

EXHIBIT A

**Agricultural Land Assessment**  
for  
**Māhā‘ulepū Farm LLC**  
Māhā‘ulepū, Kaua‘i

February 2011

Prepared for: Māhā‘ulepū Farm LLC  
3-1850 Kaunuali‘i Highway  
Līhu‘e, HI 96766

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**EXHIBIT** "A"

## Introduction/Purpose

To support a Petition for Declaratory Order to Designate 'Important Agricultural Lands' ('IAL'), an Agricultural Lands Assessment was prepared for lands owned by Māhā'ulepū Farm LLC on Kaua'i.

HRS § 205-44(c) provides the standards and criteria to identify IAL. HRS § 205-44(a) provides that lands identified as IAL need not meet every standard and criteria listed in HRS § 205-44(c); rather, lands meeting any of the criteria in HRS § 205-44(c) shall be given initial consideration, provided that the designation of IAL shall be made by weighing the standards and criteria with each other to meet the constitutionally mandated purposes in article XI, section 3, of the Hawaii Constitution and the objectives and policies for IAL in section 205-42 and 205-43. The standards and criteria of section 205-44(c) are as follows:

- 1) *Land currently used for agricultural production;*
- 2) *Land with soil qualities and growing conditions that support agricultural production of food, fiber, or fuel-and energy-producing crops;*
- 3) *Land identified under agricultural productivity rating systems, such as the agricultural lands of importance to the State of Hawaii (ALISH) system adopted by the board of agriculture on January 28, 1977;*
- 4) *Land types associated with traditional native Hawaiian agricultural uses, such as taro cultivation, or unique agricultural crops and uses, such as coffee, vineyards, aquaculture, and energy production;*
- 5) *Land with sufficient quantities of water to support viable agricultural production;*
- 6) *Land whose designation as important agricultural lands is consistent with general, development and community plans of the county;*
- 7) *Land that contributes to maintaining a critical land mass important to agricultural operation productivity;*
- 8) *Land with or near support infrastructure conducive to agricultural productivity, such as transportation to markets, water or power.*

The following assessment of the approximately 1,533 acres of Māhā'ulepū Farm LLC lands proposed to be designated IAL provides an overview of the various characteristics of the subject lands. The attached exhibits (Figure 1 through Figure 8) illustrate and quantify the land characteristics of the proposed Māhā'ulepū Farm IAL.

## Agricultural History of Māhā'ulepū

Māhā'ulepū is indeed an agriculturally significant place as it was one of the first places in the State where sugar was grown commercially.

As early as 1820, Chinese immigrants farmed sugar cane in small mills across the Kaua'i Island which included a mill at Māhā'ulepū. These mills ran for roughly a dozen years,

up until 1832. These operations produced raw sugar and molasses that were consumed locally but they are not operated on a commercial scale<sup>1</sup>.

In 1835, Ladd and Company attempted to commercially produce sugarcane in Kōloa. They obtained a 50 year lease signed by Kamehameha III and the Governor of Kaua'i. This lease was the first of its kind in Hawai'i and the first formal recognition of the right of someone other than a chief to control land<sup>1</sup>. Kōloa Plantation was established in 1841 and has the significant distinction of being the first sugar plantation in the State of Hawai'i.

After 10 years of struggling, Ladd and Company's venture failed but Kōloa Plantation survived under new owners Robert Wood and a brother-in-law of one of the original owners.

In 1878, Kōloa Plantation began growing roughly 875 acres of sugar cane in Māhā'ulepū Valley and sugar was cultivated in the area for well over a century. In 1897, Kōloa Plantation dug wells to irrigate the ahupua'a of Māhā'ulepū to better provide water for the thirsty crop<sup>1</sup>.

In 1948, Grove Farm Company, Inc. purchased Kōloa Plantation<sup>1</sup>. After nearly a century of independent sugar production, Grove Farm ceased sugar cultivation in 1974 and leased its Kōloa lands, as well as the Kōloa Mill, to McBryde Sugar Company. From 1974 until 1996, McBryde Sugar Company continued the sugar production. In September of 1996, McBryde Sugar Company had their last harvest and the Kōloa Mill closed.

#### Figure 1: Current and Future Agricultural Operations

As described above, the area proposed to be designated IAL lands has a long history of agricultural usage. When McBryde Sugar Company ceased sugar production and closed the Kōloa Mill in 1996, other opportunities were explored to ensure active agricultural utilization of the subject lands. Currently the subjected lands host a variety of lessees that span the spectrum from ranching to diversified agricultural operations. Figure 1 illustrates the current tenants on the proposed IAL lands. Figure 2 is the aerial view of Māhā'ulepū Valley with the overlay of the proposed IAL parcel boundary in the valley.

According to Grove Farm Company's lease records, a portion of the Māhā'ulepū area has served ranchers since as early as 1986, as evidenced by a ranching lease to William Ludington (currently Vasconcelles & Son Ranch and David & Moana Palama). As sugar was in the valley until the early 1990's, other ranchers didn't enter that specific area and begin their ranching operations until 2002, when CJM Country Stables and David & Moana Palama began their leases.

Taro cultivation in Māhā'ulepū Valley was initiated with a lease to W. T. Haraguchi in 2007. A majority of the 445 acres of leased lands have been used as pasture land until

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<sup>1</sup> Donohugh, Donald. The Story of Kōloa: A Kaua'i Plantation Town. Honolulu: Mutual Publishing, 2001. Pg. 87, 88, 98, 185

they are converted into taro fields. With a 20-year lease, W.T. Haraguchi plans to expand taro cultivation to over 400 acres which will nearly double the entire statewide production of this culturally significant crop. Other island taro farmers are interested in expanding the production of taro in Māhā'ulepū Valley as well.

Leases with a seed corn company began in 1996. Currently, about 564 acres at Māhā'ulepū are under lease with Pioneer Parent Seed and Pioneer Research & Development. The lease term extends to 2019 and the tenants have plans to expand the leased area up to 805 acres for future bio-energy crops and corn expansion.

In 1998, a lease of 36 acres land was also entered into with AJAR (Adam Killermann), an independent farmer, for agricultural operations in the adjacent area in Māhā'ulepū.

