BRYAN J. BAPTISTE
MAYOR

GARY K. HEU
ADMINISTRATIVE ASSISTANT

COUNTY ENGINEER
TELEPHONE 241-6600

LADYE H. MARTIN
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6640

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
MO'IKEHA BUILDING, SUITE 275
LIHU'E, KAUA'I, HAWAI'I 96766-1340

September 29, 2004

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control (OEQC)
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

SUBJECT: ***FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR KEKAHA LANDFILL SECOND VERTICAL EXPANSION, TMK 1-2-02:9 & PORTION OF 1, KEKAHA, KAUAI, HAWAII.***

Dear Ms. Salmonson,

The County of Kauai Department of Public Works, Solid Waste Division has reviewed the comments received during the 30-day public comment period, which began on July 23, 2004. The Solid Waste Division has determined that this project will not have significant environmental effects and hereby issues a Finding Of No Significant Impact (FONSI). Please publish this notice in the next issue of the Environmental Notice.

We have enclosed a completed OEQC Publication Form and four copies of the final EA. Please call me at (808) 241-6880 if you have any questions.

Should you have any questions, please call me at 241-6880.

Sincerely,

TROY K. TANIGAWA
SWPAO

CONCUR:

LADYE H. MARTIN , ESQ.
Deputy County Engineer

Final
Environmental Assessment

Kekaha Landfill Phase II Second Vertical Expansion

Kekaha, Kaua'i, Hawai'i

Prepared For:
County of Kaua'i
Department of Public Works,
Solid Waste Division

Prepared By:

EARTH TECH, Inc.

and

Wil Chee – Planning, Inc.

September 2004

Table of Contents

List of Figures

List of Tables

List of Acronyms and Abbreviations

cfs	cubic feet per second
cm/sec	centimeters per second
cy	cubic yard
DLC	drainage layer capacity
DLNR	Department of Land and Natural Resources
DOH	Department of Health, State of Hawai'i
EPA	Environmental Protection Agency
g	gravitational pull
gpd	gallons per day
HAR	Hawai'i Administrative Rules
HDPE	high –density polyethylene
HELP	Hydraulic Evaluation of Landfill Performance
kPa	kilopascal
lbs	pounds
Mg	mega gram
msl	mean sea level
MSWLF	municipal solid waste landfill
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NMOC	Non-methane organic compounds
NSPS	New Source Performance Standards
PMRF	Pacific Missile Range Facility, Barking Sands
pcf	pounds per cubic foot
PER	Preliminary Engineering Report
SDR	standard dimension ratio

1.0 Introduction

Kaua'i County is proposing a second vertical expansion of the Kekaha Phase II landfill from 60 feet above mean sea level (MSL) to approximately 85 feet above mean sea level (MSL). Currently additional air space volume is needed to accommodate waste for approximately five years. Five years is the amount of time that the County of Kaua'i needs to site, design and construct a new landfill.

1.1 Background

Kaua'i County has an island wide system of solid waste collection and disposal. These solid waste facilities and services are administered by the Solid Waste Division of the Department of Public Works. The two major components of the Kaua'i solid waste system are the Kekaha Landfill Phase II and refuse transfer stations. The county operates four refuse transfer stations where solid waste is collected, sorted and transferred to the appropriate location depending upon whether it is recyclable material, green waste or solid waste appropriate for disposal in the landfill facilities.

Kekaha Landfill Phase I was used for debris generated by Hurricane 'Iniki and reached its peak capacity in 1993. Kekaha Landfill Phase II began operations in 1993 and it was originally permitted to reach a height of 37 ft above msl. Currently Phase II is the primary disposal site for solid waste on Kaua'i. In 1998 the landfill was expanded vertically to accommodate more waste by increasing the height limit to 60 feet above msl. It was assumed that that expansion would add an additional 6 years of use to the site.

The landfill is expected to reach capacity by early 2005. Now a second vertical expansion to the Kekaha Landfill Phase II site is required to add another 5 years of use to the landfill. This will give the County adequate time to site, engineer and develop a new landfill facility.

1.2 Scope and Authority

This EA is prepared pursuant to Chapter 343 Hawai'i Revised Statutes (HRS) and associated Title 11 chapter 200, Hawai'i Administrative Rules (HAR). Use of government owned land (State) set aside for landfill use, and funds (County of Kaua'i) require the preparation of an EA.

1.3 Project Information

General project information is listed below:

THE APPLICANT:	Department of Public Works County of Kaua'i Troy Tanigawa, P.E., Solid Waste Division Programs Administrative Officer
APPLICANTS REPRESENATIVE	Earth Tech, Inc. 841 Bishop Street, Suite 500 Honolulu, Hawai'i 96813 Ron Boyle, P.E., Project Manager (808) 523-8874 Fax (808) 523-8950
TMK AND OWNER:	1-2-02:9: Por. 1 Department of Land and Natural Resources (DLNR), State of Hawai'i
LAND AREA:	32 acres
AGENCIES CONSULTED:	State Historic Preservation Division
REQUIRED PERMITS AND APPROVALS:	County of Kaua'i Planning Department, Covered Source Air Permit DOH Solid Waste Permit DOH
ACCEPTING AUTHORITY	Same as Applicant

2.0 Description of the Proposed Action

2.1 Project Location

Kekaha Landfill is located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island of Kaua'i, Hawai'i (Figure 1). The Landfill is located adjacent to Kaumuali'i highway on the makai side and is roughly 3,000 feet from the shoreline. The parcel is bounded by the U.S. Lighthouse Service on the Northwest, lands of the DLNR and Syngenta Seed Company to the northeast and southwest. Other uses in the area are a state agricultural park to the northwest, the Pacific Missile Range Facility (PMRF) to the west, the Hawai'i National Guard rifle range to the south west and a drag strip to the South (Figure 2).

2.2 Existing Landfill Facilities and Operations

Kekaha Landfill consists of two refuse fill areas, buildings and related infrastructure. Phase I area takes up 35.7 acres and is located in the southwest portion of the site. Phase I began in 1953 and continued until 1993. In 1992 an additional 60.245 acres was designated as Phase II by the State for County landfill use. As designed they should have met the County's needs to 2003, however, debris generated by hurricane 'Iniki filled the site and a vertical expansion of Phase II was required and permitted in 1998.

Phase II area consists of a 32 acre lined refuse area, an office, small maintenance shop, a scale house, waste drop off areas, a perimeter road, and a leachate evaporation lagoon (Figure 3 & 4). The refuse area is divided into 14 sub-cells, each 100 feet wide and 800 to 1,110 feet long.

