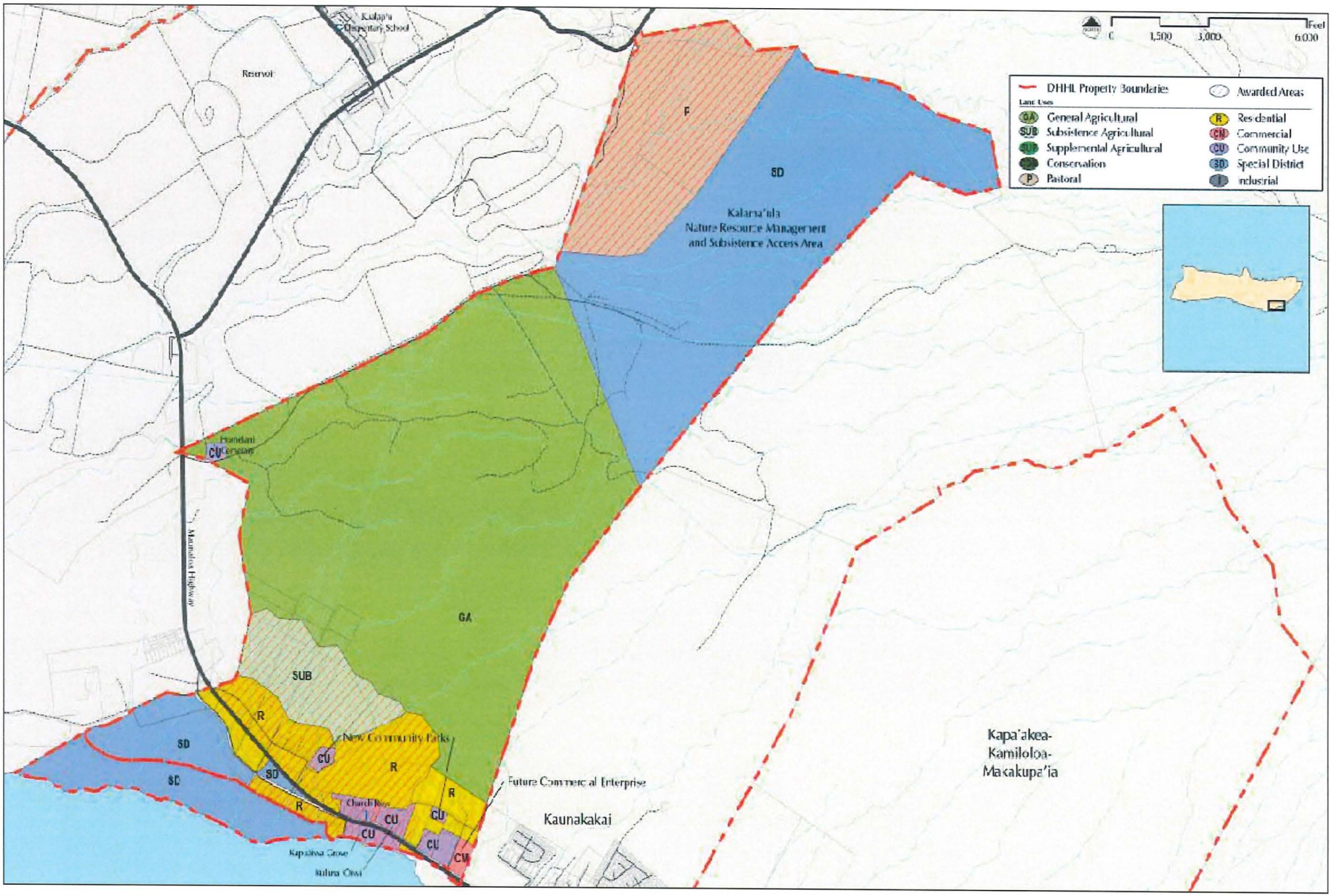

Figure 5.2 - Kalama'ula Preferred Land Use Plan

EXHIBIT 'B'

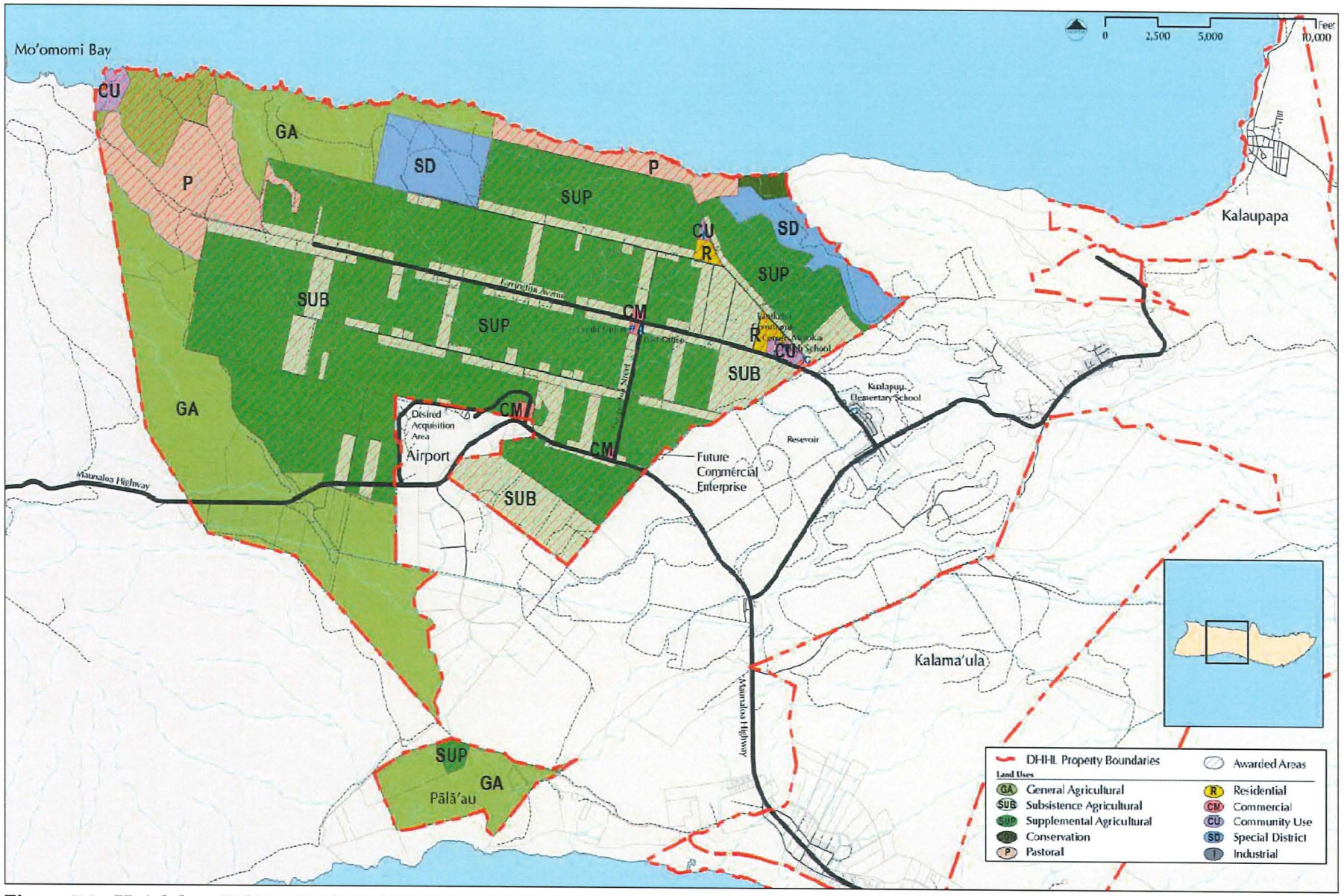

Figure 7.2 - Ho'olehua-Pālā'au Preferred Land Use Alternatives

EXHIBIT 'C'

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Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Jobie M.K. Masagatani, Chairman
State of Hawai'i
Department of Hawaiian Home Lands
Hawaiian Homes Commission
P.O. Box 1879
Honolulu, Hawai'i 96809

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Ms. Masagatani:

Thank you for your letter dated July 31, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility (MISWMF) Improvements in Nā'iwa, Moloka'i, Hawai'i. We appreciate your confirmation that the Department of Hawaiian Home Lands (DHHL) does not anticipate significant impacts to Hawaiian Home Lands or its beneficiaries from the subject project. On behalf of the County of Maui, Department of Environmental Management, we offer the following information in response to the comments noted in your letter.

1. The Draft Environmental Assessment (EA) will include a discussion regarding DHHL's general, island, regional, and water policy plans to assess the potential for significant, cumulative, and secondary impacts from the proposed project.

   It is noted that the MISWMF is approximately one (1) mile away from the closest DHHL's lands in Kalama'ula and Ho'olehua-Pālāau. The proposed improvements are limited to work within the existing MISWMF, and therefore, the project is not anticipated to have significant adverse impacts on the ability of DHHL to develop and utilize DHHL's lands on the island of Moloka'i.

2. Pursuant to HRS § 11-200-12(3), the Draft EA will include an analysis of the proposed project's applicability to DHHL's water policy plan. As discussed above, MISWMF is approximately on (1) mile away from the closest DHHL's lands in Kalama'ula and Ho'olehua-Pālāau, and the proposed project is not anticipated to have significant adverse impacts to DHHL's rights and interests in the Moloka'i sole-source aquifer system and potential development needs for those water resources.

3. We appreciate your recommendation to consult with Hawaiian Homestead Community Associations and other native Hawaiian organizations. A copy of the early consultation letter has been sent to Aha Moku Advisory Committee and Kalama'ula Homesteaders Association for review and comment.

4. With regard to Section 106 of the National Historic Preservation Act (NHPA), the Department of Health's Clean Water State Revolving Fund (CWSRF) program issued a clarification letter to the DEM on October 27, 2017. Following consultation with DOH on applicable triggers, DEM's understanding is that Section 106 requirements do not apply to the proposed project.

5. The State of Hawai'i, Land Use Commission (LUC) issued a Special Permit (SP) in May 1993 to establish and operate the 38-acre MISWMF, which includes the area of the proposed improvements. A copy of the SP will be included in the Draft EA for the project.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft EA for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at 983-1233.

Very truly yours,



Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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JUL 26 2017

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http://planning.hawaii.gov/

Ref. No. P-15667

July 24, 2017

Mr. Mark Alexander Roy, AICP
Munekiyo Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Chapter 343, Hawaii Revised Statutes, Early Consultation Request for Proposed Molokai Integrated Solid Waste Management Facility Improvements, Naiwa, Molokai;
TMK: (2) 5-2-011: 027

Thank you for the opportunity to provide comments on the early consultation request for proposed improvements to the Molokai Integrated Solid Waste Management Facility in Naiwa, Molokai. The pre-consultation review material was transmitted to our office via letter dated July 7, 2017.

It is our understanding that the County of Maui, Department of Environmental Management (DEM) proposes the development and operation of Phase 5 and 6 disposal cells at the Molokai Integrated Solid Waste Management Facility. DEM has retained a consultant to evaluate existing conditions at the facility. The consultant has prepared and updated the master plan in coordination with the County of Maui Integrated Solid Waste Management Plan.

The existing landfill facility (designated as Phases 1, 2, 3, and 4) provides waste diversion and recycling services pursuant to the County's Solid Waste Management Plan. The current landfill includes a recycling center for glass, aluminum, plastic containers, paper goods, and used motor oil; a green waste center that stores and processes mulch for agricultural activities; and Molokai Metals which processes old vehicles, scrap metals, and white goods for storage and recycling.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics; this project must demonstrate that it is consistent with a number of state environmental, social, economic goals, and policies for land use. Hawaii Revised Statutes (HRS)

Chapter 226, the Hawaii State Planning Act, provides goals, objectives, policies, State Functional Plans, and priority guidelines for growth, development, and the allocation of resources throughout the state in areas of state interest.

The Draft EA should include a discussion on the project's ability to meet all of Part I – Overall Themes, Goals, Objectives and Policies, Part II – Planning Coordination and Implementation (State Functional Plans), and Part III – Priority Guidelines of the Hawaii State Planning Act. The analysis should examine consistency with these statutes or clarify where it is in conflict with them. If any of these themes are not applicable to the project, the analysis should affirmatively state such determination, followed by discussion paragraphs.

2. The coastal zone management (CZM) area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" (see HRS § 205A-1).

   HRS Chapter 205A-5(b) requires all state and county agencies to enforce the CZM objectives and policies. The Draft EA should include an assessment as to how the proposed action conforms to each of the goals and objectives of the Hawaii CZM program as listed in HRS § 205A-2. Compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343.

3. Pursuant to HAR § 11-200-10(6) – identification and summary of impacts and alternatives considered; the project seeks to improve this solid waste disposal facility by developing a leachate collection and removal system, relocating the existing green waste landfill, and improving the perimeter drainage system to mitigate for stormwater runoff.

   In order to ensure that any surface water resources near Naiwa and the adjacent marine ecosystem remain protected, the Draft EA should examine potential negative impacts resulting from this project on water resources during the construction and operation phases. The analysis should also evaluate the effectiveness of the proposed drainage system improvements.

   Issues that may be examined include, but are not limited to, project site characteristics in relation to flood and erosion prone areas, open spaces, streams and wetlands, and soil absorption characteristics. These items should be considered when developing mitigation measures for the protection for surface water resources and the coastal ecosystem, pursuant to HAR § 11-200-10(7).

OP has a number of resources available to assist in practices which ensure stormwater management on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep land-based pollutants and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for this project. The evaluative tools that should be used during the design process include:

- Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf

- Low Impact Development (LID), A Practitioners Guide covers a range of structural best management practices for stormwater control management, onsite infiltration techniques, water reuse methods, and building layout designs that minimize negative environmental impacts http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

Sincerely,

Leo R. Asuncion
Director

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Leo R. Asuncion, Director
State of Hawai'i
Office of Planning
P.O. Box 2359
Honolulu, Hawai'i 96804

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'I (P-15667)

Dear Mr. Asuncion:

Thank you for your letter dated July 24, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management, we offer the following information in response to the comments noted in your letter.

1. The Draft Environmental Assessment (EA) will include a discussion and analysis of the Hawai'i State Plan, Hawai'i Revised Statutes (HRS) Chapter 226, the Hawai'i State Planning Act. This analysis will examine consistency of the proposed project with the Hawai'i State Plan and State Functional Plans.

2. We understand that HRS Chapter 205A requires all State and County agencies to enforce coastal zone management (CZM) objectives and policies. The Draft EA will include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS, Chapter 205A-2. We acknowledge that the assessment on compliance with HRS, Chapter 205A is an important component for satisfying the requirements of HRS, Chapter 343.

3. Pursuant to HRS § 11-200-10(6), the Draft EA will discuss potential impacts resulting from the project, including surface and marine resources. Mitigation measures will be identified, as applicable, based on this evaluation pursuant to HRS § 11-200-10(7). Such measures will include the implementation of a program of Best Management Practices (BMPs). A Preliminary Engineering and

Drainage Report discussing both the drainage improvements proposed and the BMP program will be included in the Draft EA.

We appreciate your office providing the noted links to storm water management reference resources that are available to assist project planning. A copy of your comment letter has been provided to the design engineer for consultation of the guidance provided in the *"Stormwater Impact Assessments"* and *"Low Impact Development, A Practitioners Guide"*.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft EA for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at 983-1233.

Very truly yours,



Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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JUL 21 2017

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor
CAROL K. REIMANN
Director
JAN SHISHIDO
Deputy Director

2200 MAIN STREET • SUITE 546 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165
MAILING ADDRESS: 200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • EMAIL: director.hhc@mauicounty.gov

July 17, 2017

Mr. Mark Alexander Roy, AICP
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

SUBJECT: Chapter 343, Hawaii Revised Statutes, Early Consultation Request for Proposed Molokai Integrated Solid Waste Management Facility Improvements at TMK (2) 5-2-011:027 (por), Naiwa, Molokai, Hawaii

The Department has reviewed the Chapter 343, Hawaii Revised Statutes, Early Consultation Request 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 call Mr. Veranio Tongson Jr. of our Housing Division at (808) 270-1741 if you have any questions.

Sincerely,

BUDDY A. ALMEIDA
Housing Administrator

cc: Director of Housing and Human Concerns

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Buddy A. Almeida, Housing Administrator
County of Maui
Department of Housing and Human Concerns
2200 Main Street, Suite 546
Wailuku, Hawai'i 96793

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Mr. Almeida:

Thank you for your letter dated July 17, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management, we appreciate your letter of confirmation that the subject project is not subject to Chapter 2.96, Maui County Code and you have no comments to offer at the present time.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft Environmental Assessment for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at (808) 983-1233.

Very truly yours,

Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
K:\DATA\COM\DEM Molokai ISWMF LF\Applications\ECL Responses\DHHCres.letter.doc

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

November 9, 2017

DEM	INFO	ACTION
DIRECTOR		
DEPUTY		
PERS		
WWR		
SW	✓	
EP&S		
SECTY		

Mr. Stewart Stant, Director
Department of Environmental Management
2050 Main St., Suite 2B
Wailuku, Hawaii 96793

Dear Mr. Stant:

SUBJECT: REQUEST FOR COMMENT ON A PRE-ASSESSMENT CONSULTATION FOR SOLID WASTE MANAGEMENT IMPROVEMENTS, CONTINUATION OF PHASE 5 AND PHASE 6 LOCATED AT 1551 MAUNALOA HWY, KAUNAKAKAI, MOLOKAI, HAWAII; TMK (2) 5-2-011:027 (POR) (RFC 2017/0082)

The Department of Planning (Department) is in receipt of the above referenced request for consultation in which the project involves expansion of the waste-management improvements to continue the expansion of Phase 5 and Phase 6.

The Applicant should be aware that the Molokai Community Plan is being reviewed and updated. The 2001 Molokai Community Plan objectives and policies relating to Solid Waste are as follows:

1. Encourage comprehensive waste management for the island which includes recycling and reuse of solid waste and wastewater as major plan components.

2. Expand wastewater treatment capacity in Kaunakakai, improve the current system, and provide service to the East End.

3. Explore the use of alternative waste treatment technologies such as composting toilets.

4. Designate an alternate site for the wastewater treatment plant, if needed.

5. Encourage widespread participation in the County trash collection service.

6. Encourage the re-use of yard debris/trimmings for composting of on-site landscaping or agricultural uses.

7. Investigate alternative means of disposal of grubbed material and rock other than disposal at County landfills.

IMPLEMENTING ACTIONS

1. Provide solid waste transfer stations at both the East and West End.

2. Implement a full recycling and mandatory trash separation program, including source separation, on Molokai as a County prototype project.

3. Require that for all construction projects a solid waste reduction, re-use recycling program be implemented to reduce the amount of solid waste to be disposed of at the County landfill.

4. Develop a toxic disposal strategy whereby the Department of Public Works and Waste Management shall be responsible for establishing a household Hazardous Waste disposal site on Molokai for the collection and disposal of non-commercial waste products.

The most recent draft Molokai Community Plan update regarding solid waste implementing actions are as follows:

8.4.06 Expand the solid waste recycling center's operating hours as funding and budgets allow.

8.4.09 Explore the feasibility of having more transfer stations located throughout Molokai.

8.4.10 Form a partnership with Molokai NGOs, State Agencies, and DHHL to remove and recycle junk cars from Molokai.

8.4.11 Conduct annual reviews of Solid Waste Division contracts to provide over-sight and enforcement.

Thank you for the opportunity to comment. Should you require further clarification, please contact Staff Planner Sybil Lopez by email at sybil.lopez@mauicounty.gov or by phone at (808) 270-5529.

Sincerely,

CLAYTON I. YOSHIDA, AICP
Planning Program Adminstrator

for WILLIAM SPENCE
Planning Director

xc: John S. Rapacz, Planning Program Administrator (PDF)
Jennifer Mayden, Staff Planner
Sybil K. Lopez, Staff Planner (PDF)
Project File
General File

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Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

William Spence, Director
County of Maui
Department of Planning
2200 Main Street, Suite 315
Wailuku, Hawai'i 96793

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Mr. Spence:

Thank you for your letter dated November 9, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management (DEM), we offer the following information in response to the comments noted in your letter.

We appreciate the information you provided regarding the 2001 Moloka'i Community Plan and the draft community plan update process. The Draft Environmental Assessment (EA) will include a discussion and analysis of the current, adopted Moloka'i Community Plan.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft EA for the project. Should you have any questions or require additional information, please feel free to contact me at 244-2015.

Very truly yours,

Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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JUL 27 2017

POLICE DEPARTMENT

COUNTY OF MAUI

ALAN M. ARAKAWA
MAYOR

OUR REFERENCE
SF:cf
YOUR REFERENCE

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

TIVOLI S. FAAUMU
CHIEF OF POLICE

DEAN M. RICKARD
DEPUTY CHIEF OF POLICE

July 24, 2017

Mr. Mark Alexander Roy, AICP
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Roy:

Re: Chapter 343, Hawaii Revised Statutes, Earl Consultation Request
For Proposed Molokai Integrated Solid Waste Management Facility
Improvements at TMK (2)5-2-011:027 (por.), Naiwa, Molokai, Hawaii

Officer Sepulona Falealii of our Molokai Patrol Division reviewed the above-mentioned project as you have requested, and we are enclosing his report for your further information. It is to be noted that proper precautions should be taken to address the ingress and egress of construction equipment and materials onto public roadways from the construction location, and that noise and dust pollution are usually the two main complaints from the general public in construction related situations.

Should you have any further questions or concerns, please feel free to contact Officer Falealii at (808) 553-5355.

Sincerely,

TIVOLI S. FAAUMU
Chief of Police

Enclosure

cc: Assistant Chief John Jakubczak
Officer Sepulona Falealii

NOTED/FILE
7/21/17

TO: TIVOLI FAAUMU, POLICE CHIEF, MAUI COUNTY POLICE DEPARTMENT

VIA: CHANNELS – CONCUR W/ASSESSMENT. RESPONSE LETTER ON MPD LETTERHEAD TO BE SENT TO D.E.M.
AA 7/21/17

FROM: SEPULONA FALEALII, PO III, MAUI POLICE DEPARTMENT, D-V

SUBJECT: MOLOKAI INTEGRATED SOLID WASTE MANAGEMENT FACILITY (MISWMF) IMPROVEMENTS

SYNOPSIS:

On July 17, 2017 at about 0630 hours, I was assigned by Lieutenant Jamie WINFREY to assess the above mentioned construction project.

Location: The proposed project is the landfill at the existing permitted Molokai Integrated Solid Waste Management Facility on Molokai. Property is located just off the Maunaloa Highway in Naiwa on an approximately 40-acre portion of the below listed Tax Map Key (MK). The property is located approximately 1.25 miles inland with elevations spanning between approximately 200 to 250 feet above Mean Sea Level.

Tax Map Key (TMK): (2)5-2-011:027
(Refer to Figure 1 attached)

Owner: County of Maui

ASSESSMENT:

On July 17, 2017, at 1430 hours, I made contact with Mark A. ROY via landline and he related that the proposed project is on hold, depending on the Environmental Assessment outcome. According to ROY, the project will not affect any Molokai residences, County roads, or State Highways. Stated should any issues or concerns arise regarding this project, they should be addressed to him or Charlene SHIBUYA.

TRAFFIC:

The construction location appears to be a good distance, approximately 1.25miles inland from Maunaloa Highway, so I do not foresee any major issues, however, proper precautions should be taken to address the ingress and egress of any construction materials or equipment onto public roadways.

POLLUTION:

Noise and dust pollution are usually the two main complaints made by the public in construction related situations however, there are no immediate businesses or residences within proximity of the construction area. Therefore, I do not foresee any reason why should be any noise/dust pollution complaints.

CONTACT PERSON:

Mark A. ROY (Planning Consultant) and Charlene S. SHIBUYA (Senior Associate), both of Munekiyo Hiraga may be contacted for further information at (808) 244-2015.

DISPOSITION:

Should all issues regarding traffic control and noise/dust pollution be addressed, I do not foresee any reason why the construction cannot proceed as planned.

Submitted by:

Sepulona FALEALII E-12197
Police Officer III, D-V
07/17/2017 @ 1445 Hours.

CONCUR WITH OFC. FALEALII'S ASSESSMENT. NO REASON WHY PROJECT CAN NOT PROCEED.

07/19/17 1001 hr

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Michael T. Munekiyo
PRESIDENT
Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

Tivoli S. Faaumu, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawai'i 96793

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Chief Faaumu:

Thank you for your letter dated July 24, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management (DEM), we offer the following information in response to the comments noted in your letter.

Proper precautions will be taken by DEM regarding the ingress and egress of any construction materials or equipment onto public roadways as well as traffic control and noise/dust pollution. Appropriate compliance requirements will be incorporated in the construction contract documents for the project.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft Environmental Assessment for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at (808) 983-1233.

Very truly yours,

Charlene S. Shibuya
Senior Associate

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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ALAN M. ARAKAWA
Mayor

DAVID C. GOODE
Director

ROWENA M. DAGDAG-ANDAYA
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

JUL 28 2017

GLEN A. UENO, P.E., P.L.S.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

JOHN R. SMITH, P.E., ACTING
Highways Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

July 24, 2017

Mr. Mark Alexander Roy, AICP
MUNEKIYO HIRAGA
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

SUBJECT: CHAPTER 343, HAWAII REVISED STATUTES, EARLY CONSULTATION REQUEST FOR PROPOSED MOLOKAI INTEGRATED SOLID WASTE MANAGEMENT FACILITY IMPROVEMENTS; TMK: 5-2-011:027

We reviewed the subject application and have no comments at this time.

If you have any questions regarding this memorandum, please call Rowena Dagdag-Andaya at 270-7845.

Sincerely,

DAVID C. GOODE
Director of Public Works

DCG:RMDA:da
xc: Engineering Division
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Karlynn K. Fukuda
EXECUTIVE VICE PRESIDENT
Mark Alexander Roy
VICE PRESIDENT
Tessa Munekiyo Ng
VICE PRESIDENT

April 19, 2018

David C. Goode, Director
County of Maui
Department of Public Works
200 South High Street, Room No. 434
Wailuku, Hawai'i 96793

SUBJECT: Chapter 343, Hawai'i Revised Statutes, Early Consultation Request for Proposed Moloka'i Integrated Solid Waste Management Facility Improvements at TMK (2)5-2-011:027 (por.), Nā'iwa, Moloka'i, Hawai'i

Dear Mr. Goode:

Thank you for your letter dated July 24, 2017 responding to the request for early consultation comments on the Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa, Moloka'i, Hawai'i. On behalf of the County of Maui, Department of Environmental Management (DEM), we appreciate your letter of confirmation that you have no comments to offer at this time.

Thank you again for your input. A copy of your comment letter and this response will be included in the Draft Environmental Assessment for the project. Should you have any questions or require additional information, please feel free to contact Yukino Uchiyama of our office at (808) 983-1233.

Very truly yours,

Charlene S. Shibuya

CSS:lh
cc: Stewart Stant, Director, County of Maui, Department of Environmental Management
Sage Kiyonaga, County of Maui, Department of Environmental Management
Ali Mehrazarin, A-MEHR, Inc.
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X. REFERENCES

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PRELIMINARY ENGINEERING REPORT AND MASTER PLAN IMPROVEMENT

APPENDIX A

ACTIVE MOLOKAI INTEGRATED SOLID WASTE MANAGEMENT FACILITY (ISWMF)

PRELIMINARY ENGINEERING REPORT AND MASTER PLAN IMPROVEMENT - Relocation of Recycling Area, Drainage Improvements, and Landfill Limits Within the Currently Permitted Property

Prepared for
COUNTY OF MAUI
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
SOLID WASTE DIVISION
2200 Main Street, Suite 225
Wailuku, Hawaii 96793

Prepared by
A-MEHR, INC.
23016 Mill Creek Drive
Laguna Hills, CA 92653

August 2017

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MOLOKAI INTEGRATED SOLID WASTE MANAGEMENT FACILITY
PRELIMINARY ENGINEERING REPORT AND MASTER PLAN IMPROVEMENT

1. INTRODUCTION

Molokai Integrated Solid Waste Management Facility (MISWMF) has been the sole municipal solid waste disposal facility for the Island of Molokai since 1993. Figure 1 illustrates the MISWMF location.

In addition to providing disposal services, the MISWMF also provides important waste diversion and recycling services pursuant to the County of Maui's Integrated Solid Waste Management Plan (ISWMP). These services include a recycling center for source separated recyclables, a green waste recycling facility, and a scrap metal recycling facility.

Since its initial operation, the MISWMF has been incrementally constructed and operated in accordance with the development plan reflected in the original facility permit application documents. Since 1993, the entrance facilities, the recycling and diversion facilities, and four of the six planned landfill phases have been constructed. In order to ensure the MISWMF continues to provide the critical solid waste and recycling services through its remaining service life, it is necessary to update the facility development plan to identify all necessary site improvements, develop an anticipatory schedule for these improvements, and prepare conceptual plans for the site development. Primary site development issues to be addressed in the plan are 1) planning and construction of the remaining landfill phases, 2) construction of additional drainage features, and 3) relocation of the green waste recycling area.

As part of this planning process, the County retained A-Mehr, Inc. to develop a Preliminary Engineering Report and Master Plan Improvement for the ongoing development and operation of the MISWMF. A central step in preparing the Preliminary Engineering Report and Master Plan Improvement is analysis of future disposal requirements to determine the anticipated disposal capacity needs and the required timeframe for their development. With the disposal capacity requirements and the associated timeframe for its development defined, a conceptual landfill development plan to satisfy the projected disposal capacity needs can be prepared as well as a plan for relocation of recycling facilities that currently reside in the planned landfill footprint. This Preliminary Engineering Report and Master Plan Improvement has been prepared to address these needs.

The remainder of the report is organized in the following sections:

Section 2	Description of Existing Facility
Section 3	Description of Proposed Master Plan Improvement
Section 4	Disposal Capacity Utilization and Requirements
Section 5	Disposal Capacity Sequencing Plan
Section 6	Basis of Design
Section 7	Project Alternatives

2. DESCRIPTION OF EXISTING FACILITY

MISWMF is located near the southern coast of the Island of Molokai, on the dry leeward side of the island, approximately three miles northwest of Kaunakakai and approximately 1.25 miles inland with elevations ranging between approximately 200 to 250 feet mean sea level (MSL), and the topography gently sloping toward the south-southwest.

MISWMF is bounded to the north-northwest by Manawainui Gulch and to the south-southeast by a smaller unnamed gulch. Manawainui Gulch lies approximately 500 feet north-northwest of the site. Canyon walls of the gulch are over 50 feet high. Rock has been quarried from the southeast canyon wall of the gulch. The Tax Key Map identification for the site is TMK (2) 5-2-11:27 (portion).

Figure 2 presents the MISWF site plan indicating the existing functional areas of the:

- The currently developed landfill disposal area of approximately 11.6 acres (Phases 1 through 4);
- The entrance area consisting of the truck scales, scalehouse/office building and maintenance shop;
- The Recycle Molokai facility;
- The Green waste area (existing and planned relocation); and
- The Molokai Metals facility.

2.1 Recycle Molokai Facility

The Recycle Molokai facility, which is operated by a third-party contractor, serves as a HI-5 redemption center and recycling drop off center accepting the following materials from the public and commercial collection companies:

- Cardboard;
- Newspaper, and other paper materials;
- Glass;
- Aluminum;
- Plastic;
- Bimetal;
- Electronic waste.

The facility is located immediately south of the landfill entrance area, is approximately half an acre, and includes a variety of bins for depositing and storing dry materials, and a warehouse storage building. Equipment includes a glass pulverizer, and a baler for cardboard, paper, plastics, aluminum, and bi-metal cans. Recyclable materials are sorted, processed, stored, and loaded into shipping containers for transport to end users or off-island processors. The Recycle Molokai facility operates under its own solid waste management permit issued by DOH.

2.2 Molokai Metals Facility

MISWMF is the only location on the Island of Molokai authorized to receive and store scrap automobiles, white goods, used propane tanks, tires, lead-acid batteries and other scrap metal materials. The facility also receives and stores used motor oil. Materials are received and stored,

and are periodically transported to end users or off-island processors. The facility covers approximately one acre, is located to the west of Phase 4, and consists of an office building, receiving, processing, and storage areas.

2.3 Green Waste Area

The green waste receiving and processing area, approximately 2 acres, is presently located to the south of the Molokai Metals facility and west of Phases 1 and 2. This location is within the planned footprint of landfill Phases 5 and 6. The facility consists of green waste receiving, storage, and processing areas. Incoming green waste and wood waste material is received, temporarily stored, periodically chipped, and then placed into windrows. The mulch product is made available to Molokai residents at no charge and is also utilized on site.

2.4 Landfill

Since initial development in 1993, the following landfill phases have been constructed and utilized for landfilling activities:

Phase	Year Constructed	Size (acre)	Phase Disposal Capacity (cy)
1	1993	3.5	263,200
2	1997	3.3	
3	2009	2.2	87,200
4	2014	2.6	113,200
Total		11.6	463,600

The disposal capacity of 463,600 cubic yards provided by Phases 1 through 4 is the net volume based on the liner grades and the approved final grades with deductions for capacity occupied by the leachate collection and removal systems (LCRS), protective soil cover, and the final cover. Landfill base liner grades are presented on Figure 3. The maximum fill grades (interim final grades) for the existing Phases 1 through 4, with a maximum elevation of 290 feet above sea level (approximately 50 feet above surrounding terrain) are presented on Figure 4.

Phases 1 and 2 were constructed without composite liner systems, as specified in the federal Subtitle D and Hawaii criteria for solid waste landfills, based on the exemption provided in these regulations for facilities accepting less than 20 tons per day of solid waste.

Phase 1 was constructed with approximately 2 acres of the 3.3-acre cell floor lined with a PVC geomembrane above a compacted soil base, as a "pilot" test to determine whether subsequent cells would require liner systems for collection of leachate. Phase 1 was constructed with leachate collection trenches that flow to a vertical wet well located outside the Phase 1 footprint. See Figure 3 for the Phase 1 wet well location.

The Phase 2 area was constructed with a compacted soil liner. The low point of the cell, located at the south/southwest corner of Phase 2, was constructed as a lysimeter for the collection and removal of leachate and this area was lined with compacted soil and a geomembrane liner. The lysimeter LCRS pipe projects beyond the limits of Phase 2, in a westerly direction from Phase 2, and functions as the Phase 2 leachate monitoring point. The leachate monitoring point can be

accessed on the west side of Phase 2 near the interface with Phase 1. See Figure 3 for the location of the Phase 2 leachate monitoring point.

Phases 3 and 4 were constructed with a composite liner system, a LCRS, and an internal lined sump located in Phase 3. The Phase 3 sump was sized to serve both Phases 3 and 4. See Figure 3. The liner system for both Phase 3 and Phase 4 were constructed of the following materials (from bottom layer to top layer):

- A prepared subgrade consisting of a minimum 12 inches of native soil compacted to 90 percent of maximum dry density;
- A low-permeability soil liner with a minimum thickness of 12 inches and a maximum permeability of 1.0×10^{-6} cm/sec;
- Geomembrane consisting of 80-mil high density polyethylene (HDPE);
- 16-ounce per square yard cushion geotextile;
- Leachate collection drainage layer consisting of 12 inches of sand or gravel with a permeability capable of maintaining less than 30 cm (12 inches) of hydraulic head above the geomembrane;
- 16-ounce per square yard filter geotextile; and
- 24-inch thick protective soil layer.

2.5 Stormwater Management Systems

Stormwater is currently managed at the MISWF in two drainage watersheds. The drainage watersheds encompass the following areas: 1) the entrance facility area, and 2) the balance of the property including the Molokai Metals facility, the green waste area, and the landfill footprint. The stormwater management systems associated with each of the drainage watersheds are designed to manage the 24-hour, 25-year storm event as required by HAR 11-58.1-15(g).

2.5.1 Entrance Facility

The entrance facility drainage watershed is approximately 3.7 acres in area. Located within this area are the truck scales, scalehouse/office, maintenance shop, and the Recycle Molokai facility. Roughly half the area is undeveloped and sparsely vegetated.

Currently, stormwater runoff from the entrance facility drainage watershed flows overland, across the undeveloped area, and is collected in a sedimentation basin located approximately 200-feet south of the maintenance shop.

As discussed in Section 3.3.1, the County plans to modify the stormwater management system for the entrance facility.

2.5.2 Molokai Metals, Green Waste Area, and Landfill

Stormwater from the balance of the property encompassing the Molokai Metals facility, the Green Waste Area, and the landfill footprint is managed by a system of berms, ditches, channels that convey flow to the primary sedimentation basin.

Stormwater flow off the landfill is managed in a series of temporary berms and ditches that convey water off the landfill surface in a manner that prevents erosion of the landfill cover. These berms

and ditches discharge to a drainage channel located at the landfill perimeter. A permanent perimeter channel, consisting of a 12 foot wide channel bottom surfaced with asphalt and 1 foot high concrete side walls, have been constructed around the existing landfill perimeter as well as around the footprint of proposed landfill Phases 5 and 6. The perimeter channel located along the footprint of proposed Phases 5 and 6 collects stormwater from the Molokai Metals facility and the Green Waste Areas. All channel flow collects in the existing facility sedimentation basin located at the south corner of the property.

The permanent channels and sedimentation basin have been sized and constructed for the final site development based on the results of the MISWMF hydrology study (Appendix A). The sedimentation basin includes an outfall and overflow spillway to permit water discharge in a controlled manner.

2.6 Electrical Utility Service

Electrical power to the MISWMF is supplied via a line extension from a Maui Electric Company (MECO) transmission line located along Mauna Loa Highway. Electrical power is currently used for the operation of the landfill entrance facilities, including the truck scales, scalehouse, office, and Recycle Molokai Facility.

There will be no expansion of electrical utilization or demand associated with the planned development and operation of the MISWMF as discussed in this Plan. Therefore, no electrical supply or service improvements are required.

3. DECSCRIPTION OF PROPOSED MASTER PLAN IMPROVEMENT

Continuing the operation of the MISWMF through its projected useful life will require incremental development of additional disposal capacity through the construction of Phases 5 and 6. Development of Phases 5 and 6 will require relocation of the Green Waste Area. Improvements to the stormwater management system is recommended. Figure 5 illustrates the MISWMF site with the existing facilities, landfill phases, and drainage features and also highlights the areas and locations of the of the Proposed Master Plan Improvement discussed in the following.

3.1 Green Waste Area

The existing Green Waste Area is located within the footprint of the planned landfill Phases 5 and 6, and will require relocation prior to development of these landfill phases. The operation will be relocated to an area of approximately 2 acres located in the west corner of the property, south of Molokai Metals and west of Phase 6. Access to this location will be via an extension of the internal site access road that will run between the Molokai Metals yard and the northwesterly side of Phase 6. See Figure 5 for the area proposed for the relocated Green Waste operation.

Operation of the Green Waste Area in this new location will be similar to the current operational practices and the County anticipates no lapse in services during the transition period.

3.2 Landfill

As the currently constructed landfill disposal capacity is consumed through the ongoing operation, it will be necessary to develop additional capacity. Additional disposal capacity will be constructed in two increments with Phase 5 being the first and Phase 6 being the second increment. The projected schedule for these incremental construction projects is based on the estimated rate of disposal capacity utilization. The methodology for estimating the disposal capacity utilization rate is discussed in detail in Section 4 and the projected construction schedule is discussed in Section 5.

Construction of Phases 5 and 6 will provide the following liner areas and disposal capacity:

Phase	Size (acre)	Capacity (cy)
5	3.1	94,200
6	3.7	257,400
Total	6.8	351,600

Phases 5 and 6 will be constructed with the same composite liner system and LCRS design as those used in Phase 3 and 4. Phase 5 will be equipped with a leachate collection sump similar in construction to the Phase 3 leachate collection sump, which will be designed and sized to manage leachate flow from Phase 2 (as discussed below), Phase 5, and Phase 6. The Phase 5 and Phase 6 liner and LCRS, upon completion of Phase 6, will be joined and create a continuous liner and LCRS over the entire 6.8 acres. The design limits and grades for Phases 1 through 6 liners are illustrated on Figure 3. Details of liner and LCRS designs are described in Section 6.1 and 6.2, respectively.

The liner grades for Phases 5 and 6 will slope towards a leachate collection trench along the west end of the disposal cells at a slope of 2%. The leachate collection trench will run in an approximately northwest to southeast direction and will terminate at the Phase 5 sump.

In the interface area between Phase 1 and Phase 5 liners, the Phase 5 liner will be joined to the Phase 1 liner. The geomembrane liner component of the Phase 1 liner does not extend to the interface with the Phase 5 liner, therefore the liner tie-in will consist of joining the compacted soil liners of the two phases. Along the entire interface, the Phase 1 compacted soil liner will be exposed and the Phase 5 soil liner will be placed and compacted to create a continuous soil liner. The liner grades of Phase 5 are designed such that Phase 1 will be isolated and no leachate generated from refuse placed within the horizontal limits of Phase 5 will flow onto the Phase 1 liner area.

As noted previously, Phase 2 was constructed with a compacted soil liner with no geomembrane liner component outside of the limits of the lysimeter. In the liner interface between Phase 2 and Phase 6 liners, the Phase 6 liner will be joined to the Phase 2 liner. Along the entire interface, the Phase 2 compacted soil liner will be exposed and the Phase 6 soil liner will be placed and compacted to create a continuous soil liner. The liner grades of Phase 6 are designed such that Phase 2 will be isolated and no leachate generated from refuse placed within the horizontal limits of Phase 6 will flow onto the Phase 2 liner area.

Phase 6 liner construction will require modifications to the Phase 2 lysimeter LCRS pipe which projects from Phase 2 and is located within the Phase 6 limits. The Phase 6 liner grades in the vicinity of the Phase 2 lysimeter will be designed to permit the discharge of the lysimeter onto the Phase 6 liner. With this modification, the leachate generated within Phase 2 will flow onto the Phase 6 liner and be conveyed to the Phase 5 leachate collection sump.

The final landfill refuse sideslopes will be constructed at an overall slope of approximately 2.5:1 (horizontal: vertical), with benches not less than 50 vertical feet apart on the slopes. The final grades will reach a maximum elevation of 290 feet above sea level. The landfill top deck will be graded to drain to the perimeter with a minimum 3% slope. The grades illustrated on Figure 6 will be the permitted final grades.

The County is planning to submit applications to the DOH to permit Phase 5 and Phase 6 for use as future solid waste disposal areas.

3.3 Stormwater Management Systems

3.3.1 Entrance Facility

The County proposes to install an asphalt paved perimeter drainage channel which will collect incidental rainfall and stormwater runoff from the entrance facility area, convey it to the perimeter channel bordering the Phase 3 disposal area, which ultimately flows into the permanent sedimentation basin. Figure 7 illustrates the proposed alignment and grading of the approximately 850 linear feet of asphalt paved channel which will service the 3.7-acre area including entrance facility operations.