Aque Engineers, Inc. providing water and wastewater services in Po'ipū, has leased 45 acres in Māhā'ulepū since 2003. They are doing land application of using sludge from its sewer plants to grow grass that is harvested for animal feed. The sludge acts as soil amendment/ fertilizer for growing the forage crop that is periodically harvested.

#### Figure 3: Agricultural Soils Productivity Ratings

The Detailed Land Classification System and Agricultural Land Productivity Ratings by the Land Study Bureau (LSB), University of Hawaii are based on a five-class productivity rating system using the letters A, B, C, D, and E, with A representing the class of highest productivity and E the lowest. As illustrated in Figure 3, about 88.5% of the proposed IAL lands are rated B. The balance of the proposed IAL lands, while rated C, D, E or N (Not in LSB) are either essential elements of the active agricultural operation (reservoirs, drainage ways, etc.) or the lands surrounded by the B rated lands.

#### Figure 4: Solar Radiation

Based on the Sunshine Maps prepared in 1985 by the State Department of Business, Economic Development and Tourism, formerly known as the State Department of Planning and Economic Development, Energy Division, over 80.7% of the proposed IAL lands receive an annual average of 450 calories of solar energy per square centimeter per day and the balance of the lands receive an annual average 400 calories of solar energy per square centimeter per day.

#### Figure 5: Agricultural Lands of Importance to the State of Hawaii (ALISH)

The Agricultural Lands of Importance to the State of Hawaii (ALISH) classification system was developed in 1977 by the State Department of Agriculture. The system was based primarily, but not exclusively, on the soil characteristics of lands and existing cultivation. There are three classes of ALISH lands – Prime, Unique, and Other. Approximately 77.9% of the proposed IAL lands are classified as Prime and Other ALISH: 41.5% Prime ALISH and 36.4% Other ALISH. The balance of the lands include essential elements of the active agricultural operation, such as the reservoirs and drainage ways, are classified Unclassified, or are not classified under ALISH classification.

#### Figure 6: Agricultural Infrastructure and Water Resources

The Agricultural Infrastructure and Water Resources Map (Figure 6) presents the whole waster system that serves the proposed IAL lands. It includes the onsite and off-site waster sources and the water transfer and distribution system.

The main water source for the proposed IAL lands and the surrounding area is the Waita Reservoir which occupies about 429 acres land area and has +/- 2.3 billion gallons capacity. Puuhi Reservoir and Māhā'ulepū Reservoir are two reservoirs located on the proposed IAL lands. The estimated capacities of both reservoirs are approximately 2.5 million gallons. The Waita Reservoir serves as resource for these two reservoirs.

The Māhā'ulepū Reservoir is fed by gravity flow via the Waita Reservoir ditch and pipeline. The water in the Māhā'ulepū Reservoir will be distributed through the irrigation pipeline and furrow irrigation system to the fields in Māhā'ulepū valley. The Puuhi Reservoir is also fed by ditch and pipeline. Pumps are also installed. When the extra water is needed at Puuhi Reservoir, pumps will be used to supplement the gravity flow.

The current irrigation system covers all the lands within the proposed IAL area. Portion of the IAL lands are currently furrow ditch irrigated fields which are identified in Figure 6. Pioneer, the seed corn company, is considering making improvements to the irrigation system for its leased lands. The improvement plan includes upgrading the Puuhi Reservoir and expanding the area served by pipeline versus furrow ditch irrigation.

In addition to the exiting reservoirs and irrigation system, the proposed IAL lands also receive an average of 38 to 65 inches of rain annually. Therefore, the proposed IAL lands have sufficient quantities of water to support viable agricultural production.