The landfill containment system consists of a landfill liner, leachate collection system, collection tanks, and an evaporation lagoon. The liner consists of a geosynthetic clay layer (bentonite [a clay with a high shrink-swell properties]) overlain by a geomembrane liner (60 mil thick high density polyethylene [HDPE]) Above the basal liner is a two (2) ft layer of sand containing perforated HDPE pipes at 100 ft intervals.

The pipes then direct leachate into collection manholes at the perimeter of the landfill area. Leachate from these manholes is then fed via a pump station to the lined leachate evaporation lagoon. Sensors are used to detect manhole leachate levels and when it reaches a predetermined level the pumps are then activated. The leachate lagoon is lined with a 6 inch foundation layer, a geosynthetic clay liner covered with a 60 mil HDPE geomembrane and geotextile (HDPE net), and six inches of concrete (listed in ascending order). The 1.9 acre lagoon has a maximum depth of 5 feet with an additional 2 feet of freeboard, and it was designed to completely evaporate all leachate collected from the landfill during a normal precipitation/evaporation year. Two floating paddle wheel aerators are used to accelerate evaporation. If the leachate lagoon reaches peak capacity, leachate can be pumped with a trailer mounted pump from the lagoon to water trucks. Leachate can then be applied over the lined landfill area for dust control.

Currently daily operations require spreading the waste in two-foot layers up a 5:1 slope to a height of 10 feet and maintaining a working face of 100 by 75 feet maximum. Next these two foot layers are compacted to a minimum of 1,400 pounds per cubic yard. To minimize exposure of the working face to the elements the waste is covered with a

geosynthetic tarp and or soil. The cover helps to mitigate problems with odors, vectors, leachate and windblown trash and complies with HAR 11-58.1. The soil cover, fine grained silty clay from the former Kekaha Sugar Company mill wastewater settling basin, is used when the design grade of a particular layer is reached. The geosynthetic tarp is used as a temporary daily cover before the design grade is met and it helps to minimize soil use and maximize the landfill capacity.

Waste Management of Hawai'i, Inc. (Sanifill of Hawai'i), a service contractor for the County of Kaua'i Department of Public Works provides management of the landfill.

Compliance with HAR 11-58.1 requires that groundwater and landfill gas monitoring be performed as part of the landfill operations. Groundwater from an array of wells is sampled on a semi annual basis to determine if there are any landfill related contaminants. Five permanent landfill gas probes sited 1000 feet apart along the perimeter of the Phase II area are used to sample for methane and oxygen monthly (Figure 5).

A recycling program as described in the Integrated Solid Waste Management Plan, County of Kaua'i, is in operation (see appendix B for a summary of recycling activities). In the FY 2002/2003 a total of 20,202 tons of waste was recycled accounting for 19% of the total waste disposed.