The entrance facility drainage channel has been designed in accordance with Hawaii landfill criteria set forth in Hawaii Administrative Rules (HAR) Title 11, Chapter 58.1. Both the entrance facility drainage channel and the primary sedimentation basin will be sufficiently sized to control

water volume resulting from a 24-hour, 25-year storm. Similar to the other permanent drainage channels, the entrance facility channel will be constructed with a 12 foot wide bottom surfaced with asphalt surfacing and 1 foot high concrete side walls. See Appendix A for the hydrology study on which the channels and sedimentation basin designs have been based.

4. DISPOSAL CAPACITY UTILIZATION AND REQUIREMENTS

4.1 Scope of Estimates

This section develops estimates of municipal solid waste (MSW) disposal requirements for the Island of Molokai through the end of fiscal year (FY) 2038. The present facility plan will be revised as needed to conform to the County of Maui Integrated Solid Waste Management Plan (ISWMP) projections as they may be modified or amended in the future.

4.2 Estimate Methodology

Projections of future disposal requirements for the MISWMF were made using MSW disposal tonnage and disposal capacity utilization for the period from April 16, 2013 to May 7, 2017. The period from April 16, 2013 to May 7, 2017 represents the time of operation, 4.06 years, covered by the 4 most recent aerial topographic surveys.

During this period, the MISWMF received 19,351 tons of MSW for disposal and the disposal operations utilized 78,150 cy of disposal capacity. When these values are averaged on an annualized basis, the resulting average annual disposal tonnage for the period was 4,766 tons and the average annualized disposal capacity utilized was 19,247 cy.

The disposal tonnage reported for commercial solid waste is obtained from the recorded refuse payload weights of all commercial collection company trucks, as documented with the entrance facility truck scales. This tonnage includes limited quantities of residential waste from homes with curbside collection services. The tonnage reported as residential solid waste represents self-hauled waste brought to the site by residents; this volume is estimated according to the size of vehicle, with an average assumed weight of 200 pounds per vehicle.

Ordinarily, projections of future disposal requirements include considerations of future population growth and development. Under current economic conditions, such considerations are difficult to make for the Island of Molokai where the major employer and landowner, Molokai Ranch, has suspended most business operations since mid-2008. Based on the uncertainties of future economic expansion or population growth, the primary drivers of disposal volume growth, estimates of future disposal capacity needs and the projected life of the landfill have been based on the average annualized rate of disposal capacity utilization (19,247 cy/year) observed during the period of April 16, 2013 to May 7, 2017.

4.3 Disposal Requirements and Projected Operational Life

As discussed in the above, the annual disposal capacity required to meet the Island of Molokai solid waste management demands is projected to be 19,247 cy/year.

As shown on Table 1, the remaining airspace for Phases 1 through 4, and the additional airspace provided by the construction of the Phase 5 and Phase 6 disposal cells, will be sufficient, based on the assumed annual disposal capacity utilization of 19,247 cy, to manage the Island of Molokai's MSW disposal requirements until approximately FY 2038.

TABLE 1
MOLOKAI INTEGRATED SOLID WASTE MANAGEMENT FACILITY
PROJECTED DISPOSAL CAPACITY UTILIZATION, REMAINING DISPOSAL CAPACITY AND CONSTRUCTION PHASE SCHEDULE

Fiscal Year	Beginning Capacity (cy)	Cell Constructed	Additional Capacity (cy)	Projected Airspace Consumption (cy)	Ending Capacity (cy)
2017	63,182			12,550	50,632
2018	50,632			19,247	31,384
2019	31,384	Phase 5	94,200	19,247	106,337
2020	106,337			19,247	87,089
2021	87,089			19,247	67,842
2022	67,842			19,247	48,594
2023	48,594			19,247	29,347
2024	29,347	Phase 6	257,400	19,247	267,499
2025	267,499			19,247	248,252
2026	248,252			19,247	229,004
2027	229,004			19,247	209,757
2028	209,757			19,247	190,509
2029	190,509			19,247	171,262
2030	171,262			19,247	152,014
2031	152,014			19,247	132,767
2032	132,767			19,247	113,520
2033	113,520			19,247	94,272
2034	94,272			19,247	75,025
2035	75,025			19,247	55,777
2036	55,777			19,247	36,530
2037	36,530			19,247	17,282
2038	17,282			19,247	-1,965
Total Remaining Capacity (including proposed Phases 5 and 6):				414,782	cubic yards

Notes:

1. Beginning capacity based on aerial topographic survey dated May 7, 2017.
2. Average Annualized Capacity Consumption: 19,247 cy/year
3. 2017 airspace consumption prorated for the period from May 7, 2017 through 12-31-2017.

5. DISPOSAL CAPACITY SEQUENCING PLAN

5.1 Phasing Plan Overview

Phased additions of disposal capacity will be developed in incremental construction projects designed and scheduled to balance several objectives:

- To provide sufficient capacity for two to three years, in order to provide economically efficient contracts;
- To maintain a minimum of one year of disposal capacity at all times; and
- To minimize the potential for leachate production by minimizing the timeframe in which newly constructed cells are not completely covered by the initial refuse layer.

Landfill cells are intentionally shaped to collect and hold water as a means to properly manage leachate. Until the first layer of refuse is placed over the entire area of a new cell and provides positive drainage off of the landfill, any precipitation falling on the exposed liner will enter the LCRS system and be required to be managed as leachate.

Development of Phases 5 and 6 is planned as two incremental construction projects to satisfy the above objectives. Based on the projected disposal requirements discussed in Section 4 and presented in Table 1, the development of Phase 5 is currently projected to occur in FY 2019, and the development of Phase 6 in FY 2024.

Phase 5 construction will line an area of approximately 3.1 acres and provide a nominal incremental capacity of approximately 94,200 cubic yards. The Phase 6 construction will line an area of approximately 3.7 acres and provide a nominal incremental capacity of approximately 257,400 cubic yards. Both the size, configuration and scheduling of construction of the disposal cells is subject to change based on the actual rate of waste intake, airspace utilization factor achieved and other factors. As provided in the facility's solid waste management permit, this phasing plan will be reviewed and revised as necessary at a frequency of least once every five years.

5.2 Disposal Capacity and Life by Phase

The capacity and life of each phase of development has been estimated using earthwork computational software applied to the conceptual liner grades and interim refuse grades at the completion of each phase.

The interim refuse grades of Phases 1 through 4, shown on Figure 4, are based on permanent and temporary refuse slopes being constructed at an overall grade of 2.5:1 (horizontal: vertical). The capacity of each phase is computed as the incremental volume added to the capacity of the previous phase. The actual capacity of phases may differ slightly from the computed values as a result of typical field practice of constructing temporary slopes as steep as 2:1, and constructing outside permanent slopes at 2.5:1 in recognition of the known fact that landfill settlement will, over time, moderate the slopes to approximately 3:1 final slope at closure.

The incremental net disposal capacity provided by each of the 6 phases, accounting for the deductions from gross capacity for the volume occupied by leachate collection gravel, protective soil over the liner, and final cover, is summarized in the following:

Phase	Year Constructed*	Size (acre)	Phase Capacity (cy)
1	1993	3.5	263,200
2	1997	3.3	
3	2009	2.2	87,200
4	2014	2.6	113,200
5	2019	3.1	94,200
6	2024	3.7	257,400
Total		18.4	815,200

* - Phase 5 and 6 projected year of construction.

The total net capacity for refuse and daily cover soil for Phases 1 through 6 final grades, as illustrated on Figure 6, is approximately 815,200 cubic yards. As noted in Section 4, Table 1 the remaining capacity for Phases 1 through 6 is approximately 414,782 cubic yards, and, based on the disposal requirements projections, this capacity will be sufficient to manage the Island of Molokai waste stream into FY2038.

5.3 Construction Schedule

Table 1 presents the projected construction schedule for Phase 5 as the year 2019 and for Phase 6 the year 2024.

5.4 Soil Requirements

Long-term development and operation of the landfill in Phases 1 through 6 requires soil for the following uses:

- Low-permeability soil for the one-foot thick compacted soil component of the composite liner system;
- Placement of protective soil above the liner system, consisting of two feet of soil over both the floor and side slopes;
- Daily cover (six inches thick) and intermediate cover (an additional six inches placed in areas that will not receive additional waste for a period of 30 or more days); and
- Final cover, currently projected to consist of two feet of compacted soil and one foot of vegetative soil, subject to detailed analysis, preparation of a final closure plan, review and approval by the Hawaii Department of Health.

The majority of soil required for these uses must be obtained from off-site sources. A limited quantity of excess soil may be generated during excavation to achieve the design base grades for liner installation in Phases 5 and 6. The overall estimated soil balance for the life of the site, from May 7, 2017 forward, is estimated as follows:

Soil Use	Volume Required (cubic yards)
Common Soil	
Protective Cover	22,000
Daily / Intermediate Cover	166,000
Final Cover	90,000
Total Common Soil	278,000
Net Soil Excavated for Phases 5 & 6	(32,500)
Net Common Soil Requirement	245,500
Low Permeability Soil	11,000

The soil volume required for daily and intermediate cover, is estimated based on the typical soil usage at small volume landfill operations such as MISWMF. The ratio of volume of landfilled refuse to volume of daily/intermediate cover typically ranges from 1:1 (1 part refuse: 1 part soil) to 2:1. For the purposes of this estimate, the mid-range of these values (1.5:1) has been assumed. Applying this ratio to the net remaining disposal capacity of the site of 414,782 cy, results in approximately 166,000 cy of soil required for daily/intermediate cover.

The balance of the common and low-permeability soil necessary for site construction and site operation will be acquired from off-site sources as has been the practice throughout the life of the operation.

6. BASIS OF DESIGN

6.1 Hydrogeology

Groundwater monitoring requirements for the municipal solid waste management facilities are specified in Hawaii Administrative Rules (HAR), Chapter 11.58.1. The requirements of HAR Section 11-58.1-14 exempts small landfills such as the MISWF *"that dispose of less than twenty tons of municipal solid waste daily, based on an annual average"* from groundwater monitoring requirements provided that *"there is no evidence of existing groundwater contamination from the MSWLF unit; no practicable waste management alternative and is located in an area that annually receives less than or equal to twenty-five inches of precipitation; and the owners or operators place in the operating record information demonstration that the requirements of this subsection are met."*

Meeting all aforementioned criteria for the small landfill exemption the MISWF has and continues to be classified as a small landfill with less than 20-tons per day MSW. The County of Maui first petitioned the Department of Health, Solid and Hazardous Waste Branch for the groundwater monitoring exemption during development of the facility in 1992. During this time the County of Maui retained the services of Parametrix, Inc. to conduct a Hydrogeologic Assessment of the site to document geologic and hydrogeological conditions, and assess the potential impacts to any beneficial uses of groundwater in the area. The Parametrix study concluded that groundwater occurs in the basal groundwater table near sea level and that the potential for perched groundwater under the site is not expected in significant quantities. Groundwater in the basal groundwater layer is typically brackish which none of the communities near the project site use as a potable water source.

In 1998, the County submitted a no-migration demonstration, conducted by Dames & Moore, to the DOH. The demonstration evaluated the following site-specific characteristics traditionally used in determining the extent of monitoring activites for solid waste management facilities:

- Evidence of Existing Groundwater Contamination;
- Leachate Generation;
- Containment Unit Characteristics;
- Depth to Groundwater;
- Leachate Composition;
- Local Water Quality and Use;
- Other Potential Receptors; and
- Migration Potential.

The analysis by Dames & Moore was updated by A-Mehr, Inc. in 2008, and like the 1998 demonstration, concluded that *"although migration of leachate constituents is theoretically possible, the character of the underlying groundwater is such that hazards to human health and environment are highly unlikely."*

6.2 Containment System

Future disposal capacity in the Phases 5 and 6 area will be constructed with the same liner system design as Phases 3 and 4, consisting of:

Floor and Sideslope Areas

- A prepared subgrade consisting of native soil and rock, covered with a leveling layer of compacted soil as needed to provide a firm and smooth subgrade;
- A minimum 12-inch thick low-permeability soil barrier layer, with saturated hydraulic conductivity of 1.0×10^{-6} cm/s or less; and
- 80-mil (2.0-mm) thick high-density-polyethylene (HDPE) geomembrane.

Landfill liner grades are presented in Figure 3.

6.3 Leachate Management

The leachate collection system is designed to collect water that has contacted waste and percolated from the fill. The leachate collection system consists of drainage media placed above the liner system, and a system of perforated pipes leading to a collection sump from which the leachate is pumped. The collection system is designed and operated to maintain the hydraulic head on the liner outside the confines of the leachate collection sump at less than 12 inches, as required by State regulation and the site's SWMP.

The leachate collection system in the future Phases 5 and 6 disposal cells will be similar to that of the current Phases 3 and 4, consisting of:

Floor Areas

- A layer of 16-ounce per square yard non-woven geotextile placed above the HDPE geomembrane liner;
- A 12-inch thick layer of gravel drainage rock placed above the geotextile, with perforated leachate collection pipe in a trench along the low points to collect and convey liquids to the leachate sump; and
- A layer of 16-ounce per square yard non-woven geotextile placed above the LCRS gravel, trench and pipe.

Sideslope Areas

- A layer of 16-ounce per square yard non-woven geotextile placed above the HDPE geomembrane liner.

The leachate collection systems on both the floor areas and the sideslope areas will be covered with a minimum of 24 inches of protective cover soil.

Phase 5 will be constructed with a sump and a sump lysimeter similar to those in Phase 3.

The locations of the current and future leachate management features are shown on Figure 3.

6.4 Isolation of Phases 1 and 2

Phases 3 and 4 are, and Phases 5 and 6 will be, graded and lined in such a manner that no leachate generated in the waste located within the horizontal limits of their liner systems can drain into the Phase 1 or Phase 2 area. This is necessary to isolate Phases 1 and 2 and avoid adding leachate to these cells, which were constructed primarily with soil liner systems, and preferentially maximize leachate management in the newer, composite lined cells.

6.5 Landfill Gas Management

A landfill gas monitoring probe network consisting of five gas probes, located around the landfill perimeter, has been installed in accordance with the requirements of HAR 11-58.1-15(d)(2) to verify the concentration of landfill gas, measured as methane, does not exceed the lower explosive limit at the property boundary. Probe monitoring is conducted on a quarterly basis as required by HAR 11-58.1-15(d)(2)(B). Figure 2 illustrates the gas monitoring probe network as it was installed in 2011. The existing network of gas probes is sufficient for monitoring the expanded landfill footprint that would result from the construction of the proposed landfill Phases 5 and 6, and therefore, no additional probes are necessary.

There is currently no landfill gas collection system at the site, and one is not proposed to be installed at this time. With a projected maximum disposal volume of 815,200 cubic yards, the site is well below the threshold of 2.5 million cubic meters (3,270,000 cubic yards) established by 40 CFR Part 60 for mandatory control of landfill gas.

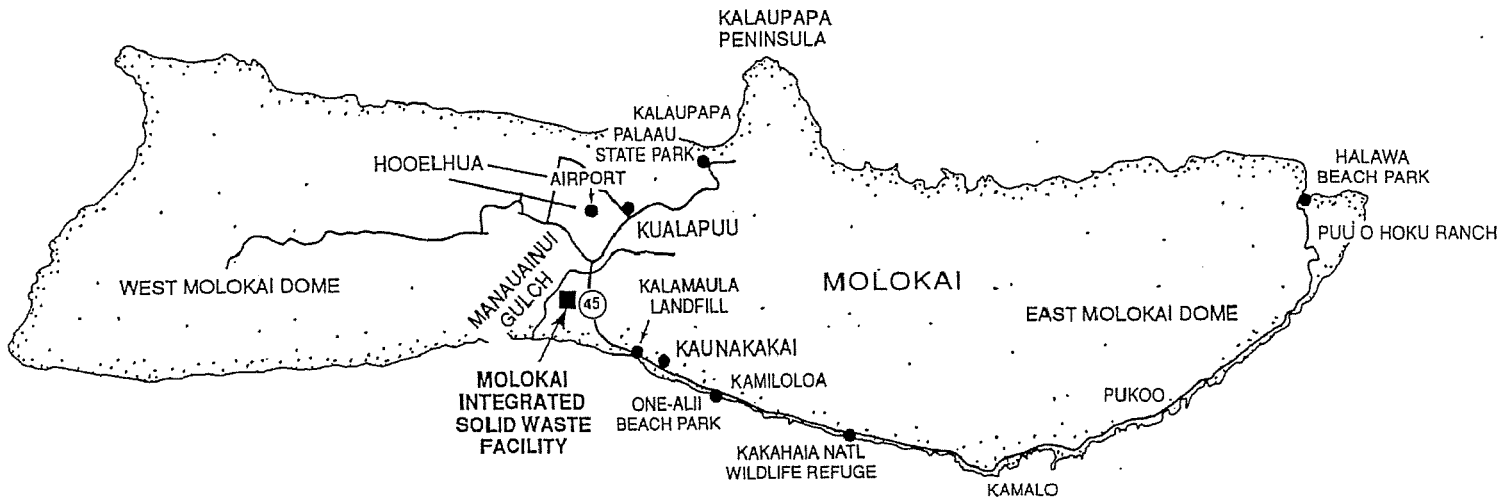
7. PROJECT ALTERNATIVES

Alternatives to the Molokai Landfill were addressed in the original facility Environmental Assessment (Parametrix, 1992), and mitigative measures of recycling and material diversion have been incorporated into the facility operation since it commenced operation in 1993. The 1992 EA determined that landfill disposal in combination with waste recycling and diversion operations was the best technological approach and the most practical waste management option for the Island of Molokai. This finding continues to hold true to the present given the continued relatively small quantity of solid waste being generated. Waste recycling and diversion by Recycle Molokai, Molokai Metals, and the Green Waste facilities have all contributed to the reduction of landfilled waste and resulted in extending the operational life of the landfill.

As the MISWMF has been developed and operated continuously since 1993, and there is no anticipated change in the conditions governing the solid waste management methods for the island, including but not limited to conditions of remote location and low disposal quantities, project alternatives that should be considered are those that will maximize the operational life of the facility and ensure a long-term disposal solution for the island.

The current landfill final grades are limited to a maximum elevation of 290 feet above sea level, as illustrated in Figures 4 and 6. With the proposed development of Phases 5 and 6, the larger landfill footprint would facilitate an increase in the maximum elevation and increase the disposal capacity of the landfill. Figure 8 illustrates alternative final grades for the landfill with a maximum elevation of 330 feet above sea level and would provide an additional net disposal capacity of approximately 166,000 cy. Applying the same annual disposal capacity utilization rate of 19,247 cy per year, used for projecting the remaining site life in Table 1 above, the alternative landfill grades illustrated on Figure 8 would extend the operational life of the landfill to approximately mid-2047; an addition of approximately 9 years of operational life.

FIGURES



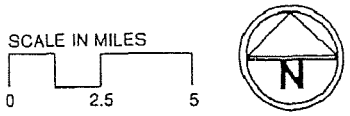
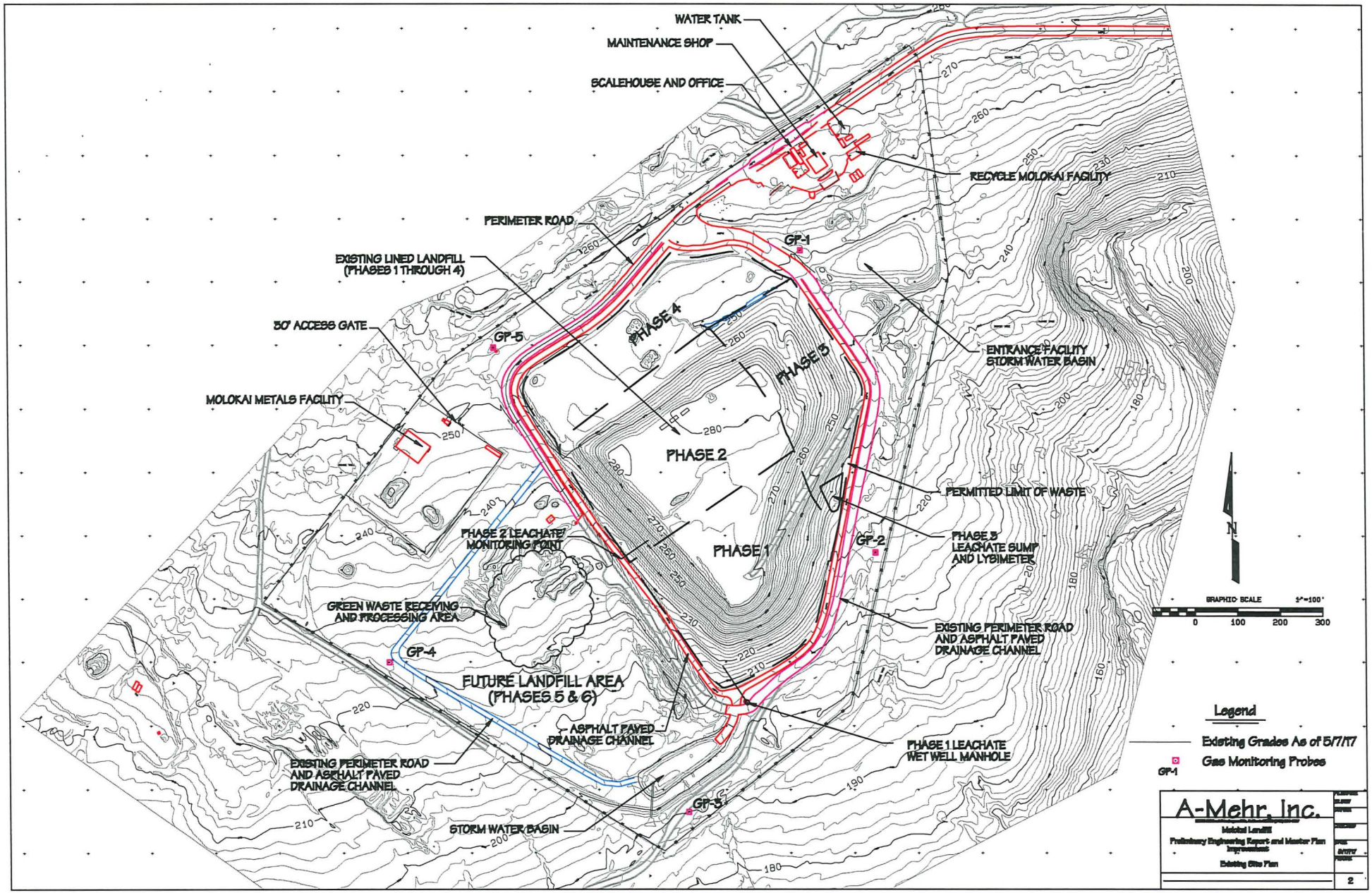
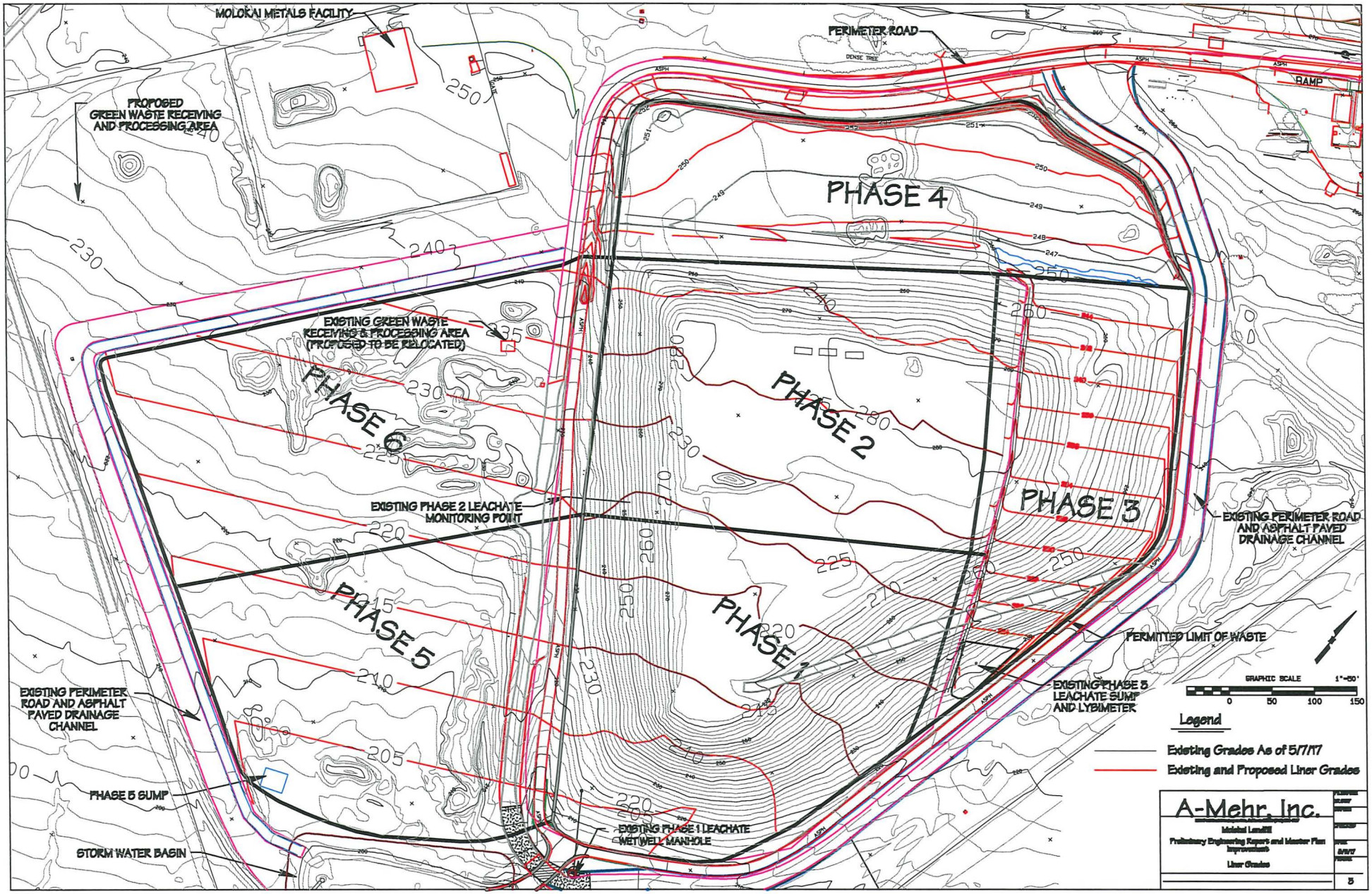
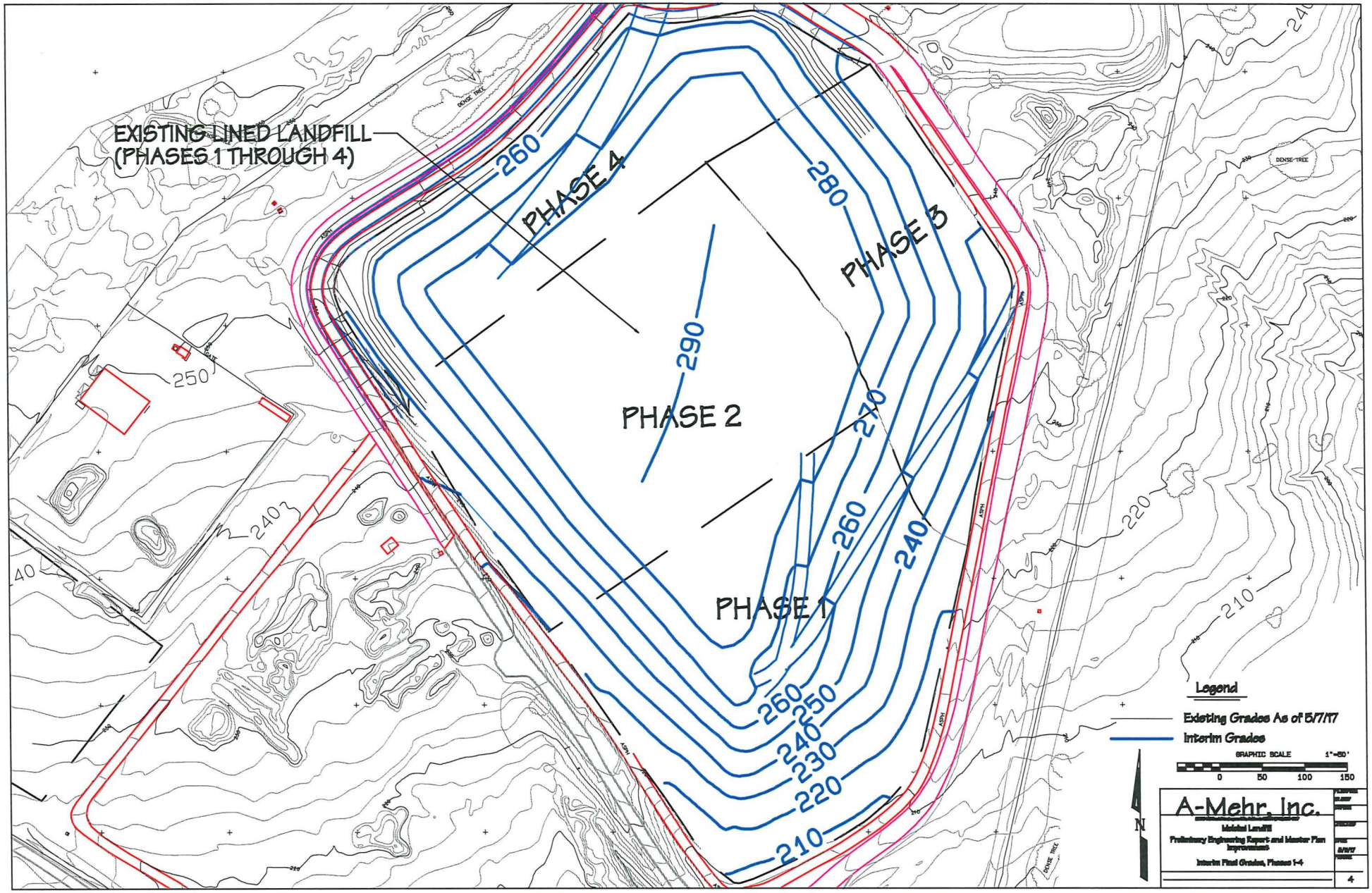


Figure 1
Molokai Integrated
Solid Waste Management Facility
Location Map


WATER TANK
MAINTENANCE SHOP
SCALEHOUSE AND OFFICE
RECYCLE MOLOKAI FACILITY
PERIMETER ROAD
GP-1
EXISTING LINED LANDFILL (PHASES 1 THROUGH 4)
50' ACCESS GATE
GP-5
PHASE 4
PHASE 3
ENTRANCE FACILITY STORM WATER BASIN
MOLOKAI METALS FACILITY
PHASE 2
PERMITTED LIMIT OF WASTE
PHASE 2 LEACHATE MONITORING POINT
PHASE 1
GP-2
PHASE 3 LEACHATE SUMP AND LYSIMETER
GREEN WASTE RECEIVING AND PROCESSING AREA
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
GP-4
FUTURE LANDFILL AREA (PHASES 5 & 6)
ASPHALT PAVED DRAINAGE CHANNEL
PHASE 1 LEACHATE WET WELL MANHOLE
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
GP-3
STORM WATER BASIN
N
GRAPHIC SCALE 1"=100'
0 100 200 300
Legend
Existing Grades As of 5/7/17
Gas Monitoring Probes
GP-1
A-Mehr, Inc.
Molokai Landfill
Preliminary Engineering Report and Master Plan Improvements
Existing Site Plan
2


MOLOKAI METALS FACILITY
PERIMETER ROAD
RAMP
PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA
EXISTING GREEN WASTE RECEIVING & PROCESSING AREA (PROPOSED TO BE RELOCATED)
PHASE 4
PHASE 6
PHASE 2
PHASE 3
PHASE 5
PHASE 1
EXISTING PHASE 2 LEACHATE MONITORING POINT
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PERMITTED LIMIT OF WASTE
EXISTING PHASE 5 LEACHATE SUMP AND LYSIMETER
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PHASE 5 SUMP
STORM WATER BASIN
EXISTING PHASE 1 LEACHATE WET WELL MANHOLE
GRAPHIC SCALE 1"=50'
0 50 100 150
Legend
Existing Grades As of 5/7/17
Existing and Proposed Liner Grades
A-Mehr, Inc.
Molokai Landfill
Preliminary Engineering Report and Master Plan Improvements
Liner Grades
5/9/17
5


EXISTING LINED LANDFILL
(PHASES 1 THROUGH 4)
PHASE 1
PHASE 2
PHASE 3
PHASE 4
210
220
230
240
250
260
270
280
290
Legend
Existing Grades As of 5/7/17
Interim Grades
GRAPHIC SCALE 1"=50'
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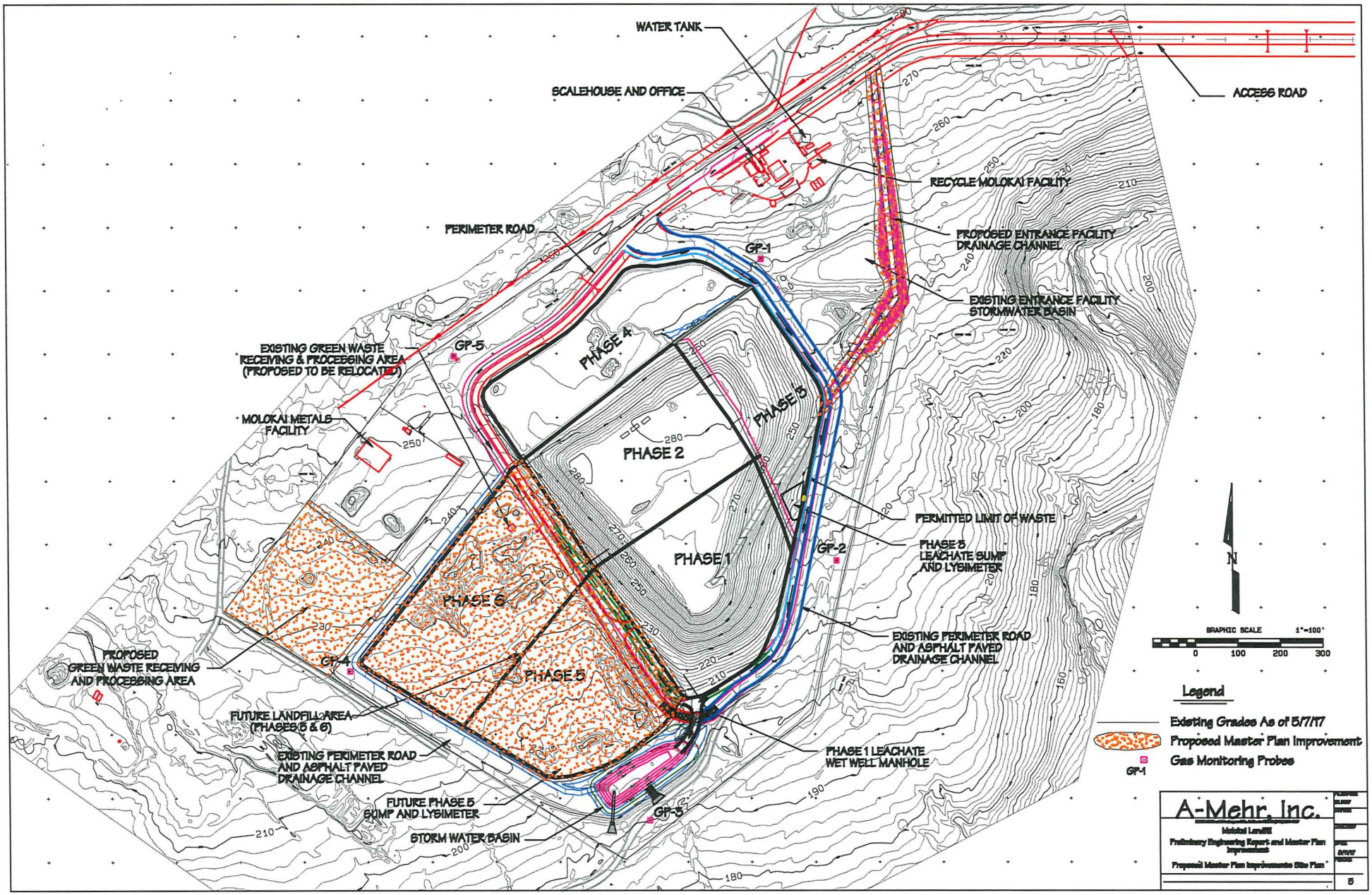
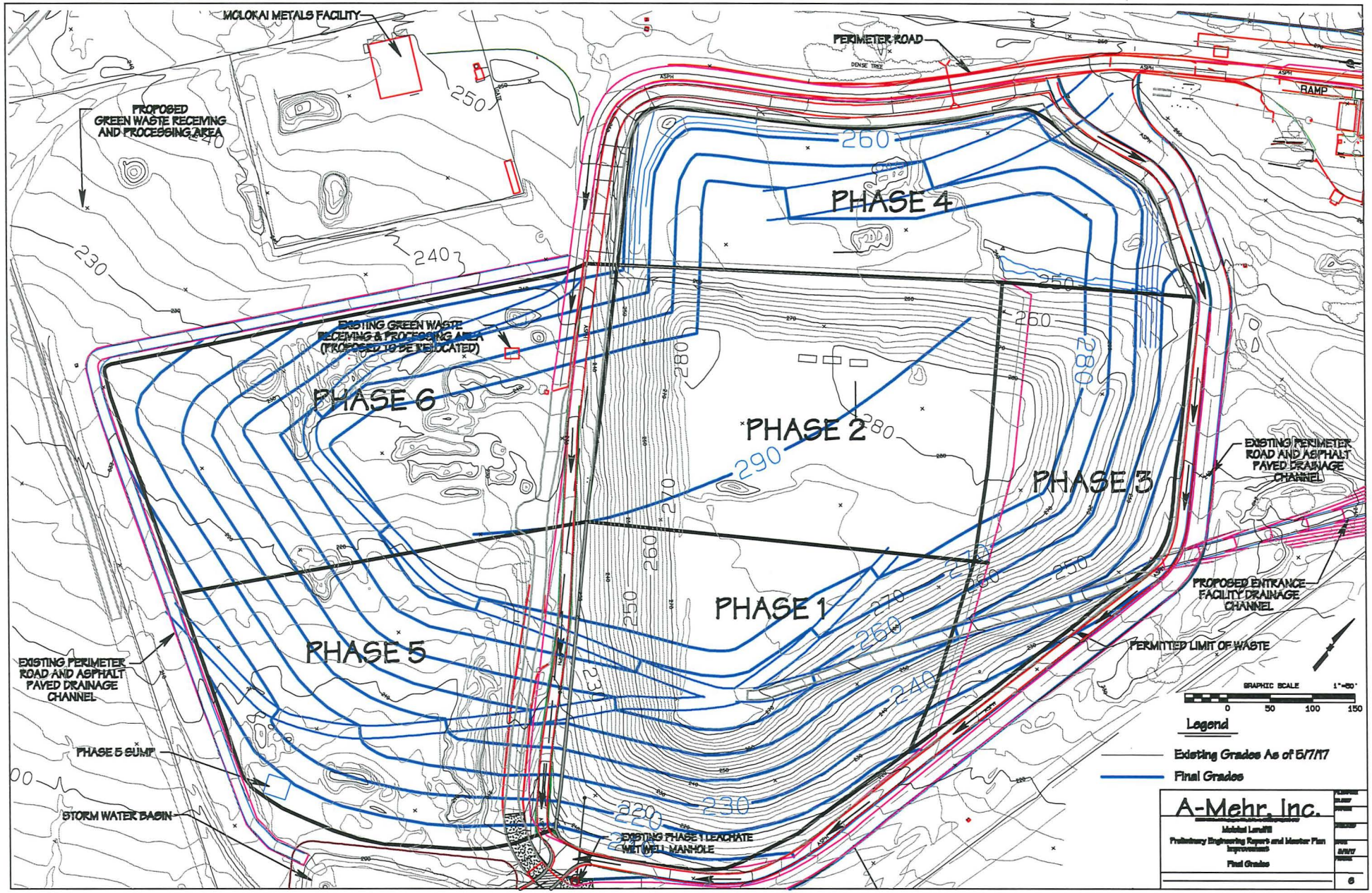
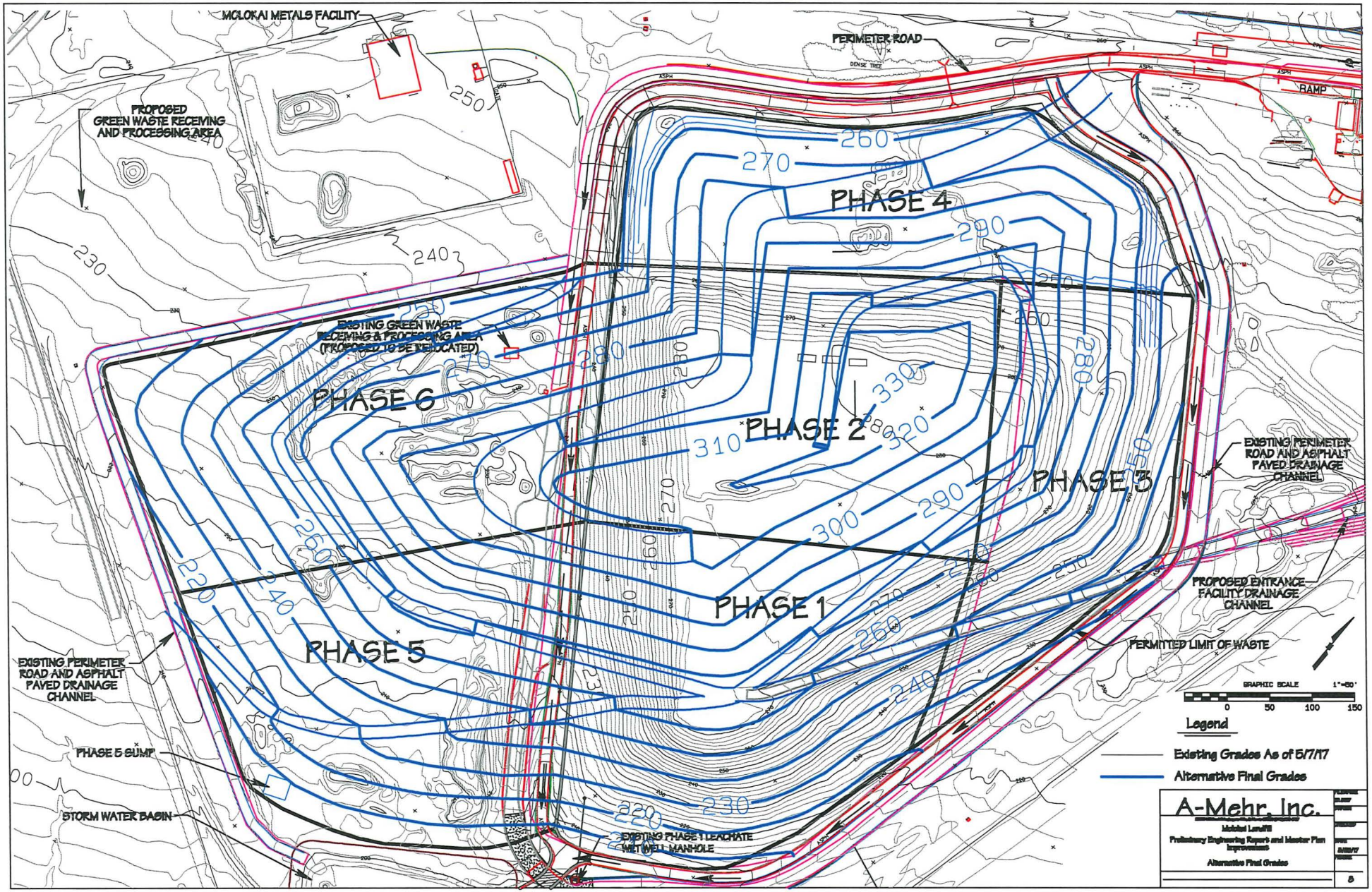
A-Mehr, Inc.
Medal Landfill
Preliminary Engineering Report and Master Plan Improvements
Interim Final Grades, Phases 1-4
5/2017
4


WATER TANK
SCALEHOUSE AND OFFICE
ACCESS ROAD
RECYCLE MOLOKAI FACILITY
PERIMETER ROAD
PROPOSED ENTRANCE FACILITY DRAINAGE CHANNEL
GP-1
EXISTING ENTRANCE FACILITY STORMWATER BASIN
EXISTING GREEN WASTE RECEIVING & PROCESSING AREA (PROPOSED TO BE RELOCATED)
GP-5
PHASE 4
PHASE 3
PHASE 2
MOLOKAI METALS FACILITY
PERMITTED LIMIT OF WASTE
PHASE 1
GP-2
PHASE 3 LEACHATE SUMP AND LYSIMETER
PHASE 6
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA
GP-4
PHASE 5
FUTURE LANDFILL AREA (PHASES 5 & 6)
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PHASE 1 LEACHATE WET WELL MANHOLE
FUTURE PHASE 5 SUMP AND LYSIMETER
GP-3
STORM WATER BASIN
N
GRAPHIC SCALE 1"=100'
0 100 200 300
Legend
Existing Grades As of 5/7/17
Proposed Master Plan Improvement
Gas Monitoring Probes
GP-1
A-Mehr, Inc.
Molokai Landfill
Preliminary Engineering Report and Master Plan Improvements
Proposed Master Plan Improvements Site Plan
5


MOLOKAI METALS FACILITY
PERIMETER ROAD
RAMP
PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA
EXISTING GREEN WASTE RECEIVING & PROCESSING AREA (PROPOSED TO BE RELOCATED)
PHASE 4
PHASE 6
PHASE 2
PHASE 3
PHASE 1
PHASE 5
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PROPOSED ENTRANCE FACILITY DRAINAGE CHANNEL
PERMITTED LIMIT OF WASTE
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PHASE 5 SUMP
STORM WATER BASIN
EXISTING PHASE 1 LEACHATE WET WELL MANHOLE
GRAPHIC SCALE 1"=50'
0 50 100 150
Legend
Existing Grades As of 5/7/17
Final Grades
A-Mehr, Inc.
Molokai Landfill
Preliminary Engineering Report and Master Plan Improvements
Final Grades
6


MOLOKAI METALS FACILITY
PERIMETER ROAD
RAMP
PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA
EXISTING GREEN WASTE RECEIVING & PROCESSING AREA (PROPOSED TO BE RELOCATED)
PHASE 4
PHASE 6
PHASE 2
PHASE 3
PHASE 1
PHASE 5
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PROPOSED ENTRANCE FACILITY DRAINAGE CHANNEL
PERMITTED LIMIT OF WASTE
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PHASE 5 SUMP
STORM WATER BASIN
EXISTING PHASE 1 LEACHATE WET WELL MANHOLE
GRAPHIC SCALE 1"=50'
0 50 100 150
Legend
Existing Grades As of 5/7/17
Alternative Final Grades
A-Mehr, Inc.
Molokai Landfill
Preliminary Engineering Report and Master Plan Improvements
Alternative Final Grades
5/30/17
5

APPENDIX A

HYDROLOGY STUDY

HYDROLOGY STUDY
MOLOKAI INTEGRATED WASTE MANAGEMENT FACILITY
August 2017

INTRODUCTION

This report has been prepared as an appendix to the Phases 5 and 6 Design Plan (A-Mehr, Inc., 2017) for the Molokai Integrated Waste Management Facility. It provides a conceptual design for future improvements to manage surface water as the facility proceeds toward final buildout. Proposed new and improved drainage structures are designed based on hydrologic analysis using the analytical model TR-55 developed by the Natural Resources Conservation Service (NRCS), a branch of the U.S. Department of Agriculture. TR-55 is recognized as a suitable computer model for hydrologic analysis of small watersheds.