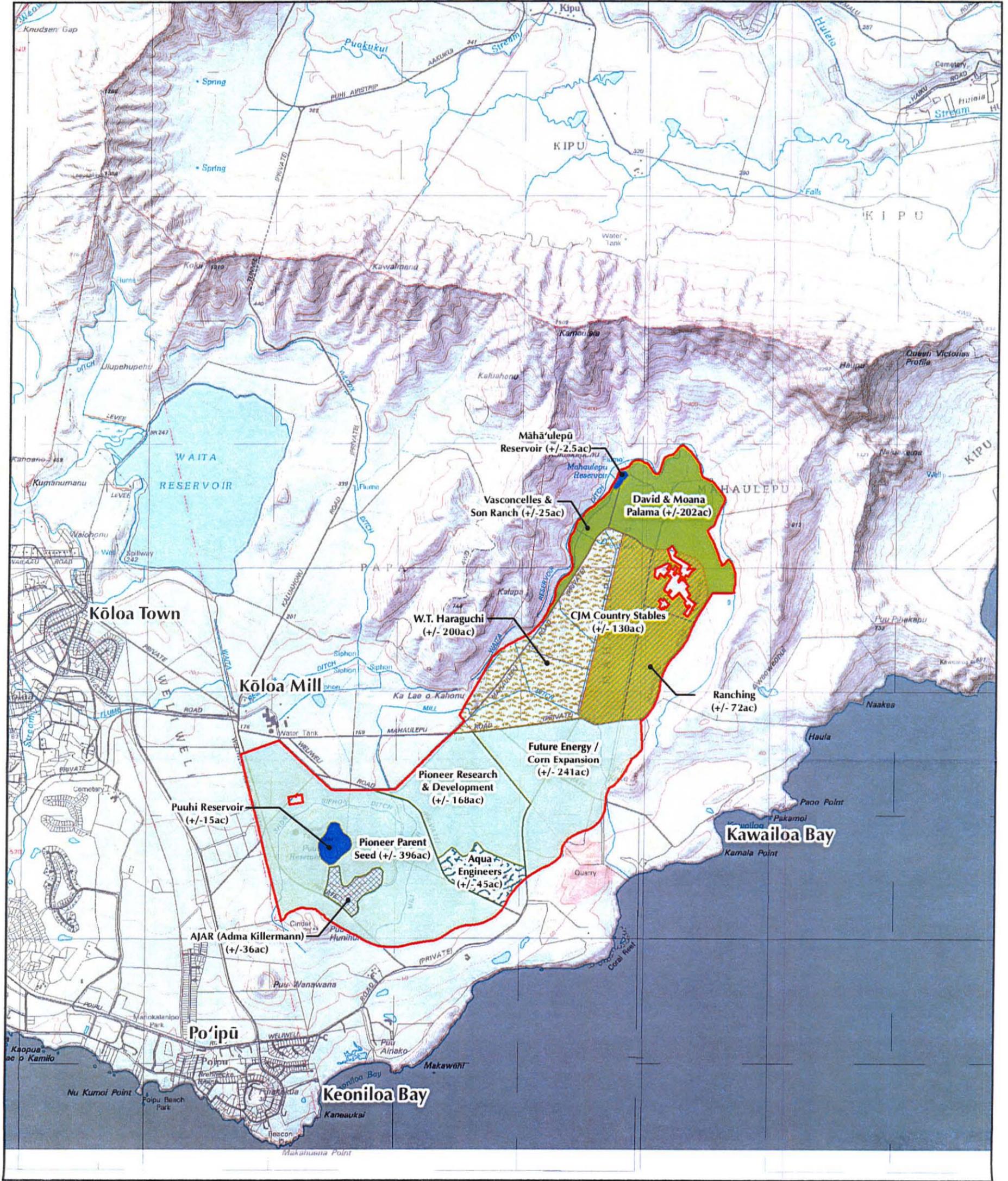
#### Figure 7: Kaua'i General Plan

The General Plan of the County of Kaua'i is a policy document that is intended to help guide development for the enhancement and improvement of life on Kaua'i. It was last updated in 2000 and provides the County's vision for Kaua'i and establishes the strategies to help achieve that vision.

According to the 2000 General Plan Update and the Kōloa-Po'ipū-Kalaheo Planning District Land Use Map published in this document, almost all of the proposed IAL lands are designated as Agriculture with a few portions designated as Open where there are the essential elements of the active agricultural operation such as streams, drainage ways and reservoirs.

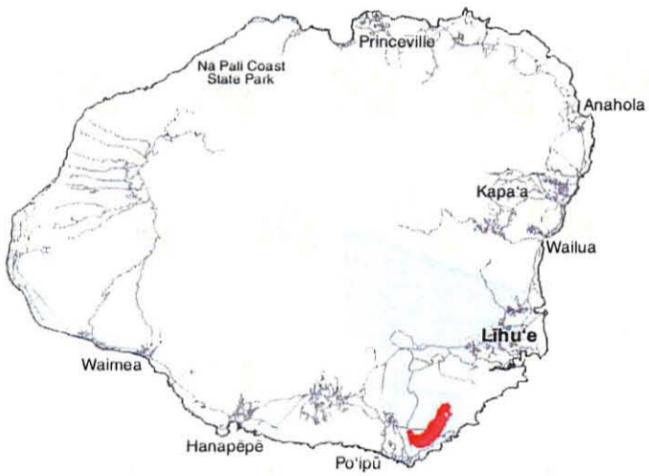
#### Figure 8: State Land Use District Boundary Map

Utilizing the official State Land Use District Boundary Maps, the proposed IAL lands are illustrated to confirm that all the proposed IAL lands are within the Agricultural District. Where the proposed IAL lands are contiguous to the Conservation District boundary, the proposed IAL boundary follows the Conservation District boundary.



**LEGEND**

- Proposed IAL Designation
- Land Leases on IAL Designated Lands**
- Ranchers ----- +/- 429ac
- Taro Cultivation ----- +/- 200ac
- Seed Companies ----- +/- 805ac
- Independent Farmer ---- +/- 36ac
- Land Application ----- +/- 45ac
- Reservoirs ----- +/- 18ac
- Future Kauai Kalo/Taro - +/- 245ac



**FIGURE 1 :**  
 Current and Future Agricultural Operation  
**MĀHĀ'ULEPŪ FARM IAL**

Māhā'ulepū Farm LLC Island of Kauai

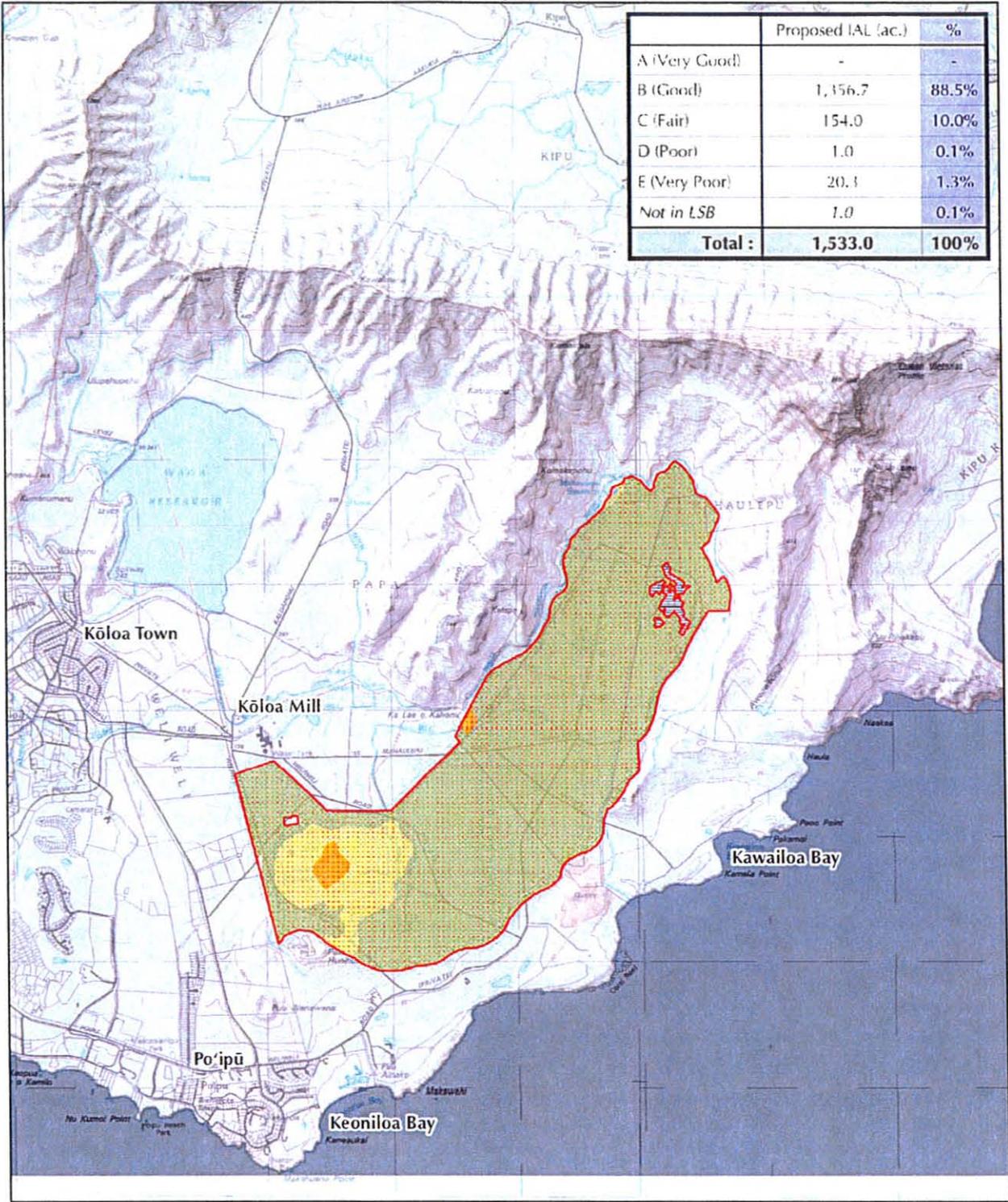
North Lineal Scale (feet)