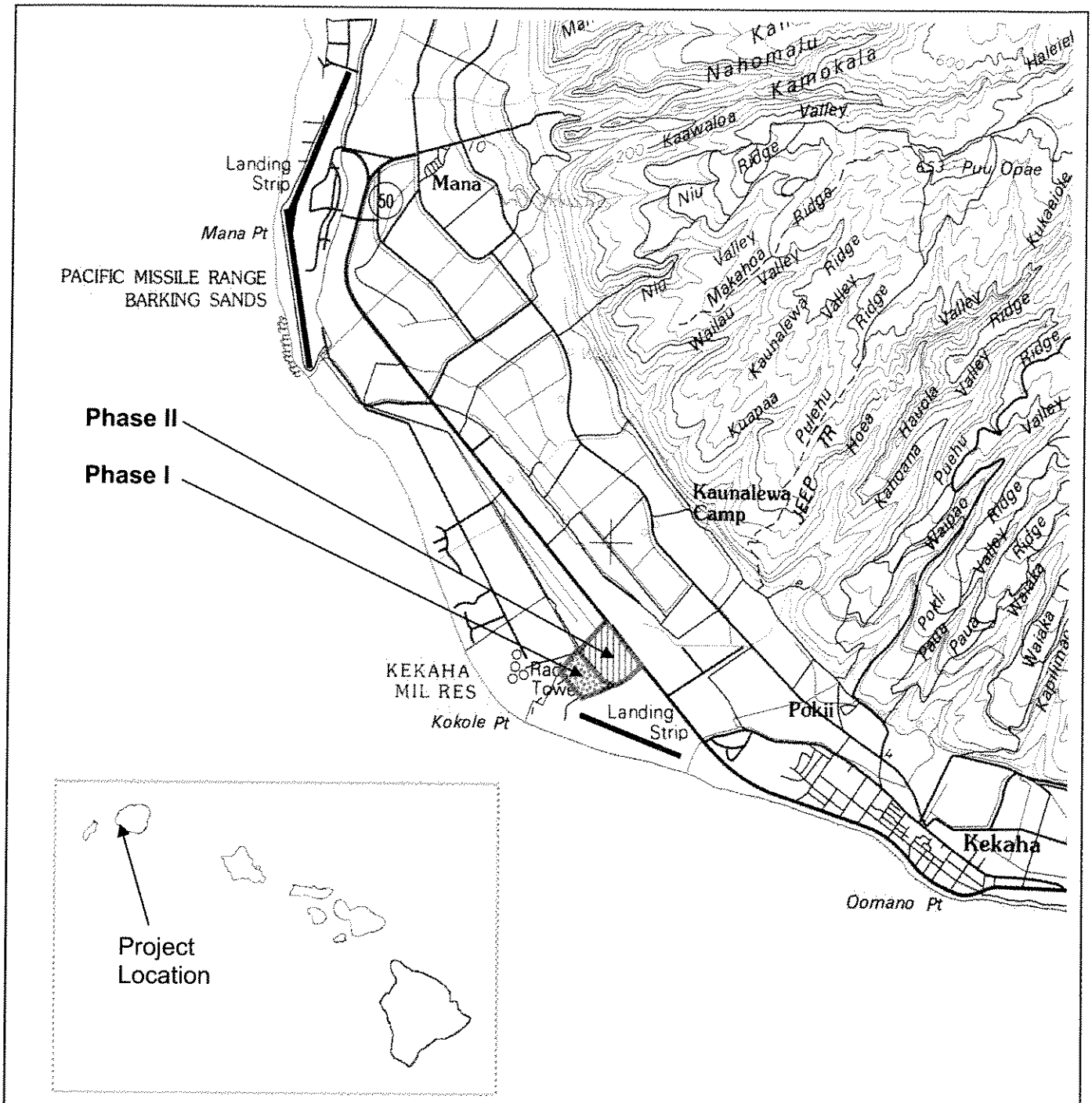
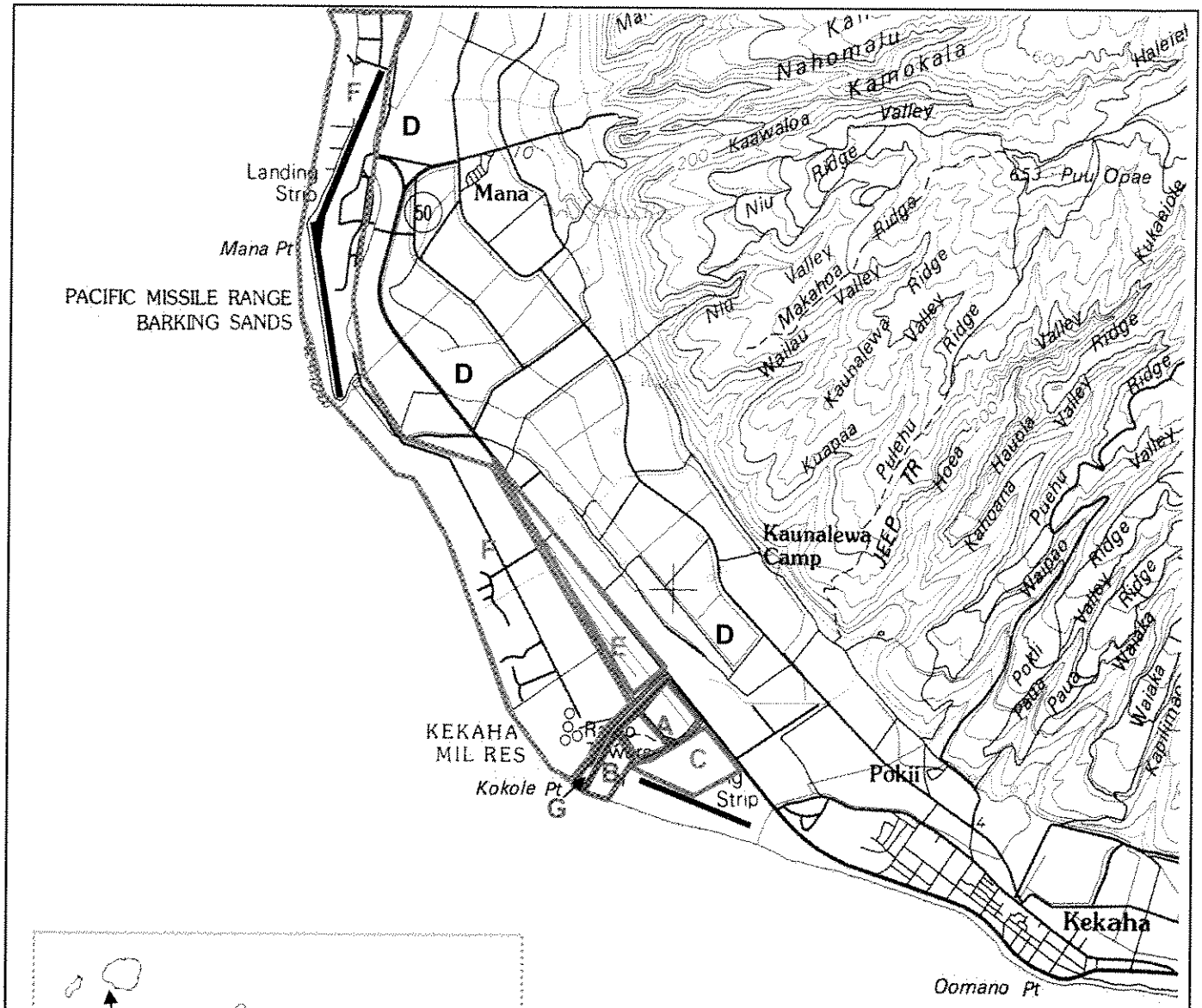
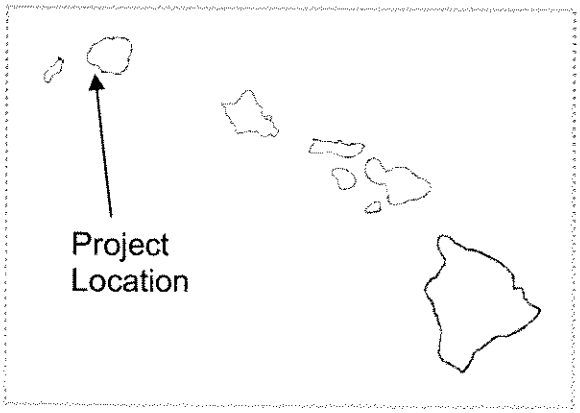


Figure 1
Location Map
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
June 2004





LAND OWNER		USER
A	State of Hawai`i (DLNR)	County of Kaua`i
B	State of Hawai`i (DLNR)	Hawai`i National Guard
C	State of Hawai`i (DLNR)	Syngenta Seed
D	State of Hawai`i (DLNR)	Unknown
E	State of Hawai`i (DLNR)	Kekaha Agricultural Park
F	U.S. of America	Department of Defense
G	U.S. of America	U.S. Lighthouse Service

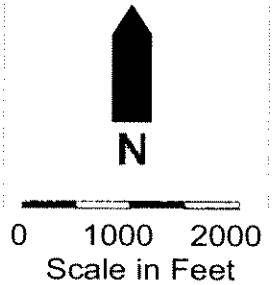


Figure 2
Land Ownership & Use
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
June 2004