MODEL DESCRIPTION

TR-55 is a single-event rainfall-runoff small watershed hydrologic model. The model generates hydrographs from multiple user-defined watershed subareas and at selected points along the user-defined stream system. Hydrographs are routed downstream through channels and/or reservoirs. Each watershed subarea has a hydrograph generated from the land area based on land and climate characteristics supplied by the user. Reaches (stream segments) can be designated as either channel reaches where hydrographs are routed based on physical characteristics, or as storage reaches where hydrographs are routed through a reservoir based on temporary storage and outlet characteristics. Hydrographs are combined as needed to accumulate flow as water moves from upland areas to the watershed outlet.

MODEL INPUTS

The primary data required for the TR-55 hydrologic model include the following:

- Watershed subarea descriptions including area, land use, slope, runoff curve number (CN) and identification of the reach into which it drains;
- Reach descriptions including length, cross-section, Manning "n" friction coefficient, slope and reach or structure into which the reach drains;
- For reservoirs, stage-storage data and description of the outfall structure; and
- Storm data including rainfall distribution type and 24-hour rainfall amounts for return periods ranging from 2 to 100 years.

Figure 1 shows existing conditions at the Molokai facility. Runoff from existing landfill Phases 1, 2, 3, and 4 is collected in perimeter drainage channels and routed to the primary sedimentation basin located in the southwest corner of the site. Drainage from the entrance area tends to collect in a shallow basin area located north of the Phase 3 disposal area, from which it flows overland off the site to the east

Figure 2 shows the proposed drainage master plan, to be implemented as the facility develops in the future. The primary changes and improvements to be made include the following:

- Collection of all runoff from the entrance area where recycling and other potential future activities may occur, and routing it to the existing channel bordering the Phase 3 disposal area;

Proposed future channels will have a 12 ft wide asphalt paved bottom and 1 ft high concrete sidewalls.

Figure 3 shows the subareas and reaches defined to model site hydrology using TR-55. The drawing lists acreage of each subarea and length and slope of each reach. Details of each subarea and reach are contained in Attachment 1, the TR-55 output files.

All subareas for the site were evaluated using runoff curve number 89, corresponding to poorly vegetated open space or pasture in clay soils (Hydrologic Soil Group "D").

Storm data is taken from the publication "Rainfall-Frequency Atlas of the Hawaiian Islands" (Technical Paper No. 43, U.S. Department of Commerce Weather Bureau, 1962). Twenty-four hour rainfall amounts for the site are as follows for the selected return periods:

2 Years	4 inches
5 years	5 inches
10 years	6 inches
25 years	7 inches
50 years	8 inches
100 years	10 inches

Rainfall distribution is assumed to be the Type I storm as designated by NRCS for the West Pacific area including Hawaii (TR-55 Users Guide, Appendix B).

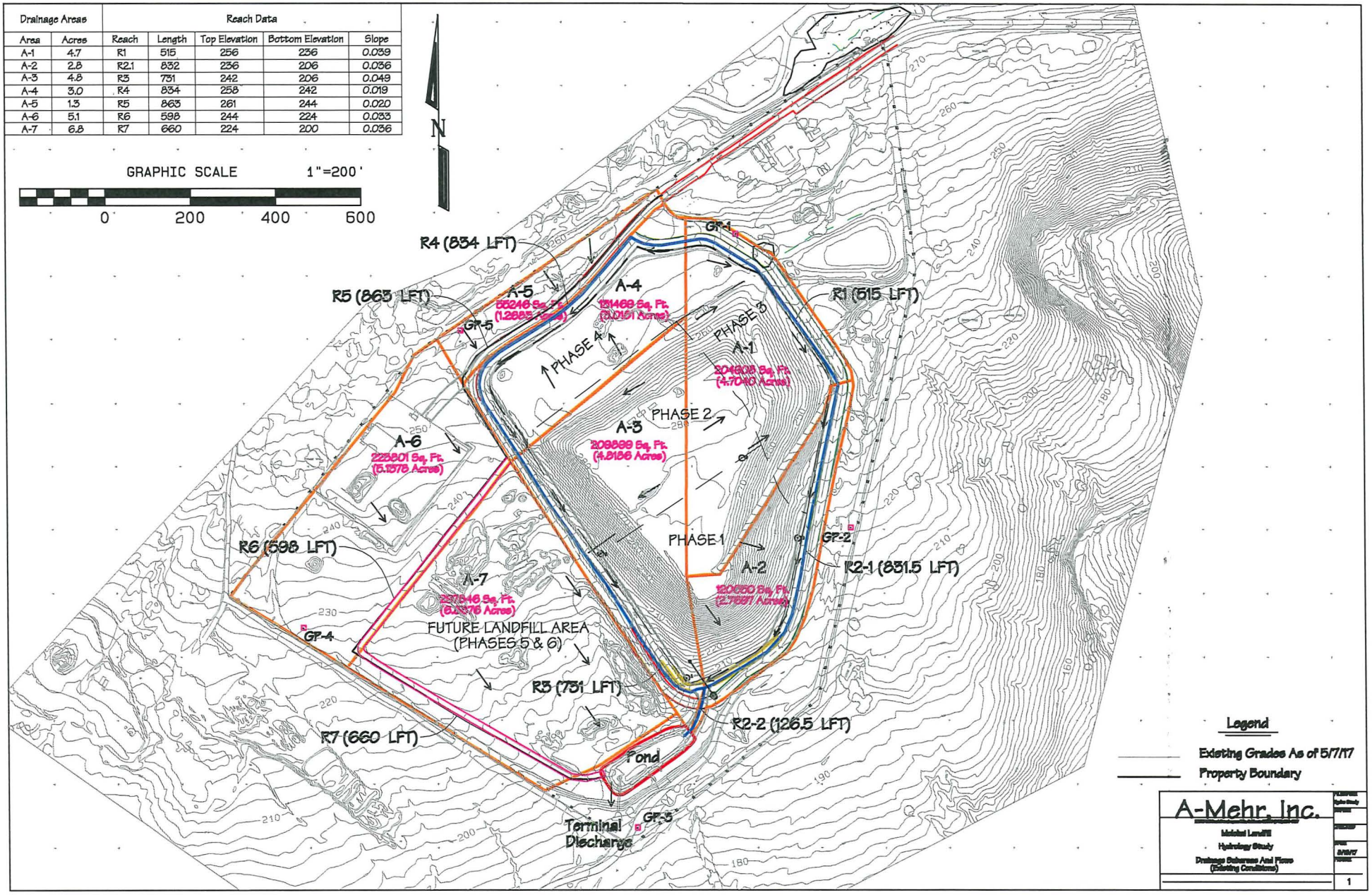
TR-55 RESULTS

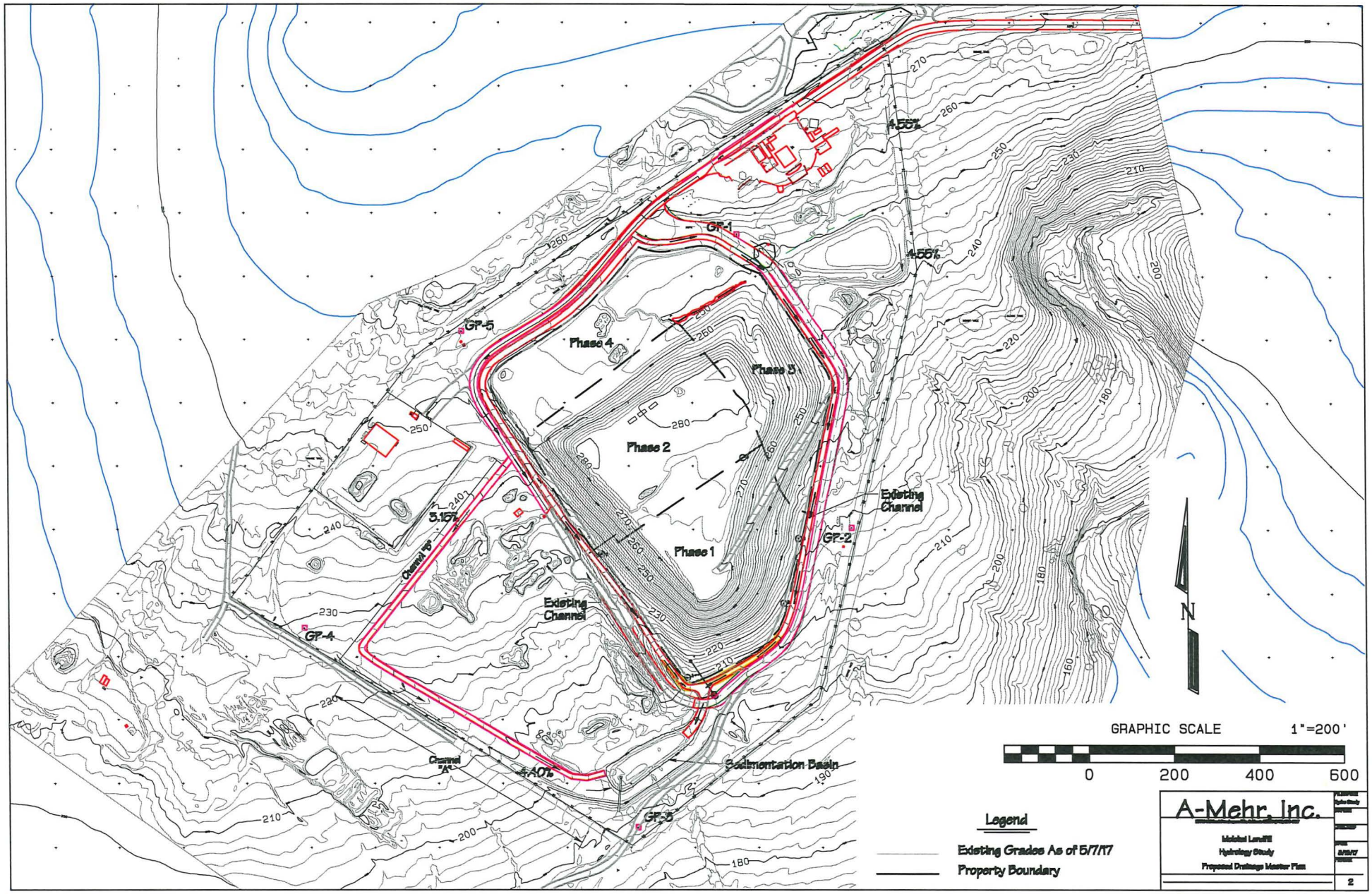
The peak flows and depths in each channel segment during the 25-year return storm are presented in Table 1 below. It indicates that all channels have capacity to manage the design storm prescribed by Hawaii solid waste regulations.

TABLE 1
PEAK FLOWS AND DEPTHS
25-YEAR STORM

REACH	FLOW (CFS)	DEPTH (FT)
R1	24.9	0.15
R2.1	11.1	0.08
R2.2	70.4	0.49
R3.1	21.8	0.20
R3.2	59.9	0.48
R3.3	69.9	0.49
R4	26.0	0.19
POND (Inlet)	157.1	--

Drainage Areas		Reach Data				
Area	Acres	Reach	Length	Top Elevation	Bottom Elevation	Slope
A-1	4.7	R1	515	256	236	0.039
A-2	2.8	R2.1	832	236	206	0.036
A-3	4.8	R3	731	242	206	0.049
A-4	3.0	R4	834	258	242	0.019
A-5	1.3	R5	863	261	244	0.020
A-6	5.1	R6	598	244	224	0.033
A-7	6.8	R7	660	224	200	0.036




GP-1
GP-2
GP-3
GP-4
GP-5
Phase 1
Phase 2
Phase 3
Phase 4
Existing Channel
Existing Channel
Channel "A"
Channel "B"
Sedimentation Basin
4.55%
4.55%
3.15%
4.40%
N
GRAPHIC SCALE 1"=200'
0 200 400 600
Legend
Existing Grades As of 5/7/17
Property Boundary
A-Mehr, Inc.
Malakal Landfill
Hydrology Study
Proposed Drainage Master Plan
2

Drainage Areas	
Area	Acres
A-1	5.9
A-2	2.6
A-3	6.1
A-4	2.1
A-5	5.1
A-6	1.6
A-7	5.6
A-8	2.4
A-9	4.1
A-10	2.3

Reach Data				
Reach	Length	Top Elevation	Bottom Elevation	Slope
R1	837	274	235.5	0.046
R2.1	558	256	235.5	0.037
R2.2	958	234	198	0.038
R3.1	708	256	242	0.020
R3.2	636	242	224	0.028
R3.3	652	224	200	0.037
R4	1393	280	234	0.033

GRAPHIC SCALE 1"=200'

0 200 400 600

N

WATER TANK
MAINTENANCE SHOP
SCALEHOUSE AND OFFICE
ACCESS ROAD
RECYCLE MOLOKAI FACILITY
PERIMETER ROAD
50' ACCESS GATE
PROPOSED INTERIM SCRAP METAL COLLECTION AREA
PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA
EXISTING PERIMETER ROAD DRAINAGE
EXISTING STORM WATER POND
PERMITTED LIMIT OF WASTE
PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL (CONSTRUCTED 2009)
PHASE 1
PHASE 2
PHASE 4 CELL
PHASE 5
PHASE 6
A-1
A-2
A-3
A-4
A-5
A-6
A-7
A-8
A-9
A-10
R1
R2.1
R2.2
R3.1
R3.2
R3.3
R4

Legend

Existing Grades As of 5/7/17

Proposed Final Refuse Grades

A-Mehr, Inc.

Molokai Landfill
Hydrology Study
Drainage Subareas And Flows
(Final Grades)

5/16/17

5

WinTR-55 Current Data Description

--- Identification Data ---

User: A-Mehr
Project: Molokai Landfill
SubTitle: Master Drainage Plan
State: Hawaii
County: Maui
Filename: E:\Bin\molokai\Hydrology\TR-55 Molokai FNL.w55

Date: 7/11/2016
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
A1	Entrance Area	R1	5.9	91	.154
A2	Phase 3 NW	R2.1	2.6	89	.129
A3	Central Landfill	R4	6.1	89	.129
A4	Phase 2-3 SW	R2.2	2.1	89	0.1
A5	Phase 1 & 4 NE	R3.1	5.1	89	.127
A6	Phase 6 NE	R3.2	1.6	89	0.1
A7	Scrap Metal & GW	R3.2	5.6	94	0.154
A8	Phase 5 & 6	R3.3	2.4	89	0.1
A9	Phase 5 S	Pond	4.1	89	0.1
A10	Phase 5SE	R2.2	2.3	91	0.129

Total area: 37.80 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	-Yr (in)
4.0	5.0	6.0	7.0	8.0	10.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	-Yr (in)
4.0	5.0	6.0	7.0	8.0	10.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Watershed Peak Table (Trial #1)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 2-Yr (cfs)	25-Yr (cfs)
SUBAREAS		
A1	12.87	24.90
A2	5.52	11.06
A3	12.95	25.95
A4	4.68	9.37
A5	10.87	21.78
A6	3.57	7.14
A7	13.29	24.52
A8	5.35	10.71
A9	9.15	18.31
A10	5.21	10.08
REACHES		
R1	12.87	24.90
Down	12.86	24.90
R2.1	5.52	11.06
Down	5.52	11.05
R2.2	40.71	80.26
Down	40.70	80.26
R4	12.95	25.95
Down	12.95	25.93
R3.1	10.87	21.78
Down	10.87	21.75
R3.2	27.54	53.00
Down	27.52	53.00
R3.3	32.48	62.95
Down	32.48	62.93
Pond	81.59	160.00
Down	70.42	88.97
OUTLET	70.42	88.97

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Watershed Peak Table (Trial #2)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 2-Yr (cfs)	25-Yr (cfs)
SUBAREAS		
A1	12.87	24.90
A2	5.52	11.06
A3	12.95	25.95
A4	4.68	9.37
A5	10.87	21.78
A6	3.57	7.14
A7	13.29	24.52
A8	5.35	10.71
A9	9.15	18.31
A10	5.21	10.08
REACHES		
R1	12.87	24.90
Down	12.86	24.90
R2.1	5.52	11.06
Down	5.52	11.05
R2.2	40.71	80.26
Down	40.70	80.26
R4	12.95	25.95
Down	12.95	25.93
R3.1	10.87	21.78
Down	10.87	21.75
R3.2	27.54	53.00
Down	27.52	53.00
R3.3	32.48	62.95
Down	32.48	62.93
Pond	81.59	160.00
Down	75.67	132.69
OUTLET	75.67	132.69

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Watershed Peak Table (Trial #3)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 2-Yr (cfs)	25-Yr (cfs)
SUBAREAS		
A1	12.87	24.90
A2	5.52	11.06
A3	12.95	25.95
A4	4.68	9.37
A5	10.87	21.78
A6	3.57	7.14
A7	13.29	24.52
A8	5.35	10.71
A9	9.15	18.31
A10	5.21	10.08
REACHES		
R1	12.87	24.90
Down	12.86	24.90
R2.1	5.52	11.06
Down	5.52	11.05
R2.2	40.71	80.26
Down	40.70	80.26
R4	12.95	25.95
Down	12.95	25.93
R3.1	10.87	21.78
Down	10.87	21.75
R3.2	27.54	53.00
Down	27.52	53.00
R3.3	32.48	62.95
Down	32.48	62.93
Pond	81.59	160.00
Down	78.16	153.18
OUTLET	78.16	153.18

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Hydrograph Peak/Peak Time Table (Trial #1)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs)	(hr)	25-Yr (cfs)	(hr)
SUBAREAS				
A1	12.87	9.96	24.90	9.96
A2	5.52	9.94	11.06	9.95
A3	12.95	9.94	25.95	9.95
A4	4.68	9.93	9.37	9.93
A5	10.87	9.95	21.78	9.94
A6	3.57	9.93	7.14	9.93
A7	13.29	9.96	24.52	9.96
A8	5.35	9.93	10.71	9.93
A9	9.15	9.93	18.31	9.93
A10	5.21	9.94	10.08	9.94
REACHES				
R1	12.87	9.96	24.90	9.96
Down	12.86	9.97	24.90	9.97
R2.1	5.52	9.94	11.06	9.95
Down	5.52	9.95	11.05	9.95
R2.2	40.71	9.96	80.26	9.96
Down	40.70	9.97	80.26	9.96
R4	12.95	9.94	25.95	9.95
Down	12.95	9.97	25.93	9.97
R3.1	10.87	9.95	21.78	9.94
Down	10.87	9.96	21.75	9.96
R3.2	27.54	9.96	53.00	9.95
Down	27.52	9.97	53.00	9.96

Hydrograph Peak/Peak Time Table (Trial #1) (continued)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period	
	2-Yr (cfs) (hr)	25-Yr (cfs) (hr)
R3.3	32.48	62.95
	9.96	9.96
Down	32.48	62.93
	9.97	9.97
Pond	81.59	160.00
	9.96	9.96
Down	70.42	88.97
	10.04	10.11
OUTLET	70.42	88.97

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Hydrograph Peak/Peak Time Table (Trial #2)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs)	(hr)	25-Yr (cfs)	(hr)
SUBAREAS				
A1	12.87	9.96	24.90	9.96
A2	5.52	9.94	11.06	9.95
A3	12.95	9.94	25.95	9.95
A4	4.68	9.93	9.37	9.93
A5	10.87	9.95	21.78	9.94
A6	3.57	9.93	7.14	9.93
A7	13.29	9.96	24.52	9.96
A8	5.35	9.93	10.71	9.93
A9	9.15	9.93	18.31	9.93
A10	5.21	9.94	10.08	9.94
REACHES				
R1	12.87	9.96	24.90	9.96
Down	12.86	9.97	24.90	9.97
R2.1	5.52	9.94	11.06	9.95
Down	5.52	9.95	11.05	9.95
R2.2	40.71	9.96	80.26	9.96
Down	40.70	9.97	80.26	9.96
R4	12.95	9.94	25.95	9.95
Down	12.95	9.97	25.93	9.97
R3.1	10.87	9.95	21.78	9.94
Down	10.87	9.96	21.75	9.96
R3.2	27.54	9.96	53.00	9.95
Down	27.52	9.97	53.00	9.96

Hydrograph Peak/Peak Time Table (Trial #2) (continued)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)	25-Yr (cfs) (hr)
R3.3	32.48 9.96	62.95 9.96
Down	32.48 9.97	62.93 9.97
Pond	81.59 9.96	160.00 9.96
Down	75.67 10.02	132.69 10.05
OUTLET	75.67	132.69

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Hydrograph Peak/Peak Time Table (Trial #3)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs)	(hr)	25-Yr (cfs)	(hr)
SUBAREAS				
A1	12.87	9.96	24.90	9.96
A2	5.52	9.94	11.06	9.95
A3	12.95	9.94	25.95	9.95
A4	4.68	9.93	9.37	9.93
A5	10.87	9.95	21.78	9.94
A6	3.57	9.93	7.14	9.93
A7	13.29	9.96	24.52	9.96
A8	5.35	9.93	10.71	9.93
A9	9.15	9.93	18.31	9.93
A10	5.21	9.94	10.08	9.94
REACHES				
R1	12.87	9.96	24.90	9.96
Down	12.86	9.97	24.90	9.97
R2.1	5.52	9.94	11.06	9.95
Down	5.52	9.95	11.05	9.95
R2.2	40.71	9.96	80.26	9.96
Down	40.70	9.97	80.26	9.96
R4	12.95	9.94	25.95	9.95
Down	12.95	9.97	25.93	9.97
R3.1	10.87	9.95	21.78	9.94
Down	10.87	9.96	21.75	9.96
R3.2	27.54	9.96	53.00	9.95
Down	27.52	9.97	53.00	9.96

Hydrograph Peak/Peak Time Table (Trial #3) (continued)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)	25-Yr (cfs) (hr)
R3.3	32.48 9.96	62.95 9.96
Down	32.48 9.97	62.93 9.97
Pond	81.59 9.96	160.00 9.96
Down	78.16 10.00	153.18 10.00
OUTLET	78.16	153.18

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Structure Output Table

Reach Identifier / Structure Identifier	Peak Flow (PF), Storage Volume (SV), Stage (STG) by Rainfall Return Period 2-Yr	25-Yr
Reach: Pond		
Pipe : Pond		
36(in)		
PF (cfs)	70.42	88.97
SV (ac ft)	.51	1.60
STG (ft)	1.39	3.41
48(in)		
PF (cfs)	75.67	132.69
SV (ac ft)	.33	.73
STG (ft)	.89	1.86
60(in)		
PF (cfs)	78.16	153.18
SV (ac ft)	.23	.45
STG (ft)	.62	1.22

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
A1	5.90	0.154	91	R1	Entrance Area
A2	2.60	0.129	89	R2.1	Phase 3 NW
A3	6.10	0.129	89	R4	Central Landfill
A4	2.10	0.100	89	R2.2	Phase 2-3 SW
A5	5.10	0.127	89	R3.1	Phase 1 & 4 NE
A6	1.60	0.100	89	R3.2	Phase 6 NE
A7	5.60	0.154	94	R3.2	Scrap Metal & GW
A8	2.40	0.100	89	R3.3	Phase 5 & 6
A9	4.10	0.100	89	Pond	Phase 5 S
A10	2.30	0.129	91	R2.2	Phase 5SE

Total Area: 37.80 (ac)

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Reach Summary Table

Reach Identifier	Receiving Reach Identifier	Reach Length (ft)	Routing Method
R1	R2.2	837	CHANNEL
R2.1	R2.2	558	CHANNEL
R2.2	Pond	234	CHANNEL
R4	R2.2	1393	CHANNEL
R3.1	R3.2	708	CHANNEL
R3.2	R3.3	636	CHANNEL
R3.3	Pond	652	CHANNEL
Pond	Outlet		STRUCTURE(Pond)

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
A1							
SHEET	100	0.0300	0.150				0.124
SHALLOW	300	0.0300	0.050				0.030
					Time of Concentration		.154
A2							
SHEET	100	0.0300	0.150				0.124
SHALLOW	150	0.3000	0.050				0.005
					Time of Concentration		.129
A3							
SHEET	100	0.0300	0.150				0.124
SHALLOW	150	0.3000	0.050				0.005
					Time of Concentration		.129
A4							
SHEET	100	0.3000	0.150				0.049
SHALLOW	50	0.3000	0.050				0.002
					Time of Concentration		0.1
A5							
SHEET	100	0.0300	0.150				0.124
SHALLOW	100	0.3000	0.050				0.003
					Time of Concentration		.127
A6							
SHEET	100	0.3000	0.150				0.049
					Time of Concentration		0.1
A7							
SHEET	100	0.0300	0.150				0.124
SHALLOW	300	0.0300	0.050				0.030
					Time of Concentration		0.154
A8							
SHEET	100	0.3000	0.150				0.049
SHALLOW	150	0.3000	0.050				0.005
					Time of Concentration		0.1
A9							
SHEET	100	0.3000	0.150				0.049
SHALLOW	100	0.3000	0.050				0.003
SHALLOW	100	0.0300	0.050				0.018
					Time of Concentration		0.1

Sub-Area Time of Concentration Details (continued)

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
A10							
SHEET	100	0.0300	0.150				0.124
SHALLOW	50	0.0300	0.050				0.005
						Time of Concentration	0.129

Molokai Landfill
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Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
A1	Open space; grass cover < 50% (poor)	D	4.4	89
	Paved parking lots, roofs, driveways	D	1.5	98
	Total Area / Weighted Curve Number		5.9	91
A2	CN directly entered by user	-	2.6	89
	Total Area / Weighted Curve Number		2.6	89
A3	CN directly entered by user	-	6.1	89
	Total Area / Weighted Curve Number		6.1	89
A4	CN directly entered by user	-	2.1	89
	Total Area / Weighted Curve Number		2.1	89
A5	CN directly entered by user	-	5.1	89
	Total Area / Weighted Curve Number		5.1	89
A6	CN directly entered by user	-	1.6	89
	Total Area / Weighted Curve Number		1.6	89
A7	Open space; grass cover < 50% (poor)	D	2.6	89
	Paved parking lots, roofs, driveways	D	3	98
	Total Area / Weighted Curve Number		5.6	94
A8	CN directly entered by user	-	2.4	89
	Total Area / Weighted Curve Number		2.4	89
A9	CN directly entered by user	-	4.1	89
	Total Area / Weighted Curve Number		4.1	89
A10	CN directly entered by user	-	2.3	91
	Total Area / Weighted Curve Number		2.3	91

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Reach Channel Rating Details

Reach Identifier	Reach Length (ft)	Reach Manning's n	Friction Slope (ft/ft)	Bottom Width (ft)	Side Slope
R1	837	0.015	0.046	12	1 :1
R2.1	558	0.015	0.037	12	1 :1
R2.2	234	0.015	0.038	12	1 :1
R4	1393	0.015	0.033	12	1 :1
R3.1	708	0.015	0.02	12	1 :1
R3.2	636	0.015	0.028	12	1 :1
R3.3	652	0.015	0.037	12	1 :1
Pond	(This reach is a structure: Pond)				

Reach Identifier	Stage (ft)	Flow (cfs)	End Area (sq ft)	Top Width (ft)	Friction Slope (ft/ft)
R1	0.0	0.000	0	12	0.046
	0.5	79.811	6.3	13	
	1.0	253.016	13	14	
	2.0	809.023	28	16	
	5.0	3963.790	85	22	
	10.0	14496.192	220	32	
	20.0	60282.300	640	52	
R2.1	0.0	0.000	0	12	0.037
	0.5	71.579	6.3	13	
	1.0	226.919	13	14	
	2.0	725.576	28	16	
	5.0	3554.942	85	22	
	10.0	13000.973	220	32	
	20.0	54064.446	640	52	
R2.2	0.0	0.000	0	12	0.038
	0.5	72.540	6.3	13	
	1.0	229.965	13	14	
	2.0	735.316	28	16	
	5.0	3602.662	85	22	
	10.0	13175.491	220	32	
	20.0	54790.176	640	52	
R4	0.0	0.000	0	12	0.033
	0.5	67.599	6.3	13	
	1.0	214.302	13	14	
	2.0	685.234	28	16	
	5.0	3357.289	85	22	
	10.0	12278.123	220	32	
	20.0	51058.478	640	52	
R3.1	0.0	0.000	0	12	0.02
	0.5	52.626	6.3	13	
	1.0	166.834	13	14	
	2.0	533.454	28	16	
	5.0	2613.646	85	22	
	10.0	9558.506	220	32	
	20.0	39748.971	640	52	
R3.2	0.0	0.000	0	12	0.028
	0.5	62.268	6.3	13	
	1.0	197.401	13	14	
	2.0	631.191	28	16	
	5.0	3092.507	85	22	
	10.0	11309.777	220	32	
	20.0	47031.617	640	52	
R3.3	0.0	0.000	0	12	0.037

Reach Channel Rating Details (continued)

Reach Identifier	Reach Length (ft)	Reach Manning's n	Friction Slope (ft/ft)	Bottom Width (ft)	Side Slope
	0.5	71.579	6.3	13	
	1.0	226.919	13	14	
	2.0	725.576	28	16	
	5.0	3554.942	85	22	
	10.0	13000.973	220	32	
	20.0	54064.446	640	52	
Pond	(This reach is a structure: Pond)				

A-Mehr

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Structure Description - User Entered

Reach Identifier	Surface Area @ Crest (ac)	Height Above Crest (ft)	Surface Area @ Ht Above (ac)	Pipe Diameter (in)	Head on Pipe (ft)	Weir Length (ft)
Pond	0.300	3	0.574	36 48 60	5	

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Structure Rating Details - Computed

Reach Idendifier	Stage (ft)	Pool Storage (ac ft)	Flows (cfs) @ Pipe Diameter Dia #1 36in	Dia #2 48in	Dia #3 60in
Pond	0	0.00	0.000	0.000	0.000
	1.5	0.55	75.868	127.955	188.496
	3	1.31	86.503	147.750	221.031
	6	3.44	104.577	180.956	274.777
	15	14.77	145.935	255.910	394.267

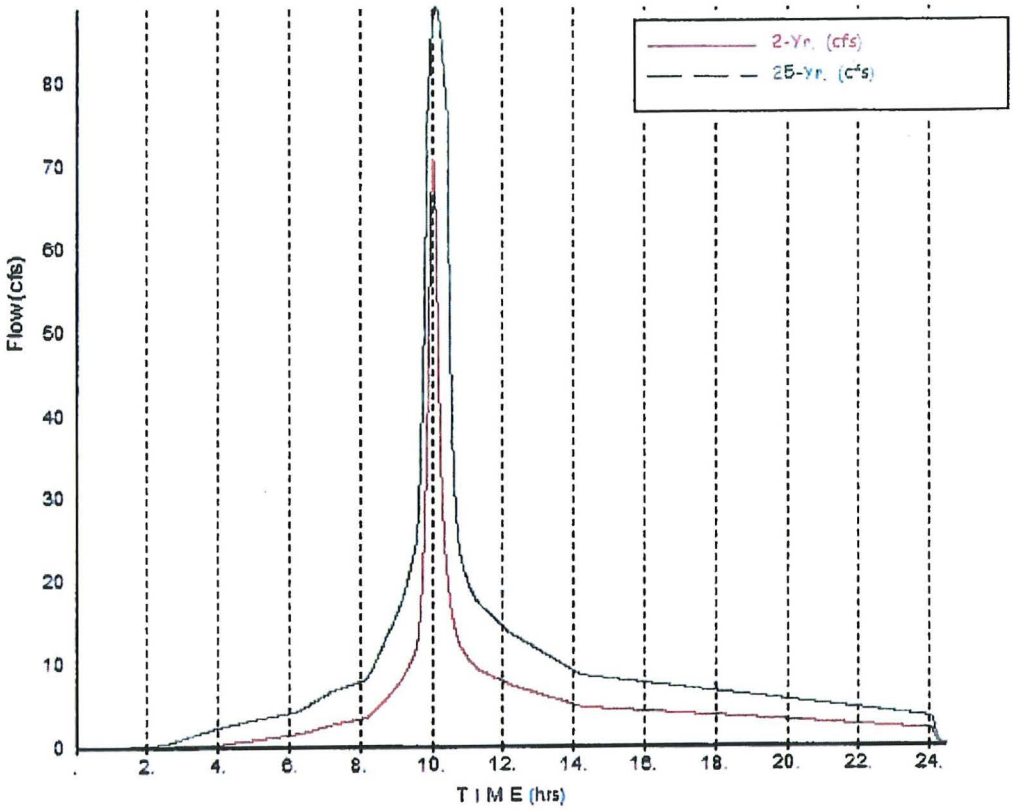
WinTR-55 Output Hydrograph

Project: Molokai Landfill

Subarea: (Outlet) Storms: 2-Yr, 25-Yr

E:\Bin\moloka\Hydrology\TR-55 Molokai FNL.w55

7/11/2016



WinTR-55 Current Data Description

--- Identification Data ---

User:	A-Mehr	Date:	7/11/2016
Project:	Molokai Landfill	Units:	English
SubTitle:	Master Drainage Plan	Areal Units:	Acres
State:	Hawaii		
County:	Maui		
Filename:	E:\Bin\molokai\Hydrology\TR-55 Molokai existing.w55		

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
A1	Entrance Area	R1	4.7	91	.154
A2	Phase 3 NW	R2-1	2.8	89	.129
A3	Central Landfill	R3	4.8	89	.129
A4	Phase 2-3 SW	R4	3	89	0.1
A5	Phase 1 & 4 NE	R5	1.3	89	.127
A6	Phase 6 NE	R6	5.1	89	0.1
A7	Scrap Metal & GW	R7	6.8	94	0.154

Total area: 28.50 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	-Yr (in)
4.0	5.0	6.0	7.0	8.0	10.0	.0

Storm Data Source:	User-provided custom storm data
Rainfall Distribution Type:	Type I
Dimensionless Unit Hydrograph:	<standard>

A-Mehr

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Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	-Yr (in)
4.0	5.0	6.0	7.0	8.0	10.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Watershed Peak Table (Trial #1)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 2-Yr (cfs)	25-Yr (cfs)
SUBAREAS		
A1	10.25	19.82
A2	5.95	11.93
A3	10.19	20.42
A4	6.69	13.40
A5	2.77	5.55
A6	11.37	22.77
A7	16.14	29.79
REACHES		
R1	10.25	19.82
Down	10.25	19.82
R2-1	16.11	31.54
Down	16.09	31.52
R3	16.88	33.81
Down	16.87	33.79
R4	6.69	13.40
Down	6.69	13.39
R5	2.77	5.55
Down	2.77	5.54
R6	13.98	28.00
Down	13.98	27.98
R7	30.01	57.54
Down	30.00	57.51
Pond	62.80	122.55
Down	53.80	81.76
R2-2	32.82	65.04
Down	32.82	65.04
OUTLET	53.80	81.76

A-Mehr

Molokai Landfill
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Maui County, Hawaii

Watershed Peak Table (Trial #2)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 2-Yr (cfs)	25-Yr (cfs)
SUBAREAS		
A1	10.25	19.82
A2	5.95	11.93
A3	10.19	20.42
A4	6.69	13.40
A5	2.77	5.55
A6	11.37	22.77
A7	16.14	29.79
REACHES		
R1	10.25	19.82
Down	10.25	19.82
R2-1	16.11	31.54
Down	16.09	31.52
R3	16.88	33.81
Down	16.87	33.79
R4	6.69	13.40
Down	6.69	13.39
R5	2.77	5.55
Down	2.77	5.54
R6	13.98	28.00
Down	13.98	27.98
R7	30.01	57.54
Down	30.00	57.51
Pond	62.80	122.55
Down	57.86	112.80
R2-2	32.82	65.04
Down	32.82	65.04
OUTLET	57.86	112.80

A-Mehr

Molokai Landfill
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Maui County, Hawaii

Watershed Peak Table (Trial #3)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 2-Yr (cfs)	25-Yr (cfs)
SUBAREAS		
A1	10.25	19.82
A2	5.95	11.93
A3	10.19	20.42
A4	6.69	13.40
A5	2.77	5.55
A6	11.37	22.77
A7	16.14	29.79
REACHES		
R1	10.25	19.82
Down	10.25	19.82
R2-1	16.11	31.54
Down	16.09	31.52
R3	16.88	33.81
Down	16.87	33.79
R4	6.69	13.40
Down	6.69	13.39
R5	2.77	5.55
Down	2.77	5.54
R6	13.98	28.00
Down	13.98	27.98
R7	30.01	57.54
Down	30.00	57.51
Pond	62.80	122.55
Down	59.90	116.78
R2-2	32.82	65.04
Down	32.82	65.04
OUTLET	59.90	116.78

A-Mehr

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Hydrograph Peak/Peak Time Table (Trial #1)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)	25-Yr (cfs) (hr)
SUBAREAS		
A1	10.25 9.96	19.82 9.96
A2	5.95 9.94	11.93 9.95
A3	10.19 9.94	20.42 9.95
A4	6.69 9.93	13.40 9.93
A5	2.77 9.95	5.55 9.94
A6	11.37 9.93	22.77 9.93
A7	16.14 9.96	29.79 9.96
REACHES		
R1	10.25 9.96	19.82 9.96
Down	10.25 9.97	19.82 9.97
R2-1	16.11 9.96	31.54 9.96
Down	16.09 9.98	31.52 9.97
R3	16.88 9.94	33.81 9.94
Down	16.87 9.96	33.79 9.96
R4	6.69 9.93	13.40 9.93
Down	6.69 9.95	13.39 9.94
R5	2.77 9.95	5.55 9.94
Down	2.77 9.96	5.54 9.96
R6	13.98 9.94	28.00 9.93
Down	13.98 9.94	27.98 9.94

Hydrograph Peak/Peak Time Table (Trial #1) (continued)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period	
	2-Yr (cfs)	25-Yr (cfs)
	(hr)	(hr)
R7	30.01	57.54
	9.95	9.95
Down	30.00	57.51
	9.96	9.96
Pond	62.80	122.55
	9.96	9.96
Down	53.80	81.76
	10.04	10.09
R2-2	32.82	65.04
	9.96	9.96
Down	32.82	65.04
	9.97	9.96
OUTLET	53.80	81.76