0 1,250 2,500 5,000

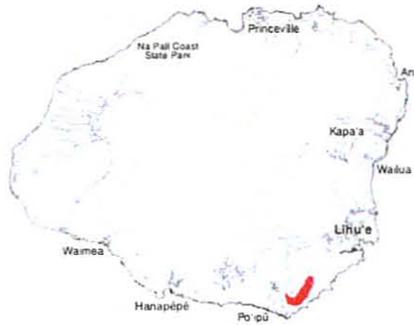
**PBR HAWAII**  
ASSOCIATES, LLC

Source: Grove Farm; U.S. Geological Survey; Grove Farm Prior Agricultural Fields (GIS); Kauai TMK (GIS, 2009)  
 Disclaimer: This graphic has been prepared for general planning purposes only.





	Proposed IAL (ac.)	%
A (Very Good)	-	-
B (Good)	1,156.7	88.5%
C (Fair)	154.0	10.0%
D (Poor)	1.0	0.1%
E (Very Poor)	20.3	1.3%
Not in LSB	1.0	0.1%
<b>Total :</b>	<b>1,533.0</b>	<b>100%</b>



**LEGEND**

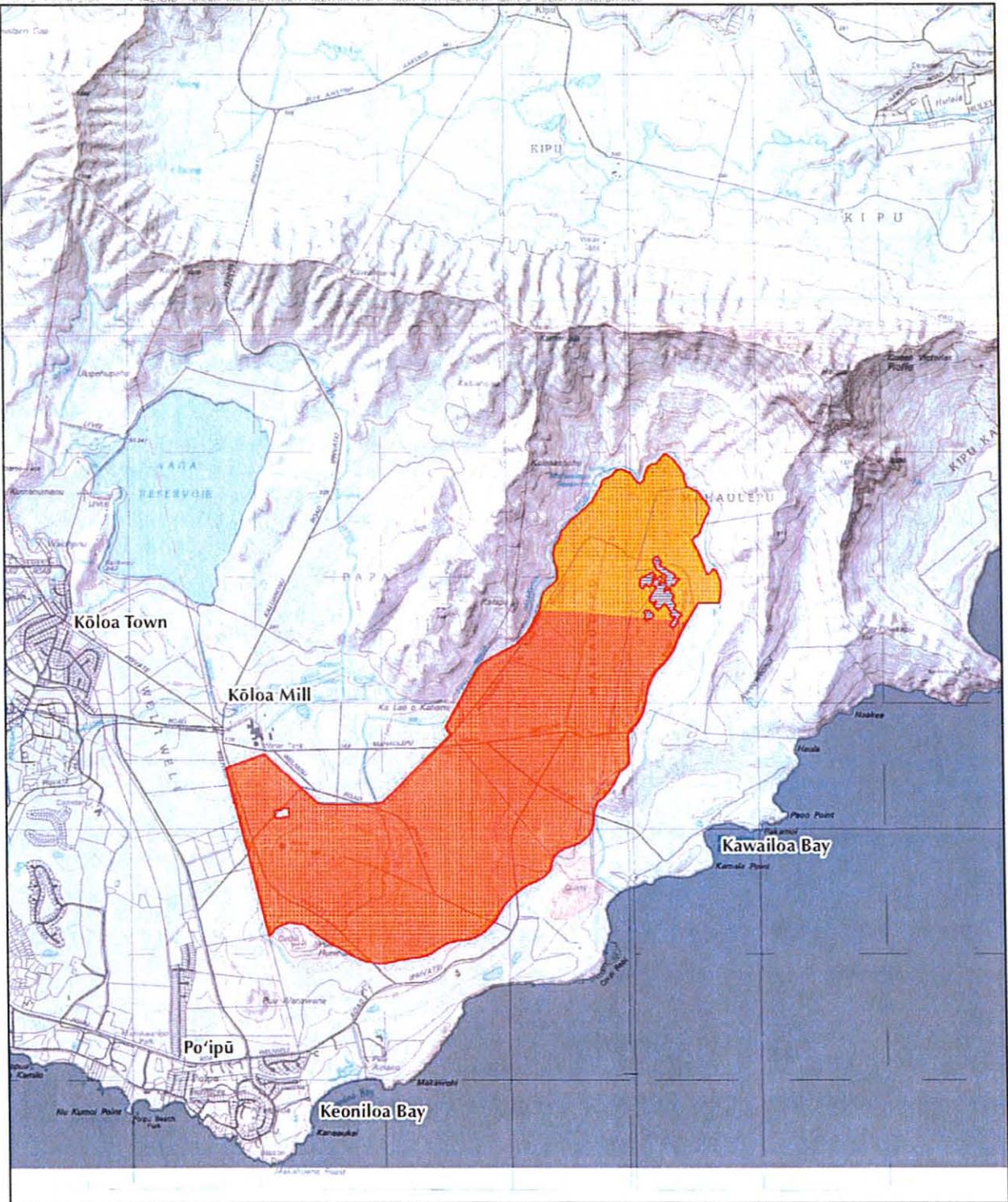
	Proposed IAL Designation		Land Classification
	Kuleana		B (Good)
			C (Fair)
			D (Poor)
			E (Very Poor)
			N (Not in LSB)

**FIGURE 3 :**  
**Land Study Bureau -**  
**Detailed Land Classification**  
**MĀHĀ'ULEPŪ FARM IAL**

Māhā'ulepū Farm LLC Island of Kauai

North Linear Scale (feet) 0 1,250 2,500 5,000

Source: Grove Farm U.S. Geological Survey Land Study Bureau 1987 (GIS); Kauai TMK (GIS 2008)  
 Disclaimer: This report has been prepared for general planning purposes only.