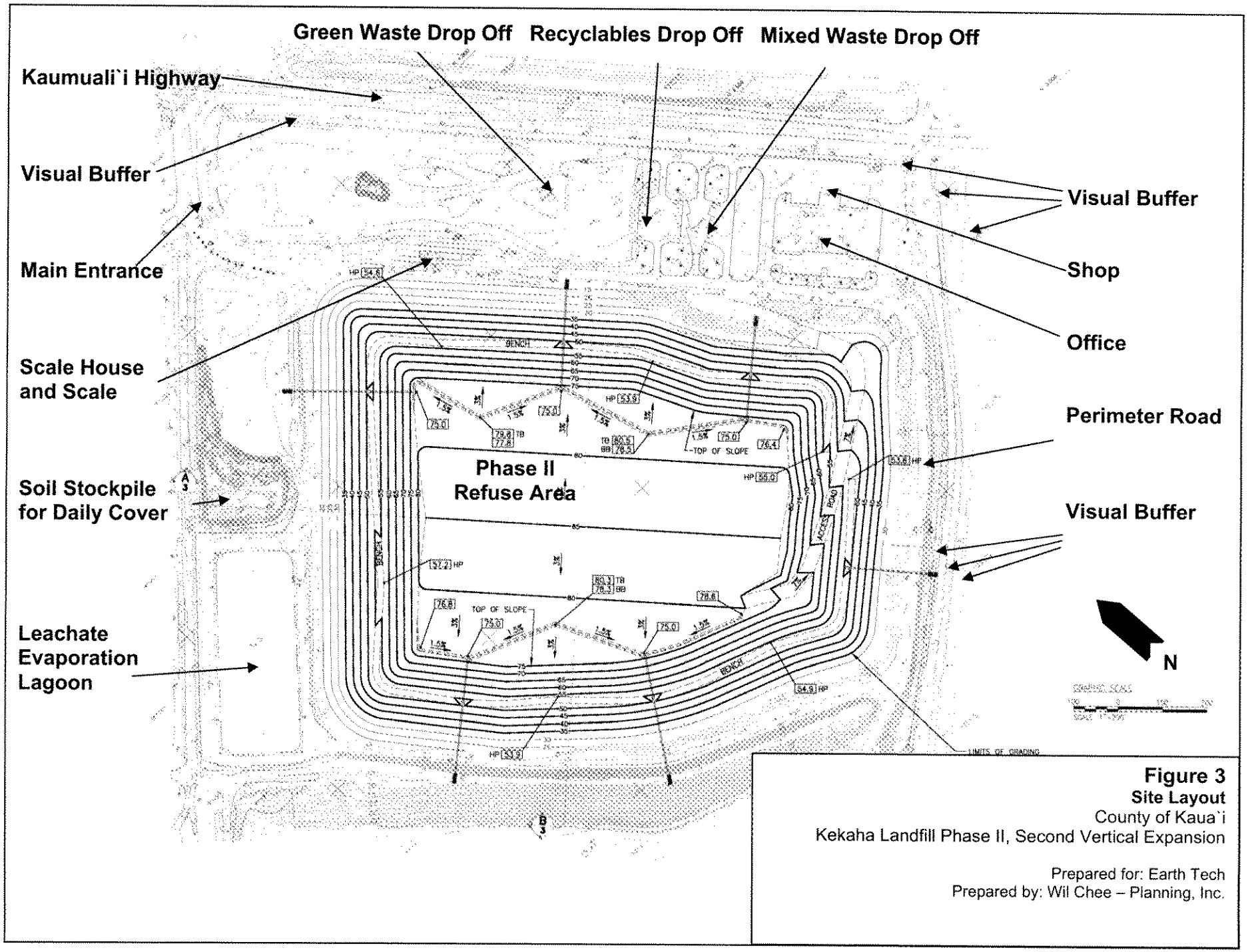
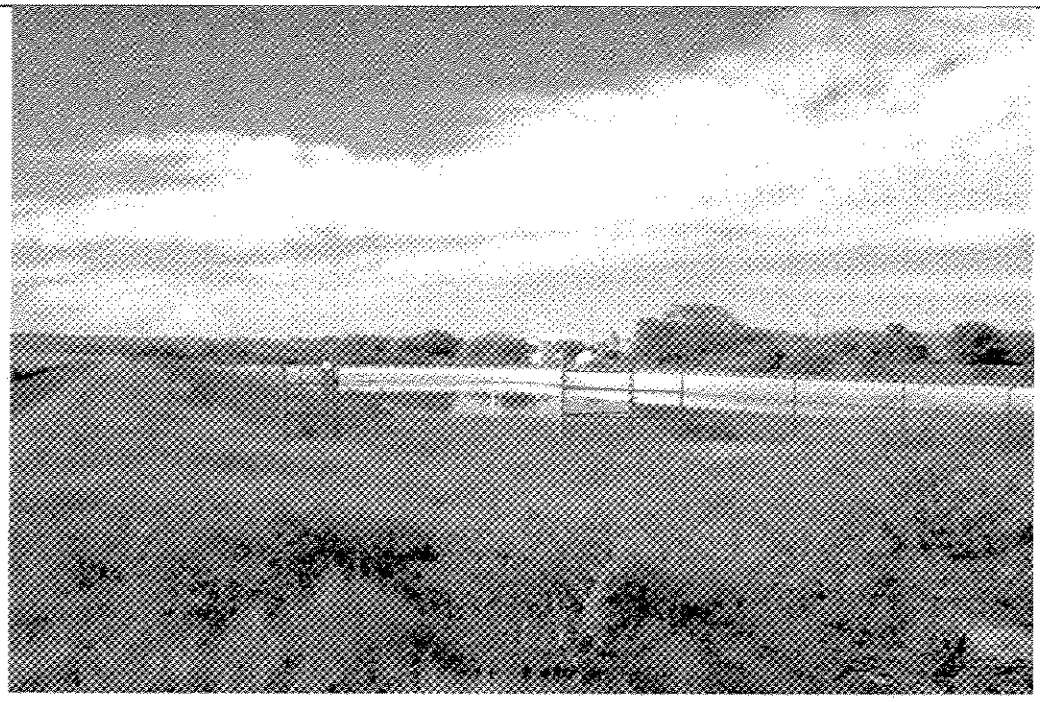