A-Mehr

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Hydrograph Peak/Peak Time Table (Trial #2)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)	25-Yr (cfs) (hr)
SUBAREAS		
A1	10.25 9.96	19.82 9.96
A2	5.95 9.94	11.93 9.95
A3	10.19 9.94	20.42 9.95
A4	6.69 9.93	13.40 9.93
A5	2.77 9.95	5.55 9.94
A6	11.37 9.93	22.77 9.93
A7	16.14 9.96	29.79 9.96
REACHES		
R1	10.25 9.96	19.82 9.96
Down	10.25 9.97	19.82 9.97
R2-1	16.11 9.96	31.54 9.96
Down	16.09 9.98	31.52 9.97
R3	16.88 9.94	33.81 9.94
Down	16.87 9.96	33.79 9.96
R4	6.69 9.93	13.40 9.93
Down	6.69 9.95	13.39 9.94
R5	2.77 9.95	5.55 9.94
Down	2.77 9.96	5.54 9.96
R6	13.98 9.94	28.00 9.93
Down	13.98 9.94	27.98 9.94

Hydrograph Peak/Peak Time Table (Trial #2) (continued)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period	
	2-Yr	25-Yr
	(cfs)	(cfs)
	(hr)	(hr)
R7	30.01	57.54
	9.95	9.95
Down	30.00	57.51
	9.96	9.96
Pond	62.80	122.55
	9.96	9.96
Down	57.86	112.80
	10.02	10.01
R2-2	32.82	65.04
	9.96	9.96
Down	32.82	65.04
	9.97	9.96
OUTLET	57.86	112.80

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Hydrograph Peak/Peak Time Table (Trial #3)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)	25-Yr (cfs) (hr)
SUBAREAS		
A1	10.25 9.96	19.82 9.96
A2	5.95 9.94	11.93 9.95
A3	10.19 9.94	20.42 9.95
A4	6.69 9.93	13.40 9.93
A5	2.77 9.95	5.55 9.94
A6	11.37 9.93	22.77 9.93
A7	16.14 9.96	29.79 9.96
REACHES		
R1	10.25 9.96	19.82 9.96
Down	10.25 9.97	19.82 9.97
R2-1	16.11 9.96	31.54 9.96
Down	16.09 9.98	31.52 9.97
R3	16.88 9.94	33.81 9.94
Down	16.87 9.96	33.79 9.96
R4	6.69 9.93	13.40 9.93
Down	6.69 9.95	13.39 9.94
R5	2.77 9.95	5.55 9.94
Down	2.77 9.96	5.54 9.96
R6	13.98 9.94	28.00 9.93
Down	13.98 9.94	27.98 9.94

Hydrograph Peak/Peak Time Table (Trial #3) (continued)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)	25-Yr (cfs) (hr)
R7	30.01 9.95	57.54 9.95
Down	30.00 9.96	57.51 9.96
Pond	62.80 9.96	122.55 9.96
Down	59.90 10.00	116.78 9.99
R2-2	32.82 9.96	65.04 9.96
Down	32.82 9.97	65.04 9.96
OUTLET	59.90	116.78

A-Mehr

Molokai Landfill
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Structure Output Table

Reach Identifier / Structure Identifier	Peak Flow (PF), Storage Volume (SV), Stage (STG) by Rainfall Return Period 2-Yr	25-Yr
Reach: Pond		
Pipe : Pond		
36(in)		
PF (cfs)	53.80	81.76
SV (ac ft)	.39	.97
STG (ft)	1.06	2.33
48(in)		
PF (cfs)	57.86	112.80
SV (ac ft)	.25	.48
STG (ft)	.68	1.32
60(in)		
PF (cfs)	59.90	116.78
SV (ac ft)	.17	.34
STG (ft)	.48	.93

A-Mehr

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Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
A1	4.70	0.154	91	R1	Entrance Area
A2	2.80	0.129	89	R2-1	Phase 3 NW
A3	4.80	0.129	89	R3	Central Landfill
A4	3.00	0.100	89	R4	Phase 2-3 SW
A5	1.30	0.127	89	R5	Phase 1 & 4 NE
A6	5.10	0.100	89	R6	Phase 6 NE
A7	6.80	0.154	94	R7	Scrap Metal & GW

Total Area: 28.50 (ac)

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Reach Summary Table

Reach Identifier	Receiving Reach Identifier	Reach Length (ft)	Routing Method
R1	R2-1	515	CHANNEL
R2-1	R2-2	832	CHANNEL
R3	R2-2	731	CHANNEL
R4	R3	834	CHANNEL
R5	R6	863	CHANNEL
R6	R7	598	CHANNEL
R7	Pond	660	CHANNEL
Pond	Outlet		STRUCTURE(Pond)
R2-2	Pond	126	CHANNEL

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Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
A1							
SHEET	100	0.0300	0.150				0.124
SHALLOW	300	0.0300	0.050				0.030
					Time of Concentration		.154
A2							
SHEET	100	0.0300	0.150				0.124
SHALLOW	150	0.3000	0.050				0.005
					Time of Concentration		.129
A3							
SHEET	100	0.0300	0.150				0.124
SHALLOW	150	0.3000	0.050				0.005
					Time of Concentration		.129
A4							
SHEET	100	0.3000	0.150				0.049
SHALLOW	50	0.3000	0.050				0.002
					Time of Concentration		0.1
A5							
SHEET	100	0.0300	0.150				0.124
SHALLOW	100	0.3000	0.050				0.003
					Time of Concentration		.127
A6							
SHEET	100	0.3000	0.150				0.049
					Time of Concentration		0.1
A7							
SHEET	100	0.0300	0.150				0.124
SHALLOW	300	0.0300	0.050				0.030
					Time of Concentration		0.154

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Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
A1	CN directly entered by user	-	4.7	91
	Total Area / Weighted Curve Number		4.7	91
A2	CN directly entered by user	-	2.8	89
	Total Area / Weighted Curve Number		2.8	89
A3	CN directly entered by user	-	4.8	89
	Total Area / Weighted Curve Number		4.8	89
A4	CN directly entered by user	-	3	89
	Total Area / Weighted Curve Number		3	89
A5	CN directly entered by user	-	1.3	89
	Total Area / Weighted Curve Number		1.3	89
A6	CN directly entered by user	-	5.1	89
	Total Area / Weighted Curve Number		5.1	89
A7	CN directly entered by user	-	6.8	94
	Total Area / Weighted Curve Number		6.8	94

A-Mehr

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Reach Channel Rating Details

Reach Identifier	Reach Length (ft)	Reach Manning's n	Friction Slope (ft/ft)	Bottom Width (ft)	Side Slope
R1	515	0.015	0.039	12	1 :1
R2-1	832	0.015	0.036	12	1 :1
R3	731	0.015	0.049	12	1 :1
R4	834	0.015	0.019	12	1 :1
R5	863	0.015	0.02	12	1 :1
R6	598	0.015	0.033	12	1 :1
R7	660	0.015	0.036	12	1 :1
Pond	(This reach is a structure: Pond)				
R2-2	126	0.015	0.079	12	1 :1

Reach Identifier	Stage (ft)	Flow (cfs)	End Area (sq ft)	Top Width (ft)	Friction Slope (ft/ft)
R1	0.0	0.000	0	12	0.039
	0.5	73.488	6.3	13	
	1.0	232.971	13	14	
	2.0	744.928	28	16	
	5.0	3649.758	85	22	
	10.0	13347.727	220	32	
	20.0	55506.418	640	52	
R2-1	0.0	0.000	0	12	0.036
	0.5	70.605	6.3	13	
	1.0	223.831	13	14	
	2.0	715.704	28	16	
	5.0	3506.574	85	22	
	10.0	12824.081	220	32	
	20.0	53328.841	640	52	
R3	0.0	0.000	0	12	0.049
	0.5	82.372	6.3	13	
	1.0	261.137	13	14	
	2.0	834.988	28	16	
	5.0	4091.003	85	22	
	10.0	14961.428	220	32	
	20.0	62216.981	640	52	
R4	0.0	0.000	0	12	0.019
	0.5	51.293	6.3	13	
	1.0	162.610	13	14	
	2.0	519.947	28	16	
	5.0	2547.467	85	22	
	10.0	9316.479	220	32	
	20.0	38742.505	640	52	
R5	0.0	0.000	0	12	0.02
	0.5	52.626	6.3	13	
	1.0	166.834	13	14	
	2.0	533.454	28	16	
	5.0	2613.646	85	22	
	10.0	9558.506	220	32	
	20.0	39748.971	640	52	

Reach Channel Rating Details (continued)

Reach Identifier	Reach Length (ft)	Reach Manning's n	Friction Slope (ft/ft)	Bottom Width (ft)	Side Slope
R6	0.0	0.000	0	12	0.033
	0.5	67.599	6.3	13	
	1.0	214.302	13	14	
	2.0	685.234	28	16	
	5.0	3357.289	85	22	
	10.0	12278.123	220	32	
	20.0	51058.478	640	52	
R7	0.0	0.000	0	12	0.036
	0.5	70.605	6.3	13	
	1.0	223.831	13	14	
	2.0	715.704	28	16	
	5.0	3506.574	85	22	
	10.0	12824.081	220	32	
	20.0	53328.841	640	52	
Pond	(This reach is a structure: Pond)				
R2-2	0.0	0.000	0	12	0.079
	0.5	104.592	6.3	13	
	1.0	331.576	13	14	
	2.0	1060.219	28	16	
	5.0	5194.518	85	22	
	10.0	18997.155	220	32	
	20.0	78999.518	640	52	

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Structure Description - User Entered

Reach Identifier	Surface Area @ Crest (ac)	Height Above Crest (ft)	Surface Area @ Ht Above (ac)	Pipe Diameter (in)	Head on Pipe (ft)	Weir Length (ft)
Pond	0.300	3	0.574	36 48 60	5	

A-Mehr

Molokai Landfill
Master Drainage Plan
Maui County, Hawaii

Structure Rating Details - Computed

Reach Idendifier	Stage (ft)	Pool Storage (ac ft)	Flows (cfs) @ Pipe Diameter Dia #1 36in	Dia #2 48in	Dia #3 60in
Pond	0	0.00	0.000	0.000	0.000
	1.5	0.55	75.868	127.955	188.496
	3	1.31	86.503	147.750	221.031
	6	3.44	104.577	180.956	274.777
	15	14.77	145.935	255.910	394.267

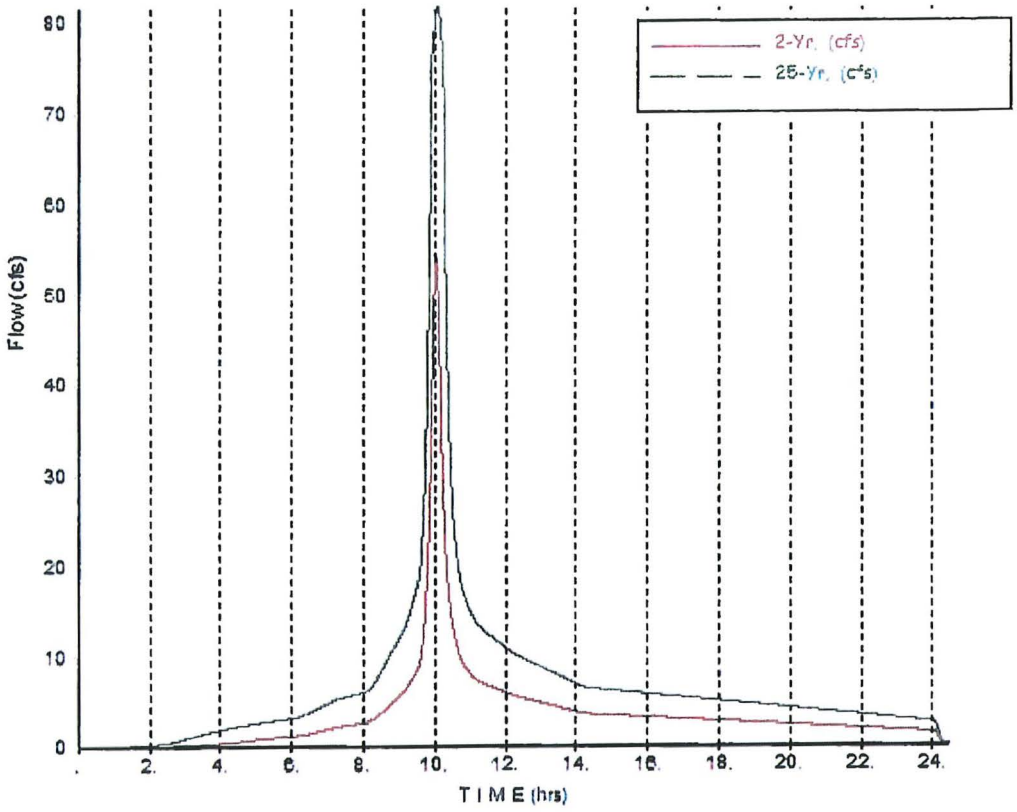
WinTR-55 Output Hydrograph

Project: Molokai Landfill

Subarea: (Outlet) Storms: 2-Yr, 25-Yr

E:\Bin\molokai\Hydrology\TR-55 Molokai existing w55

7/11/2016



APPENDIX B

PROJECT PLANS

WATER TANK

MAINTENANCE SHOP

SCALEHOUSE AND OFFICE

RECYCLE MOLOKAI FACILITY

PERIMETER ROAD

GP-1

EXISTING LINED LANDFILL
(PHASES 1 THROUGH 4)

30' ACCESS GATE

GP-5

PHASE 4

PHASE 3

ENTRANCE FACILITY
STORM WATER BASIN

MOLOKAI METALS FACILITY

PHASE 2

PERMITTED LIMIT OF WASTE

PHASE 2 LEACHATE
MONITORING POINT

PHASE 1

GP-2

PHASE 3
LEACHATE SUMP
AND LYSIMETER

GREEN WASTE RECEIVING
AND PROCESSING AREA

EXISTING PERIMETER ROAD
AND ASPHALT PAVED
DRAINAGE CHANNEL

GP-4

FUTURE LANDFILL AREA
(PHASES 5 & 6)

ASPHALT PAVED
DRAINAGE CHANNEL

PHASE 1 LEACHATE
WET WELL MANHOLE

EXISTING PERIMETER ROAD
AND ASPHALT PAVED
DRAINAGE CHANNEL

GP-5

STORM WATER BASIN

N

GRAPHIC SCALE 1"=100'

0 100 200 300

Legend

Existing Grades As of 5/7/17

GP-1 Gas Monitoring Probes

A-Mehr, Inc.

Molokai Landfill

Preliminary Engineering Report and Master Plan Improvement

Existing Site Plan

DRAWN

CHECKED

DATE 5/17/17

FIGURE 2

MOLOKAI METALS FACILITY

PERIMETER ROAD

PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA

EXISTING GREEN WASTE RECEIVING & PROCESSING AREA (PROPOSED TO BE RELOCATED)

PHASE 4

PHASE 6

PHASE 2

PHASE 3

PHASE 5

PHASE 1

RAMP

EXISTING PHASE 2 LEACHATE MONITORING POINT

EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL

PERMITTED LIMIT OF WASTE

EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL

EXISTING PHASE 3 LEACHATE SUMP AND LYSIMETER

PHASE 5 SUMP

STORM WATER BASIN

EXISTING PHASE 1 LEACHATE WET WELL MANHOLE

GRAPHIC SCALE 1"=50'

0 50 100 150

Legend

Existing Grades As of 5/7/17

Existing and Proposed Liner Grades

A-Mehr, Inc.

Molokai Landfill

Preliminary Engineering Report and Master Plan Improvement

Liner Grades

FILENAME
DRAWN
CHECKED
DATE 5/11/17
FIGURE 5

EXISTING LINED LANDFILL
(PHASES 1 THROUGH 4)

PHASE 4

PHASE 3

PHASE 2

PHASE 1

260
280
290
270
260
240
260
250
240
230
220
210

Legend

Existing Grades As of 5/7/17

Interim Grades

GRAPHIC SCALE 1"=50'

0 50 100 150

N

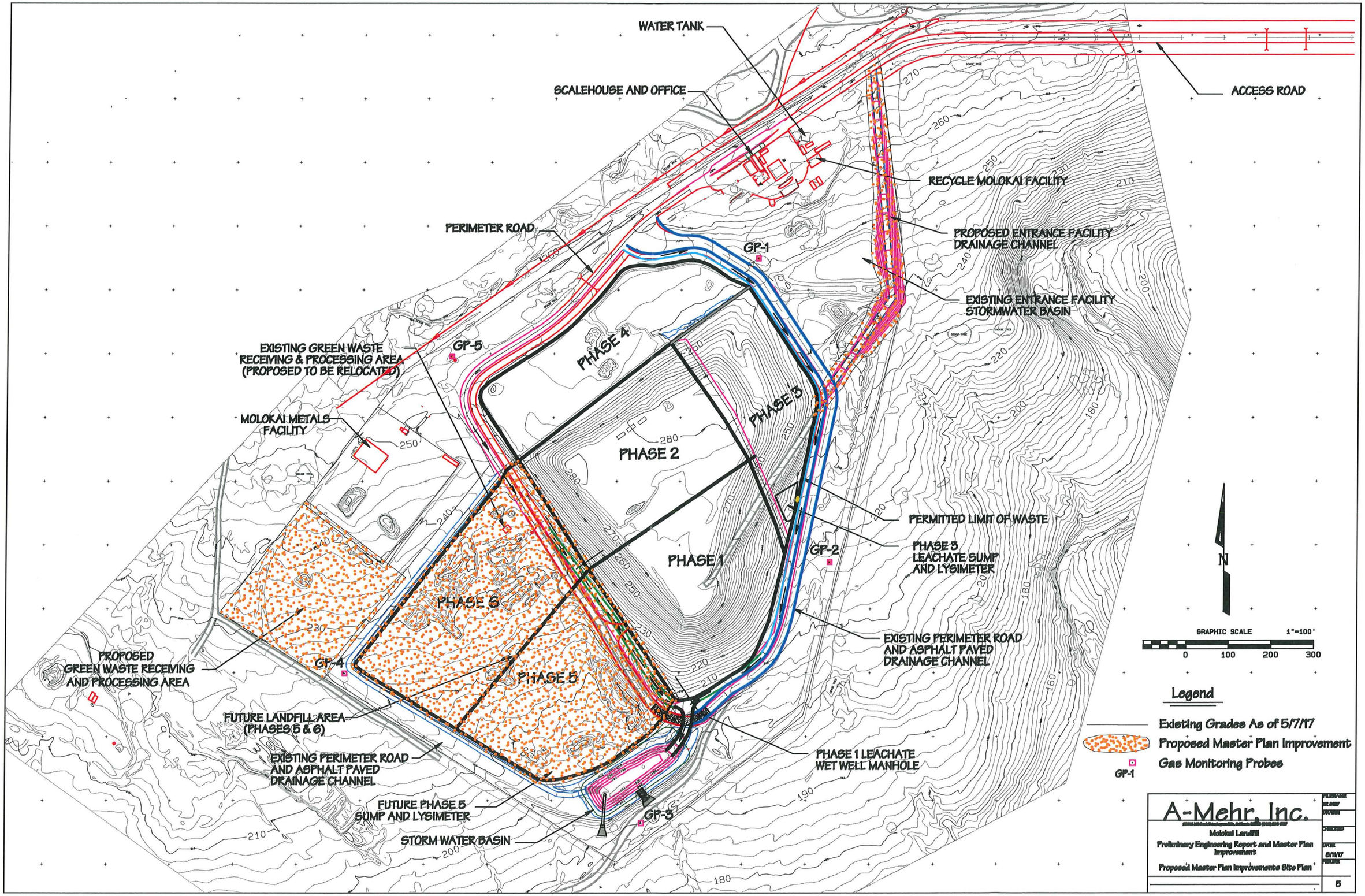
A-Mehr, Inc.

Molokai Landfill

Preliminary Engineering Report and Master Plan Improvement

Interim Final Grades, Phases 1-4

FILENAME
DRAWN
CHECKED
DATE 8/1/17
FIGURE 4


WATER TANK
SCALEHOUSE AND OFFICE
ACCESS ROAD
RECYCLE MOLOKAI FACILITY
PERIMETER ROAD
PROPOSED ENTRANCE FACILITY DRAINAGE CHANNEL
GP-1
EXISTING ENTRANCE FACILITY STORMWATER BASIN
EXISTING GREEN WASTE RECEIVING & PROCESSING AREA (PROPOSED TO BE RELOCATED)
GP-5
PHASE 4
PHASE 3
PHASE 2
MOLOKAI METALS FACILITY
PERMITTED LIMIT OF WASTE
PHASE 3 LEACHATE SUMP AND LYSIMETER
GP-2
PHASE 1
PHASE 6
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA
GP-4
PHASE 5
FUTURE LANDFILL AREA (PHASES 5 & 6)
EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL
PHASE 1 LEACHATE WET WELL MANHOLE
FUTURE PHASE 5 SUMP AND LYSIMETER
GP-3
STORM WATER BASIN
N
GRAPHIC SCALE 1"=100'
0 100 200 300
Legend
Existing Grades As of 5/7/17
Proposed Master Plan Improvement
Gas Monitoring Probes
GP-1
A-Mehr, Inc.
Molokai Landfill
Preliminary Engineering Report and Master Plan Improvement
Proposed Master Plan Improvements Site Plan
DRAWN
CHECKED
DATE 5/11/17
FIGURE 5

MOLOKAI METALS FACILITY

PERIMETER ROAD

PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA

EXISTING GREEN WASTE RECEIVING & PROCESSING AREA (PROPOSED TO BE RELOCATED)

PHASE 1

PHASE 2

PHASE 3

PHASE 4

PHASE 5

PHASE 6

RAMP

EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL

PROPOSED ENTRANCE FACILITY DRAINAGE CHANNEL

PERMITTED LIMIT OF WASTE

EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL

PHASE 5 SUMP

STORM WATER BASIN

EXISTING PHASE 1 LEACHATE WET WELL MANHOLE

GRAPHIC SCALE 1"=50'

0 50 100 150

Legend

Existing Grades As of 5/7/17

Final Grades

A-Mehr, Inc.

Molokai Landfill

Preliminary Engineering Report and Master Plan Improvement

Final Grades

RELEASED BY DWR

DRAWN

CHECKED

DATE 5/11/17

FIGURE 6

WATER TANK

SCALEHOUSE AND OFFICE

FACILITY ACCESS ROAD

RECYCLE MOLOKAI FACILITY

PERIMETER ROAD

PROPOSED FACILITY DRAINAGE CHANNEL

GP-1

PHASE 4

PHASE 3

NEW CHANNEL TIE-IN POINT WITH EXISTING PHASE 3 PERIMETER CHANNEL

DENSE TREE

ASPH

GRAPHIC SCALE 1"=50'

0 50 100 150

N

Legend

Existing Grades As of 5/7/17

GP-1 Gas Monitoring Probes

A-Mehr, Inc.

Molokai Landfill

Preliminary Engineering Report and Master Plan Improvement

Entrance Facility Drainage Channel

FILENAME

BY

DRAWN

CHECKED

DATE 8/11/17

FIGURE 7

MOLOKAI METALS FACILITY

PERIMETER ROAD

PROPOSED GREEN WASTE RECEIVING AND PROCESSING AREA

EXISTING GREEN WASTE RECEIVING & PROCESSING AREA (PROPOSED TO BE RELOCATED)

PHASE 1

PHASE 2

PHASE 3

PHASE 4

PHASE 5

PHASE 6

RAMP

EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL

PROPOSED ENTRANCE FACILITY DRAINAGE CHANNEL

PERMITTED LIMIT OF WASTE

EXISTING PERIMETER ROAD AND ASPHALT PAVED DRAINAGE CHANNEL

PHASE 5 SUMP

STORM WATER BASIN

EXISTING PHASE 1 LEACHATE WET WELL MANHOLE

GRAPHIC SCALE 1"=50'

0 50 100 150

Legend

Existing Grades As of 5/7/17

Alternative Final Grades

A-Mehr, Inc.

Molokai Landfill

Preliminary Engineering Report and Master Plan Improvement

Alternative Final Grades

FILENAME
BY
DRAWN
CHECKED
DATE 8/22/17
FIGURE 8

SPECIAL PERMIT APPROVAL FROM STATE LAND USE COMMISSION

APPENDIX C

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI For a Special Permit to Establish an Integrated Solid Waste Facility on Approximately 37.9 Acres of Land Situated Within the State Land Use Agricultural District at Naiwa, Molokai, Tax Map Key Number: 5-2-11: Portion of 27	DOCKET NO. SP93-383 CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Order Granting Request for Time Extension of Condition No. 3 was served upon the following by either hand delivery or depositing the same in the U. S. Postal Service by certified mail:

CERT. BRIAN MISKAE, Planning Director
Planning Department, County of Maui
250 South High Street
Wailuku, Hawaii 96793

CERT. GUY A. HAYWOOD, ESQ.
Corporation Counsel
Office of the Corporation Counsel
County of Maui
200 South High Street
Wailuku, Hawaii 96793

CERT. DAVID WISSMAR, Chief
Solid Waste Division
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

DATED: Honolulu, Hawaii, this 1st day of March 1995.

ESTHER UEDA
Executive Officer

In the Matter of the Petition of DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI For a Special Permit to Establish an Integrated Solid Waste Facility on Approximately 37.9 Acres of Land Situated Within the State Land Use Agricultural District at Naiwa, Molokai, Tax Map Key Number: 5-2-11: Portion of 27	DOCKET NO. SP93-383 DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI

This is to certify that this is a true and correct copy of the Decision and Order on file in the office of the State Land Use Commission, Honolulu Hawaii.

MAY 14 1993 by _____
Date Executive Officer

LAND USE COMMISSION
STATE OF HAWAII
MAY 14 1 28 PM '93

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI For a Special Permit to Establish an Integrated Solid Waste Facility on Approximately 37.9 Acres of Land Situated Within the State Land Use Agricultural District at Naiwa, Molokai, Tax Map Key Number: 5-2-11: Portion of 27	DOCKET NO. SP93-383 DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER

The Department of Public Works, County of Maui (hereinafter "Applicant") initiated this proceeding pursuant to Section 205-6, Hawaii Revised Statutes, and Sections 15-15-95 and 15-15-96 of the Hawaii Administrative Rules. The Land Use Commission (hereinafter "LUC"), having considered the entire record on this matter, hereby makes the following findings of fact, conclusions of law, and decision and order:

FINDINGS OF FACT

PROCEDURAL MATTERS

1. On December 7, 1992, the Special Permit Application (hereinafter "Permit") for establishment and operation of an Integrated Solid Waste Facility (hereinafter "Project") on approximately 40 acres at Naiwa, Molokai, was filed by the Applicant with the County of Maui Planning Department (hereinafter "Department").

2. On December 14, 1992, the Permit was certified as complete and ready for processing by the Applicant.

3. On December 16, 1992, the Molokai Planning Commission (hereinafter "Planning Commission") conducted a public workshop on the Permit.

4. The Planning Commission conducted a public hearing on the Permit on January 27, 1993.

5. On January 27, 1993, the Planning Commission recommended approval of the Permit to the LUC subject to twelve conditions. On March 24, 1993, the LUC received and accepted for consideration the complete record of the Planning Commission's proceedings on the Permit and the Planning Commission's decision.

6. On April 23, 1993, the LUC conducted a hearing to act upon the Applicant's petition.

7. On April 15, 1993 and April 21, 1993, the LUC received letters dated April 15, 1993 and April 20, 1993, respectively, from Ms. Sarah E. Sykes of Molokai. Said letters were admitted into evidence by the LUC, with no objections from the parties, on April 23, 1993.

8. On April 23, 1993, the LUC received a letter dated April 22, 1993 from Mr. John Harder, Coordinator of the Office of Solid Waste Management, State Department of Health. Said letter was admitted into evidence by the LUC, with no objections from the parties, on April 23, 1993.

9. On April 23, 1993, the Applicant orally amended its Permit by deleting the proposed access road and reducing the acreage of the Property to approximately 37.9 acres.

DESCRIPTION OF THE PROPERTY AND SURROUNDING AREA

10. The Special Permit area (hereinafter "Property") consists of approximately 37.9 acres located at Naiwa, Molokai, and is identified as Tax Map Key No.: 5-2-11: portion of 27.

11. The Property is located approximately 3.5 miles northwest of Kaunakakai and 3.5 miles southeast of Molokai Airport. The Property is owned by Molokai Ranch, Limited. The Applicant is in the process of obtaining the Property from Molokai Ranch, Limited.

12. Access to the Property is via a road off of Maunaloa Highway.

13. The originally proposed access road to the Property was to be shared with an existing quarry operation to the north of the Property. The proposal was not agreed upon by the quarry operator. Therefore, the Applicant has proposed a new access road south of the originally proposed access road.

14. The Property and surrounding areas are currently vacant and unimproved.

15. The slope of area in which the Property is situated varies from 3% to 40%.

16. Rainfall in the area is estimated to be approximately 15 inches annually.

17. The U.S. Department of Agriculture Soil Conservation Service classifies the Property as having two distinct types of soil series, Holomua Silt Loam (HvB3) and Very stony land (rVT2).

18. The Land Study Bureau's Detailed Land Classification Report designates the Property as Class "E" lands.

19. The Property is not classified under the State of Hawaii's Agricultural Lands of Importance to the State of Hawaii (ALISH) system.

20. According to the U.S. Army Corps of Engineers Flood Insurance Rate Map, the Property is within an area of minimal flooding (Zone C).

SUMMARY OF PROPOSED USE

21. The Applicant is requesting the Permit to establish and operate an Integrated Solid Waste Facility for the island of Molokai. This Project will include areas for a solid waste landfill, areas for composting and an area for recycling. Additionally, the Project will include other improvements including a scale house, employee facilities, an equipment maintenance building, administrative office space, and parking.

22. The Project is designed to meet the County of Maui Drainage Plan and the U.S. Environmental Protection Agency's "small landfill" criteria for municipal solid waste landfills (40 CFR 258, Subtitle D).

23. The Project is intended to replace the existing landfill at Kalamaula, Molokai, which is at capacity and is scheduled to be closed in the near future.

STATE AND COUNTY PLANS AND PROGRAMS

24. The State Land Use District Classification of the Property is Agricultural, as reflected on State Land Use District boundary maps MO-3 (Kaunakakai).

25. The Molokai Community Plan designates the area as Agricultural and the current zoning for the area is unzoned.

26. The Property is not located within the County of Maui Special Management Area.

SUMMARY OF STATE AND COUNTY AGENCIES COMMENTS

27. The County of Maui Department of Fire Control commented that the Project site would need an adequate water supply available. Specific requirements for the Project could not be provided without additional information.

28. The County of Maui Department of Water Supply (hereinafter "DWS") commented that there is no water system in the area. Furthermore, DWS commented that the Applicant will need to demonstrate that adequate water for fire protection and other uses can be provided. DWS encouraged the use of non-potable water and recommended that the landfill incorporate a low permeability bottom liner.

29. Maui Electric Company (hereinafter "MECO") commented that additional data is needed to determine probable electrical usage for the Project.

30. The County of Maui Police Department had no comments to offer.

31. The State Department of Health commented that a National Pollutant Discharge Elimination System permit would be required for any discharge to waters of the State.

32. The Office of Solid Waste Management, State Department of Health commented that clay liner (described as Alternative 1 in Parametric, Inc. memo dated January 4, 1993 to Dave Wissmar), with a lysimeter in place will provide adequate protection of contamination to groundwater sources.

33. The State Department of Transportation (hereinafter "DOT") commented that illegal trash dumping at the access road and the possibility of "wind-blown" trash from the landfill be examined. Additionally, DOT commented that intersection connections within the State right-of-way should be provided to DOT for approval.

34. The State Historic Preservation Division of the Department of Land and Natural Resources (hereinafter "HPD-DLNR") has determined that the Project will have "no effect" on significant historic sites.

35. The State Department of Accounting and General Services had no comments to offer.

36. The State Department of Agriculture had no objections to the Project.

SOCIO-ECONOMIC IMPACTS

37. The Project is not expected to impact the socio-economic environment of the island of Molokai. Because the Property is currently vacant and undeveloped, no disruption of businesses or residents exists.

38. The Project is not expected to have any significant adverse secondary impacts or effect on the population, future development, and public facilities on the island of Molokai.

IMPACTS UPON THE RESOURCES OF THE AREA

Agricultural Resources

39. The Project is not expected to have any impact on agricultural resources. The Property is currently vacant and undeveloped and is not classified by the ALISH system. Furthermore, the Property has poor suitability for most agricultural uses.

Flora

40. Vegetation on the Property and immediate surrounding area is dominated by kiawe and buffel grass. There are no rare, threatened, or endangered species of flora on the Property.

Fauna

41. The Property provides a limited range of habitats utilized by a typical range of exotic or introduced birds. However, none of the birds or mammals observed in the area are considered to be threatened or endangered species.

42. The Project is not fully visible to the passing motorist on Maunaloa Highway. A limited portion of the Project can be seen from Maunaloa Highway.

43. The landfill is not part of, nor does it overlook, any scenic corridor or aesthetic view plain.

Archaeological and Cultural Resources

44. An archaeological survey of the Property indicates that no archaeological surface remains or other significant cultural activities occur on the Property. The HPD-DLNR has concluded that the Project will have "no effect" on significant historic sites.

ADEQUACY OF PUBLIC FACILITIES AND UTILITIES

Highways and Roadway Facilities

45. A new permanent access road will provide access to the Project from Maunaloa Highway. The Applicant will obtain a road easement from the landowner, Molokai Ranch, Limited. The new access road is not a part of this Permit and will remain in the State Land Use Agricultural District.

Drainage

46. Manawainui Gulch, located 0.3 miles north of the Property, is a natural receptor for severe flooding or surface runoff in storms of 50-100 year event magnitude.

47. The Property and surrounding area are traditionally dry and arid. Therefore, the Property does not lend itself to local flooding conditions.

48. The Project will generate short-term fugitive dust which would exceed State standards. Mitigation measures will be incorporated by the Applicant into the operation of the Project.

Noise

49. Short-term noise is anticipated during the construction phase of the Project. It is estimated that the noise from the operation of the Project would not go beyond the boundaries of the Property. Mitigation measures will be incorporated by the Applicant in the operation of the Project.

Water

50. The Property is not serviced by the DWS. DWS has commented that the Applicant will be required to sign a private water system agreement and to demonstrate that adequate water for fire protection and other uses can be provided.

Electricity/Telephone Service

51. MECO has commented that additional information is required to determine electricity needs for the Project in a timely manner.

52. The Permit does not address the need for telephone service for the Project.

CONFORMANCE WITH SPECIAL USE PERMIT TESTS

53. The Planning Department, in its staff report to the Planning Commission dated January 27, 1993, provided the following comments related to the Permit's conformance with the

guidelines for "unusual and reasonable use" authorized by a Special Use Permit under Section 15-15-95(b) of the Commission's Rules:

(1) The use shall not be contrary to the objectives sought to be accomplished by Chapters 205 and 205A, Hawaii Revised Statutes, as amended, and the rules of the State Land Use Commission.

43. The objective of the State Land Use Law is "to preserve, protect, and encourage the development of lands on the State for those uses to which these lands are best suited in the interest of the public health and welfare of the people of the State of Hawaii.

44. The proposed project relates to the following policies in the 1990 Maui County General Plan Update (Liquid and Solid Waste, p. 11):

a. Explore new waste disposal methods that are safe, economical, environmentally sound, and aesthetically pleasing, and that minimize the disposal of wastes in landfills.
d. Develop comprehensive and publicly acceptable methods of recycling solid and liquid waste.
e. Encourage and promote public awareness to reduce, reuse, recycle, and compost waste materials."

45. The Special Use Permit policy in the Molokai Community Plan states that "Special Permits in the State Agricultural and Rural Districts may be approved only: ... (2) to permit a public facility use such as a sanitary landfill, sewer treatment plant, or utility installation whose location is determined by technical considerations....

The subject property is for a sanitary landfill whose location (sic) is determined by technical considerations as the County needs to comply with the new EPA standards for landfills.

46. The population of the island is expected to grow from 6,800 in 1990 to 10,000 in 2000 and 12,000 in 2010.

47. From Maunaloa Highway, the landfill site is not fully visible to the passing motorist, although a limited portion of the site can be seen from the highway. As it is sited, the landfill is not part of nor(sic) does it overlook any scenic corridor or aesthetic view plane.

48. The project will have "no effect" on significant historic sites.

49. Other landfills such as the Central Maui Landfill have been approved by the Land Use Commission Special Use Permit process.

(2) The desired use would not adversely affect surrounding property.

50. The project site is located adjacent to an active rock and aggregate quarry operation. Noise from the quarry operations is an occasional disturbance. The landfill is surrounded by open range.

51. Mitigative measures will be utilized during the construction phase to curb the impacts from noise and fugitive dust.

52. Leachate migration and other landfill related impacts will be designed so as to prevent infiltration or percolation into the basal aquifer. Mitigative measures will include reducing the total daily tonnage placed in the landfill by recycling and composting of selected material to no greater than 20 tons/day and using a lysimeter as a monitoring mechanism.

53. The project is located in Zone C, an area of minimal flooding.

(3) The use would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage and school improvements, and police and fire protection.

54. The project is a means of upgrading the Molokai infrastructure and comply with federal requirements.

55. The applicant's response comments have adequately addressed the concerns of the Department of Transportation.

56. More specific information needs to be provided to the Maui Fire Department on the types of materials to be stored and recycled so that the project can be more fully analyzed as far as fire protection is concerned.

57. Maui Electric Company needs more detailed information on the project.

(4) Unusual conditions, trends, and needs have arisen since the district boundaries and rules were established.

58. The existing Kalamaula landfill is at capacity with no expansion capability. The federal standards regarding landfills have become more stringent.

(5) The land upon which the use is sought is unsuited for the uses permitted within the district.

59. The project site has a Land Study Bureau detailed land classification overall productivity rating of E, Poor suitability for most agricultural uses.

PLANNING COMMISSION RECOMMENDATION

54. At its meeting of January 27, 1993, the Planning Commission recommended approval of the Permit to the LUC, subject to the following conditions:

1. That appropriate monitoring of the quality of water to be discharged into neighboring gulches from drainage basins shall be undertaken to assure that toxic wastes are not part of the discharge.

2. That in preparation of the sanitary landfill, the landfill floor shall be further compacted and be made relatively impervious to water in order to contain leachates. Proper disposal methods of leachates shall be installed within the landfill.

3. That a traffic assessment shall be developed to determine the impact on Maunaloa Highway once the sanitary landfill is operating. This assessment shall be completed no later than one year after said landfill is in operation. Findings of the assessment shall be submitted to the State Department of Transportation, Highways Division and the Maui County Planning Department for review.

4. That the applicant shall stop work on the sanitary landfill and immediately contact the Department of Land and Natural Resources, Historic Sites Division, in the event that any previously unidentified historic, archaeological, or cultural sites are encountered.

5. That appropriate internal vehicle circulation patterns shall be designed so as not to cause confusion and congestion within the sanitary landfill.

6. That full compliance with the requirements of the State's Department of Health for sanitary landfill operation shall be rendered.

7. That appropriate rules shall be established to prohibit scavenging within the sanitary landfill operation shall be rendered.

8. That appropriate mitigative measures to control excessive dust generation shall be implemented.

9. That provisions shall be enacted to ensure emergency access to the sanitary landfill in case of fire or any other disaster.

10. That final architectural and landscape planting plans be submitted to the Planning Department for review and approval.

11. That full compliance with other applicable government requirements shall be rendered.

12. That alternative No. 3 of the geomembrane liner as found in the January 4, 1993 memo from Parametrix, Inc. to Dave Wissmar shall be used for Phase 1 of the project.

CONCLUSIONS OF LAW

The Special Permit request to allow establishment and operation of an integrated solid waste facility for the island of Molokai constitutes an "unusual and reasonable" use as defined in Section 205-6, Hawaii Revised Statutes, and the proposed use is not contrary to the objectives sought to be accomplished by the State Land Use Law to preserve, protect, and encourage development of lands in the State for those uses to which they are best suited in the interest of the public health and welfare.

ORDER

IT IS HEREBY ORDERED that the Special Permit Docket No. SP93-383 to allow establishment and operation of an integrated solid waste facility on approximately 37.9 acres of land designated within the State Land Use Agricultural District, Tax Map Key No.: 5-2- 11: portion of 27 at Naiwa, Molokai, and approximately identified on "Exhibit A" attached hereto and incorporated by reference herein, is hereby approved and subject to the following conditions:

1. That appropriate monitoring of the quality of water to be discharged into neighboring gulches from drainage basins shall be undertaken to assure that toxic wastes are not part of the discharge.

2. That in preparation of the sanitary landfill, the landfill floor shall be further compacted and be made

relatively impervious to water in order to contain leachates. Proper disposal methods of leachates shall be installed within the landfill.

3. That a traffic assessment shall be developed to determine the impact on Maunaloa Highway once the sanitary landfill is operating. This assessment shall be completed no later than one year after said landfill is in operation. Findings of the assessment shall be submitted to the State Department of Transportation, Highways Division, and the Maui County Planning Department for review.

4. That the applicant shall stop work on the sanitary landfill and immediately contact the Department of Land and Natural Resources, Historic Sites Division, in the event that any previously unidentified historic, archaeological, or cultural sites are encountered.

5. That appropriate internal vehicle circulation patterns shall be designed so as not to cause confusion and congestion within the sanitary landfill.

6. That full compliance with the requirements of the State's Department of Health for sanitary landfill operation shall be rendered.

7. That appropriate rules shall be established to prohibit scavenging within the sanitary landfill operation.

8. That appropriate mitigative measures to control excessive dust generation shall be implemented.

9. That provisions shall be enacted to ensure emergency access to the sanitary landfill in case of fire or any other disaster.

10. That final architectural and landscape planting plans be submitted to the Planning Department for review and approval. Upon approval by the Planning Department, a copy of the plans shall be submitted to the Land Use Commission.

11. That full compliance with other applicable government requirements shall be rendered.

12. That alternative No. 3 of the geomembrane liner as found in the January 4, 1993 memo from Parametrix, Inc. to Dave Wissmar shall be used for Phase 1 of the project.

13. The Applicant shall provide the County of Maui Planning Department and the Land Use Commission copies of the final approved metes and bounds map and description delineating the Permit Area of approximately 37.9 acres.

14. The Applicant shall commence operations of the Molokai Integrated Solid Waste Facility no later than six months from the date of filing of this Decision and Order by the Land Use Commission.

15. The Applicant shall provide annual reports to the County of Maui Planning Department and the Land Use Commission in connection with the status of the subject project and the Applicant's progress in complying with the conditions imposed herein.

Done at Honolulu, Hawaii, this 14th day of May 1993, per motions on April 23, 1993 and May 13, 1993.