**LEGEND**

-  Proposed IAL Designation
- Solar Radiation (cal/sq.cm./day)
  -  400
  -  450
  -  Kuleana

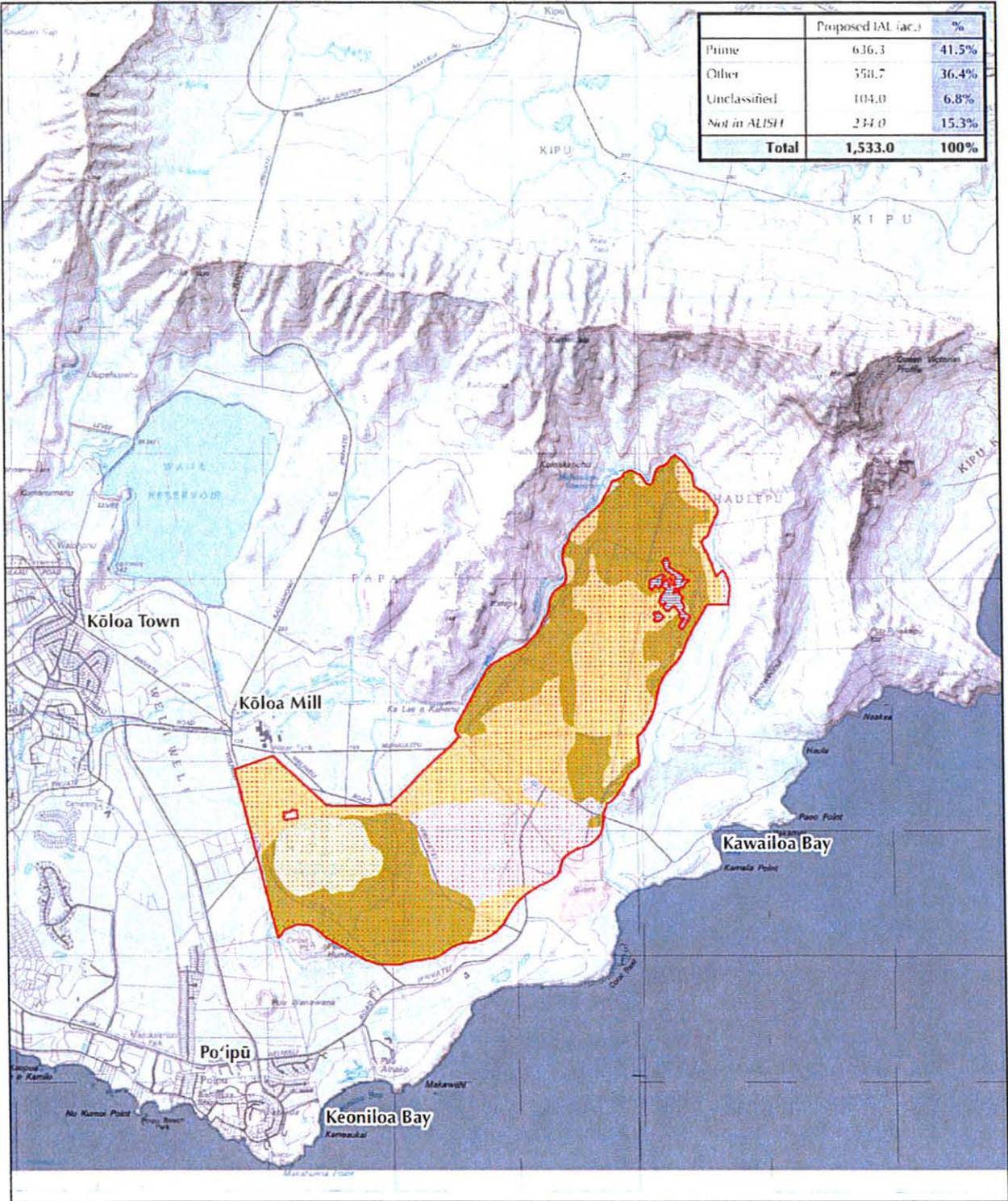
**FIGURE 4 :**  
Solar Radiation

**MĀHĀ'ULEPŪ FARM IAL**

Māhā'ulepū Farm LLC



Source: Grove Farm U.S. Geographical Survey, Solar Radiation, Intersected GIS Data, TMX (GIS), 2006.  
 Disclaimer: This graphic has been prepared for general planning purposes only.