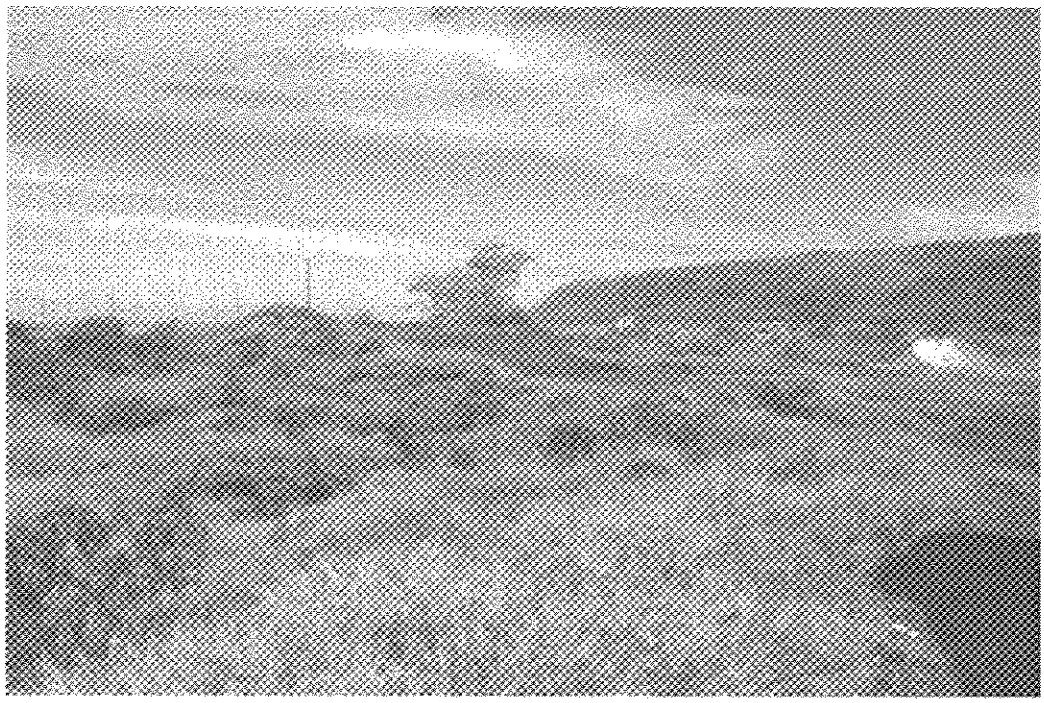
Figure 3
Site Layout
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.

A



B



A. Leachate Lagoon. The high evaporation rate on Mana Plain keeps the fluid level low.

B. Soil Storage Pile. Soil is from former Kekaha Sugar and used as a cover layer as part of daily and weekly operations.

* Photos taken 2/10/04

Figure 4
Leachate Lagoon & Soil Storage
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
June 2004

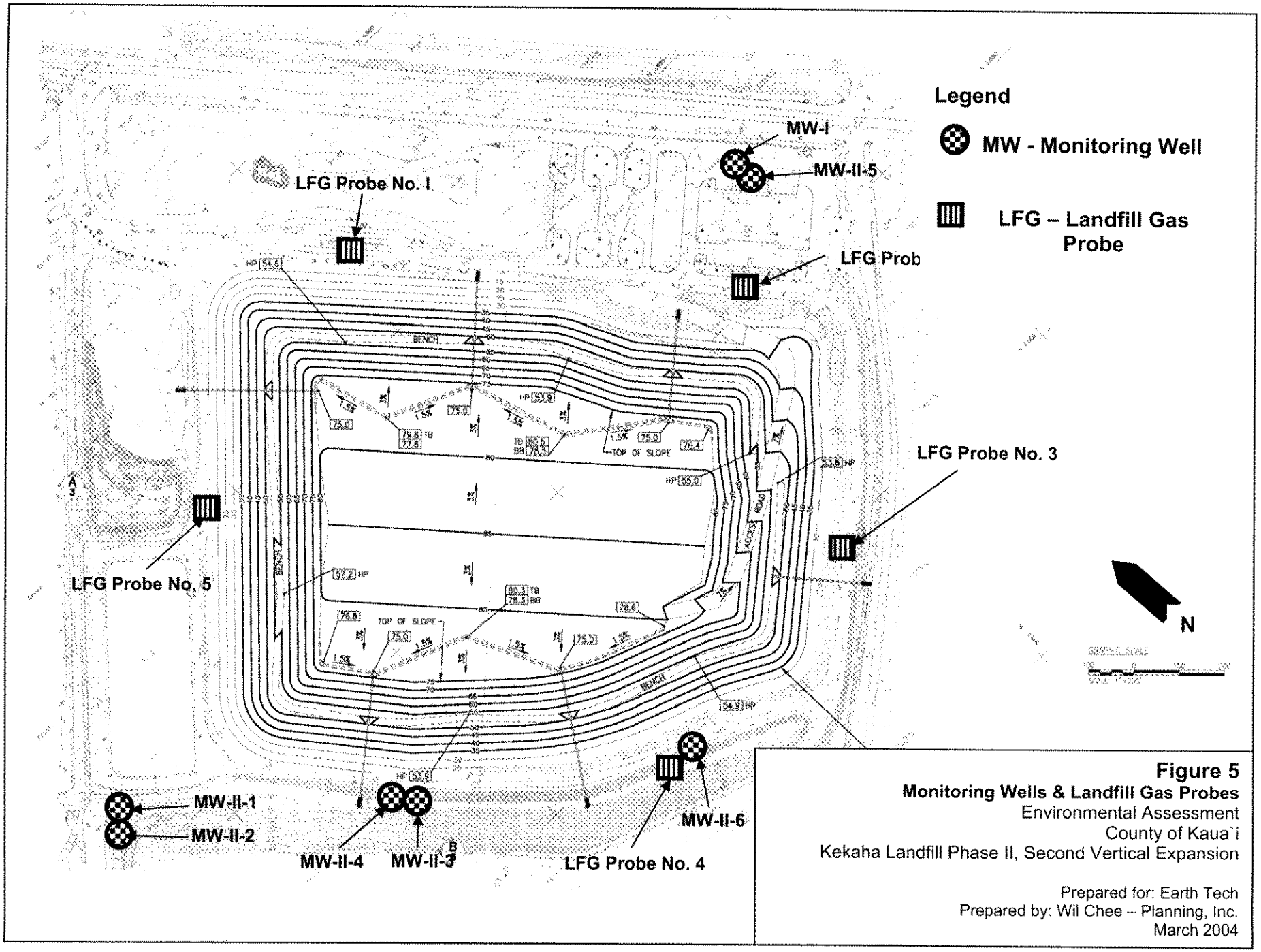


Figure 5
Monitoring Wells & Landfill Gas Probes
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
March 2004

2.3 Project Features

Currently the site is permitted to a fill height of 60 feet above MSL with a total capacity of 1,769,467 cubic yards (cy). Using a soil cover to waste ratio of 5:1 and a compaction rate of 1,400 lbs/cy the landfill could accept approximately 1,032,189 tons of waste and is anticipated to reach capacity by early 2005 (Table 1). The vertical expansion as proposed will add an additional 5 years of capacity to the landfill, extending the use of the site to 2010 (Table 2).