LAND USE COMMISSION
STATE OF HAWAII

By _____
ALLEN Y. KAJIOKA
Chairman and Commissioner

By _____
KAREN S. AHN
Vice Chairman and Commissioner

By _____
JOANN N. MATTSON
Vice Chairman and Commissioner

By _____
ALLEN K. HOE
Commissioner

By (absent)
EUSEBIO LAPENIA, JR.
Commissioner

By _____
RENTON L. K. NIP
Commissioner

By _____
TRUDY K. SENDA
Commissioner

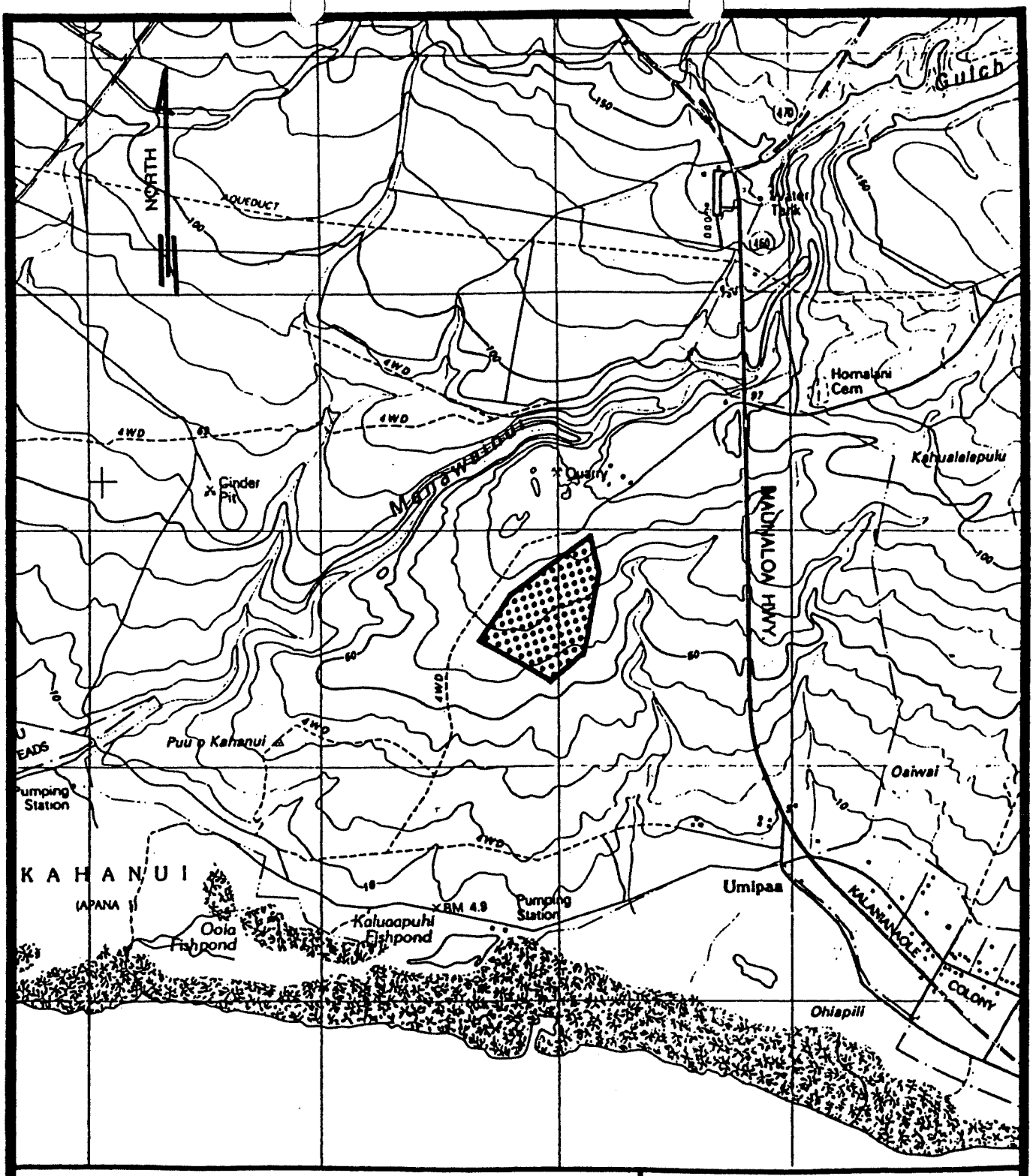
By _____
ELTON WADA
Commissioner

By _____
DELMOND J. H. WON
Commissioner

Filed and effective on
May 14, 1993

Certified by:

_____
Executive Officer



DOCKET NO. SP93 - 383 / DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI

LOCATION MAP

TAX MAP KEY: 5 - 2 - 11: por. 27

NAIWA, MOLOKAI, HAWAII

APPROVED AREA

SCALE: 1" = 2,000 ft. ±

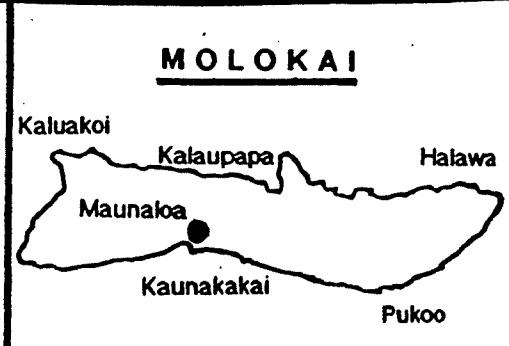


EXHIBIT "A"

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI For a Special Permit to Establish an Integrated Solid Waste Facility on Approximately 37.9 Acres of Land Situated Within the State Land Use Agricultural District at Naiwa, Molokai, Tax Map Key Number: 5-2-11: Portion of 27	DOCKET NO. SP93-383 DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Findings of Fact, Conclusions of Law, and Decision and Order was served upon the following by either hand delivery or depositing the same in the U. S. Postal Service by certified mail:

CERT. BRIAN MISKAE, Planning Director
Planning Department, County of Maui
250 South High Street
Wailuku, Hawaii 96793

CERT. GUY A. HAYWOOD, ESQ.
Corporation Counsel
Office of the Corporation Counsel
County of Maui
200 South High Street
Wailuku, Hawaii 96793

CERT. GEORGE KAYA, Director
Department of Public Works
County of Maui
200 South High Street
Wailuku, Hawaii 96793

DATED: Honolulu, Hawaii, this 14th day of May 1993.

ESTHER UEDA
Executive Officer

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI For a Special Permit to Establish an Integrated Solid Waste Facility on Approximately 37.9 Acres of Land Situated Within the State Land Use Agricultural District at Naiwa, Molokai, Tax Map Key Number: 5-2-11: Portion of 27	DOCKET NO. SP93-383 ORDER GRANTING REQUEST FOR TIME EXTENSION OF CONDITION NO. 3

This is to certify that this is a true and correct copy of the document on file in the office of the State Land Use Commission, Honolulu, Hawaii.

MAR - 1 1995 by _____
Date Executive Officer

ORDER GRANTING REQUEST FOR TIME EXTENSION OF CONDITION NO. 3

LAND USE COMMISSION
STATE OF HAWAII
MAR 1 10 00 AM '95

Post-it™ Fax Note 7671	Date 3/7/95 # of pages ▶ 6
To ANDY HIROSE	From KATHY YONAMINE
Co./Dept. SWD COUNTY	Co. LUC
Phone # 243-7875	Phone # 987-3822
Fax # 243-7843	Fax #

APPENDIX

D

1990 BOTANICAL SURVEY

BOTANICAL SURVEY
MOLOKA'I SANITARY LANDFI

by

Winona P. Char

CHAR & ASSOCIATES
Botanical/Environmental Consulta
Honolulu, Hawai'i

Prepared for: COUNTY OF MAUI

December 1990

INTRODUCTION

The proposed Moloka'i Sanitary Landfill is located south of an existing quarry and to the west of Kamehameha V Highway (Highway 460). The proposed project includes a 40-foot wide access road, approximately 2,200 ft. long. The landfill site will cover roughly 57 acres. The first increment will cover 14 acres; later expansion will include ±43 acres. Elevation ranges from about 50 ft. along the southwestern corner of the landfill site to about 90 ft. along a portion of the access road. The road alignment and landfill site have already been flagged and staked by the County.

Field studies to assess the botanical resources found on the proposed landfill site and along the access road were conducted on 05 December 1990 by two botanists. The primary objectives of the survey were to 1) describe the general vegetation; 2) inventory the vascular plant species; and 3) search for threatened and endangered plants protected by Federal and/or State laws.

SURVEY METHODS

Prior to undertaking the field studies, a search was made of the pertinent literature to familiarize the principal investigator with other botanical studies conducted in the general area. Recent topographic maps were examined to determine terrain characteristics, access, boundaries and reference points.

Access was from the nearby quarry road which, for the most part, runs parallel to the project's planned access road. The survey engineers had flagged the road alignment and landfill site prior

to our field studies.

A walk-through survey method was used. Plant identifications were made in the field; plants which could not be positively identified were collected for later determination in the herbarium (Univ. of Hawai'i, Manoa) and for comparison with the recent taxonomic literature. Notes were made on plant associations and distribution, substrate types, topography, exposure, etc.

The species recorded are indicative of the season ("rainy" vs. "dry") and the environmental conditions at the time of the survey. A survey taken at a different time and under varying environmental conditions would no doubt yield slight variations in the species checklist, especially of the weedy, annual taxa.

DESCRIPTION OF THE VEGETATION

Vegetation on the project site as well as the surrounding areas is dominated by two introduced or alien species, kiawe (Prosopis pallida) and buffel grass (Cenchrus ciliaris). However, from 30 to 50% of the ground is bare and the shallow topsoil has been eroded in many places, leaving weathered, soft bedrock exposed. Many rocks, about 4 to 6 inches in diameter, are found on the surface. Small, shallow gullies are common throughout the landfill site and the adjacent lands. The soils have been classified as "rVT2" -- very stony land, eroded (Foote et al. 1972).

On the landfill site, kiawe trees form an open woodland with tree cover about 30% and from 18 to 20 ft. high. Scattered koa-haole shrubs (Leucaena leucocephala) are also common. Buffel grass forms a mat up to 2 ft. high, becoming much denser under the trees and shrubs. Many of the weedy species associated with this kiawe/buffel grass vegetation type were still in the seedling stages at the time of the survey. Some of the more commonly occurring species found include red pualele (Emilia fosbergii),

pepper grass (Lepidium virginicum), smooth rattlepod (Crotalaria pallida), and wild bittermelon (Momordica charantia). A few mature plants of partridge pea (Chamaecrista nictitans), virgate mimosa (Desmanthus virgatus), and cow pea (Macroptilium lathyroides) also occur on the site.

Along the proposed road alignment, the vegetation is less dense with the kiawe trees scattered, about 10% cover, and with the buffel grass forming scattered clumps or tussocks. Bare eroded areas are more numerous along the road alignment. Common along this portion of the project site are small shrubs or subshrubs of 'ilima (Sida fallax) and 'uhaloa (Waltheria indica). A few scattered klu shrubs (Acacia farnesiana) are occasional. Where portions of the alignment come close to the quarry road, old equipment from quarrying operations as well as piles of soil and rock material are found.

DISCUSSION AND RECOMMENDATIONS

There is very little of botanical interest or concern on the project site as the vegetation is composed primarily of introduced plant species. Of a total of 21 species inventoried on the site, 17 (81%) are introduced or alien and 4 (19%) are indigenous, i.e. native to the Hawaiian Islands and elsewhere. No plants native only to the Hawaiian Islands (endemic) or originally of Polynesian introduction were found. No threatened or endangered plants were found or are known to occur on the site (U. S. Fish and Wildlife Service 1989, 1990). No sensitive native plant communities occur on the site.

The vegetation appears to have been grazed by cattle at one time as there were many very weathered "cow pies" throughout the site. Very old droppings from goat or axis deer were also found. Portions of the site nearest the quarry road have been bull dozed and disturbed at some time.

In summary, the proposed landfill and access road are not expected to have a significant negative impact on the botanical resources of the site as it is dominated by introduced plants. All of the species found on the site also occur in abundance or are common throughout the islands in similar environmental conditions.

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PLANT SPECIES CHECKLIST--Moloka'i Sanitary Landfill

The following is a checklist of the vascular plants inventoried during the field studies at the proposed project site. The plants are divided into two groups, Monocots, and Dicots. Within these groups, the species are presented taxonomically by family, with each family, and each species in the family, in alphabetical order. The taxonomy and nomenclature follow Wagner et al. (1990). In most cases, common English and/or Hawaiian names listed here have been taken from St. John (1973) or Porter (1972).

For each species, the following information is provided:

1. Scientific name with author citation.
2. Common English and/or Hawaiian name, when known.
3. Biogeographic status. The following symbols are used:

   I = Indigenous (native to Hawai'i as well as other geographic areas).

   X = Introduced or alien (not native, introduced to Hawai'i either accidentally or intentionally, after the advent of the Europeans.

FAMILY Species	Common Names	Status
MONOCOTS		
POACEAE (Grass Family)		
Cenchrus ciliaris L.	Buffel grass	X
Panicum maximum Jacq.	Guinea grass	X

FAMILY Species	Common Names	Status
DICOTS		
BRASSICACEAE (Mustard Family)		
Lepidium virginicum L.	pepper grass	X
ASTERACEAE (Sunflower Family)		
Emilia fosbergii Nicolson	red pualele, emilia	X
Tridax procumbens L.	coat buttons	X
Verbesina encelioides (Cav.) Benth. & Hook.	golden crownbeard	X
Xanthium strumarium L.	cocklebur	X
CUCURBITACEAE (Gourd Family)		
Momordica charantia L.	wild bittermelon	X
FABACEAE (Pea Family)		
Acacia farnesiana (L.) Willd.	klu	X
Alysicarpus vaginalis (L.) DC.	alysicarpus	X
Chamaecrista nictitans (L.) Moench	partridge pea, lau-ki	X
Crotalaria pallida Aiton	smooth rattlepod	X
Desmanthus virgatus (L.) Willd.	virgate mimosa	X
Leucaena leucocephala (Lam.) de Wit	koa haole, ekoa	X
Macroptilium lathyroides (L.) Urb.	cow pea	X
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	kiawe, mesquite	X
MALVACEAE (Mallow Family)		
Sida fallax Walp.	'ilima	I
NYCTAGINACEAE (Four-o'-Clock Family)		
Boerhavia cf. repens R. Br.	alena, nena	I
PHYTOLACCACEAE (Pokeweed Family)		
?Phytolacca octandra L.	Southern pokeberry	X
SOLANACEAE (Nightshade Family)		
Solanum americanum Mill.	black nightshade, popolo	I?
STERCULIACEAE (Cocoa Family)		
Waltheria indica L.	'uhaloa	I

APPENDIX E

1992 FIELD SURVEY OF THE AVIFAUNA AND FERAL MAMMALS

FIELD SURVEY OF THE AVIFAUNA AND FERAL MAMMALS FOR A PROPOSED NEW LANDFILL AT NAIWA, MOLOKAI

Prepared for
County of Maui
Department of Public Works

Phillip L. Bruner
Assistant Professor of Biology
Director, Museum of Natural History
Environmental consultant - Faunal (Bird and Mammal) Surveys

7 January 1991

EXHIBIT B

INTRODUCTION

The purpose of this report is to summarize the findings of a one day (3 January 1991) field survey of the birds and mammals found on or near a 49.590 acre site at Naiwa, Molokai (Fig.1). Also included are references to pertinent literature and unpublished observations of faunal activity on similar lands. Finally, the report discusses some possible changes that might occur in the faunal community given the scope of the proposed development.

The objectives of the field survey were to:

1- Document what bird and mammal species occur on the property or may likely be found given the type of habitats available.

2- Provide some baseline data on the relative abundance of each species.

3- Assess the possible changes in the faunal communities that might occur as a result of habitat alteration following the proposed development. In the event that any special or critical habitat resources exist on or near the property provide recommendations regarding their protection.

GENERAL SITE DESCRIPTION

The project site is located on approximately 49 acres at Naiwa, Molokai (Fig.1). The topography of the property is gently sloping with flat plateaus. The dominant tree in the area is Kiawe (Prosopis pallida) with an understory of grass and native plants such as Ilima (Sida spp.). The general appearance of the habitat is parkland (scattered trees and grass).

Weather during the field survey was cloudy and cool. Winds were light from the NNE.

STUDY METHODS

Field observations were made with the aid of binoculars and by listening for vocalizations. Attention was also paid to the presence of tracks and scats as indicators of bird and mammal activity. The entire site plus nearby lands were covered on foot. A total of 10 census stations (Fig.1,) were established and eight minute counts provide the basis for the population estimates given in this report. Between these count stations additional observations of birds were also kept. Literature resources (Pratt et al. 1987; Hawaii Audubon Society 1989 and reports of bird observations made in somewhat similar habitat (Bruner 1989a, 1989b, 1989c) were also consulted in order to acquire a more complete picture of the potential species that could occur at this site.

Observations of feral mammals were limited to visual sightings and evidence in the form of scats and tracks. No attempts were made to trap mammals in order to obtain data on their relative abundance and distribution.

Scientific names used herein follow those given in the most recent American Ornithologist's Union Checklist (A.O.U. 1983), Hawaii's Birds (Hawaii Audubon Society 1989), A Field Guide to the Birds of Hawaii and the Tropical Pacific (Pratt et al. 1987), Mammal Species of the World (Honacki et al. 1982) and Hawaiian Coastal Plants (Merlin 1980).

RESULTS AND DISCUSSION

Resident Endemic (Native) Birds:

No endemic species were recorded during the field survey. Pueo or Short-eared Owl (Asio flammeus sandwichensis) do occur in lowland habitats on Molokai and could potentially forage at this site (Bruner 1988c, Hawaii Audubon Society 1989). No other endemic species would be expected on this property.

Migratory Indigenous (Native) Birds:

Pacific Golden Plover (Pluvialis fulva) - Plovers prefer open areas for foraging such as mud flats, lawns and fields with short grasses. Prey items primarily include insects, crustaceans and a wide variety of other small invertebrates.

A total of three plover were recorded on the field survey. These birds were observed on the few open bare patches of ground or flying over the property. Johnson et al. (1981), Bruner (1983) and Johnson et al. (1989) have shown plover are extremely site-faithful on their wintering grounds (returning each day to the same spot and maintaining this behavior throughout their life time). Many plover also establish foraging territories which they defend vigorously. Such behavior makes it possible to acquire a fairly good estimate of the abundance of plover in any one area. These populations likewise remain relatively stable over many years (Johnson et al. 1989).

Ruddy Turnstone (Arenaria interpres) -
Ruddy Turnstone forage on lawns as well as in the intertidal zone. They typically occur in small flocks and are not known to be territorial but may exhibit some site-faithfulness tendencies (Fleisher 1985). Turnstone also compete with plover for many of the same types of prey. A total of five Ruddy Turnstone were recorded flying over the property.

No other migratory birds would likely be found with any regularity on or near this property. Coastal wetlands and intertidal areas makai of the site, however, support not only plover and turnstone but a variety of other shorebird and waterbird species (Hawaii Audubon Society 1989).

Seabirds:

No seabirds were observed. The presence of predators like the Small Indian Mongoose (Herpestes auropunctatus), feral cats and dogs as well as human disturbance prohibits this area from being suitable nesting habitat for seabirds.

Resident Indigenous (Native) Birds:

No resident indigenous species were recorded. Black-crowned Night Heron (Nycticorax nycticorax) occur on Molokai, but in wetland habitat.

Exotic (Introduced) Birds:

A total of 13 species of exotic birds were recorded during the field survey. Table One shows the relative abundance of these species. The most numerous were Black Francolin (Francolinus francolinus), Zebra Dove (Geopelia striata) and Red-crested Cardinal (Paroaria coronata).

Species recorded in similar habitat elsewhere on Molokai (Pratt et al. 1987; Hawaii Audubon Society 1989; Bruner 1989a, 1989b, 1989c) include: Barn Owl (Tyto alba), Nutmeg Mannikin (Lonchura punctulata), Warbling Silverbill (Lonchura malabarica), Eurasian Skylark (Alauda arvensis) and Japanese Bush-warbler (Cettia diphone).

Feral Mammals:

Two feral cats were seen and dog tracks were abundant. Rats and mice were not observed but undoubtedly occur on the property. A total of four Small Indian Mongoose were also recorded. Based on the number of tracks and scats Axis Deer (Axis axis) are fairly common in this area. Without a trapping program it is, however, difficult to conclude a great deal about the relative abundance of rats, mice, cats, dogs and deer. Their numbers probably are comparable to similar habitats elsewhere on Molokai.

Records of the endemic and endangered Hawaiian Hoary Bat (Lasiurus cinereus semotus) are sketchy but the species likely occurs on Molokai (Tomich 1986). Little is known of their natural history, distribution and ecological requirements. No bats were recorded on this project site despite evening observations.

CONCLUSION AND RECOMMENDATIONS

A brief survey can at best provide a limited perspective of the wildlife present in any given area. Not all species will necessarily be observed and information on their use of the site must be sketched together from brief observations and the available literature. The number of species and the relative abundance of each species may vary throughout the year due to available resources and reproductive success. Species which are migratory will quite

obviously be a part of the faunal community only at certain times during the year. Exotic species sometimes prosper for a time only to later disappear or become a less significant part of the ecosystem (Williams 1987). Thus long term studies can best provide the insights necessary to acquire both a broad view as well as a more definitive perspective of the bird and mammal populations in a particular area. However, when brief studies are coupled with data gathered from other similar habitats the value of the conclusions which are drawn is significantly increased.

In terms of broad conclusions related to bird and mammal activity on the project site the following are offered:

1- The property at present provides a limited range of habitats which are utilized by the typical array of exotic birds one would expect in this type of environment on Molokai. Development of the property as a landfill would effectively eliminate the site as a breeding habitat but some species would make use of the area for foraging. Cattle Egret (Bubulcus ibis), Common Myna (Acridotheres tristis), Spotted Dove (Streptopelia chinensis), Zebra Dove (Geopelia striata) and House Sparrow (Passer domesticus) are species which would be most likely to prosper as a result of a landfill at this site.

2- Migrant species particularly Pacific Golden Plover and to a lesser degree Ruddy Turnstone are usually benefited by the

kind of development that creates open spaces. The clearing of this property may provide some additional land that would be attractive to these species.

3- The endemic Hawaiian Owl forages in lowland open grasslands as well as in higher forested habitat. This species preys on rodents and may be attracted to this area if rat and mice populations increase.

4- Significant changes in the feral mammal population should occur as a result of development. Landfills generally attract not only rodents but mongooses, cats and dogs as well.

5- This site is not special or unique in the way of habitat resources essential to birds and mammals in this region of of the island. The only concern might be the effect of water contamination down slope at Ooia and Kaluaapuhi Fish ponds and surrounding wetlands. Care must be taken to prevent flooding of the landfill from reaching these waterbird habitats.

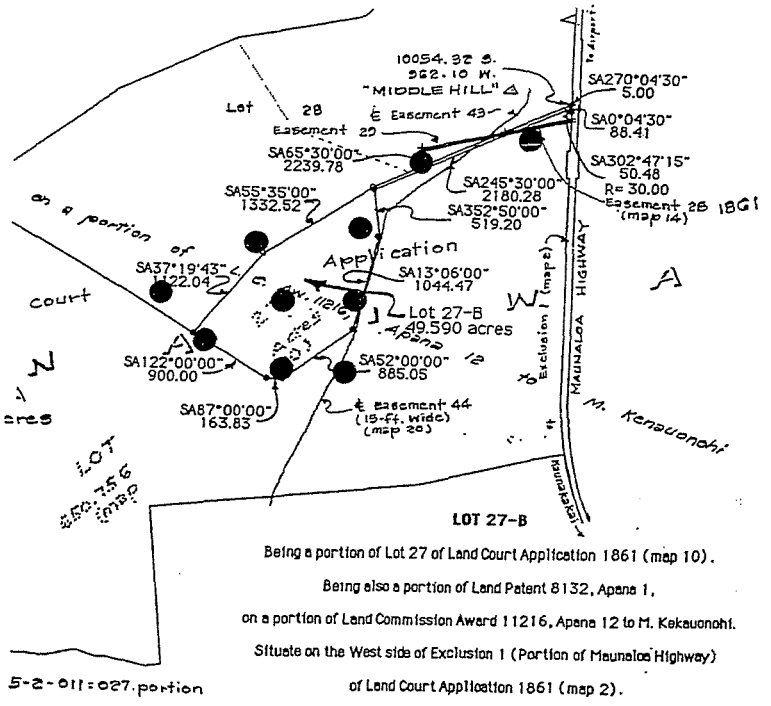

Fig. 1. Location of project site with faunal census stations marked by solid circles.

-11-

KEY TO TABLE 1

Relative abundance = Determined by frequency on 8 min. counts in appropriate habitat. Number which follows is average of all counts for that species in appropriate habitat.

A = abundant (ave. 10+)

C = common (ave. 5-10)

U = uncommon (ave. less than 5)

R = recorded but usually not on 8 min. counts (number which follows is total recorded over the entire duration of the field survey)

TABLE 1

Relative abundance of exotic birds recorded at Naiwa, Molokai.

COMMON NAME	SCIENTIFIC NAME	RELATIVE ABUNDANCE*
Cattle Egret	Bubulcus ibis	R = 200+ (seen flying over site)
Ring-necked Pheasant	Phasianus colchicus	R = 1
Gray Francolin	Francolinus pondicerianus	R = 6
Black Francolin	Francolinus francolinus	A = 12
Spotted Dove	Streptopelia chinensis	C = 6
Zebra Dove	Geopelia striata	A = 10
Common Myna	Acridotheres tristis	U = 4
Japanese White-eye	Zosterops japonicus	C = 9
Northern Cardinal	Cardinalis cardinalis	U = 4
Red-crested Cardinal	Paroaria coronata	A = 10
Northern Mockingbird	Mimus polyglottos	U = 2
House Finch	Carpodacus mexicanus	C = 6
House Sparrow	Passer domesticus	R = 4

* (see page 11 for key to symbols)

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APPENDIX

F

1992 ARCHAEOLOGICAL INVENTORY SURVEY

ASC92-10

ARCHAEOLOGICAL INVENTORY SURVEY OF THE MOLOKAI REFUSE DISPOSAL LANDFILL PROJECT NAIWA, MOLOKAI ISLAND (TMK 5-2-11:27 por)

by

Aki Sinoto
and
Jeffrey Pantaleo, M.A.

for

Parametrix, Inc.
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October 1992

Aki Sinoto Consulting
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Honolulu, Hawai'i 96826

INTRODUCTION

At the request of Parametrix, Inc., of Honolulu, Aki Sinoto Consulting of Honolulu, conducted an archaeological inventory survey of a 40 acre parcel of land in Naiwa, Molokai, that is slated for a refuse disposal landfill. The survey was conducted on September 10, 1992, by Jeffrey Pantaleo, Ronald Holt, and Tina Mangieri.

PROJECT AREA

The project area is located in the inland portion of Naiwa ahupua'a, Molokai Island (TMK 5-2-11:27 por)(Fig. 1). The project is bounded by a quarry to the north, an existing dirt road to the east, a gulch to the west, and an arbitrary boundary to the south.

ENVIRONMENT

The majority of the project area is located on gently sloping terrain surrounded by intermittent gulches. Elevation of the project area ranges from 50 to 100 ft (15 to 30 m) above sea level. Rainfall in the project area averages 10 to 20 inches a year, with most of the precipitation occurring during the winter months between November and April.

Vegetation in the project area is dominated by pili grass (Heteropogon contortus) and Kiawe (Prosopis pallida), and isolated stands of wiliwili (Erythrina sandwicensis) and Koa haole (Leucaena glauca).

Soil in the project area is Holomua Silt Loam, which occurs on 3 to 7% slopes in upland areas and is well-drained and severely eroded. These soils, used for pasture, pineapple, truck crops, and wildlife habitat, were developed from volcanic ash and material weathered from andesite rock. Runoff is slow to moderate and erosion hazard is moderate.

PREVIOUS ARCHAEOLOGY

According to Summers (1971), no known archaeological sites exist in the inland portions of Naiwa ahupua'a; however, several sites exist on the coastal areas of Naiwa ahupua'a, including State Site 50-60-03-104, Kaluaapuhi fishpond that is presently silted-in; State Site 50-60-03-106, petroglyphs; State Site 50-60-03-107,

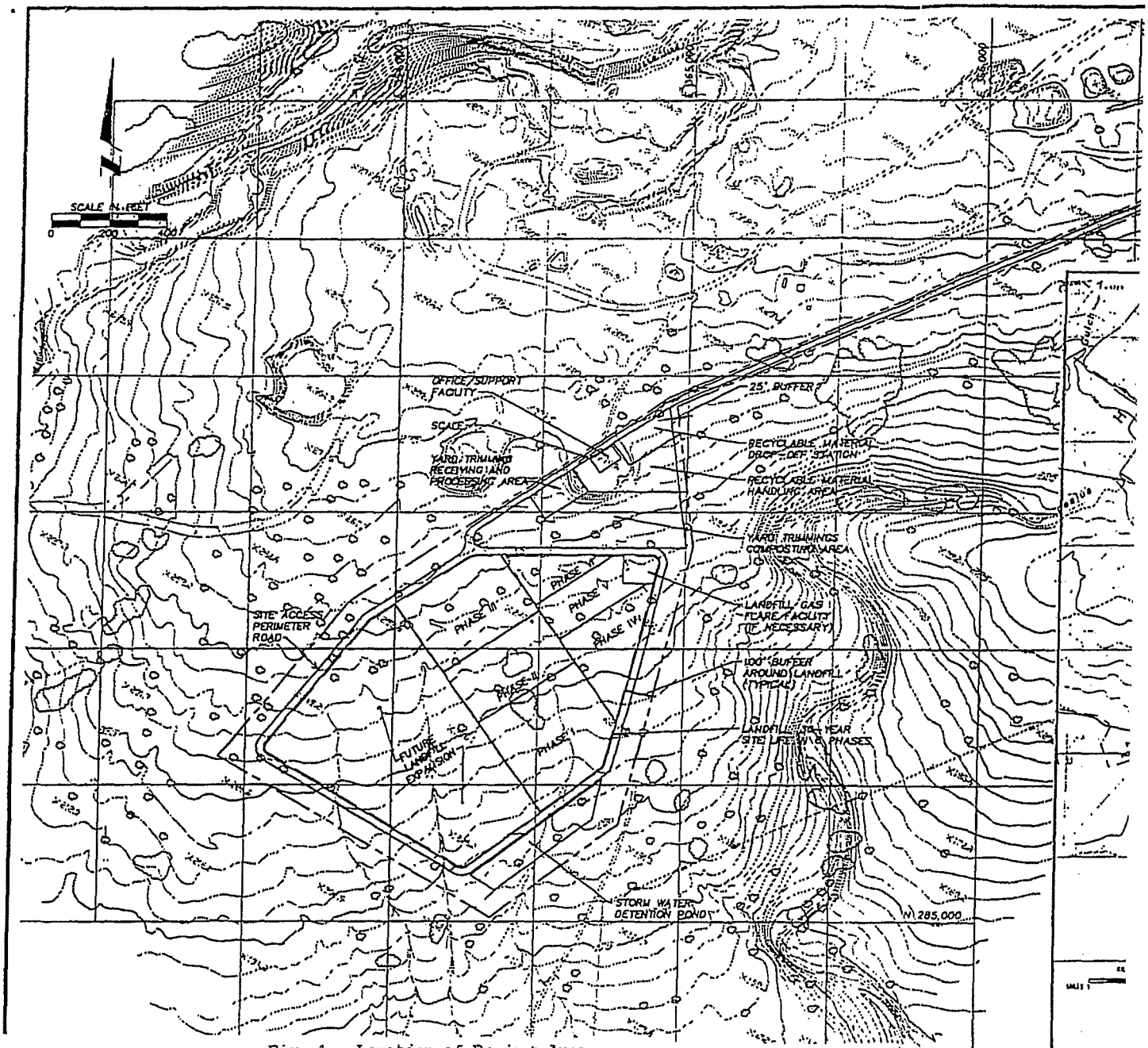
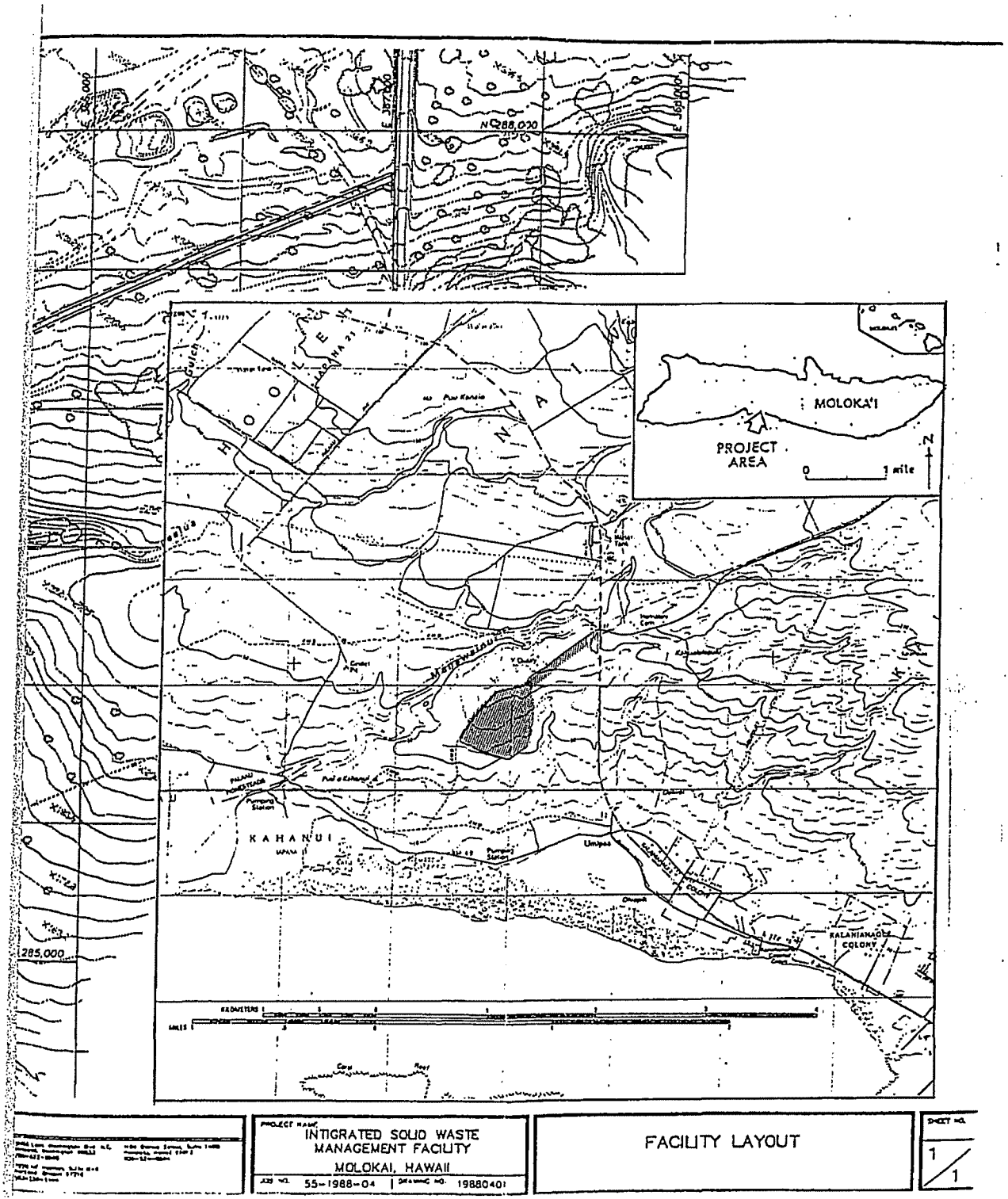


Fig. 1. Location of Project Area.



PROJECT NAME: INTIGRATED SOLID WASTE MANAGEMENT FACILITY
MOLOKAI, HAWAII
JOB NO. 55-1988-04 | DRAWING NO. 19880401

FACILITY LAYOUT

SHEET NO. 1/1

a holua slide at Kualapu'u; State Site 50-60-03-108, Kalakupale or Palakupale heiau; and Piliwale heiau, which was reported by native Hawaiians but not found.

Recently, archaeological investigations have concentrated in coastal areas of southwest Molokai and selected areas inland. No archaeological surveys have been undertaken within the subject project area.

In 1980, an archaeological reconnaissance survey was conducted for the proposed Molokai Electric Facility in Naiwa, Molokai (TMK 5-2-11:7). The project area, approximately 50 acres, was extensively disturbed by agricultural activities. Previously identified sites located in and nearby the project area include State Site 50-60-03-104, Kaluaapuhi Fishpond, and State Site 50-60-03-106, petroglyphs. One additional site recorded in the project area included an enclosure with associated midden.

Hommon and Ahlo (1983) conducted an archaeological survey of selected lands for the Pacific Division, Naval Facilities Engineering Command military training area in Kalama'ula, Kapa'akea, Kamiloloa, and Makakupaia (TMK 5-2-10:1; 5-4-03:3). Survey Area 1A, 2950 acres, is located adjacent to the west of the subject project area. Archaeological sites recorded in Area 1A included State Site 50-60-03-904, a cairn; State Site 50-60-03-905, a wall probably related to military activities; State Site 50-60-03-906, a rock alignment probably related to ranching activities; State Site 50-60-03-907, a recently excavated ditch; and State Site 50-60-03-908, a rock alignment probably related to military activities. Based on the criteria of the National Register of Historic Places, these sites were evaluated to be not significant. Results of the study indicated prehistoric land use focused on exploitation of marine resources supplemented by irrigated agriculture along stream bottoms and near spring outlets along the coast. Dryland agriculture, such as sweet potato, was evident along the slopes above the coastal plain.

Tomonari-Tuggle (1983) conducted an archaeological reconnaissance survey of a waterline corridor in the ahupua'a of Kalama'ula for the Department of Hawaiian Home Lands, DHHL. Archaeological sites recorded in the project area included State Site 50-60-03-800, a complex of walls, terraces, and cairns probably related to agricultural activities; State Site 50-60-03-801, seven cairns and a wall; and State Site 50-60-03-802, a cobble-filled, boulder-faced wall probably related to ranching

activities. Results of test excavations at Site 50-60-03-800 suggested a brief, single event occupation as early as A.D. 1200, with more intensive occupation beginning by A.D. 1400.

Athens (1985) conducted an archaeological investigation at the inland site on the leeward slopes of Central Molokai for the Hawaiian Home Lands, DHHL. Based on results from excavations and previous archaeological studies, Athens theorized a more complex settlement pattern for leeward Molokai. Athens suggested that occupation of the Kalama'ula area began at least 200-300 years prior to the dominant Kawela pattern, and that the area was visited 500 years before then (Athens 1985:98). Athens supports his theory by using available dates from State Site 50-60-03-800, 400 +/- 60 BP, 1000 +/- 60 BP, and 300 +/- 60 BP, and radiocarbon dates from a coastal hearth feature in Kaunakakai, 710 +/- 50 BP, and a coastal dune site at Kawela, 290 +/- 60 BP.

Griffin (1988) conducted a field inspection of the Kalama'ula Subdivision in Kamiloloa (east) and Makakupaia (west) for Hawaiian Home Lands, DHHL (TMK 5-2-10:1 por; 5-4-03:3 and 31 por). Results of the survey relocated previously recorded sites (904 and 906) by Hommon in 1983. Due to the absence of ground cover that exposed most of the surface, attention was concentrated in gulches.

Weisler (1989a) conducted an archaeological survey and excavation on approximately 115 acres mauka of Kaunakakai between the 130 to 250 ft. elevations. Results of the study suggested extensive dryland agricultural activities. Radiocarbon analysis suggested occupation occurred between A.D. 1200 to A.D. 1400.

Cleghorn and Pantaleo (1989 in prep.) conducted an archaeological surface survey along the southwest coast of Molokai for On-site Energy Company. The survey identified numerous sites along the coastal areas including ko'a and habitation and agricultural features. Inland portions of the project area indicated a sharp decrease in the number of sites, and those present are primarily related to agricultural activities.

Tomonari-Tuggle (1990) conducted an archaeological inventory survey of a portion of Kalama'ula ahupua'a for the Department of Hawaiian Home Lands, DHHL. Results of the survey identified 54 archaeological sites, 16 of which were tested. Types of sites

recorded include terraces, mounds, enclosures, rock shelters, ahu, and a modified cavity in a rock pile. Results of excavations revealed subsurface features including pits, marine shell, charcoal, ash lens, postholes, and hearths.

LAND USE HISTORY

Examination of historical records and documents at the State Department of Land and Natural Resources and the Survey Division of the Department of Accounting and General Services in Honolulu revealed only one Land Commission Award (L.C.A. 11216:12) within the subject project area.

Little mention is made of Naiwa ahupua'a during the historic period. L.C.A. 11216, apana 12, was awarded to Kekauonohi on June 19, 1852, for $15.00, but no indication of land use was mentioned. Historic documentation indicates only isolated houses and sweet potato cultivation in the inland areas, which was suitable for dryland agriculture. In the early 1900's, the project area was leased to Molokai Ranch, Ltd., followed by a lease to the Del Monte Corporation.

Currently, the project area is used for hunting deer and wild fowl and quarrying activities. A filled-in quarry is located along the southwest area of the project area (Fig. 2). This quarry was abandoned and filled-in in the 1970's. An existing quarry is located outside of the northern boundary of the project area (Fig. 3).

SETTLEMENT PATTERN

The minimal existing data obtained through historical and archaeological research regarding traditional Hawaiian land use suggests that the settlement pattern of Naiwa ahupua'a consisted primarily of permanent occupation along the coastal area. This area would have been most favorable for supporting early settlements, evident from the numerous fishponds, heiau, ko'a, and habitation features. According to Kirch (1971), early settlements occurred on coastal leeward areas in order to exploit the marine resources. Later expansion into the inland areas occurred when dryland agriculture, such as sweet potato, intensified. The absence of any habitation complexes or intensive agricultural modifications in the inland portions of leeward Molokai indicated low intensity use of these areas and suggests a greater importance for marine resource exploitation. This type of settlement pattern; low intensity occupation along the coastal areas, primarily near fishponds, and low intensity agricultural activities in the inland portions, evident from isolated



Fig. 2. Filled-in Quarry Located in Southwest Area of Project Area. View to East.



Fig. 3. Quarry Located North and Adjacent to the North End of Project Area. View to Southeast.

features and minimal historical content; appears to be consistent for the Naiwa ahupua'a. Results of recent studies in the region, including Cleghorn and Pantaleo (1989 in prep.), Griffin (1988), Hommon and Ahlo (1983), Summers (1970), Tomonari-Tuggle (1983, 1990), and Weisler (1989a); support this type of settlement pattern.

SITE EXPECTABILITY

Kirch (1971), Riley (1975), Kirch and Kelly (1975), and Weisler and Kirch (1982), suggest that earliest occupation on Molokai occurred in windward areas where available water resources enabled cultivation of wetland taro. Early settlements also occurred on coastal leeward areas in order to exploit marine resources available from fishponds. Later settlement occurred in the inland areas when dryland agricultural techniques were innovated and population increased.