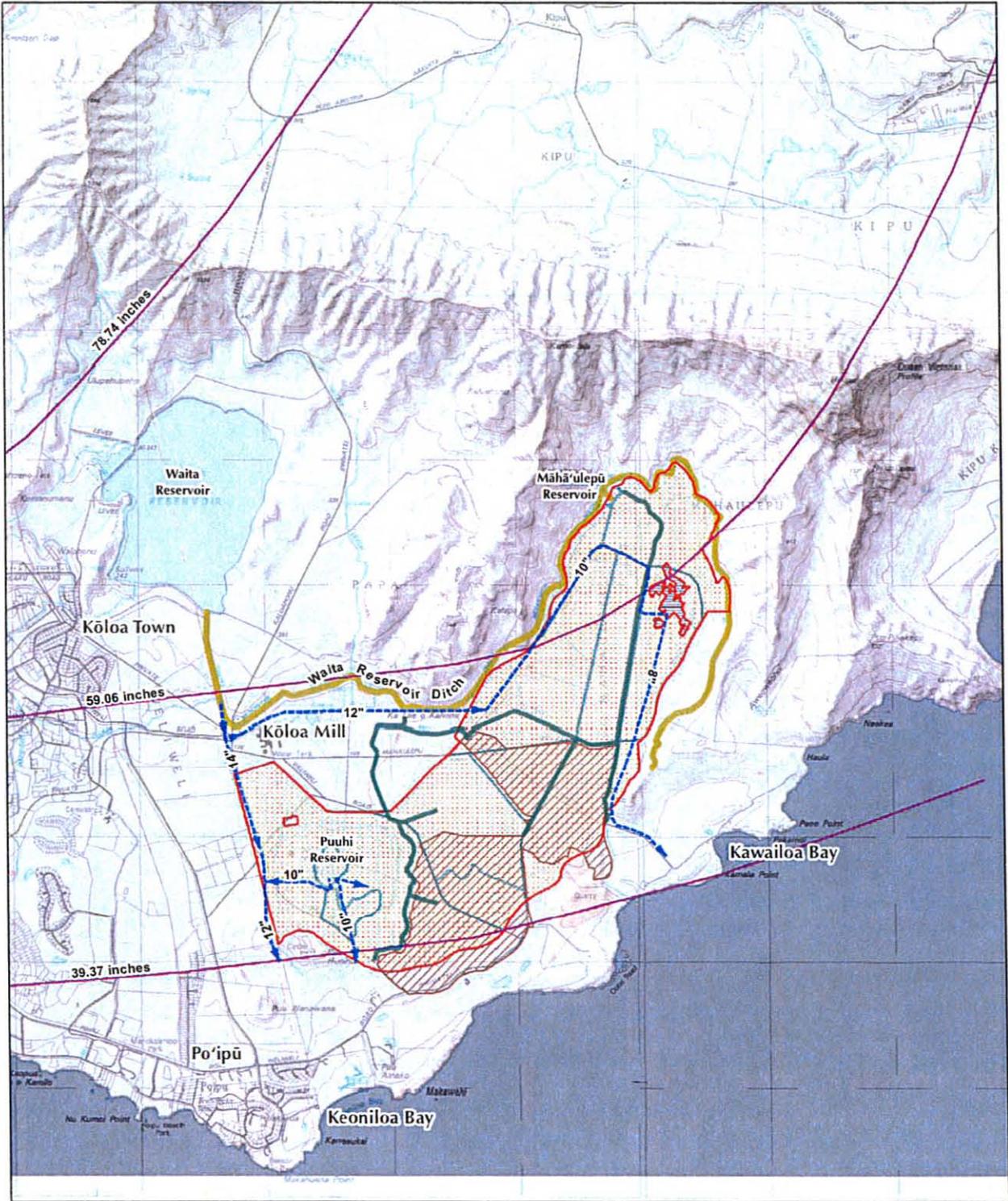
**FIGURE 5 :**  
 Agricultural Lands of Importance to the State of Hawai'i

**MĀHĀ'ULEPŪ FARM IAL**

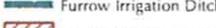
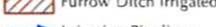
Māhā'ulepū Farm LLC



Source: Grove Farm, U.S. Geological Survey, State Department of Agriculture, 1977 (GIS) TMK (IG) 2009  
 Disclaimer: This graphic has been prepared for general planning purposes only.

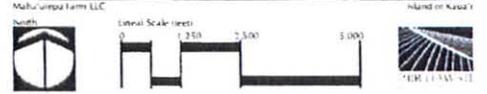


**LEGEND**

-  Proposed IAL Designation
-  Land Leases on IAL Designated Lands
-  Kuleana Parcels (Not Included in IAL)
-  Average Annual Rainfall (in.)
-  Waita Reservoir Ditch
-  Furrow Irrigation Ditch
-  Furrow Ditch Irrigated Field
-  Irrigation Pipelines

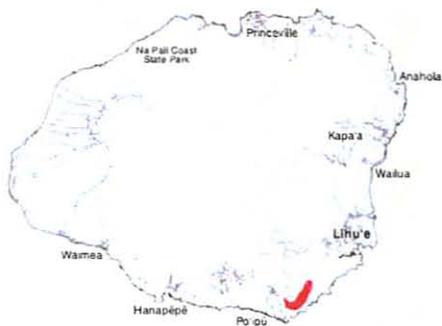
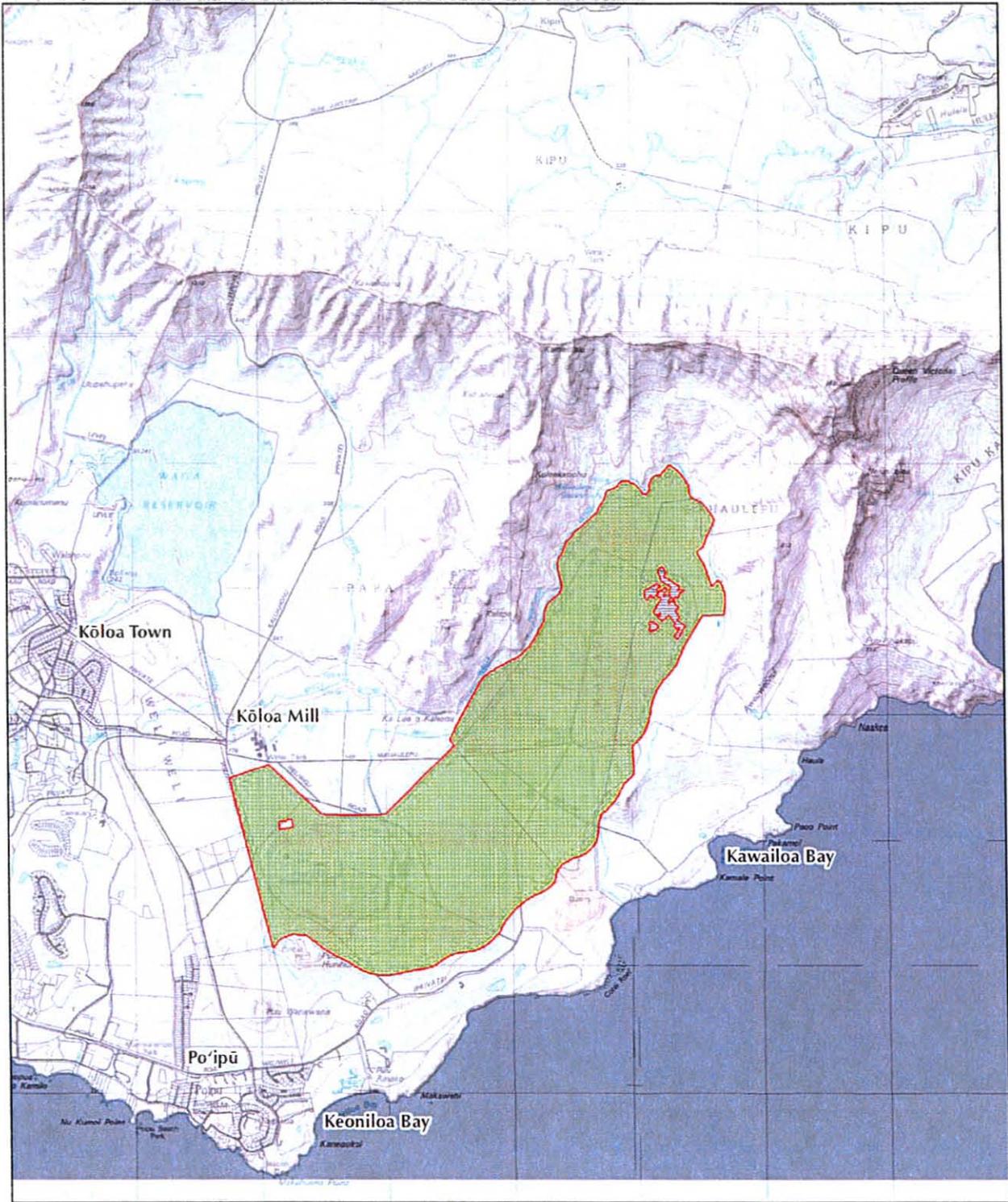