Table 1 Current Landfill Capacity

Landfill Height (Ft.)	Design Volume (CY)	Soil cover to Waste Ratio	Capacity for Waste (CY)	Capacity (Tons)
60	1,769,467	5:1	1,474,556	1,032,189

Table 2. Estimated Additional Landfill Capacity

Landfill Height (Ft.)	Design Volume (CY)	Soil cover to Waste Ratio	Capacity for Waste (CY)	Capacity (Tons)	Daily Fill Rate (tons/day)	Additional Years of Capacity with Vertical Expansion
65	254,366	5:1	211,972	148,380	220	1.85
70	376,401	5:1	313,668	219,567	220	2.73
75	488,650	5:1	407,209	285,046	220	3.55
80	591,469	5:1	492,884	345,019	220	4.30
85	**685,149**	**5:1**	**570,957**	**399,670**	**220**	**4.98**
90	770,004	5:1	641,670	499,169	220	5.59
95	846,330	5:1	705,275	469,693	220	6.15
100	914,450	5:1	762,042	533,462	220	6.64

2.3.1 Technical Characteristics

The currently permitted grading design consists of 3.5:1 (horizontal: vertical) side slopes with a 30 foot wide bench at elevation 37 feet above MSL and a 3% top grade. As proposed the second vertical expansion calls for a revised grading design that will extend the side slopes at 3.5:1 (horizontal: vertical), raise the bench elevation to the middle of the side slope, raise the top elevation to 85 ft above msl and maintain the 3% top grade. The redesigned bench will be 15 feet wide. The preliminary design grading plans and sections are shown in figures 6 & 7.

The proposed vertical expansion will include a final cover that will comply with the Department of Health requirements stipulated in HAR 11-58.1 for landfills.

2.3.2 Economic Characteristics

The vertical expansion will incur costs for preparation of the plans, the EA and permits. No property will need to be purchased; no new structures or infrastructure is required. Operations will continue as they are now with the only exception being that the expansion will add 25 feet of height to the landfill that is currently permitted.

Currently Kekaha Landfill Phase II is the only disposal site for solid waste on the Island of Kaua'i. If the proposed vertical expansion is not permitted Kaua'i County will either have to site and build a new landfill facility in a very short time or ship all solid waste off island. It is anticipated that once a new site is selected it will take roughly 5 years to design, permit and build a new landfill and Kekaha Phase II has space for less than 1 years worth of solid waste.

In 2001 a Kaua'i Municipal Solid Waste Landfill Siting Study (Earth Tech 2001) was prepared. Chapter 6 Implementation Plan outlines the time required for the preparation of a site report, an EIS, land acquisition, feasibility report, operations plan, design, permit applications to DOH and constructing the Municipal Solid Waste Landfill (MSWL). This entire process could take as long as six years to adequately address all regulations and concerns before there is a new operating Solid Waste Facility. After the Siting Study was finalized the time lag has increased due to the difficulties that the County is having in acquiring a site and finding an agreeable landowner.

If the County of Kaua'i has to implement off island disposal of all solid waste this will result in increased costs for disposal. These increased costs will then be passed down to all of the residents of Kaua'i either in the form of higher taxes or fees for pick up and disposal of waste.

2.3.3 Social Characteristics

No Jobs will be lost or gained by the vertical expansion of the Kekaha Landfill. However this proposed expansion will allow the site to continue to perform an important function for the county of Kaua'i. A landfill facility plays an essential role in society by providing a site where solid waste can legally be placed. Inappropriate disposal of solid waste is a problem in communities throughout the State of Hawai'i. Illegal disposal of solid waste not only creates health hazards from piles of garbage but it leads to increases in rodent and insect populations, increases liability for landowners and decreases property values. It also results in repulsive trashy areas that profoundly alter the aesthetic quality of Hawai'i.

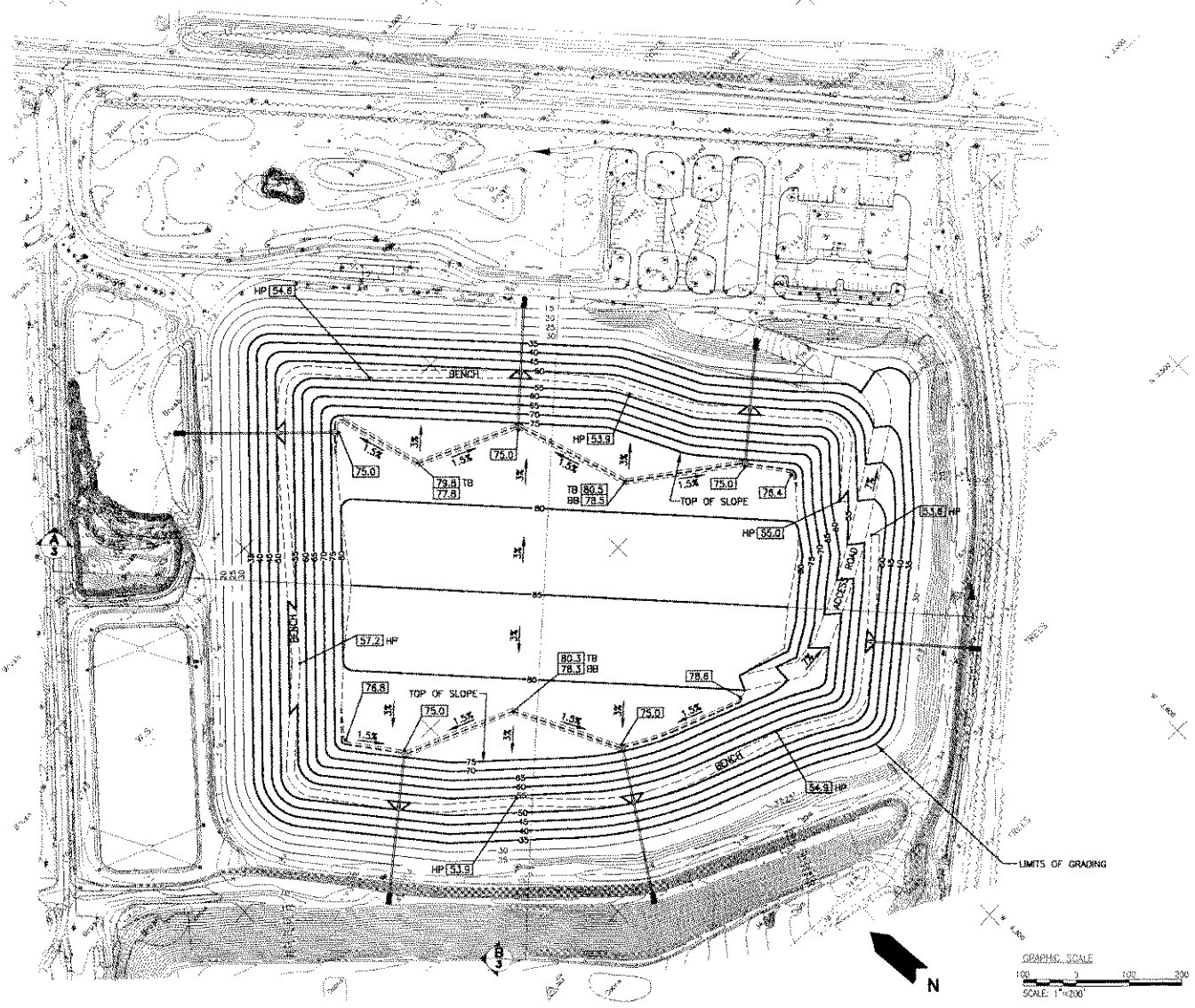


Figure 6
Preliminary Design Grading Plan
Environmental Assessment
County of Kaua'i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.