Athens (1985) challenged these previous theories by indicating that a more complex settlement pattern occurred in the inland portions of Molokai. Athens stated that the less favorable leeward coastal areas were utilized by early Hawaiians for exploitation of marine resources. Based on radiocarbon dates obtained through excavations, Athens suggested that occupation of the Kalama'ula area began at least 200-300 years prior to the dominant Kawela pattern, and may have been visited for more than 500 years prior to permanent occupation.

Based on previous archaeological and historical information, sites expected in the project area include features related to agricultural, ranching, and military activities. These features may include rock mounds, terraces, walls, alignments, and cairns. Due to extensive historic and recent ranching, military, and quarrying activities, the probability of extant prehistoric sites is low.

METHODS

The survey involved walking systematic transects through the project area. Since ground visibility was generally clear of vegetation, transects were 5-10 meters apart. Due to extensive disturbances in the project area, exposed cut banks and the gulch east and adjacent to the project area were inspected to locate potential subsurface deposits or features. Standard archaeological procedures were followed. Black and white photographs were taken of the project area that show land alterations and vegetation.

RESULTS OF SURVEY

No archaeological surface remains or other evidence of any significant cultural activities were encountered in the project area. During the survey, it was observed that the north and west areas of the project area were extensively disturbed by quarrying related activities. A low ridge located in the southwest area of the project area was quarried and later filled-in. Due to a brush fire in the Kaunakakai area approximately two years ago, secondary vegetation including pili grass (Heteropogon contortus) and Kiawe (Prosopis pallida) was scant (Figs. 4 and 5). This enabled easy access throughout the project area. Based upon the absence of surface cultural remains and extensive disturbance of the project area from quarrying and military activities, subsurface testing was deemed unnecessary.

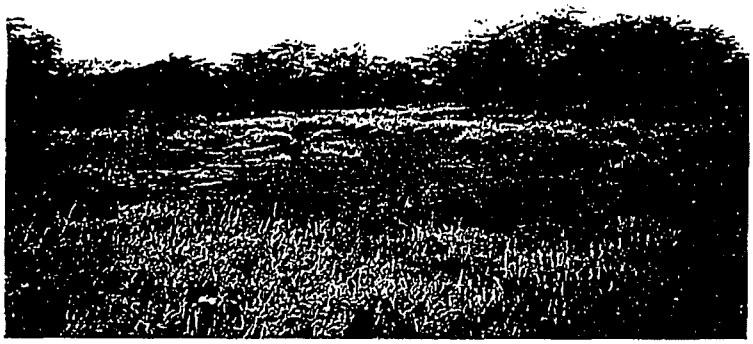


Fig. 4. Overview of Eastern Portion of Project Area. View to Southeast.



Fig. 5. Overview of Southeastern Portion of Project Area. View to Southeast.

DISCUSSION

The majority of the project area has undergone extensive disturbances through quarrying and military activities. Although the absence of prehistoric remains may be attributed to various land disturbances, other archaeological surveys in the area resulted in similar paucity of remains. This suggests that the outer fringes of the coastal zone in leeward Molokai were not favored for sedentary use prehistorically.

Results from previous archaeological studies and historical documentation for inland portions of Central Molokai indicate that early occupation occurred along coastal areas in order to exploit marine resources, and later expansion into inland areas occurred when dryland agricultural needs arose.

RECOMMENDATIONS

Due to the effects of compounded historical events including ranching, military, and quarrying activities, no further archaeological procedures are recommended prior to construction activities. Also, archaeological monitoring during construction is not recommended, due to the low probability of subsurface remains. If any unanticipated remains are exposed during land alteration activities, all work in the immediate area should be halted and Mrs. Annie Griffin, O'ahu staff archaeologist in charge of Maui County for the Historic Preservation Division, State Department of Land and Natural Resources, should be notified at 587-0014 (O'ahu).

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APPENDIX G

2018 ARCHAEOLOGICAL ASSESSMENT REPORT

SCS Project Number 2090 AA-1

AN ARCHAEOLOGICAL ASSESSMENT FOR THE MOLOKAI INTEGRATED SOLID WASTE MANAGEMENT FACILITY IMPROVEMENTS PROJECT

AT Nāʻiwa Ahupuaʻa, Kona District, Island of Molokaʻi [TMK: (2) 5-2-011:027 por.]

Prepared by:
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April 2018
DRAFT

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ABSTRACT

At the request of the State Historic Preservation Division (SHPD) in support of the Proposed Molokai Integrated Solid Waste Management Facility (MISWMF) Improvements Project, Archaeological Inventory Survey (AIS) was conducted at Moloka`i Landfill. The County of Maui, Department of Environmental Management proposes to establish and operate Phases 5 and 6 disposal cells and related improvements (approximately 10 acres) at the existing 38-acre permitted MISWMF. Under contract with planning consultant Munekiyo Hiraga, Scientific Consultant Services, Inc. (SCS) conducted an AIS for the 10-acre project area proposed for the Phases 5 and 6 development, located at Nā'iwa Ahupua'a, Kona District, Island of Moloka'i [TMK: (2) 5-2-011:027 por.] (Figures 1-3).

The County of Maui proposes improvements involving a 10-acre portion of the MISWMF. The AIS study was conducted to determine the presence/absence of archaeological sites and historic properties through pedestrian survey and representative subsurface testing. No historic properties were identified. Therefore, the documented findings are presented as an Archaeological Assessment (AA).

While the findings of the current study were negative for historic properties and significant cultural deposits, it is recommended that SHPD be consulted concerning any future ground altering work planned within the project area.

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INTRODUCTION

Scientific Consultant Services, Inc. (SCS) conducted archaeological inventory survey (AIS) for the Proposed Molokai Integrated Solid Waste Management Facility (MISWMF) Improvements Project on behalf of the County of Maui, Department of Environmental Management, Solid Waste Division. The State Historic Preservation Division (SHPD) requested for an AIS to conducted in support of the project, and under contract with planning consultant Munekiyo Hiraga, SCS conducted the current AIS for the approximately 10-acre project area proposed for the Phases 5 and 6 development and related improvements, located at Nā'iwa Ahupua'a, Kona District, Island of Moloka'i [TMK: (2) 5-2-011:027 por.] (Figures 1-3).

The County of Maui proposes to establish and operate Phases 5 and 6 disposal cells, comprising 10-acres of the existing 38-acre permitted MISWMF. Fieldwork involved full pedestrian survey and subsurface testing through the excavation of twelve stratigraphic trenches (ST-1 through ST-12) mechanically excavated by backhoe (see Figure 3). The results of a previous archaeological study in the current project area identified extensive disturbances attributed to military and quarrying activities and indicated a low potential for any historic properties to be present (Sinoto and Pantaleo 1992).

The objectives of the current AIS were to determine the presence/absence of archaeological sites and/or historic properties in surface and subsurface contexts through pedestrian (surface) survey and representative subsurface testing. Ultimately, the goals of the AIS study were to identify and document any historic properties present in the project area, to evaluate their function and age, to assess their significance in accordance criteria established for the Hawai'i State Register of Historic Places (HAR§13-275-6), and to provide appropriate mitigation recommendations. AIS field work was conducted on March 9, 2018 by SCS archaeologists Nigel T. Kingsbury, B.A., and Elizabeth Pestana, B.A., under the overall direction of Principal Investigator Michael F. Dega, Ph.D. The current AIS, involving pedestrian survey and subsurface testing, did not identify any historic properties, therefore the documented findings are presented as an Archaeological Assessment (AA), pursuant to HAR §13-276-5(a)/13-284-5(b)(5)(A).

The following text includes information on the project area environmental setting, traditional settlement patterns and Historic background, AIS/field work methods, and results of the current project.

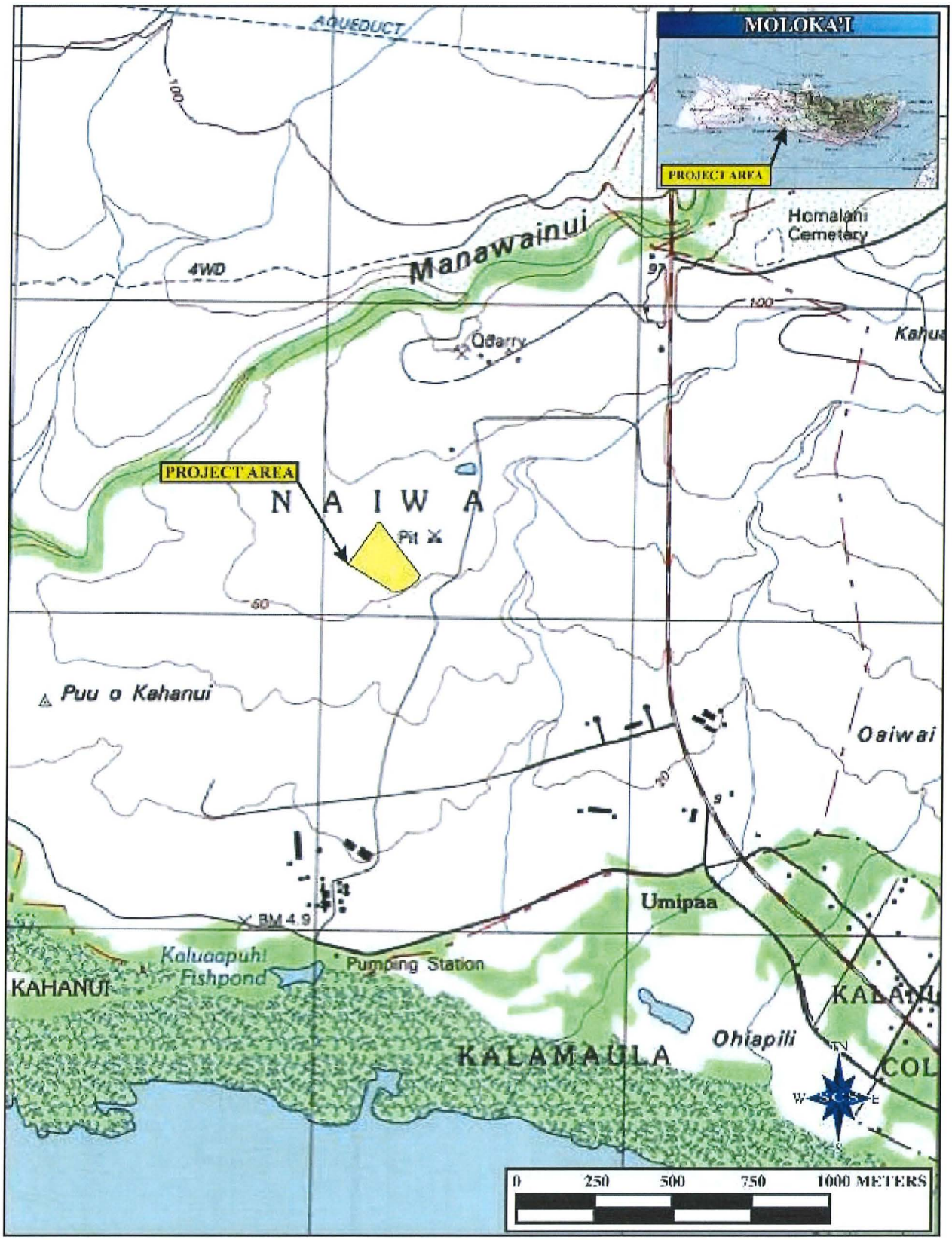

Figure 1: USGS (Kaunakakai) Quadrangle Map Portion Showing the Project Area (TOPO! 1999).

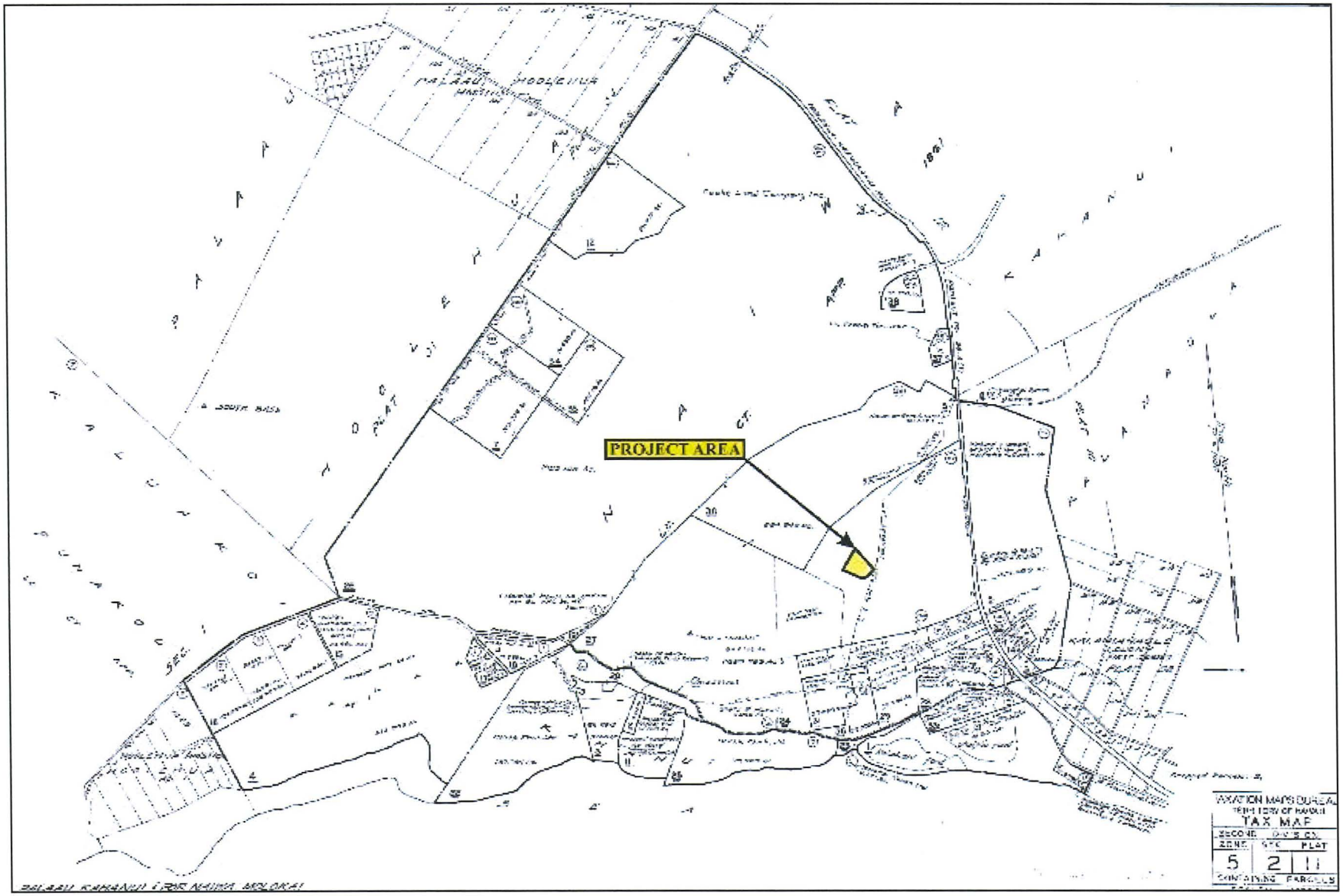

Figure 2: Tax Map Key [TMK: (2) 5-2-011:027 por.] Showing the Project Area.

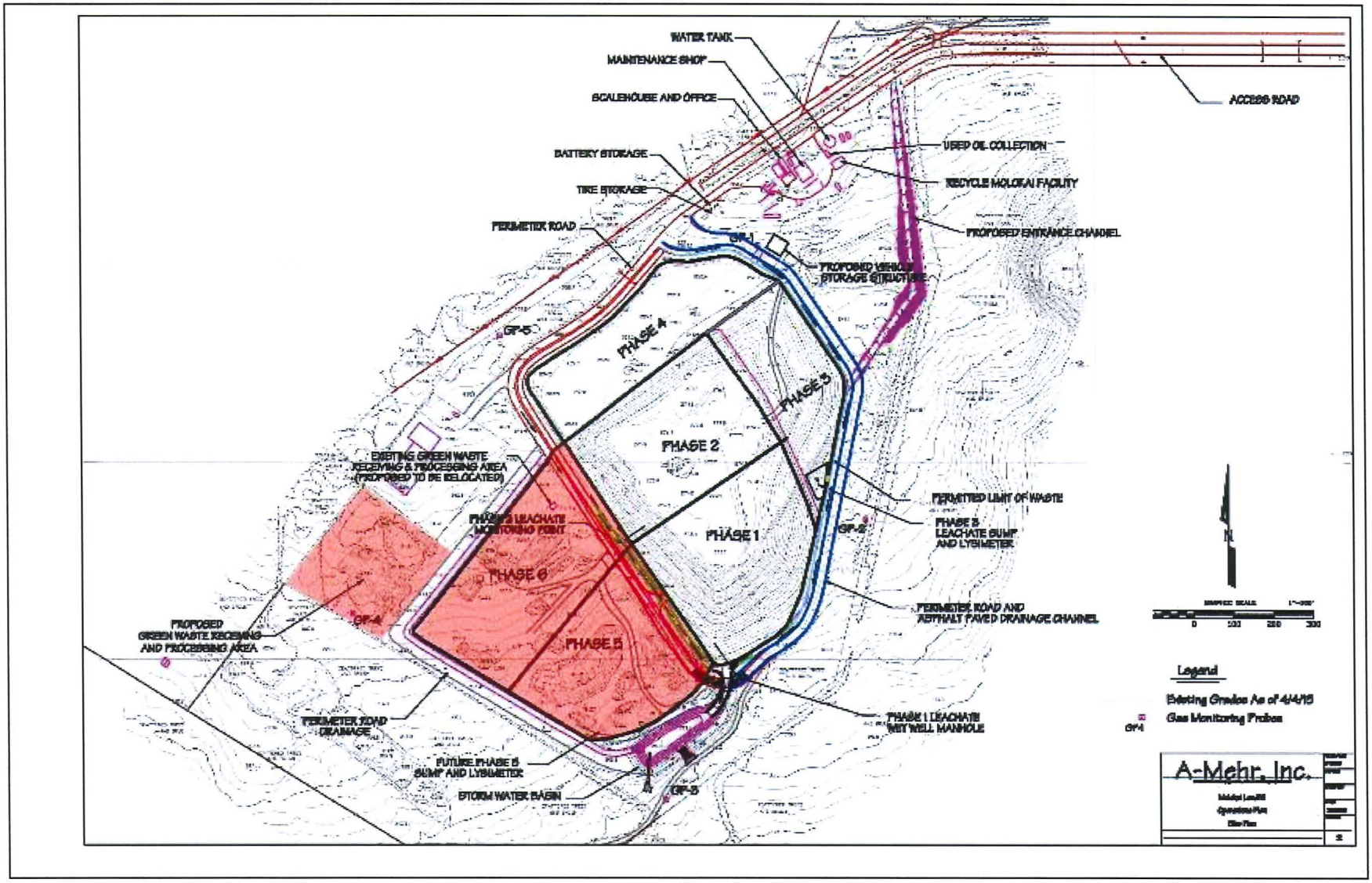

Figure 3: Project Engineer, A-Mehr, Inc., Site Plan Map Showing the Project Area [Highlighted Red (Phases 5 and 6 Disposal Cells and Proposed Green Waste Receiving and Processing Area)] (Provided by the Client).

ENVIRONMENTAL SETTING

CLIMATE AND HYDROLOGY

Temperatures within the project area environs range from the 50 to 90 degrees Fahrenheit in the winter months and from approximately 58 to 95 degrees Fahrenheit during the summer (Armstrong 1983:64).

The project area is located along the dry, leeward coast of the Island of Moloka'i. Temperatures According to the Rainfall Atlas of Hawai'i (Giambelluca *et al.* 2013), the project area receives approximately 456.1 millimeters (17.956 6 inches) of rainfall annually, with the majority of the rainfall occurring between the fall and spring months (November through April).

SOILS

According to Foote *et al.* (1972:Map Sheet 69), the project area is comprised of soils of the Very Stony Land Soil Series, specifically Very Stony Eroded Land (rVT2), and soils of the Molokai Series. The soils of the Molokai Series, specifically Molokai Silty Clay Loam, 3 to 7 percent slopes (Figure 4). The rVT2 lands are comprised of extensively eroded lands exhibiting 50 to 75 percent of the ground surface covered in boulders and cobbles. Soils within these lands are comparable to those of the Holomua, Molokai, Pamoa, and Waikapu soil types. Areas comprised of rTV2 soils are typically used as ranchlands (Foote *et al.* 1972:124).

CULTURAL HISTORICAL CONTEXT

Moloka'i has been referred to as "the land of plenty" (Tomonari-Tuggle 1990:9; Handy and Handy 1972: 515). Perhaps this is due to the abundance of easily accessible marine resources. The southern coast of Moloka'i is bordered by a fringing reef which facilitated the construction of "largest number of salt-water fishponds to be found on any single stretch of coast in the islands" (Handy and Handy 1972:515). Summers (1964:1) stated that "most of the [fishponds] are now in ruins or have been completely destroyed" and indicated that Moloka'i had a total of 58 fishponds, which included small, inland ponds.

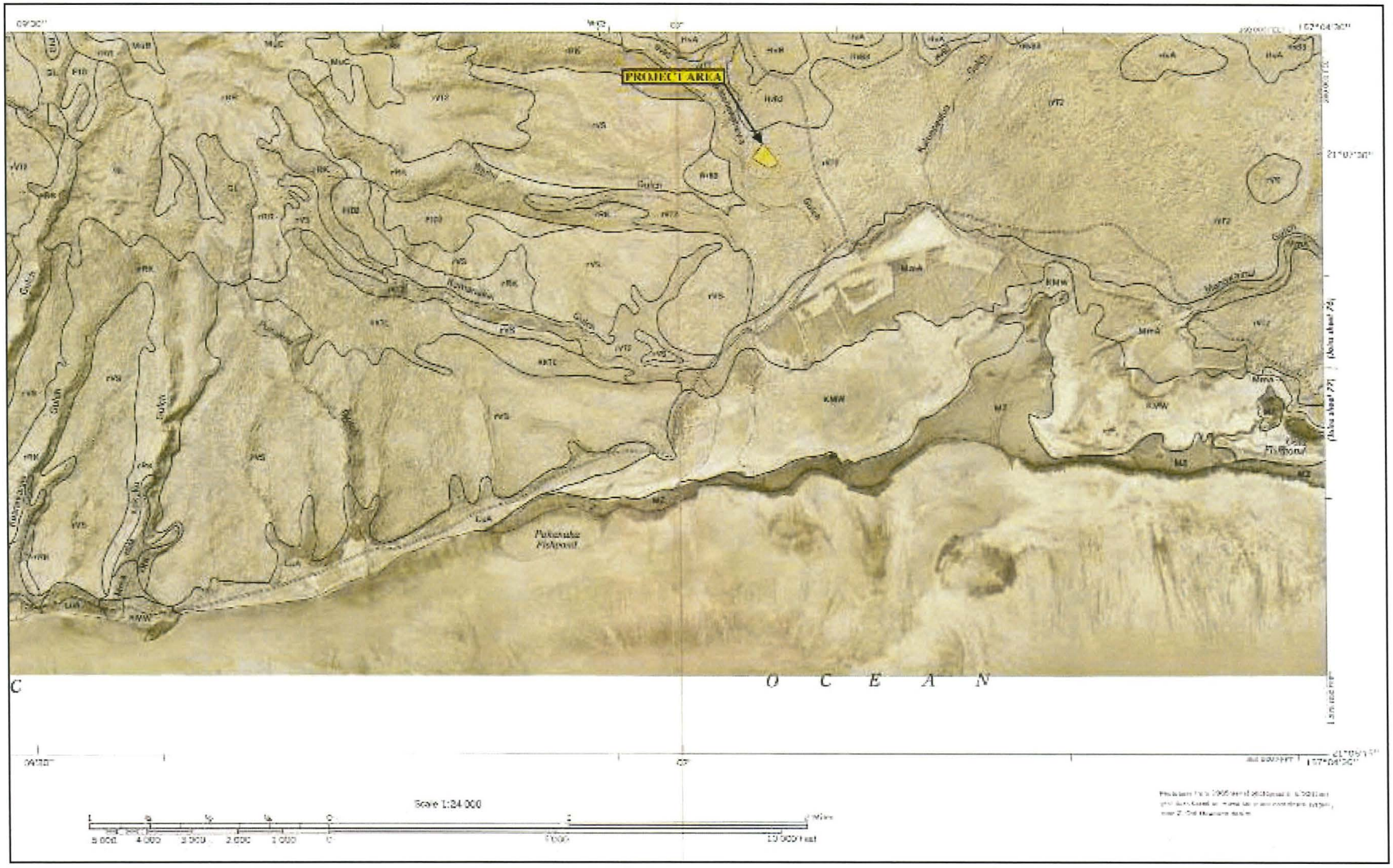

Figure 4. A Portion of Soils Map from Foote et al. (1972: Map 69) showing the soil type occurring within the project area, Highlighted in Yellow.

PAST POLITICAL BOUNDARIES

According to Summers (1971:2), before 1859, the island of Molokai was divided into two districts: the Ko'olau included the ahupua'a on the northern side of the island and remainder of the island was within Kona District. After, 1859, the island was made into one district, the Molokai District. In 1909, the current districts of Molokai, containing all of west Moloka'i, and Kalawao, the northeastern and eastern portion of the island, were formed.

Traditionally, Ko'olau and Kona Districts were separated by the ridge of a mountain range, with the larger Kona District covered approximately seventy-five percent of the island (Summers 1971: 26). The Ko'olau District encompasses the northern *ahupua'a*, and consists of the wet, windward valleys that supported immense gardens of *lo'i kalo* (taro pondfields). Kona District, located on the drier leeward coast, encompasses a fringing reef and an elaborate fishpond complex. In traditional times, a few small gulches east of Kawela contained *lo'i kalo* (Tomonari-Tuggle 1990:6; Summers 1971:2). Generally, however, the leeward side of the island was considered ideal for the dry land cultivation of sweet potato (*'uala* or *Ipomoea batatas*) and taro (*kalo* or *Colocasia esculenta*). In Kona District, sweet potato was planted along the southern, leeward shore. On *kula* (plains) lands, sweet potato was still being planted as late as the 1930s (Handy and Handy 1972:517–520). Dryland taro was also grown on slopes rising behind Kaunakakai village while sweet potato plantations extended east of Kaunakakai (Handy and Handy 1972:517–520). Kaunakakai was known for its marine resources, especially crustaceans, and these were gathered from the coral reef (Handy and Handy 1972:517–520).

Land was considered the property of the king or *ali'i 'ai moku* (the *ali'i* who eats the island/district), which he held in trust for the gods. The title of *ali'i 'ai moku* ensured rights and responsibilities to the land but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him, and, in turn, distributed smaller parcels to lesser chiefs. The maka'āinana (commoners) worked the individual plots of land.

In general, several terms, such as *moku, ahupua'a, 'ili or 'ili' āina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua'a*) which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua'a* were therefore able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua'a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *'ili 'āina* or *'ili* were

smaller land divisions next to importance to the *ahupua'a* and were administered by the chief who controlled the *ahupua'a* in which it was located (Lyons 1875:33; Lucas 1995:40). The *mo'o'āina* were narrow strips of land within an *'ili*. The land holding of a tenant or *hoa 'āina* residing in an *ahupua'a* was called a *kuleana* (Lucas 1995:61).

The concepts of the Hawaiian *ahupua'a* system are helpful in understanding traditional land use in Moloka'i. The *ahupua'a* included access to both forest and marine resources. The project area lies within the *ahupua'a* of Na'iwa and is located inland from the coast, within Kona District near the center of the island, with access to both marine and inland resources. As the project area is located in an environment similar to that of Kualap'u (sweet potato hill), Pālā'ua, and Ho'olehua, it is likely that sweet potato was cultivated here, as well (Handy and Handy 1972:517).

TRADITIONAL SETTLEMENT PATTERNS

Early settlement and agricultural development was probably first established on the windward side of the Hawaiian Islands and may have begun as early as A.D. 900-1000, on O'ahu, during what is known as the Colonization Period (Kirch 2011:22). Most likely arriving from east Polynesia, these early inhabitants brought with them tools, fishing gear, and other artifacts, as well as useful plants and animals. Settling in favorable localities offering both fishing and agricultural opportunities and having near access to inland resources was a priority (Kirch 1985).

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Traditionally, extended household groups settled in various *ahupua'a*. During the pre- and early post-Contact Periods, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys, such as Hālawa, provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinaruma*) and *mai'a* (banana, *Musa* spp.), were also grown and, where appropriate, such crops as *'uala* (sweet potato, *Ipomoea batatas*) were produced. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). Agricultural development on the leeward side of Moloka'i was likely to have begun sometime in what is known as the Expansion Period (A.D. 1200–1400, Kirch 1985).

In Hawai'i, much of the coastal lands were preferred for chiefly residence. Easily accessible resources such as offshore and onshore fishponds, the sea with its fishing and surfing—known as the sports of kings, and some of the most extensive and fertile wet taro lands were located in the area (Kirch and Sahlins, 1992 Vol. 1:19). Inland resources necessary for subsistence, could easily be brought to the *ali'i* residences on the coast from nearby inland plantations. The majority of farming was situated in the lower portions of stream valleys where there were broader alluvial flat lands or on bends in the streams where alluvial terraces could be modified to take advantage of the stream flow. Dry land cultivation occurred in colluvial areas at the base of gulch walls or on flat slopes (Kirch 1985; Kirch and Sahlins 1992, Vol. 2:59).

PRE-CONTACT PERIOD (PRE-1778)

Little has been recorded concerning Moloka'i's early history. It is said that the first *ali'i-nui* of the entire island was Kamauaua of the Nanaulu line, who ruled in the 13th century (Fornander 1969). Although invaded by Kalaunuiohua from Hawai'i Island in the 15th century, Moloka'i remained under the control of its own chiefs until the middle of the 18th century when Peleioholani of O'ahu sought revenge for the death of his daughter by some Moloka'i chiefs Kamakau (1961:232) stated that:

> ...at the battle of Kapu'unoni he [Pele-io-holani] slaughtered the chiefs and roasted them in an oven at Hakawai in Kalua'aha, and he attacked the commoners inhumanly, all for revenge.

Many of the chiefs fled to Hawai'i Island and Maui, some of whom became a part of the court of Nāmāhana, sister of Kahekili, the King of Maui (Fornander 1969). Moloka'i remained under the aegis of O'ahu until a disagreement arose between Kahekili and Ke'eaumoku concerning Keeaumoku's marriage to his sister Nāmāhana (Kamakau 1961). After a battle in which Ke'eaumoku was defeated, Ke'eaumoku, Nāmāhana and her court including the Moloka'i chiefs, left Maui and fled back Moloka'i. Kahekili invaded Moloka'i island and proceeded to fight a sea battle known as the battle of Kaluonakukui. Ke'eaumoku was defeated and once again they all fled from Kahekili, this time to Hāna on Maui (Fornander 1969).

HISTORIC PERIOD

Much knowledge of traditional land use patterns in the Hawaiian Islands is based upon written records, these scribed during the time of initial and early contact between Native Hawaiians and the first European and American visitors to the islands. Early records (such as

journals kept by travelers and missionaries), Hawaiian traditions that survived long enough to be written down, and archaeological investigations have assisted archaeologists in understanding the past.

Although Moloka'i was observed by foreigners during Captain James Cook's return expedition to the islands in 1779, westerners did not make landfall on the island until 1786, this being the arrival of Captain George Dixon (1789:92-93). Kamakau (1961:132-133; see also Fornander 1980 Vol. II: 154) relates that at this time, Moloka'i was under the rule of Kahahana, the nephew of Kahekili, the ruler of Maui Island and rival of Hawai'i Island chiefs. However, in 1786, when Dixon and his crew arrived on Moloka'i, Kahahana was dead and the island had thus become the possession of Kahekili.

Moloka'i's status at the time of Captain Cook's arrival (1778) is not clear, but by 1785, Kahekili had definite control of not only Maui, but also both O'ahu and Moloka'i. Kamehameha I, from Hawai'i Island, conspired to conquer Maui, O'ahu, and Kaua'i, thus bringing all the major Hawaiian Islands under his sole proprietorship (Kamakau 1961). After overcoming the forces of Kalanikupule, Kahekili's son, and assuming control of Maui in 1790, Kamehameha proceeded to focus on uniting Moloka'i with the other islands under his rule. Kamehameha's plan was to procure the support of the Moloka'i chiefs against Kahekili, the powerful chief of Maui, who was then living on O'ahu. Kamehameha stayed on Moloka'i a year while he prepared his troops for an O'ahu invasion, possibly camping at Kauluwai Hill. However, trouble began on Hawai'i Island and Kamehameha returned to his home to quell a rebellion. Kahekili and his brother, Ka'eokulani, gathered together an army to defeat Kamehameha (*ibid.*). Landing on Moloka'i, Kahekili and Ka'eokulani found that Kamehameha had gone. And Maui and Moloka'i, once again, came under Kahekili's sovereignty Kamehameha set out once more to conquer Maui and Moloka'i, in 1795, after the death of Kahekili. Kamehameha successfully conquered Maui and acquired Moloka'i before invading O'ahu. Summers (1971: 20) relates that a fleet of canoes accompanying Kamehameha to Moloka'i were of such a great number that they extended along the coast from Kawela to Kalama'ula, which included the coast of Kaunakakai. Kamehameha held council at Kaunakakai while his chiefs camped nearby at Kalama'ula. No battles were recorded as having been fought at this time suggesting that Moloka'i became a part of Kamehameha's kingdom through negotiation rather than war (Kamakau 1961).

In 1792, Vancouver recorded his impressions of Moloka'i while sailing along its southern coast towards O'ahu. Vancouver described the eastern part of the island: "It seemed to be well

inhabited, in a high state of cultivation, and presented not only a rich but a romantic prospect" (Vancouver 1984). Of the west and south Vancouver (1984:201–203) reported:

> From Crynoa [Kalaeloa] the country assumes a dreary aspect. The mountains, forming the eastern part of the island, gradually descend to the westward, and like those of Mowee, terminate on a low isthmus, which appears to divide the island into two peninsulas...the easternmost...is composed of very high land, but the westernmost does not rise to any elevation, beyond that of a mean height. The country from Crynoa rises from the sea by an ascent, uninterrupted with chasms, hills, or vallies, this uniform surface, on advancing to the westward, exhibited a gradual decrease in the population; it discovered an uncultivated barren soil, and a tract of land that gave residence only to a few of the lower orders of the islanders, who resort to the shores for the purpose of taking fish, with which they abound. Those so employed are obliged to fetch their fresh water from a great distance; none but what is brackish being attainable on the western parts of Morotoi.

Archibald Menzies, a naturalist also on Vancouver's expedition, had a different impression. He was told by the natives of Moloka'i that "Kamehameha's descent upon it had desolated the country, and that it had not yet recovered its former state of population ... desolating the country by destroying the fields and plantations of the inhabitants" (Menzies 1920:115, 118).

Settlement of the missionaries in 1832 at Kalua'aha, attested to a large population living mostly along the southern coast of Moloka'i. A missionary census estimated the population here to be 8,000 people (Schmitt 1973: 20).

Moloka'i Ranch was an important entity in the history of land ownership and land use for the island of Moloka'i in the 1800s. Summers (1971:24) states:

> In 1897 a group of men formed the Moloka'i Ranch by purchasing holdings from the Bishop Estate. This property had been ranch land formerly owned by Kamehameha V, and the ahupua'a of Kaluako'o, which belonged to Charles Bishop.

Moloka'i Ranch formed the American Sugar Company in the late 1800s. Near Kaunakakai Village, a pier was built by the ranch that extended one-half mile over the shoals to a natural harbor which had formed in the reef. A large camp was constructed, locomotives arrived, and a coal dump was established for fueling the engines for transporting the expected sugar cane from Ho'olehua. Failure to procure the immense amount of fresh water needed for a successful cane crop soon ended the project (Summers 1971:24). With the collapse of the sugar cane industry, sheep and cattle ranching became the economic alternative for Moloka'i. By the 1920s, pineapple cultivation became another economic option in the drier sections of the island, and many of the lands previously used for sweet potato were converted to pineapple plantations (Handy and Handy 1972).

THE MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall 1938, Vol. I: 145; Daws 1977:111; Kelly 1983:45; Kelly 1998:4; Kame'eleihiwa 1992:169-70, 176). The Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka'āinana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *'okipu'u* (forest clearing on O'ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame'eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

A search of the Waihona 'Aina Database (2018); and; Office of Hawaiian Affairs, Kipuka Database indicate an LCA claim within the subject project area (Appendix A). LCA 11216 Apana 12 (LCA 11216:12) was awarded to M. Kekauonohi on June 19, 1852, but LCA documentation makes no mention of related land tenure. An 1826 Land Court Application Map (App 1861) shown in Figure 5 indicates the current project area as included in LCA 11216:12. In the early 1900s the entire 40-acre land parcel including the current project area was leased by Molokai Ranch, Limited (see Figure 5). Additional historic documentation indicates the area was

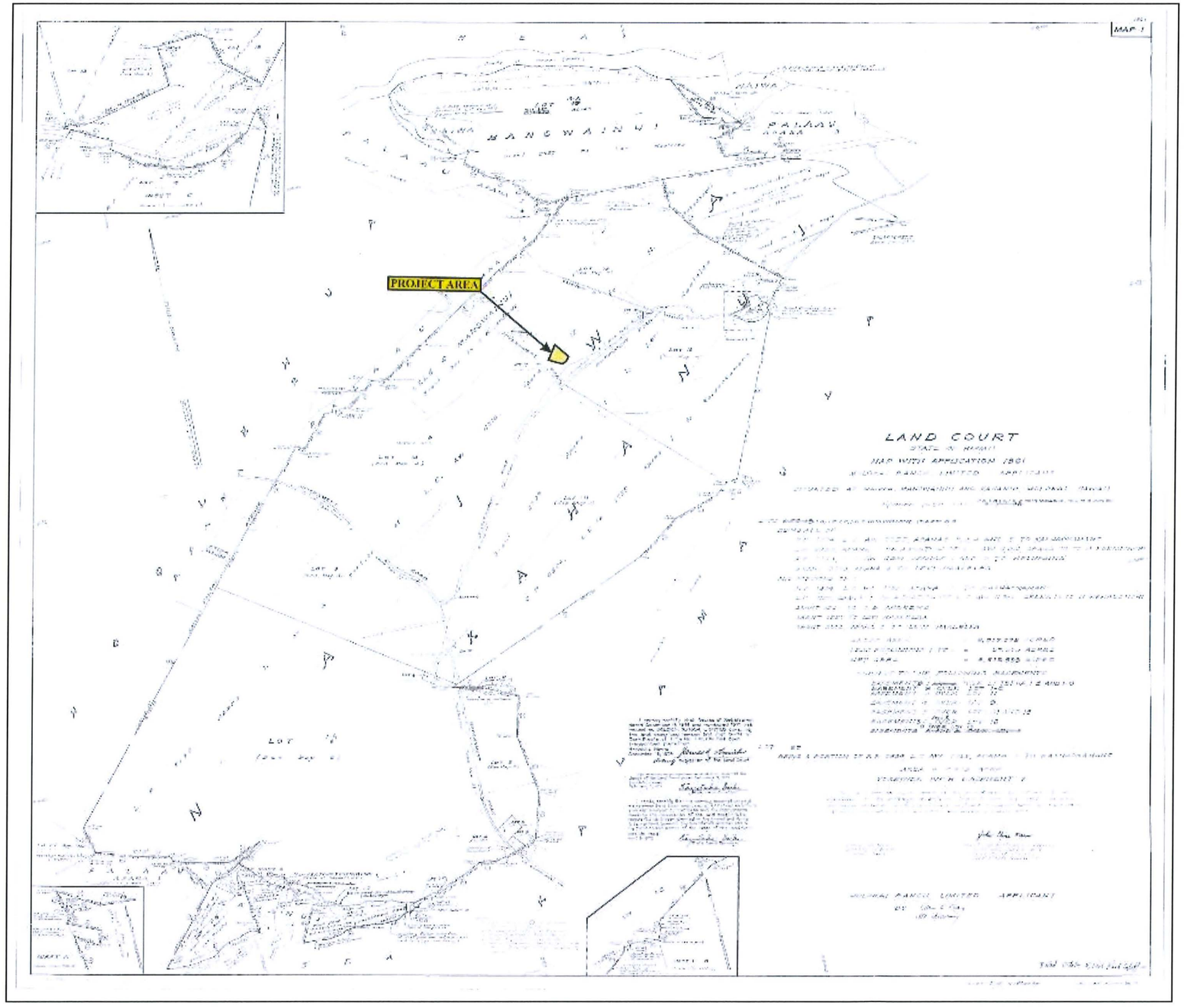

Figure 5: Land Court Application Map (App 1861, 1826) Indicating Land Ownership at Nāʻiwa Ahupuaʻa and LCA that Include the Project Area (Accessed from Department of Accounting and General Services, Land Survey 2018.

described as having isolated houses and planted with sweet potato in inland areas suitable for dryland agriculture (Sinoto and Pantaleo 1992).

PREVIOUS ARCHAEOLOGY

Archaeological research for the project area vicinity is modest overall. Recent archaeological investigations have been concentrated to areas within coastal reaches and select inland areas. A synthesis of archaeology most relevant to the current project area found in Summers (1971) Molokai sites survey, as well as in Sinoto and Pantaleo's (1992) previous study in the current project area is presented in summary below.

Summers (1971) indicates known archaeological sites in the project vicinity are located along and the coastal area of the Nāʻiwa Ahupuaʻa region. These notable sites include:

- State Site 50-60-03-104, Kaluaapuhi fishpond;
- State Site 50-60-03-106, petroglyphs;
- State Site 50-60-03-107, holua slide located at Kualapuʻu;
- State Site 50-60-03-108, Kalakupale Heiau;
- State Site 50-60-03-109, two probable heiau;
- State Site 50-60-03-111 Na Imu Kalua Ua Heiau; and,
- State Site 50-60-03-885, Slaughterhouse Gulch Habitation Site (www.kipukadatabase.com [2018]

In 1980, an archaeological reconnaissance conducted for the proposed Molokai Electric Facility [TMK (2) 5-2-011:007] Project documented previously identified sites within and in the periphery of an approximately 50-acre project area. Sites including State Site 50-60-03-104, kaluaapuhi fishpond; and, State Site 50-60-03-106, petroglyphs, in addition to an enclosure with associated midden (no site designation mentioned, were documented as located within a parcel subject to extensive disturbance related to earlier agricultural activities in the area (EIS prep. in Sinoto and Pantaleo 1992).

In 1983, Hommon and Ahlo (1983) conducted an archaeological inventory survey on portions of land comprising the Pacific Division, Naval Facilities Engineering Command military training area in Kalama'ula, Kapa'akea, Kamiloloa, and Nakakupaia [TMK (2) 5-2-010:001; and, 5-4-003:003] (Sinoto and Pantaleo 1992). A portion of their project area (Area 1A), including 2,950 acres, located adjacent to the current project area documented five newly identified archaeological sites (State Site 50-60-03-904, cairn; State Site 50-60-03-905, wall; State Site 50-60-03-906 and -908, rock alignments; and, State Site 50-60-03-907, ditch). The sites were interpreted as historic period constructions, the majority having functioned for ranching and military activities, etc. Additionally, the study indicated prehistoric land use in the project area as focused to marine resources exploitation supplemented by irrigated agriculture, based on subsistence patterns (Sinoto and Pantaleo 1992).