**FIGURE 6 :**  
**Agricultural Infrastructure and Water Resources**  
**MĀHĀ'ULEPŪ FARM IAL**



Source: Green Farm Company, Inc., Field Map (August 7, 1996)  
 Disclaimer: This plan has been prepared for general planning purposes only.





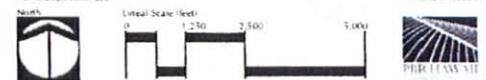
**LEGEND**

- |  |                          |   |                          |
|--|--------------------------|---|--------------------------|
|  | Proposed IAL Designation |  | State Land Use Districts |
|  | Kuleana                  |  | Agriculture              |
|  |                          |  | Conservation             |
|  |                          |  | Rural                    |
|  |                          |  | Urban                    |

**FIGURE 8 :**  
 State Land Use Districts

**MĀHĀ'ULEPŪ FARM IAL**

Māhā'ulepū Farm LLC Island of Kauai



Source: Grass Farm, U.S. Geological Survey, State Land Use Commission (GIS, 2010); Kauai TMM (GIS, 2008)  
 Disclaimer: This graphic has been prepared for general planning purposes only.

EXHIBIT B

**Agricultural Land Assessment**  
for  
**Māhā‘ulepū Farm LLC**  
Māhā‘ulepū, Kaua‘i

February 2011

**EXHIBIT "B"**

Tax Map Key Description

Approximately 1,533 acres of land owned by Māhā'ulepū Farm LLC on Kaua'i are proposed to be designated as IAL. These lands are specifically described as portions of TMK numbers: 2-9-01:01; 2-9-03:01, 05 and 06.

The following table shows a summary of TMK parcels and approximate acreage for the proposed IAL lands:

<i>TMK NUMBER</i>	<i>APPROXIMATE ACREAGE</i>
2-9-01:01 (Por.)	710
2-9-03:01 (Por.)	632
2-9-03:05 (Por.)	6
2-9-03:06 (Por.)	185
<b><i>TOTAL:</i></b>	<b>1,533</b>

Exhibit B illustrates the proposed IAL lands and the related Tax Map Key parcels. To illustrate the individual TMK parcels, Exhibits B-1 and B-2 are provided to identify the individual TMK parcels and portions thereof that are proposed to be designated IAL.



**LEGEND**

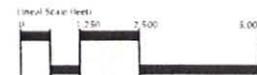
-  IAL Lands Related TMK Parcels
-  Proposed New Company IAL