EARTH TECH
A Tetra Tech Company

REVISION | DATE | DESCRIPTION | BY | APPROVED

RONALD E. BOYD
LICENSED PROFESSIONAL ENGINEER
No. 8431-C
HAWAII, U.S.A.

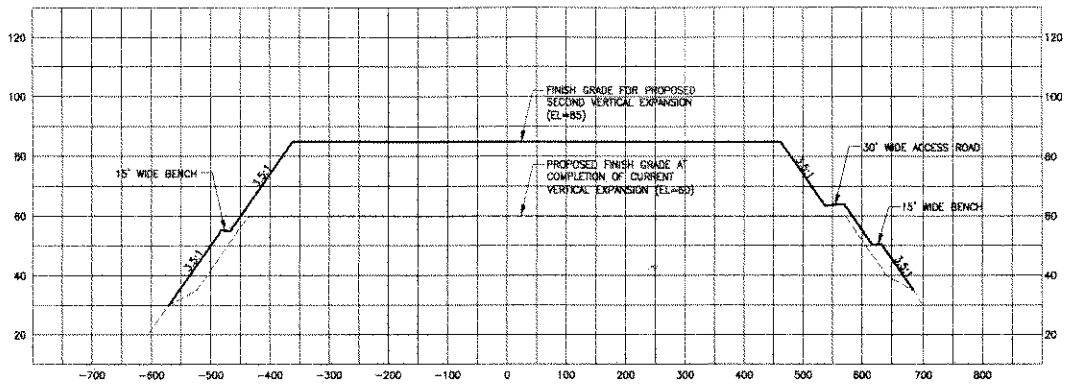
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WAS BE UNDER MY CHARGE AND SUPERVISION

Signature | Expiration Date of this License

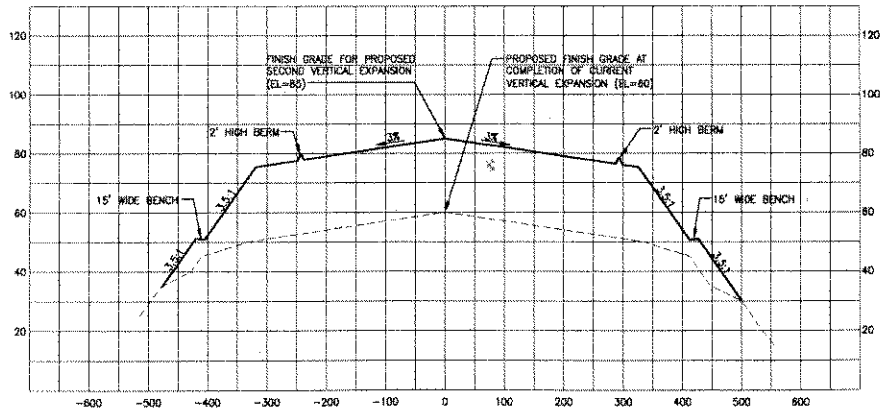
COUNTY OF KAUAI
DEPARTMENT OF PUBLIC WORKS

KEKAHA LANDFILL
VERTICAL EXPANSION
PRELIMINARY DESIGN
GRADING PLAN

SCALE: 1"=200' | DATE: 08 AUG 2013
DESIGNED BY: | F.S. | C.S.
DRAWN BY:
TRACED BY:
CHECKED BY:
APPROVED
COUNTY ENGINEER



SECTION A
SCALE: HORIZ 1"=200'
VERT 1"=40'



SECTION B
SCALE: HORIZ 1"=200'
VERT 1"=40'

GRAPHIC SCALE
SCALE: 1"=200'
SCALE: 1"=40'

Figure 7
Preliminary Design Sections
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
March 2004

RONALD E. BOYLE
LICENSED PROFESSIONAL ENGINEER
No. 8430-C
HAWAII, U.S.A.

"THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION"

COUNTY OF KAUAI
DEPARTMENT OF PUBLIC WORKS

KEKAHA LANDFILL
VERTICAL EXPANSION
PRELIMINARY DESIGN
SECTIONS

SCALE: AS SHOWN
DRAWN BY:
TRACED BY:
CHECKED BY:
APPROVED:
COUNTY ENGINEER

2.3.4 Environmental Characteristics

Kekaha Landfill Phase II currently occupies the site and this project proposes to vertically expand the landfill. Kekaha landfill accepts solid waste for the entire island of Kaua'i and it also serves as a drop off point for segregated recoverable waste. Currently County Transfer and refuse collection trucks bring 35 truck loads per weekday from the county collection routes and a few small loads are dropped off by residential and commercial self-haulers.

Numerous recycling and Greenwaste Diversion activities are sponsored by and operated by the County. A total of seven recycling centers are at the following locations: Princeville-Hanalei Refuse transfer station; Kapa'a – Kagima Store; Līhu'e – Kukui Grove Center Park Pavilion; Kōloa – Brennecke Beach Parking Lot; 'Ele'ele - 'Ele'ele Shopping Center; Waimea – Kaumuali'i Highway and the Kekaha Landfill. These sites collect newspaper, corrugated containers, glass containers, aluminum cans, mixed paper and #1 & #2 beverage containers and water bottles. Used motor oil is collected at four transfer stations and the Kekaha Landfill facilities. Office paper and beverage containers are collected from county offices.

Approximately 19,889 tons or 19.7% of the 100,951 tons of material are recycled. Recycled materials include paper, plastic, glass, metal, rubber and organic material. Large appliances brought in for recycling are sorted and temporarily stored on the top surface of the closed Phase I facility.