Also, in 1983, Tomonari-Tuggle (1983) conducted archeological reconnaissance of a waterline corridor in Kalama'ula Ahupua'a, for the Department of Hawaiian Homelands (DHHL). The reconnaissance survey documented a complex of sites (State Sites 50-60-03-800, and 50-60-03-801) consisting of walls, terraces and cairns attributed to prehistoric period agricultural activities related to an occupation event that occurred in the project area between A.D. 1200-1400, based on results of testing. An additional site (State Site 50-60-03-802) that consisted of a boulder-faced, cobble-filled wall interpreted as associated with historic era ranching.

In 1983, under the auspices of Bishop Museum, an archaeological survey was conducted of the Kakahai'a National Wildlife Refuge (Weisler 1989a in Sinoto and Pantaleo 1992). The study documents evidence of extensive dryland agricultural activities and occupation between A.D. 1200 to A.D. 1400, based on test excavations and radiocarbon analysis (Sinoto and Pantaleo 1992).

In 1985, Athens (1985) conducted an archaeological investigation for the DHHL on the leeward slopes of Central Molokai inland site. The study involved archival research on prehistory of the area, and test excavations. Results of the study suggested an earlier occupation in the Kalama'ula area than of the dominant Kawela pattern. Athens' further contended his theory that occupation of the Kalama'ula area began at least 200-300 years prior was supported by "available dates from State Site 50-60-03-800, 400 +/- 60 BP. And 300 +/- 60 BP, and radiocarbon dates from a coastal hearth feature in Kaunakakai, 710 +/- 50 BP, and a coastal dune site at Kawela, 290 +/- 60 BP" (Athens 1985:98 in Sinoto and Pantaleo 1992).

In 1988, Griffin conducted a field inspection for the Klama'ula Subdivision in Kamiloloa and Makakupaia [TMK (2) 5-2-010:001 and 5-4-003:003 and 031 por,] was conducted for DHHL (Sinoto and Pantaleo 1992). The inspection identified Hommon and Ahlo's (1983) sites -904 (cairn) and -906 (Ranching Era rock alignment).

PREVIOUS ARCHAEOLOGICAL RESEARCH ON THE CURRENT PROJECT AREA

The current project area, in its entirety, was subject to an archaeological inventory survey by Aki Sinoto Consulting, on September 10, 1992 for the Integrated Solid Waste Management Facility (Sinoto and Pantaleo 1992). The study was conducted on the 40-acre parcel proposed for the refuse disposal landfill. The work accomplished full pedestrian surface survey by systematic transects walked across the project area and did not involve subsurface testing (Sinoto and Pantaleo 1992). No historic properties or archaeological sites were identified.

The study documented an extensively disturbed landscape, particularly within the northern and western areas of their project area, attributed to previous quarrying related activities and prior military use of the parcel. Sinoto and Pantaleo (1992) concluded, based on the degree of disturbances observed on the project area surface overall and the consequently identified absence of surface cultural remains, the potential for any trace of cultural deposit remnants to exist in subsurface contexts was low to none.

METHODOLOGY

FIELD METHODS

Archaeological fieldwork was conducted on March 9, 2018 by SCS Archaeologists Nigel Kingsbury, B.A. and Elizabeth Pestana, B.A., under the direct supervision of Michael F. Dega, Ph.D. (Principal Investigator). Full pedestrian survey was conducted across the project area. Visibility was fair throughout the survey, as the project area is currently in use as for green waste operations in the facility. In addition, twelve locations were selected for subsurface examination throughout the approximately 10-acre parcel during fieldwork. The test trench locations documented for the current AIS were based on the proposed test trench plan developed in consultation with SHPD and determined by existing conditions, including accessibility by the backhoe, in the project area to provide a representative example of subsurface matrices present throughout the project area. AIS Stratigraphic trench sites are plotted on an aerial map (Google Earth Figure 4in Figure 6. The Figure 6 aerial image shows the distribution of stratigraphic test

trenches (ST) as having spatial continuity for systematic testing and necessary work-around of the green waste spoils present at the time of the current study.

Metric tape measure and compass, on the magnetic north declination, were used in recording all stratigraphic profile illustrations. One wall of the long axis of each trench was profiled. A handheld GPS (Garmin GPSmap62) unit was used in mapping the locations of ST1 through ST12, by marking coordinates at both end of the long axis of each trench. Field data was recorded on standardized field forms and in field-notebooks and all aspects of the work were photographed.

Stratigraphic trenches (ST-1 through ST-12) were mechanically excavated by backhoe to a minimum length of 5 meters (500 cm), width of 75/90 cm, and to depths that reached the sterile substratum/bedrock ranging between 60-105 centimeters below surface [cmbs] (see Figure 6, and Table 1 below for trench dimensions). All sediments were documented by photographs, stratigraphic profiles, were recorded using USDA soil terminology and attributes, and soil colors were recorded using Munsell Soil Color charts manuals. Tape and compass, using magnetic north declination orientation was utilized. As no cultural deposits or subsurface features were identified, excavated matrices were not screened.

Table 1: Stratigraphic Trench Dimensions

Stratigraphic Trench (ST)	Length (cm)	Width (cm)	Depth (cmbs)	Strata (Soil Layers)
ST-1	500	90	76	I-II
ST-2	500	90	90	I-III
ST-3	550	80	100	I-III
ST-4	520	80	75	I-III
ST-5	500	90	60	I-III
ST-6	500	80	97	I-II
ST-7	550	80	105	I-III
ST-8	500	80	72	I-II
ST-9	510	80	60	I-II
ST-10	500	85	80	I-III
ST-11	550	80	80	I-III
ST-12	500	80	88	I-III

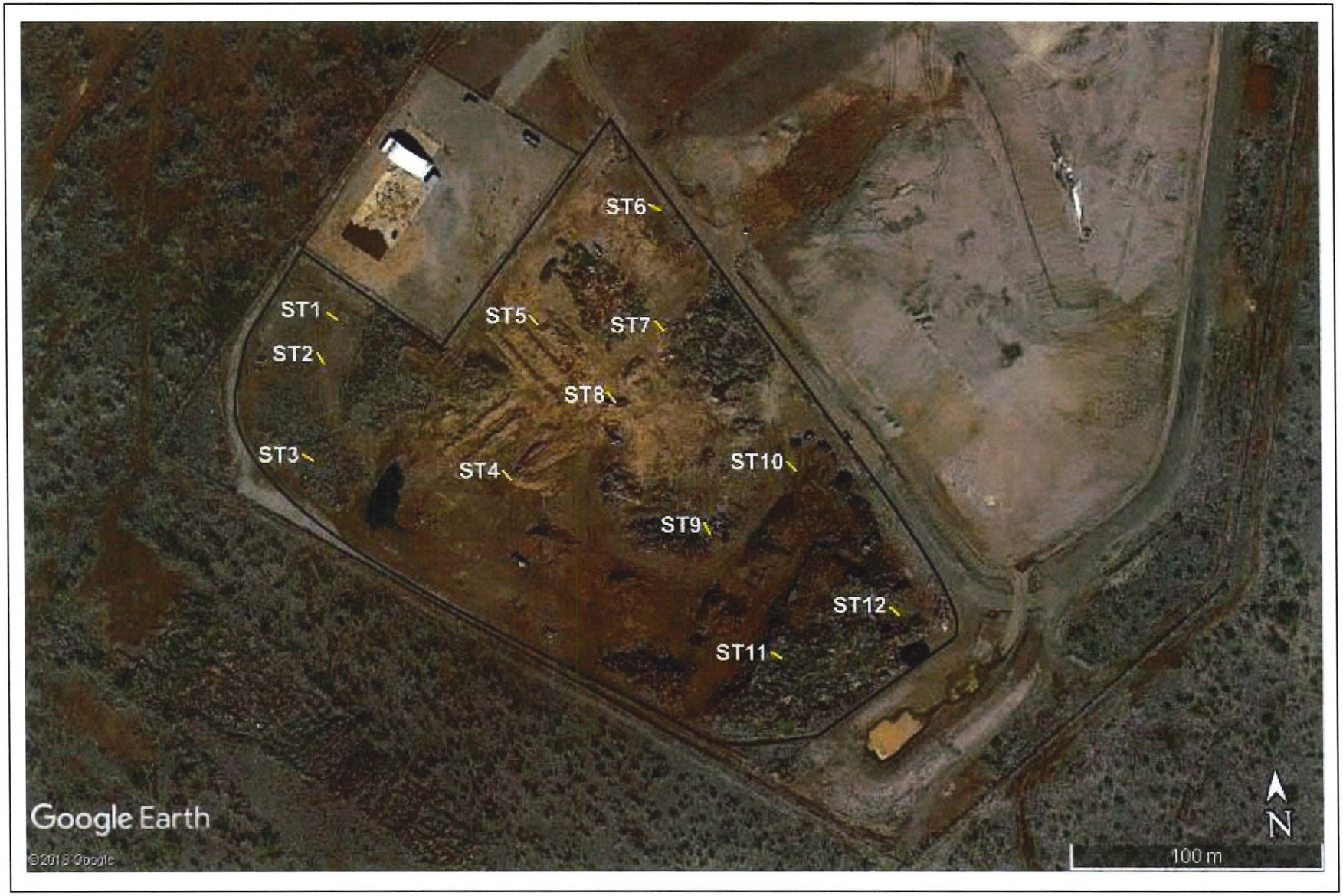

Figure 6: Google Earth Satellite Image Showing the Project Area and AIS Stratigraphic Trench Locations (Adapted from Google Earth, Imagery Date 1/15/2013; Accessed April 2018).

LABORATORY METHODOLOGY

All field notes and digital photographs are curated at the SCS laboratory in Honolulu. Representative stratigraphic profiles have been drafted for presentation within this report. All materials gathered during this project (limited to documentation) are being curated at the SCS laboratory in Honolulu. The final steps of laboratory work consisted of digitizing photographs, drafting stratigraphic profiles, and reporting.

ARCHAEOLOGICAL INVENTORY SURVEY RESULTS

OVERVIEW- SURFACE AND SUBSURFACE SURVEY

Full pedestrian survey of the project area did not lead to the identification of any surface sites nor deposits (midden scatters, isolated artifacts, cultural landscape features, etc). The surface landscape represents modern use by the MISWMF as a green waste processing facility on which green waste spoils were present throughout the project area surface (Figures 7-10). Stratigraphic trenches ST 1 through 12 were systematically placed across the project area for representative testing (see Figure 6). No historic properties – cultural and/or archaeological features (e.g., buried cultural remains- features, artifacts, etc.) – were identified.

PROJECT AREA STRAGRAPHY

Testing throughout the project area revealed a heavily disturbed soil stratigraphy represented by a shallow deposit of not more than three soil layers consisting of clay-loam and sandy clay-loam, roughly 2-3 feet deep underlain by solid bedrock. Soil strata exposed by testing reflected extensive previous disturbance likely due to quarrying activities, etc., within the project area prior to the green waste landfill facility. While the strata were identified as the natural deposit, all were sterile.

The following text describes the stratigraphy representing the project area, as identified and recorded during subsurface testing. Stratigraphy information details the strata exposed in each trench and descriptions for each soil layer observed followed by the respective profile illustrations and photographs.



Figure 7: Project Area Overview Depicting the Green Waste Facility Operation Central in the Northwestern Portion of the Project Area. View to Northwest.



Figure 8: Project Area Overview Depicting Western Portion of the Project Area from the Southeastern Boundary. View to West.



Figure 9: Project Area Overview Depicting Southeastern Portion of the Project Area from within the Northern Boundary. View to Southwest.



Figure 10: Project Area Overview Depicting the Southeastern Portion of the Project Area (Timber Spoils in Foreground). View to East.

STRATIGRAPHIC TRENCH 1 (ST-1)

Stratigraphic Trench 1 [ST-1] (500cm x 80cm x 88 cmbs) was located on a northwest/southeast axis (338°/158°). The surface of ST-1 consisted of previously disturbed natural soil deposit and contained two stratigraphic layers (Figures 11 and 12).

Layer I (0-25 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), very firm, gravelly and sub-angular blocky, moderate grade, silty clay loam with a diffuse lower boundary and wavy topography. No roots present and evidence of disturbance.

Layer II (20-76 cmbs) consists of reddish gray (2.5 YR 5/1, moist), very firm, structureless massive, slightly plastic, sandy clay with no visible lower boundary and topography. Layer II appears to represent the naturally occurring C-Horizon to R-Horizon transition.

STRATIGRAPHIC TRENCH 2 (ST-2)

Stratigraphic Trench 2 [ST-2] (500cm x 90cm x 90 cmbs) was located on a northwest/southeast axis (70°/250°). The surface of ST-2 consisted of previously disturbed natural soil deposit and contained three stratigraphic layers (Figures 13 and 14).

Layer I (0-60 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), cobbly silty clay loam, moderate grade, plastic silty clay with a diffuse lower boundary and wavy topography. No roots present and evidence of disturbance observed throughout Layer I.

Layer II (32-76 cmbs) consists of dark reddish gray (2.5 YR 4/4, moist), very firm, structureless massive, slightly plastic, sandy clay with a diffuse lower boundary and wavy topography.

Layer III (60-90 cmbs) consists of reddish gray (2.5 YR 5/1, moist), structureless massive, slightly plastic clay loam, very firm consistence with no visible lower boundary and topography. Layer III appears to represent the naturally occurring C-Horizon to R-Horizon transition.

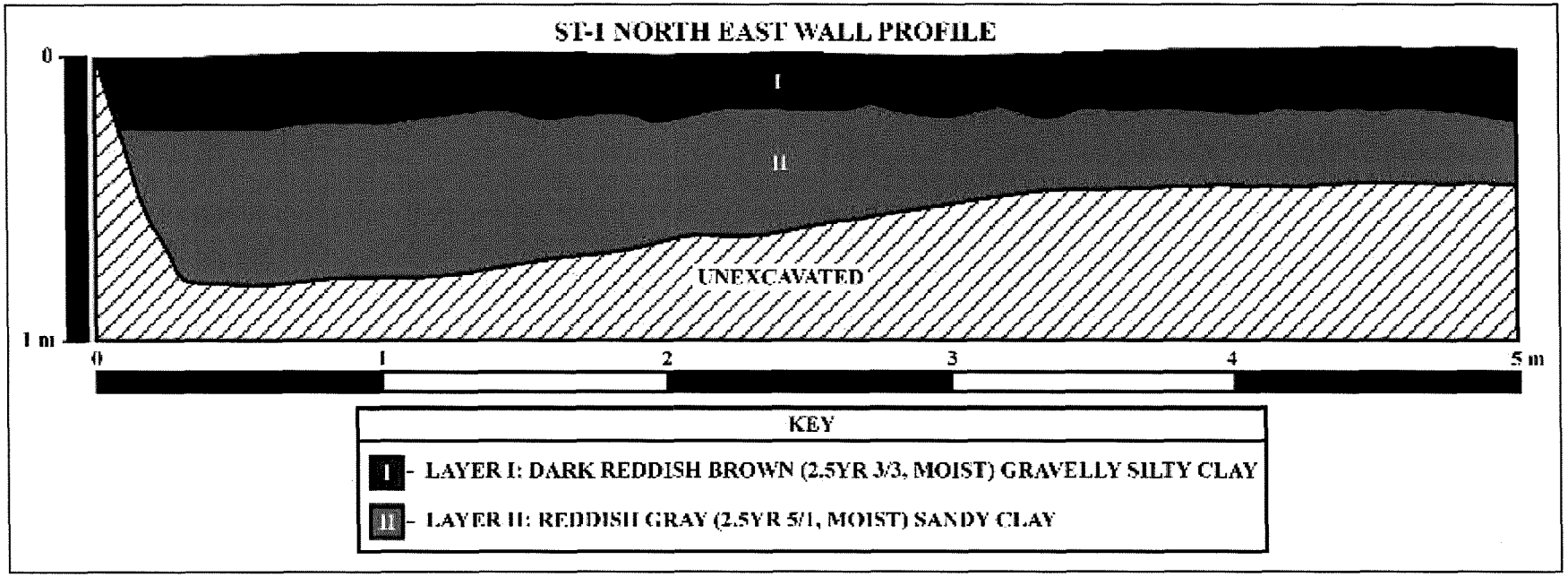

Figure 11: Stratigraphic Trench 1 (ST-1) Profile.



Figure 12: Photographic View of Stratigraphic Trench 1 (ST-1). View to North.

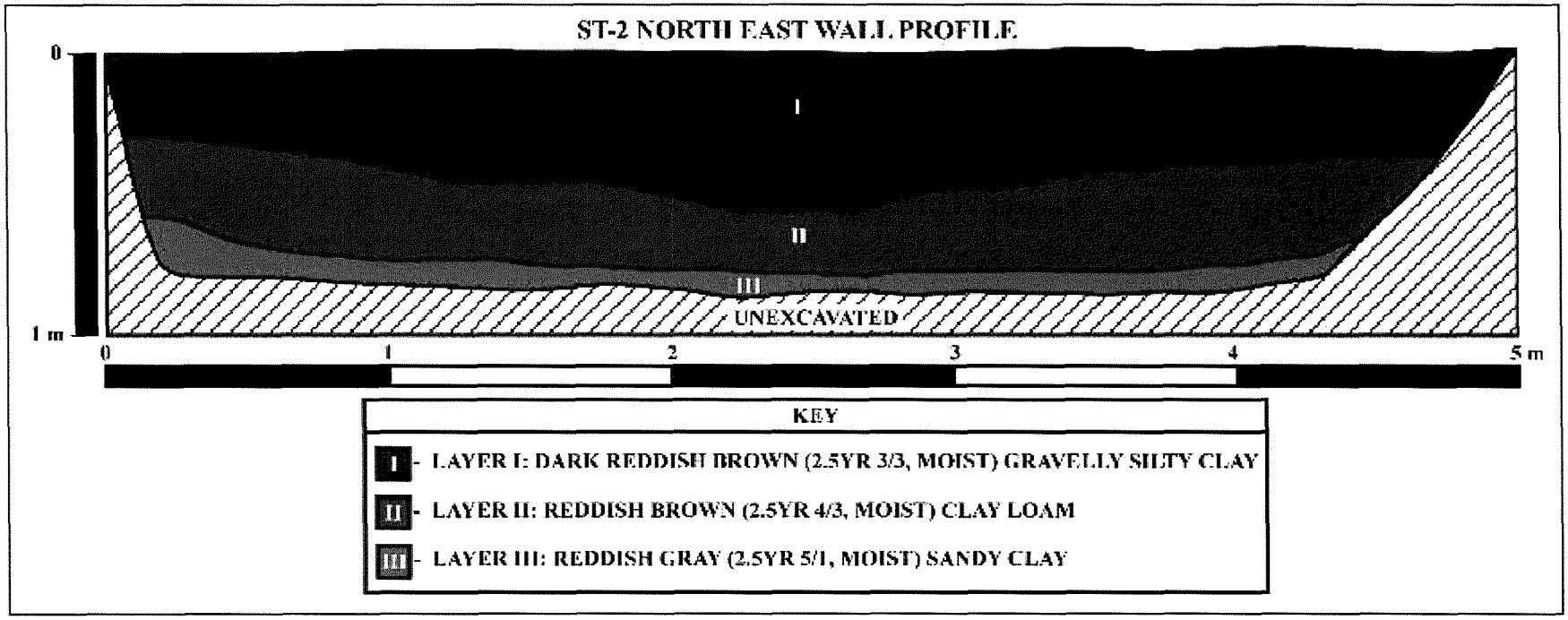

Figure 13: Stratigraphic Trench 2 (ST-2) Profile.



Figure 14: Photographic View of Stratigraphic Trench 2 (ST-2). View to North.

STRATIGRAPHIC TRENCH 3 (ST-3)

Stratigraphic Trench 3 [ST-3] (550cm x 80cm x 100 cmbs) was located on a east/west axis (125°/305°). The surface of ST-3 consisted of previously disturbed natural soil deposit and contained three stratigraphic layers (Figures 15 and 16).

Layer I (0-48 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), cobbly silty clay loam, moderate grade, plastic silty clay with a diffuse lower boundary and wavy topography. No roots present and evidence of disturbance observed throughout Layer I.

Layer II (48-100 cmbs) consists of dark reddish gray (2.5 YR 4/4, moist), very firm, structureless massive, slightly plastic, sandy clay with a diffuse lower boundary and wavy topography.

Layer III (80-100 cmbs) consists of red (2.5 YR 4/6, moist) strong grade gravelly loam; very fine, sub-angular blocky; slightly plastic with no roots and no visible lower boundary and topography.

STRATIGRAPHIC TRENCH 4 (ST-4)

Stratigraphic Trench 4 [ST-4] (520cm x 80cm x 75 cmbs) was located on an east/west axis (44°/324°). The surface of ST-4 consisted of previously disturbed natural soil deposit and contained three stratigraphic layers (Figure 17 and 18Figure 18)

Layer I (0-25 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), cobbly silty clay loam, moderate grade, plastic silty clay with a diffuse lower boundary and wavy topography. No roots present and evidence of disturbance observed throughout Layer I.

Layer II (25-55 cmbs) consists of dark reddish gray (2.5 YR 4/4, moist), very firm, structureless massive, slightly plastic, sandy clay with a diffuse lower boundary and wavy topography.

Layer III (55-75 cmbs) consists of red (2.5 YR 4/6, moist) strong grade gravelly loam; very fine, sub-angular blocky; slightly plastic with no roots and no visible lower boundary and topography.

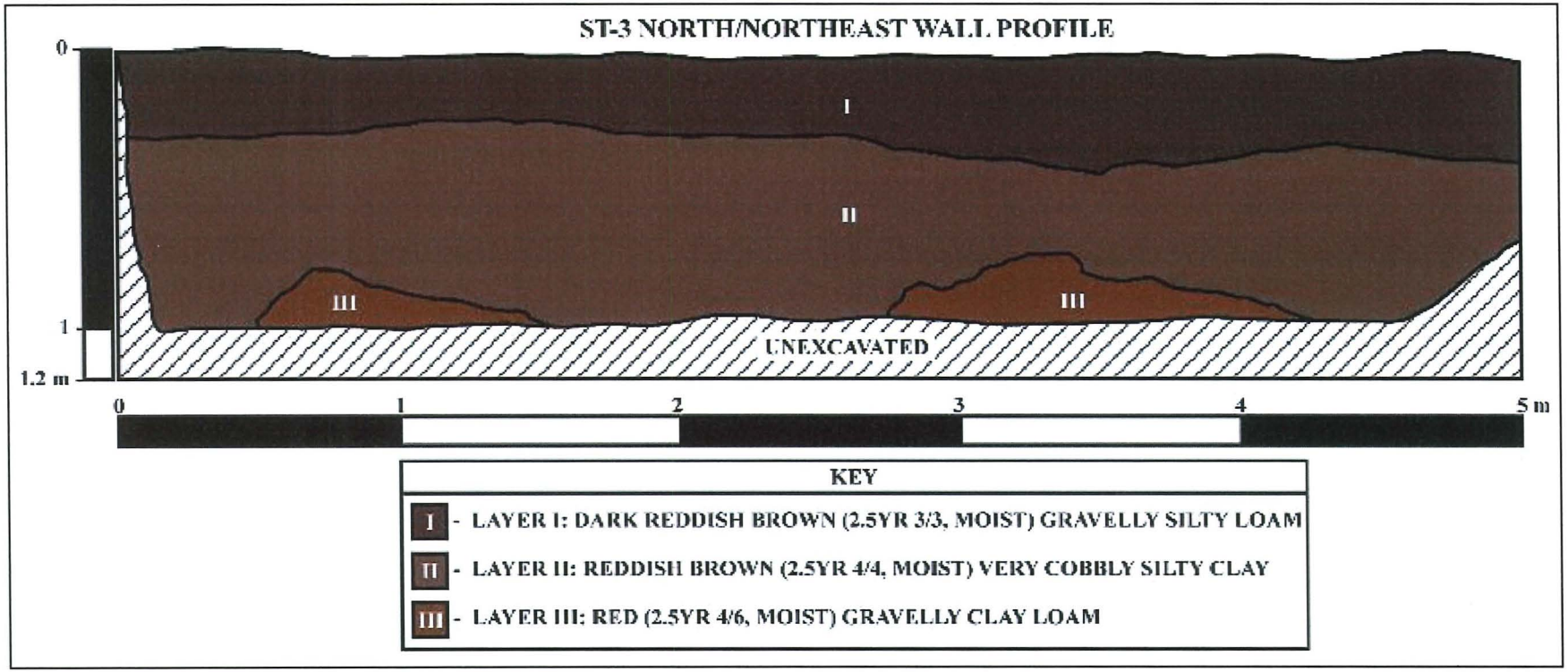

Figure 15: Stratigraphic Trench 3 (ST-3) Profile.



Figure 16: Photographic View of Stratigraphic Trench 3 (ST-3). View to North.

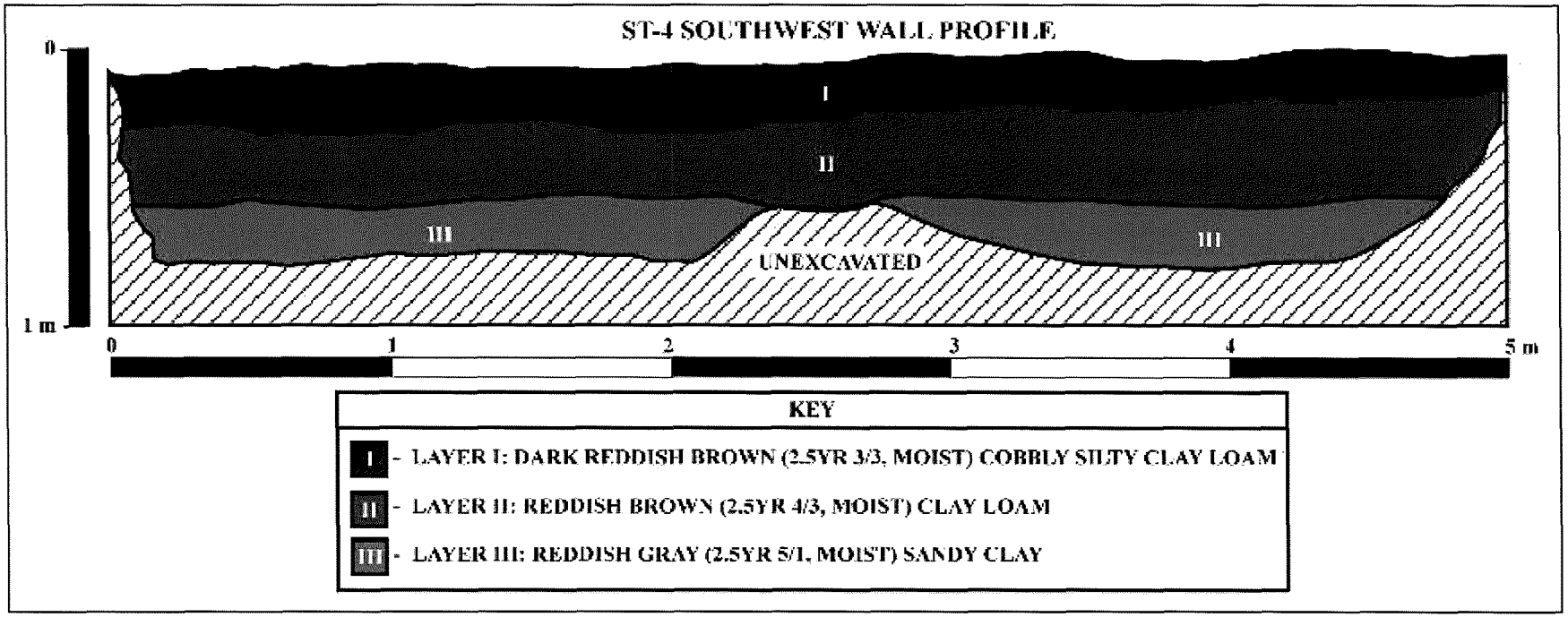

Figure 17: Stratigraphic Trench 4 (ST-4) Profile.



Figure 18: Photographic View of Stratigraphic Trench 4 (ST-4). View to South.

STRATIGRAPHIC TRENCH 5 (ST-5)

Stratigraphic Trench 5 [ST-5] (500cm x 90cm x 60 cmbs) was located on a southeast/northwest axis (130°/310°). The surface of ST-5 consisted of previously disturbed natural soil deposit and contained two stratigraphic layers (Figures 19 and 20).

Layer I (0-12 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), gravelly silty clay loam, moderate grade, plastic silty clay with a diffuse lower boundary and wavy topography. No roots present and evidence of disturbance observed throughout Layer I.

Layer II (8-60 cmbs) consists of red (2.5 YR 4/6, moist) strong grade gravelly loam; very fine, sub-angular blocky, and slightly plastic; and, has no roots and no visible lower boundary and topography.

STRATIGRAPHIC TRENCH 6 (ST-6)

Stratigraphic Trench 6 [ST-6] (500 cm x 80 cm x 97 cmbs) was located on a northwest/southeast axis (126°/306°). The surface of ST-6 consisted of previously disturbed natural soil deposit and contained two stratigraphic layers (Figures 21and 22).

Layer I (0-56 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), gravelly silty clay loam, weak grade; firm, very fine sub-angular blocky, slightly plastic with a diffuse lower boundary and wavy topography. No roots present and evidence of disturbance observed.

Layer II (33-97 cmbs) consists of reddish gray (2.5 YR 5/1, moist), structureless massive, slightly plastic clay loam, very firm consistence with no visible lower boundary and topography. Layer III appears to represent the naturally occurring C-Horizon to R-Horizon transition.

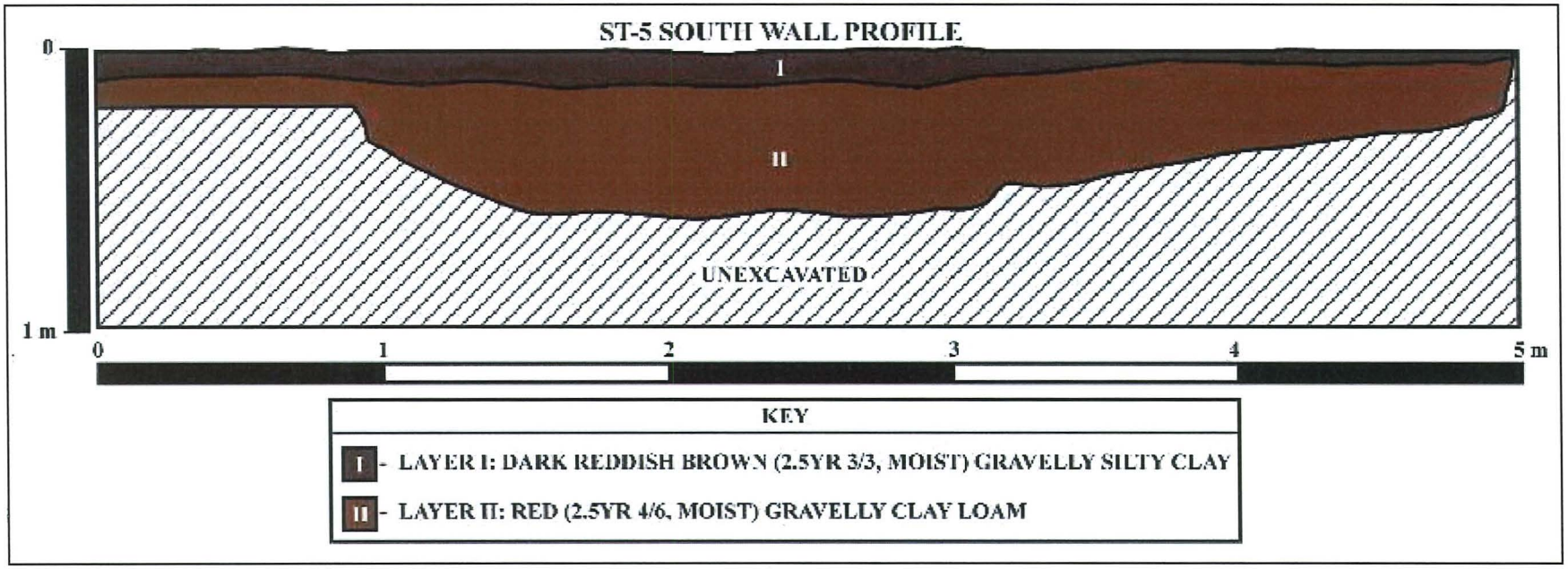

Figure 19: Stratigraphic Trench 5 (ST-5) Profile.



Figure 20: Photographic View of Stratigraphic Trench 5 (ST-5). View to Southeast.

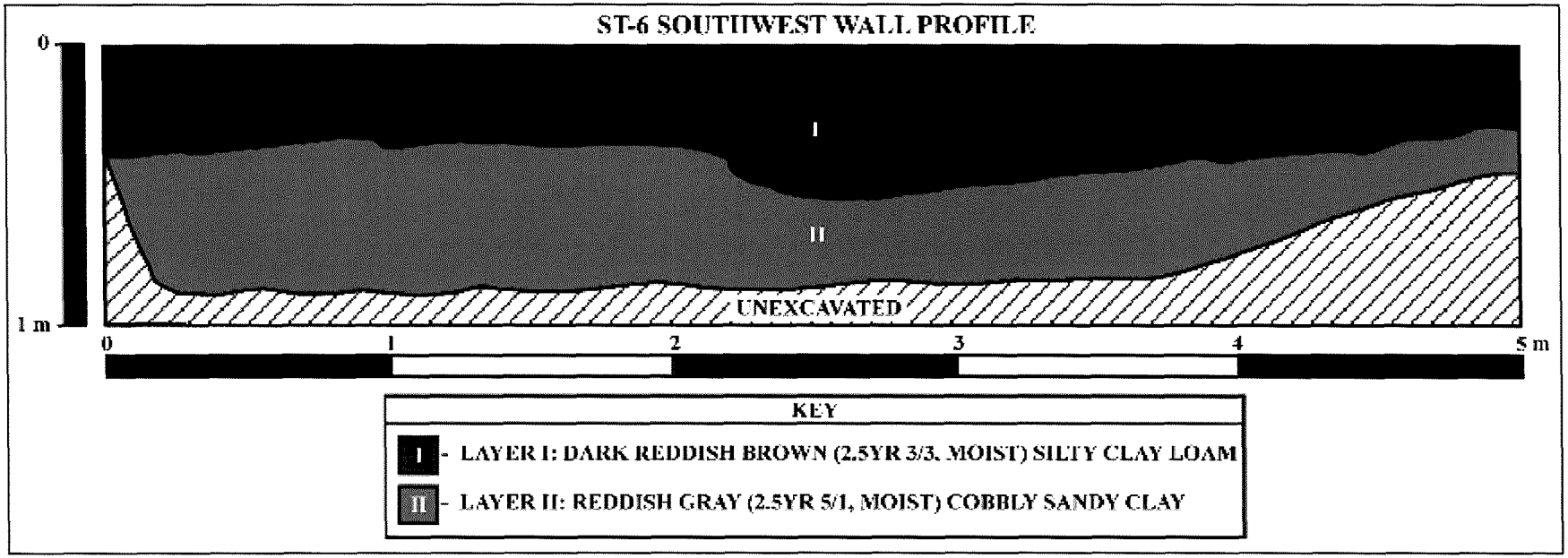

Figure 21: Stratigraphic Trench 6 (ST-6) Profile.



Figure 22: Photographic View of Stratigraphic Trench 6 (ST-6). View to Southwest.

STRATIGRAPHIC TRENCH 7 (ST-7)

Stratigraphic Trench 7 (ST-7) (500cm x 80cm x 97cmbs) was located on a northwest/southeast axis (148°/328°). The surface of ST-7 consisted of previously disturbed natural soil deposit and contained three stratigraphic layers (Figures 23 and 24).

Layer I (0-55 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), gravelly silty clay loam, weak grade; firm, very fine sub-angular blocky, slightly plastic with a diffuse lower boundary and wavy topography. No roots present and evidence of disturbance observed.

Layer II (30-105 cmbs) consists of dark reddish gray (2.5 YR 4/3, moist), very firm, structureless massive, slightly plastic, sandy clay with a diffuse lower boundary and wavy topography.

Layer III (30/55-105 cmbs) consists of red (2.5 YR 5/1, moist) sandy clay and saprolite bedrock.

STRATIGRAPHIC TRENCH 8 (ST-8)

Stratigraphic Trench 8 (ST-8) (500 cm x 80 cm x 72 cmbs) was located on a northeast/southwest axis (132°/312°). The surface of ST-8 consisted of previously disturbed natural soil deposit and contained two stratigraphic layers (Figures 25 and 26).

Layer I (0-68 cmbs) consisted consists of dark reddish brown (2.5YR 3/3, moist), gravelly silty clay loam, weak grade; firm, very fine sub-angular blocky, slightly plastic with a diffuse lower boundary and wavy topography. Layer I represents the natural A-Horizon.

Layer II (42-72 cmbs) consists of reddish gray (5YR 5/2) compacted silt and semi-plastic silty clay. No roots were present throughout Layer II.

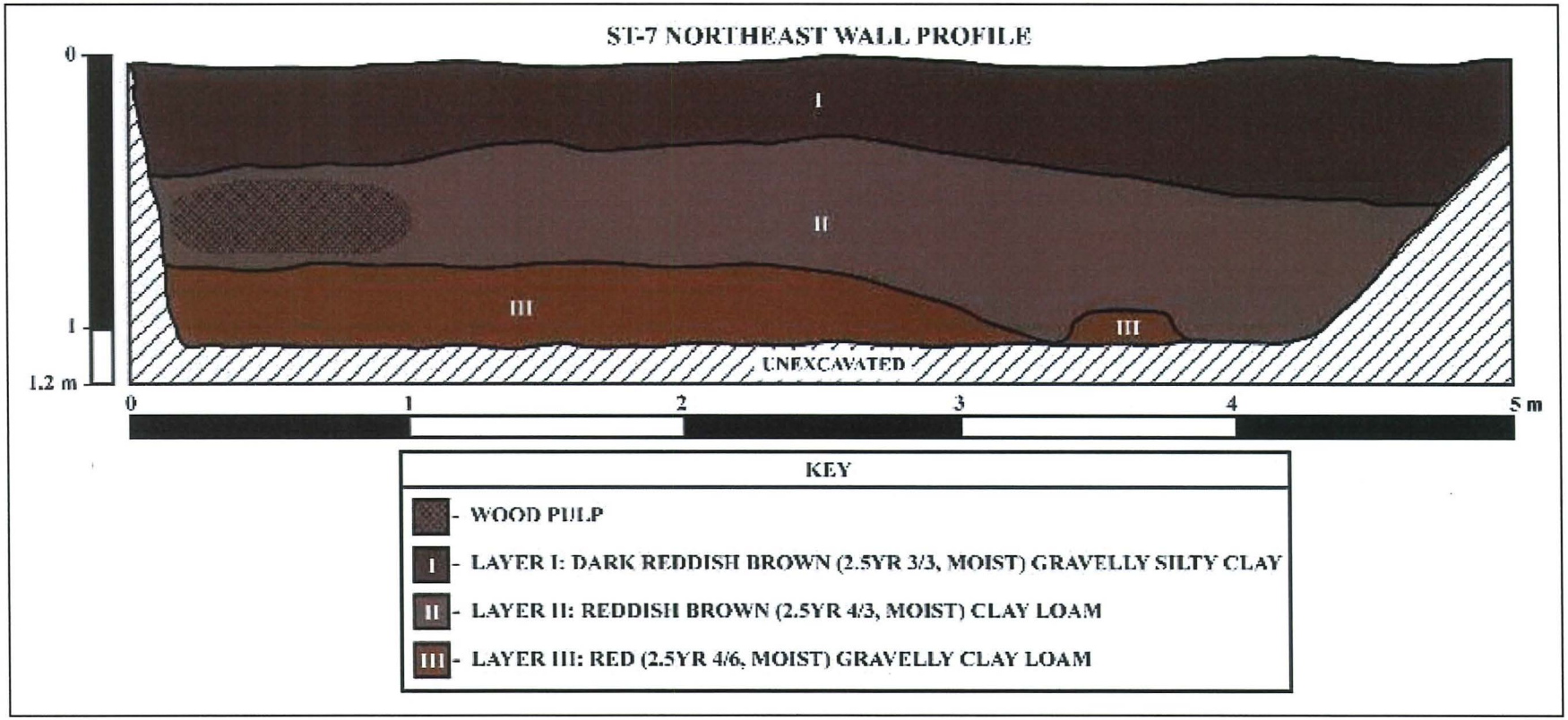

Figure 23: Stratigraphic Trench 7 (ST-7) Profile.

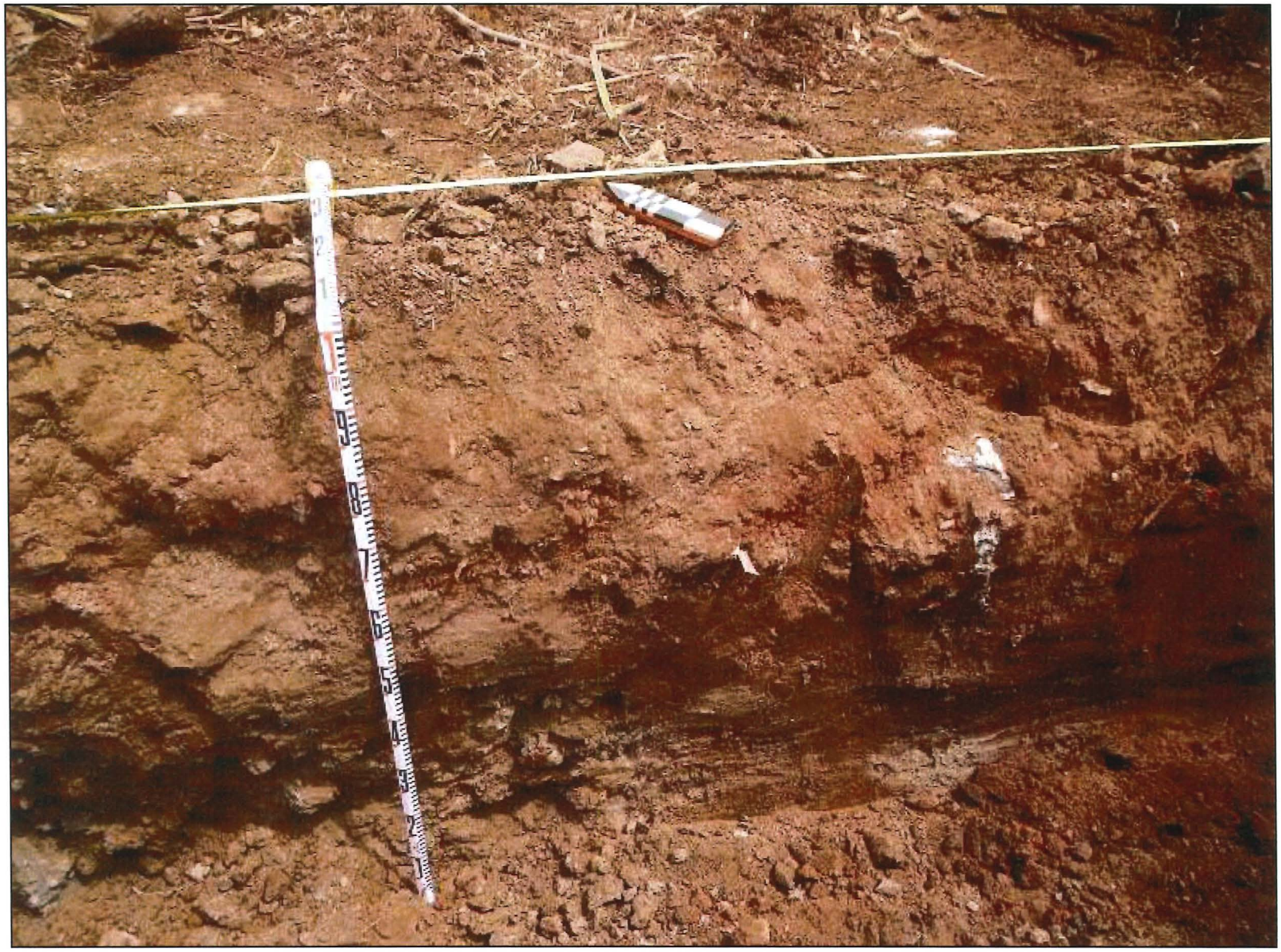

Figure 24: Photographic View of Stratigraphic Trench 7 (ST-7). View to South.