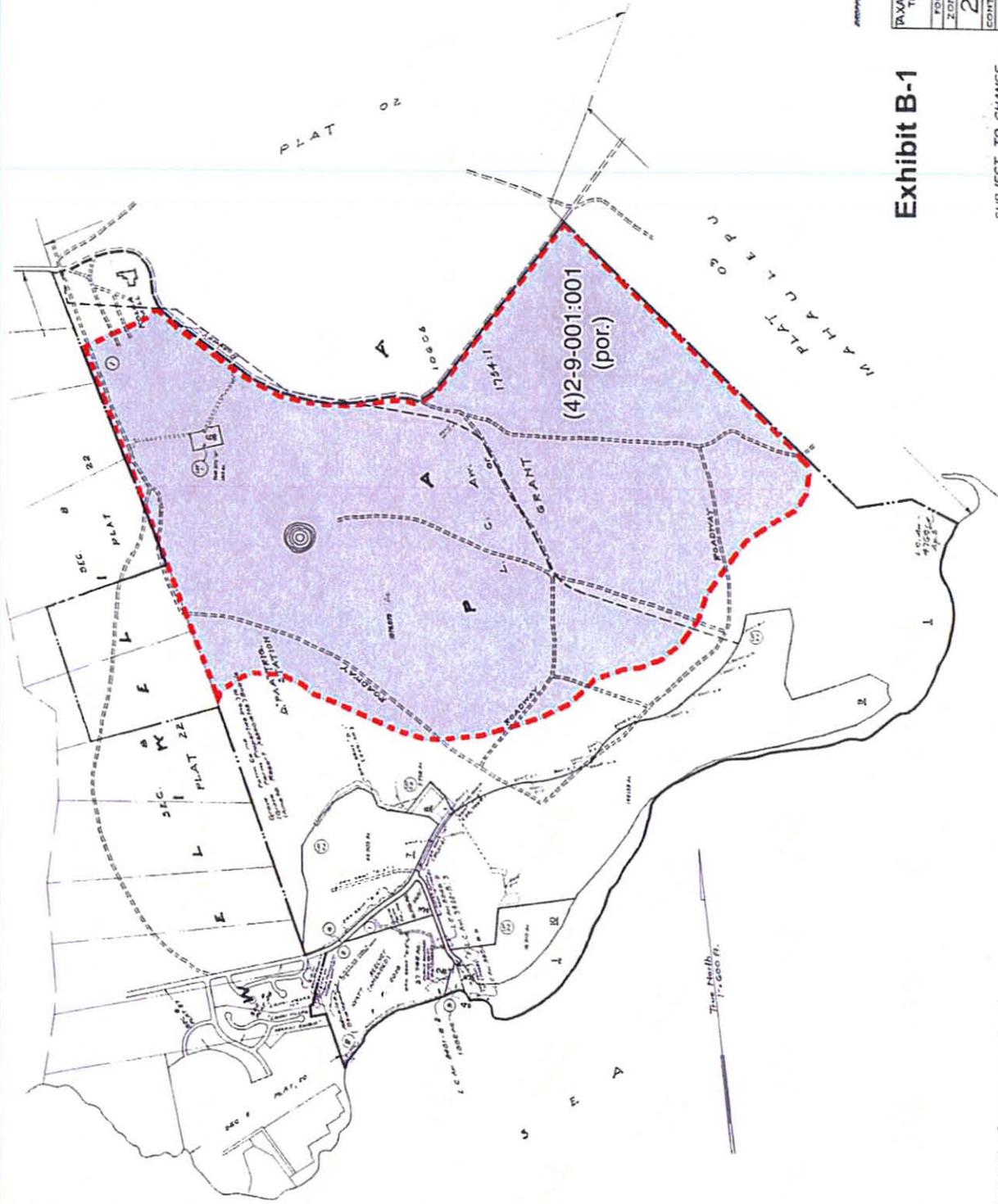
**EXHIBIT B :  
 TMK Parcel Map**

**MĀHĀ'ULEPŪ FARM IAL**

Māhā'ulepū Farm LLC

Map of Kauai



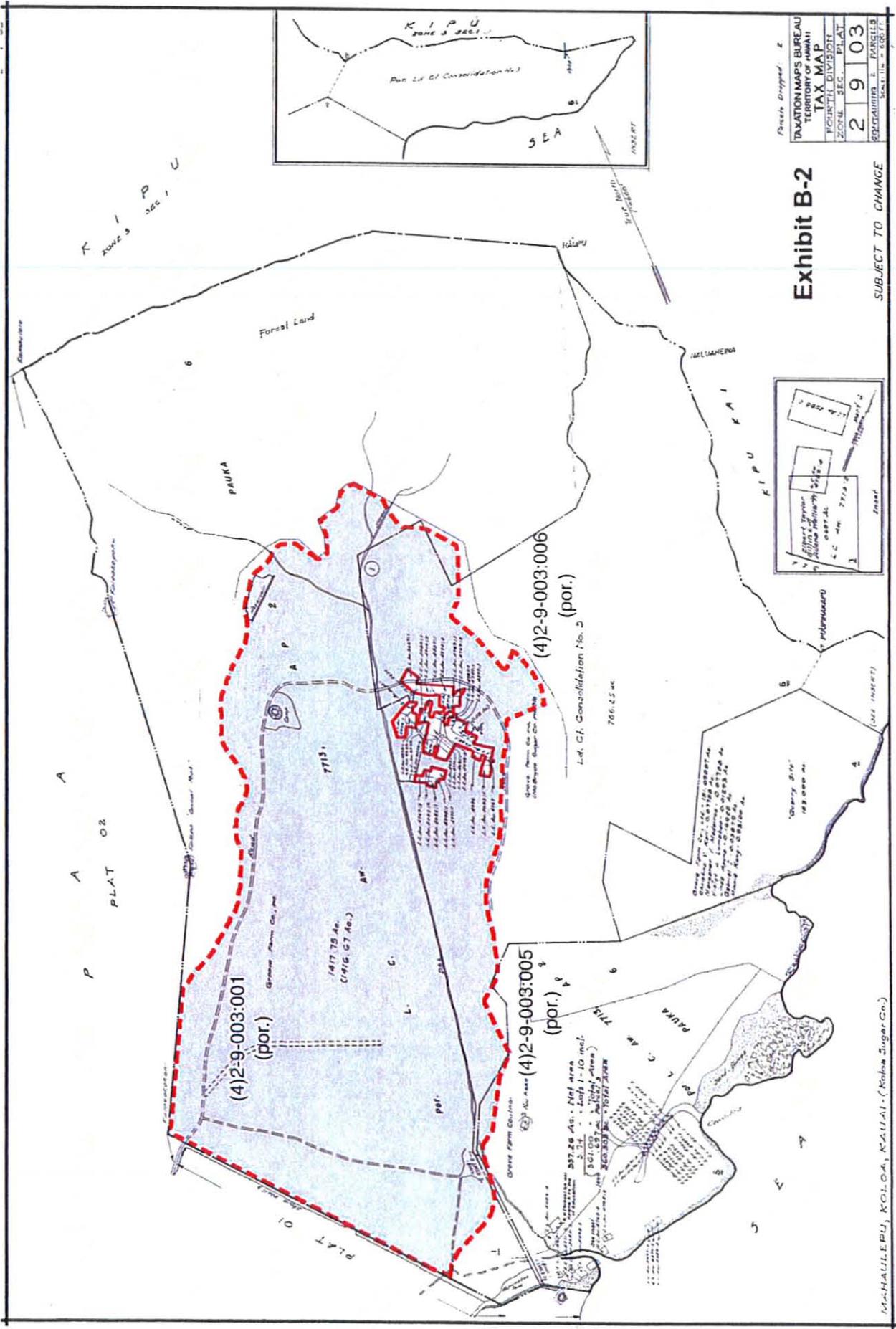


ADDED PARCELS - 5

TAXATION MAPS BUREAU	
TERRITORY OF HAWAII	
TAX MAP	
FOURTH DIVISION	
ZONE	SEC. PLAT
2	9 01
CONTAINING PARCELS	
SCALE 1 IN. = 600 FT.	

**Exhibit B-1**

SUBJECT TO CHANGE



**Exhibit B-2**

SUBJECT TO CHANGE

MAHAULEPU, KOLOA, KAUAI - (Kohala Sugar Co.)