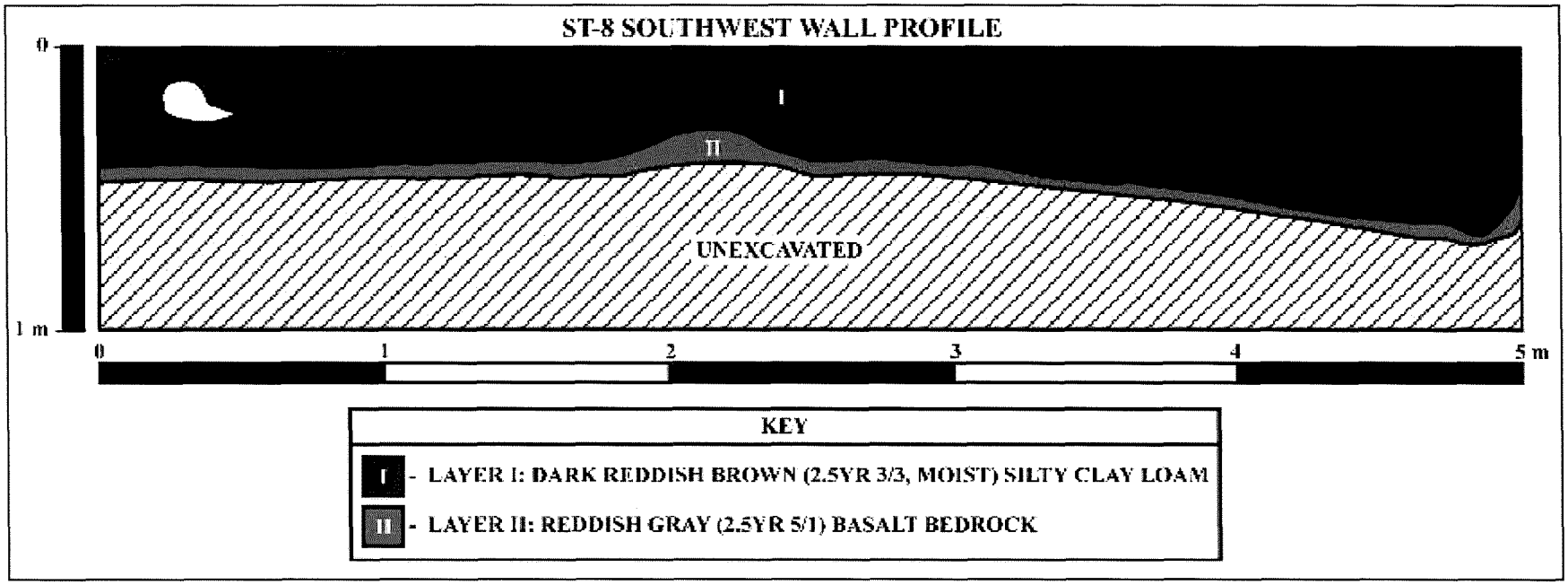

Figure 25: Stratigraphic Trench 8 (ST-8) Profile.



Figure 26: Photographic View of Stratigraphic Trench 8 (ST-8). View to Southwest.

STRATIGRAPHIC TRENCH 9 (ST-9)

Stratigraphic Trench 9 (ST-9) (510 cm x 80 cm x 60 cmbs) was located on a northeast/southwest axis (134°/314°). The surface of ST-9 consisted of previously disturbed natural soil deposit and contained three stratigraphic layers (Figures 27 and 28).

Layer I (0-40 cmbs) consistsd of dark reddish brown (5YR 3/3, moist) dry, compacted silt and semi-plastic silty clay; and, has a gradual lower boundary and wavy topography. No roots were present throughout Layer I.

Layer II (40-60 cmbs) consists of gray (5YR 5/2, moist) compacted silt and semi-plastic silty clay. No roots were present throughout Layer II.

STRATIGRAPHIC TRENCH 10 (ST-10)

Stratigraphic Trench 10 (ST-10) (500 cm x 85 cm x 80 cmbs) was located on a northeast/southwest axis (134°/314°). The surface of ST-10 consisted of previously disturbed natural soil deposit and contained three stratigraphic layers (Figures 29 and 30).

Layer I (0-8 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), compacted and wet semi-plastic silty clay. No roots or stones were present throughout Layer I. The lower boundary was abrupt and topography smooth. Layer I is an artificially compacted natural layer.

Layer II (4-73 cmbs) consists of red (2.5 YR 4/6, moist) strong grade gravelly loam; very fine, sub-angular blocky; slightly plastic with no roots and no visible lower boundary and topography. Layer II is an R-Horizon transition layer.

Layer III (24-80 cmbs) consists of red (2.5 YR 5/1, moist) sandy clay and saprolite bedrock.

STRATIGRAPHIC TRENCH 11 (ST-11)

Stratigraphic Trench 11 (ST-11) (550 cm x 80 cm x 80 cmbs) was located on a northwest/southeast axis (296°/116°). The surface of ST-11 consisted of previously disturbed natural soil deposit and contained three stratigraphic layers (Figures 31 and 32).

Layer I (0-30 cmbs) consists of dark reddish brown (2.5YR 3/3, dry), gravelly, silty clay loam strong grade; medium angular blocky, very firm with a diffuse lower boundary and wavy topography. Layer I represents the natural A-Horizon.

Layer II (30-50 cmbs) consists of reddish brown (2.5YR 4/1, dry), very firm sandy loam, structureless single grain; no visible topography. Layer II represents the natural deposit.

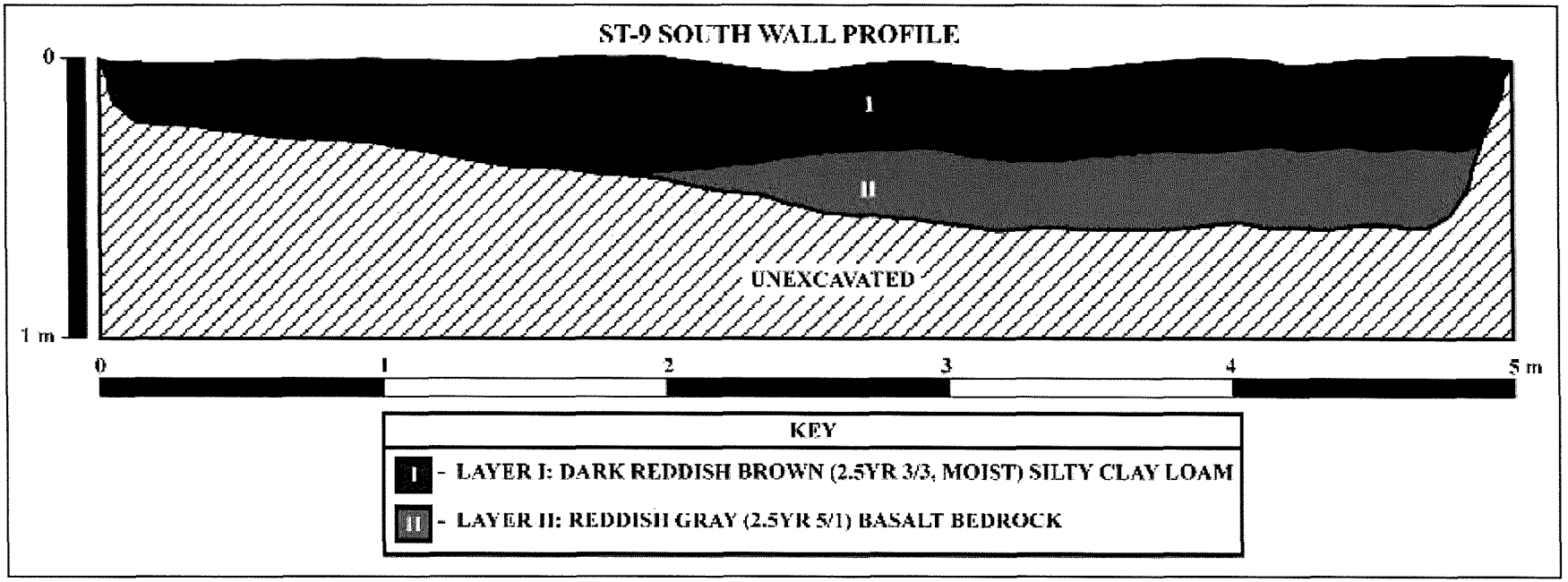

Figure 27: Stratigraphic Trench 9 (ST-9) Profile.



Figure 28: Photographic View of Stratigraphic Trench 9 (ST-9). View to South.

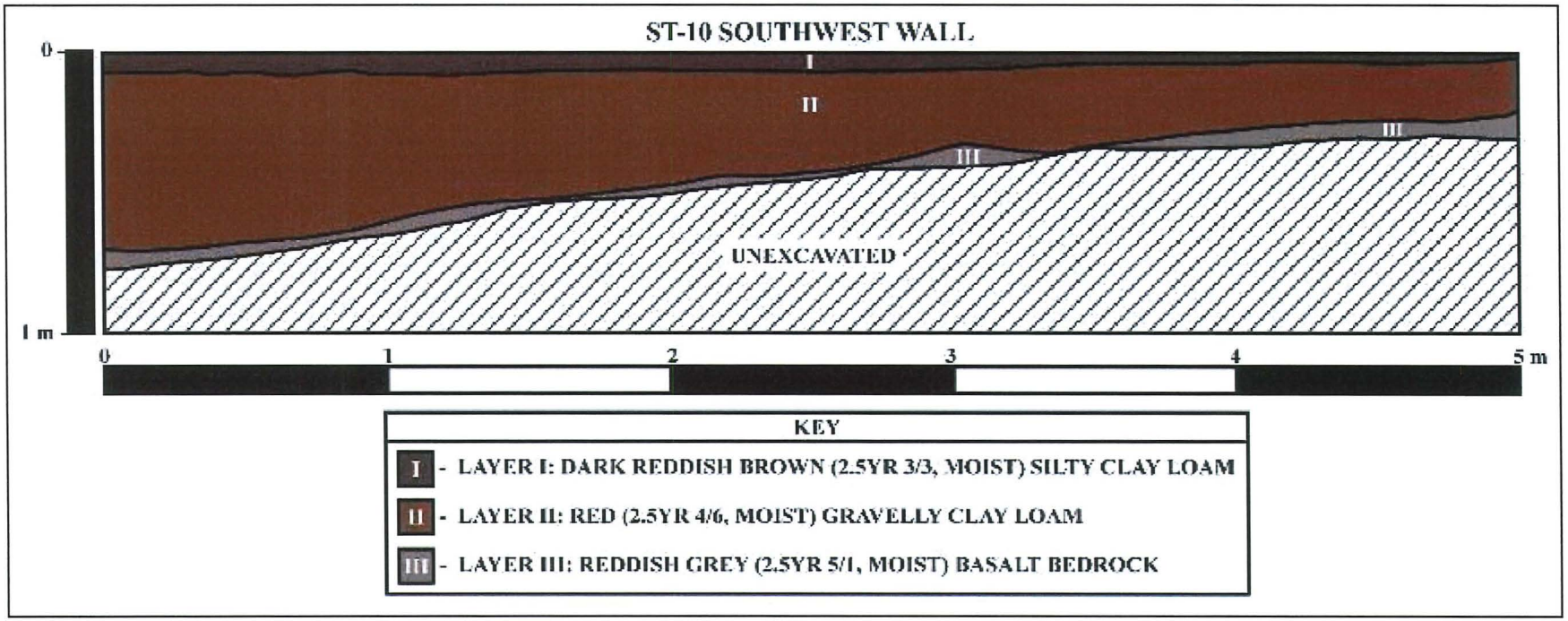

Figure 29: Stratigraphic Trench 10 (ST-10) Profile.



Figure 30: Photographic View of Stratigraphic Trench 10 (ST-10). View to Northwest.

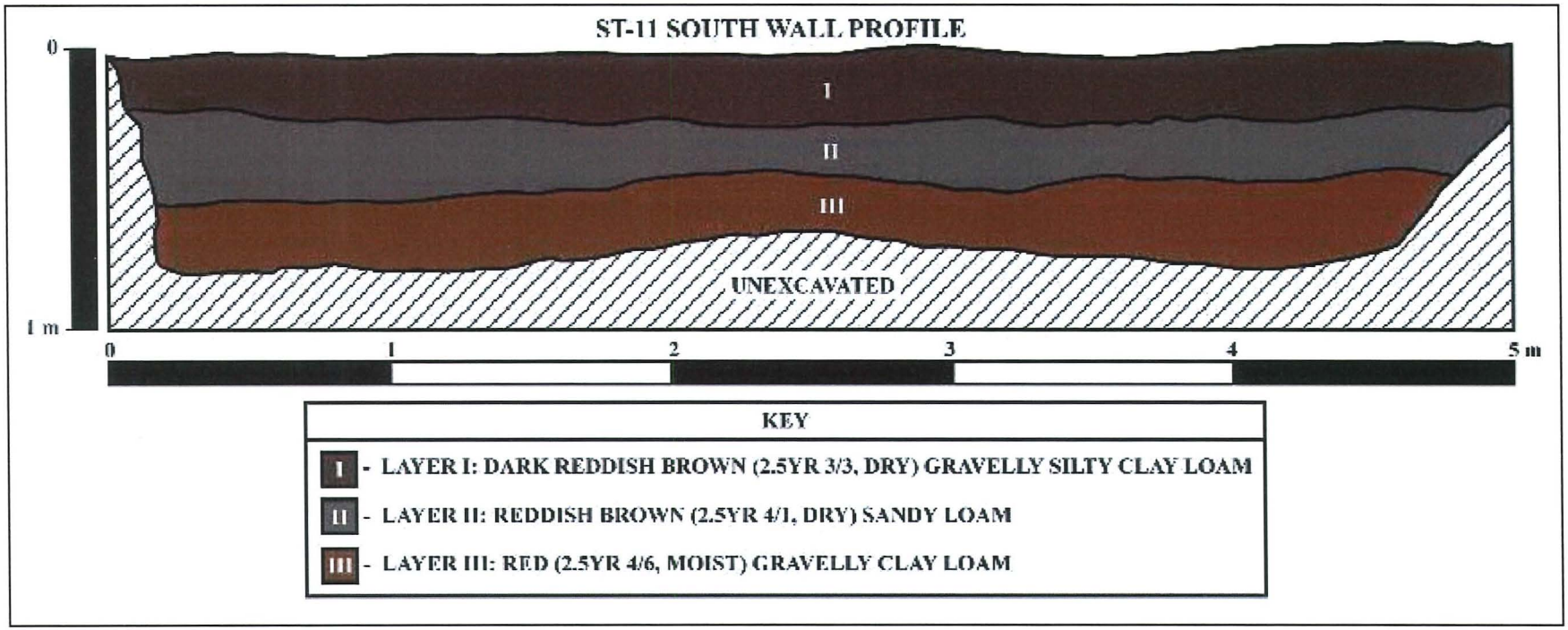

Figure 31: Stratigraphic Trench 11 (ST-11) Profile.



Figure 32: Photographic View of Stratigraphic Trench 11 (ST-11). View to Northwest.

Layer III (42-80 cmbs) consists of red (2.5 YR 4/6, moist) strong grade gravelly loam; very fine, sub-angular blocky; slightly plastic with no roots and no visible lower boundary and topography.

STRATIGRAPHIC TRENCH 12 (ST-12)

Stratigraphic Trench 12 (ST-12) (500 cm x 80 cm x 88 cmbs) was located on a southeast/northwest axis (158°/338°). The surface of ST-12 consisted of previously disturbed natural soil deposit and contained three stratigraphic layers (Figures 33 and34).

Layer I (0-26 cmbs) consists of dark reddish brown (2.5YR 3/3, moist), gravelly silty clay loam, weak grade; firm, very fine sub-angular blocky, slightly plastic with a diffuse lower boundary and wavy topography. No roots present and evidence of disturbance observed.

Layer II (30-105 cmbs) consists of dark reddish gray (2.5 YR 4/3, moist), very firm, structureless massive, slightly plastic, sandy clay with a diffuse lower boundary and wavy topography.

Layer III (30/55-105 cmbs) consists of red (2.5 YR 5/1, moist) sandy clay and saprolite bedrock.

RESULTS AND DISCUSSION

An archaeological Inventory Survey-level investigation was conducted on the project area, comprising 10-acres of the existing 38-acre permitted MISWMF for the Improvements Project. The improvements, proposed by the County of Maui, will involve the development of Phases 5 and 6 disposal cells with a Leachate Collection and Removal System, relocation of the existing green waste facility, and installation of permanent fencing, perimeter drainage, road improvements, and an entrance channel.

This AIS study has documented a heavily disturbed soil stratigraphy represented by shallow deposits comprising not more than three soil strata and consisting of clay-loam and sandy clay-loam soil layers, underlain by solid bedrock to a maximum depth of three feet throughout the project area. These findings indicate extensive previous disturbance likely due to previous land uses, including quarrying activities, etc., within the project area prior to the establishment of the current green waste landfill facility operations. While the strata were identified as the natural deposit, all were sterile of archaeological properties and significant cultural materials.

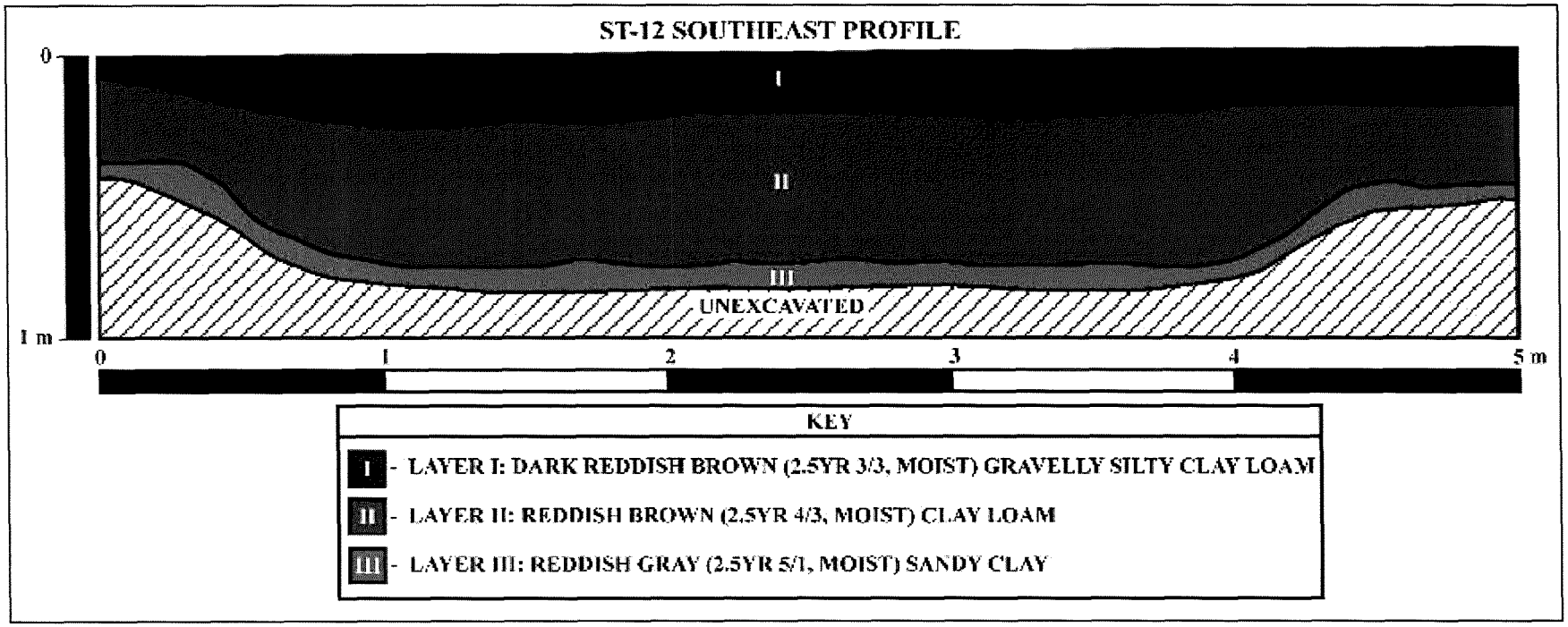

Figure 33: Stratigraphic Trench 12 (ST-12) Profile.



Figure 34: Photographic View of Stratigraphic Trench 12 (ST-12). View to Northwest.

RECOMMENDATIONS

Based on the results of the current AIS and no historic properties identified in the project area, no further archaeological work is recommended for this project area. However, it is recommended that SHPD be consulted concerning any future ground altering work planned within the project area.

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APPENDIX A: LAND COMMISSION AWARD DOCUMENTATION–LCA 11216:12

Mahele Record: 11216*Mo

Claim Number:	11216*Mo
Claimant:	Kekauonohi, Mikahela
Other claimant:	
Other name:	
Island:	Molokai
District:	Kona
Ahupua:	Awawaia, Kapualei, Kaiamiki, Kumueli, Mookeo, Noiwa
Ili:	

Apana:	6	Awarded:	1
Lot:	0	FR:	
Plus:		NR:	360v4
Mala Tarot:	0	FT:	
Kula:	0	NT:	334v10/447v10
House lot:	0	RP:	0132, 0154, 1032, 0154, 8
Kihapai/Pakaoo:	0	Number of Royal Patents:	4
Salt lands:	0	Koele/Poolima:	No
Wauke:	0	Loko:	No
Olona:	0	Lokola:	No
Nori:	0	Fishing Rights:	No
Hala:	0	Sea/Shore/Dunes:	No
Sweet Potatoes:	0	Auwai/Ditch:	No
Irish Potatoes:	0	Other Edifice:	No
Bananas:	0	Spring/Well:	No
Breadfruit:	0	Pigpen:	No
Coconut:	0	Road/Path:	No
Coffee:	0	Burial/Graveyard:	No
Oranges:	0	Wall/Fence:	No
Bitter Melon/Gourd:	0	Stream/Hailwai/River:	No
Sugar Cane:	0	Fair:	No
Tobacco:	0	Disease:	No
Koa/Kou Trees:	0	Claimant Died:	No
Other Plants:	0	Other Trees:	0
Other Hammals:	No	Miscellaneous:	

Document Text

No. 11216*Mo, M. Kekauonohi and A.K. [Aarona Kealiiahonui]
N.R. 360-363v4

To the Land Commissioners, Greetings: We hereby state our claims for land from Hawaii to Kauai, as follows:

Those of Mikahela Kauonohi [also Kealiiahonui]:
Name of the Land, Ahupua'a, District, Island

Waikalua 2 on west, Ahupua'a, Koolau, Kauai
Kaakaaniu, Ahupua'a, Koolau, Kauai

Namahana, Ahupua'a, Koolau, Kauai
Waikoko, Ahupua'a, Halelea, Kauai
Wainihi Ahupua'a, Halelea, Kauai
Kealia, Ahupua'a, Puna, Kauai

Makao, Ahupua'a, Koolau poko, Oahu
Honouliuli, Ahupua'a, Ewa, Oahu
Waimalu, west side, Ahupua'a, Ewa, Oahu

Moakea, Moloka
Makanalua, Ahupua'a, Molokai
Kapualei, Ahupua'a, Molokai
Naiwa, Ahupua'a, Molokai
Kumueli, Ahupua'a, Molokai
Awawaie, Ahupua'a , Moloka

Panaeua [Panaewa], Ahupua'a, Lahaina, Maui

Palawai, Ahupua'a, Lanai

Kapunakea, Ahupua'a, Lahaina, Maui
Pusa, Ahupua'a, Lahaina, Maui
1 Aki 2, Ahupua'a, Lahaina, Maui
2 Kuholilea 2,3, middle & west, Ahupua'a, Lahaina, Maui
Kukuiokaeo, Relinquished Claim, Ahupua'a, Kula, Maui
Palauea, Ahupua'a, Honuaula, Maui
Papaka, Ahupua'a, Honuaula, Maui
Keoneoio, Ahupua'a, Honuaula, Maui
Kaupo 19, Ahupua'a, Maui, The counting of Kaupo begins at Kipahulu
Wailamoa, Hana side, Kipahulu, Maui
Alacanui, Ahupua'a, Maui
Haliimaile, Ahupua'a, Hamakua Poko, Maui
Honokawai, one 'ili there, Kaanapali, Maui

Kukuipahu, Ahupua'a, Kohala, Hawaii
Puuokumau, Ahupua'a, Kohala, Hawaii
Pahoa, Ahupua'a, Kohala, Hawaii
Kealahewa, Ahupua'a, Kohala, Hawaii
Puuopa, Ahupua'a, Kohala, Hawaii
Kanahonua, Ahupuaa, Hamakua, Hawaii
The Lauhulus, Ahupuaa, Hamakua, Hawaii
Hakalau, Ahupua'a, Hilo, Hawaii
Kalaoa, Ahupua'a, Hilo, Hawaii
Maumau, Ahupua'a, Hilo, Hawaii
Maulua, Ahupua'a, Hilo, Hawaii
Punahelu, Ahupua'a, Hilo, Hawaii
Kahuahooholo, Ahupua'a, Hilo, Hawaii
The Paanas 1,2, Ahupua'a, Hilo, Hawaii
Awawaloa, Ahupua'a, Hilo, Hawaii
The Kilaus, Ahupua'a, Hilo, Hawaii
Maonalulu, Ahupua'a, Hilo, Hawaii
Weloka, Ahupua'a, Hilo, Hawaii

Waiakahiula, Ahupua'a, Puna, Hawaii
Panau, Ahupua'a, Puna, Hawaii
Iliohae, Ahupua'a, Kau, Hawaii
Honaunau, Ahupua'a, Kona, Hawaii
Pahochoc, Ahupua'a, Kona, Hawaii
Honokohau, Ahupua'a, Kona, Hawaii
Auhaukeae, Ahupua'a, Kona, Hawaii
Kalihi, Ahupua'a, Kona, Hawaii
Keopu, Ahupua'a, Kona, Hawaii

N.T. 334-336v10
No. 11216, Mikahela Kekauonohi, 20 December 1853

Waiakalua ahupuaa, Koolau, Kauai
Kaakaaniu ahupuaa, Koolau, Kauai
Namahana ahupuaa, Koolau, Kauai
Waikoko ahupuaa, Halelea, Kauai
Wainiha ahupuaa, Halelea, Kauai
Kealia ahupuaa, Puna, Kauai

Makao ahupuaa, Koolauloa, Oahu
Honouliuli ahupuaa, Ewa, Oahu
Waimalu west side ahupuaa, Ewa Oahu

Moakea ahupuaa, Kona, Molokai
Makanalua ahupuaa, Kona, Molokai
Kapualei ahupuaa, Kona, Molokai
Naiwai ahupuaa, Kona, Molokai
Kumueli ahupuaa, Kona, Molokai
Awaewaie ahupuaa, Kona, Molokai

Palawai ahupuaa, Kona, Lanai

Panaewa ahupuaa, Lahaina, Maui
Kapunakea ahupuaa, Lahaina, Maui
Puaa ahupuaa, Lahaina, Maui
1 Aki 2 ahupuaa, Lahaina, Maui
2 Kuhollea 2, 3 center and west ahupuaa, Lahaina renounce
Kukuiokaeo ahupuaa, Kula, Maui
Palanea ahupuaa, Honuaula, Maui
Papaka ahupuaa, Honuaula, Maui
Keoneoio ahupuaa, Honuaula, Maui
Wailamoa on Hana side ahupuaa, Kipahulu, Maui, 5 Sections
Kaupo 19 ahupuaa counting from Kipahulu, Kaupo, Maui
Alae nui ahupuaa, Kipahulu, Maui
Haliimaile ahupuaa, Hamakua Poko, Maui
Honokowai single ili there, Kaanapali, Maui

Kukuipahu ahupuaa, Kohala, Hawaii
Puuokumau ahupuaa, Kohala, Hawaii,

Renounced, Pahoa ahupuaa Kohala, Hawaii
Kealahewa ahupuaa, Kohala, Hawaii
Puuepa ahupuaa Kohala, Hawaii
Honokohau ahupuaa, Kona, Hawaii
Honaunau ahupuaa Kona, hawaii
Auhaukeae ahupuaa, Kona, Hawaii
Pahaoehoe ahupuaa Kona, Hawaii

Renounced, Kalihi ahupuaa, Kona, Hawaii
Keohu ahupuaa, Puna, Hawaii
Waiakahiula ahupuaa, Puna, Hawaii
Panau ahupuaa Hilo, Hawaii
Makalau ahupuaa, Hilo, Hawaii
Kalaoa ahupuaa Hilo, Hawaii
Maumau ahupuaa, Hilo, Hawaii
Maulua ahupuaa, Hilo, Hawaii
Punahelu ahupuaa, Hilo, Hawaii
Kakuakookolo ahupuaa, Hilo, Hawaii
Na Paana 1, 2 ahupuaa, Hilo, Hawaii
Awawaloa ahupuaa, Hilo, Hawaii
Na Kilau ahupuaa, Hilo, Hawaii
Maonalulu ahupuaa, Hilo, Hawaii
Weloka ahupuaa, Hilo, Hawaii
Kanahonua, Hamakua, Hawaii
Na Lauhulu, Hamakua, Hawaii
Iliohae ahupuaa Kau, Hawaii

I hereby approve this discribution it is good, the lands listed above on pages 26-28 of this book are for Mikahela Kekauonohi and presentation can be made with this office of the land commissioners.
(Sign) Kamehameha
Royal Palace, 28 January 1848

COPIED, Interior Office 19 December 1853
I certify the above to be a true copy of that part of page 26 and 28 of "Book Mahele" on file in this office.
H.W.M. Coughtry, Clerk
See page 447

N.T. 447v10
No. 11216, M. Kekauonohi, (from page 335). 23 December 1854

K. Kalaikini, sworn, I have known M. Kekauonohi's land very well, which is lying in Honokowai ahupuaa of Kaanapali, Maui, by the name of "Moomuku."

[Award 11216; (Molokai) Makanalua Kona: Land Patent 8184; Kapualei Kumueli & Awawaie Kona: 1 ap.; 1670 Acs; Land Patent 8132 Naiwa Kona; 3 apana, 5909 Acres; Land (Royal) Patent 8162, Moakea; Land Patent 8154, Kaiamiki Kona;(Maui) no R.P.; Papaka Honuaula: Keoneoio Honuaula; Maalo Kaupo; Puulani Kaupo; Popoioi 1 Kaupo; Popoioi 2 Kaupo; Kahuai Kaupo; R.P. 4388; Kukuiokaeo Kula (Government Deed No. 329. Dec. 13, 1848); Wailamoa Kipahulu: 1 ap.: (ahupua`a; Ap. 24); Alaenui Kipahulu: 1 ap.: (ahupua`a; Ap. 26); Land Patent 8389, Puaa Lahaina; 2 ap.; 17.78 Acs (ahupuaa); Land Patent 8391, Kuhollilea 2, 3, Lahaina; 2 ap.; 8.68 Acs (ahupuaa); Land Patent 8390, Panaewa Lahaina: 3 ap.; 8.15 Acs; R.P. 7512; Halimaile Hamakuapoko: 1 ap.; 44,260 Acs (Ap. 27); Land Patent 8531, Moomuku Honokawai Kaanapali: 1 ap; (Iliaina Ap. 28); Land Patent 8534, Palauea Honuaula; Land Patent 8388, Aki 2 Lahaina: 1 ap.: 11 Acs (ahupuaa); Land Patent 8306, Kapunakea Lahaina: 1 ap.; 35 Acs: (Hawaii) R.P. 7874; Honaunau N. Kona; 1 ap.;

7120 acs; R.P. 7587, Honokohau 1. N. Kona; 1 ap.; 2653 Acs; R.P. 7580; Auhaukeae 1 N. Kona; 1 ap.; 3.34 Acs: No R.P.; Kalihi Kona; 1 ap.; (Ap. 38): no R.P.; Pahoehoe 2 N. Kona; 1 ap.; 1190 acs; R.P. 7874; Keopu N. Kona 1 ap.; 7120 Acs: Land Patent 8556, Keopu N. Kona; Kauhonua Hamakua; 1 ap.; (ahupuaa);R.P. 7541; Hakalaunui; 1 ap. 12580 Acs; R.P. 7139; Kalaoa Hilo; 2 ap.; 64 acs: R.P. 7140; Kalaoa Hilo; 1 ap.; 37.75 Acs; R.P. 7141; Kalaoa Hilo; 1 ap.; 71.15 Acs; R.P. 7160; Kalaoa Hilo; 1 ap.; 36.5 Acs; R.P. 7161; Kalaoa Hilo. 1 ap.; 35.25 Acs: R.P. 7162; Kalaoa Hilo; 2 ap.; 98 Acs; Land Patent 8116: Kalaoa Hilo: 1 ap.; 842 Acs (Ap. 43); Land Patent 8018; Mauluanui Hilo: 1 ap.: 9288 Acs;no R.P.; Kukuipahu N. Kohala; 1 ap.; (Ap. 29) Ahupuaa: no R.P.: Puuepa N. Kohala; 1 ap.: ahupuaa: no R.P.; Puuokamau N. Kohala 1 ap.; ahupuaa; no. R.P.; Kealahewa N. Kohala 1 ap.; (ahupuaa); Land Patent 8095; Panau Puna: ahupuaa (Ap. 4): and Waiakahiula Puna; (ahupuaa) 2 ap.; 2972 Acs; Pahoa Kohala:Maumau Hilo; Punahelu Hilo, Kahuahookolo Hilo; Awawaloa Hilo; Weloka Hilo;(Oahu) Waimalu Ewa; R.P. 6971, Honouliuli Ewa: R.P. 5700, Makao Koolauloa: R.P. 7960, Mokuueume Ewa; (Kauai) Waiakalua 2 Koolau; Namahana Koolau; Kaakaanui Koolau; R.P. 5680, Kealia Puna; R.P. 7165, Akoko Halelea; R.P. 7194, Wainiha Halelea; Waikokol ap.; 476 Acs;(Lanai) R.P. 7093, Palawai]

11216*Mo - No maps found.

Reference: | Doc: 14361 | Date Time: 4/14/2018 2:45:52 AM
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APPENDIX H

CULTURAL INTERVIEWS

Proposed Moloka'i Integrated Solid Waste Management Facility Improvements in Nā'iwa

Cultural Interview

Telephone Interview with: Herman R. Coelho, Jr.

Interview Dates: July 5th and 7th, 2017

Interviewed by: Charlene Shibuya, Planner with Munekiyo Hiraga

Mr. Herman R. Coelho, Jr. was born on Moloka'i 63 years ago at the Ho'olehua General Hospital. His father was from Oahu and his mother from Moloka'i and he is of a blended nationality of Portuguese and Japanese. He was raised on the island and attended Ho'olehua Elementary, Kualapu'u Elementary, and Moloka'i High School before enlisting in the Army.

He spent three (3) years in the army before returning to the islands to work for the County of Maui's Department of Public Works and Waste Management (DPWWM), Wastewater Reclamation Division at the Kīhei Wastewater Treatment Plant on Maui in December 1978. After about three (3) years, he transferred to the DPWWM, Highway Division and returned to Moloka'i Island to work as the Veteran's Cemetery Caretaker. Eventually he joined the Moloka'i road maintenance crew and got trained to operate heavy equipment. His experience as a heavy equipment operator enabled him to later work at the Kalama'ula landfill in May 1993. After the Kalama'ula landfill closed around 1998, he worked at the Moloka'i Integrated Solid Waste Management Facility (MISWMF) in Nā'iwa to continue as a heavy equipment operator handling landfill operations at the relocated site. Thus, his last nine (9) years before retiring, was with the County of Maui, DPWWM and later with the Department of Environmental Management, Solid Waste Division, as a heavy equipment operator on both the Kalama'ula landfill and the Nā'iwa landfill until retirement in June 2002. His total employment with the County of Maui has given him twenty-five (25) years of service.

In the older days when the Kalama'ula landfill was in operation, he recalls how residents would haul their own trash to the landfill and help out neighbors too.

Mr. Coelho is not aware of any cultural practices carried out on or near the Nā'iwa landfill site. Before the landfill operation was transferred from the Kalama'ula site to the Nā'iwa site, the present landfill area was all overgrown. He recalls that when the Kalama'ula landfill was near capacity, the new site chosen by the public was the Nā'iwa site. Also, the Kalama'ula landfill did not have a scalehouse back then.

In observing the current operations at the Nā'iwa landfill, he believes that too much dirt is used to cover the waste layers. Otherwise, he has no objections to the project to improve the existing Nā'iwa landfill site and knows the facility is important for the residents of the island.

He currently owns and lives at a home in Kualapu'u Village, enjoying his retirement years.

Proposed Molokaʻi Integrated Solid Waste Management Facility Improvements in Nāʻiwa

Cultural Interview

Telephone Interview with: Stacy Helm Crivello

Interview Date: July 10, 2017

Interviewed by: Charlene Shibuya, Planner with Munekiyo Hiraga

Stacy Helm Crivello was born on Molokaʻi about 72 years ago at the Hoʻolehua General Hospital, also known as Shingles Hospital. Her father was originally from Haole Camp in Puʻunēnē, Maui and her mother was originally from Hāna side in Pukuilua. Both parents eventually moved to Molokaʻi in the early 1940s. She is of a mixed nationality with over 50 percent Hawaiian and the remaining portion of Portuguese, German, and English descent.

Her career with Hawaiian Telephone Company started on Oʻahu then to the Big Island and back to Molokaʻi in 1974. She retired as a Hawaiian Telephone Company Manager of Molokaʻi and Lānaʻi operations with over thirty (30) years of service. Ms. Crivello also has held a number of positions with community service organizations. She currently is serving a third term as a Councilmember representing Molokaʻi island and Chairs the Housing, Human Services and Transportation Committee.

Ms. Crivello lives in the Kalamaʻula Homestead off Hoawa Road and grew up in an area which is about a mile south of the Nāʻiwa landfill. Prior to the Nāʻiwa landfill site being established, the site was all overgrown with Kiawe trees. Nāʻiwa covers a large area that starts mauka and extends into Palaau on the makai side. Although there is County refuse pick-up, Ms. Crivello takes her own trash directly to the Nāʻiwa landfill. At one time, her son was employed at the landfill.

While Ms. Crivello was not aware of any cultural practices occurring within the landfill site itself, she did note that residents continue to hunt for deer in the areas close to the old quarry/crusher site next to the landfill site without being hampered by the landfill operations. Access to diving and fishing gathering practices makai of the landfill continues via Hoawa Road and down a road going towards the fishpond. As such, the landfill site does not prevent or obstruct access to any nearby hunting, diving, or fishing practices.

Ms. Crivello's impression of the Nāʻiwa landfill is that it is a manmade mountain visible from the Maunaloa Highway. She feels that it would be good for there to be some control over the airspace that the landfill occupies. Ms. Crivello also mentioned that it would be better if the landfill site had a water source for dust control especially with dirt devils that frequently occur in the area. She wondered as to if some grass seeds could be planted

as a dust control measure. Although she feels that a landfill site located further mauka would be more suitable, she understands and recognizes the need for the County of Maui, Department of Environmental Management to improve the existing approved Nā'iwa landfill site to extend its capacity so that it can continue to serve the solid waste disposal needs of the island into the future.

Proposed Moloka'i Integrated Solid Waste Management Facility
Improvements at Naiwa, Moloka'i, Hawai'i
(TMK (2)5-2-011:027 (por.))
Cultural Impact Assessment Interview

Interviewee: Eliza Kauila Reyes

Interviewed by: Charlene Shibuya, Senior Associate
Munekiyo Hiraga

Interview date: August 23, 2017 (via telephone call)

Mrs. Kauila Reyes, also known as Eliza, explains that her name Kauila means "instant lightning". She retired as a Hawaiian specialist with Kamehameha Schools, and is currently a Hawaiian specialist for private pre-schools for Kamehameha Schools on a part-time basis. She is the past president of Queen Ka'ahumanu Society and sits on several boards of schools, as well as Na Pua Wai, a community health board. She continues to keep herself busy and takes care of her family. She also believes that it is important to have meetings and work out problems.

Mrs. Reyes was born in Kawela 91 years ago and raised on Moloka'i, in the area where Kalamaula Church is, just outside of Kaunakakai. Her home is near the big coconut grove on the makai side of Maunaloa Highway across the churches. She currently lives in the Kalama'ula Hawaiian Homestead, the first homestead in Hawai'i, located about one mile east of the Nā'iwa landfill site. Mrs. Reyes is a well-respected Kupuna on Moloka'i available to the people of the island who reach out to her.

She is pure Hawaiian and comes from a family of 13 siblings, with her mother originally from Kona. She was the 10th of 13 children, and is the sole survivor. Her mother moved to Moloka'i after marrying her father who grew up on the east end of Moloka'i and was a police officer. On her father's side, the family goes back many generations on Moloka'i. Her father's grandparents who lived on the east side of Moloka'i were relocated by King Kamehameha to Kalaupapa before it became a leper colony.

She used to go to the Nā'iwa landfill but her son now takes her trash to the landfill for her. Her recollection of the landfill area is that some deer hunting was done. She is not aware of any cultural practices that are or have been carried out on or near the project site. The landfill itself does not pose a problem for her which she claims is far enough away from residential areas to not cause any odors. She expressed no objections or concerns with the proposed landfill improvements.