The landfill usually has one sub-cell open daily to receive loads to be dumped, spread and compacted to a two foot layer and covered at the end of each day with a tarp or soil. This controls vectors, windblown dust and windblown debris. Slopes are covered with dirt and are not overly steep. Garbage is not visible from the ocean, the highway directly in front and to the east and west of the site. Dust is kept to a minimum by periodic wetting of the dirt surfaces and strong odors are not discernable from the office and recyclable drop off sites, the highway and on either side of Phase II.

3.0 Environment Affected by the Proposed Action

Kekaha landfill site is located on Mānā Plain which is the coastal plain of southwestern Kaua'i and is roughly 3,000 feet from the sea. Mānā Plain was predominately used for agricultural purposes and portions still are used for agricultural purposes. Natural elevations on Mānā Plain range from sea level to 10 feet above mean sea level (MSL).

3.1 Geology

At one time Mānā coastal plain was a large marsh with the water being trapped between the inland volcanic cliffs and the coastal sand dunes that fringe the coastline (Macdonald, 1983). Mānā plain is made up of deposits of calcareous sand gravel, marl and clay that were formed in a shallow lagoon behind the coastal dunes. Underling these lagoon deposits at depths ranging from 200-400 ft are basalts that have been worn down by ocean wave action that form a low lying gently sloping platform.

The Seismic Risk map of the United States in the Uniform Building Code places the island of Kaua'i in Zone 0. Zone 0 indicates that there will be no damage from seismic activity. This is primarily because Hawai'i is located in the middle of the Pacific plate far from active continental margins. The only source of seismic activity is close to 300 miles away and is caused from volcanic activity and associated zones of weakness on the island of Hawai'i.

3.2 Soils

Soils of Mānā Plain are classified by the U.S. Department of Agriculture Soil Conservation Service as Jaucus loamy fine sand that form a well drained calcareous soil. This soil type is too porous to allow standing surface water or runoff and it is very fine grained so that wind erosion is often severe. On this type of soil It is important to maintain a vegetative cover to prevent wind erosion. This soil type is suitable for low buildings and is unstable for embankments or use as a highway road bed. Test pits and soil cores show that below the surface the soil consists of fine to coarse medium to very dense calcareous sands to a depth of 55 feet.

The potential for lateral spreading and ground failure related to liquefaction has been studied. The liquefaction potential is very low and estimates indicate that settlement during a seismic event would amount to no more than 1 inch. This can be attributed directly to the packing of clay particles and the cementing properties of calcareous sand that form marl.

3.3 Hydrology

3.3.1 Groundwater

The planes along the western coast of Kaua'i are underlain by three brackish (non-potable) aquifers. The top layer of groundwater is in the beach sand. Below that is the caprock aquifer found in several hundred feet of less permeable carbonate sand and mud interbedded with alluvial clays. These clays formed from weathered volcanic rocks that eroded from the cliffs mauka of the plain. It is these clays that form an impermeable barrier and keep the water in the caprock aquifer isolated from the beach sand aquifer. Water in the upper beach sand aquifer is brackish and flows toward the sea. Monitoring wells on the landfill site have measured the saturated zone to be at elevations of 2.7 – 3.3 feet above msl. This water table is close to five feet beneath the base of the Phase II landfill liner and seven feet below the waste (Earth Tech 2004).

The basalt aquifer is the deepest layer and it is in direct contact with seawater at the makai (seaward) base of the aquifer. About 3,400 feet north-northwest of the landfill site is the only location where this aquifer is extracted for use (Mink and Yuen, 2000). Other wells are located within a mile of the site however they are up-gradient therefore there is no potential for contamination. Groundwater extraction rates have exceeded the natural recharge rates and have resulted in saltwater intrusions that degrade the quality of water in the aquifer.

3.3.2 Surface Water

The only surface water near the site is a network of drainage and irrigation ditches that ultimately flow into the ocean. The nearby aquaculture facility maintains several ponds for cultivating shrimp. The soils in the vicinity of the landfill are too permeable to collect surface water.

3.3.3 Flood Potential

Flood Insurance Rate Maps (FEMA Panel 150002 0152 D Kaua'i County, Hawai'i, revised Sept. 30, 1995) indicate that Kekaha Landfill Phase II is 2,000 feet inland from the coastal high hazard area for the 100 year coastal floods.

Tsunami maps for inland of Kaua'i indicate that the landfill Phase II facility is the tsunami zone. However, due to the surrounding topography the presence of a coastal dune sequence and no rivers, streams or drainages near by, it is unlikely that the landfill would be inundated or damaged by a tsunami. First, the energy of any tsunami would be dampened when it hits, washes over and moves the coastal dunes, then it would flood the National Guard firing range where it would lose velocity before it reached the closed Phase I facility. Therefore, it is unlikely that there would be severe damage at the Phase II facility due to a tsunami.

3.4 Climate

Hawai'i has two recognized seasons. Kau, (May – September), is the warm season when the sun is almost directly overhead and winds are from the northeast. Ho'oilo (October-April) is the season that brings cooler temperatures, lower sun, variable winds and extensive rains. Hawai'i's climate is a direct result of its geographic location, 19 to 22 degrees north latitude. This puts the islands at the margin of the tropics and in the belt of trade winds and down welling of upper air. In this region both tropical and mid latitude storms affect the climate (Juvik and Juvik, 1998).

Topography modifies the northeasterly trade winds so the area receives winds from the east. Precipitation is also modified by the topography so that Kekaha on the leeward side of the island receives an average of less than 20 inches per year.

In Kekaha temperatures are typical of those throughout the state and range from 70 to 88 degrees Fahrenheit in the summer and 60 to 83 degrees Fahrenheit in the winter. According to the season and rates of precipitation evaporation rates measured by Kekaha Sugar Company range from 6.6 -1.89 inches per month and an annual evaporation rate of 53.33 inches per year.

3.5 Air Quality

Air quality is determined by ambient air concentrations of specific pollutants and compared to State and Federal air quality standards (AAQS). Due to the prevailing trade winds Hawai'i has concentrations that are far less than the national average. However, when the trade winds are weak the gas and aerosol levels in the atmosphere approach the upper limits outlined in the air quality standards. Industrial areas and heavy vehicular traffic can result in pockets where carbon monoxide (CO) levels are higher than AAQS standards. Generally the air quality is slightly better than the state average in low industrial or agricultural areas with little vehicular traffic.

In the vicinity of Kekaha, the air quality is expected to be good because the area is relatively undeveloped and there are few stationary and mobile sources. At the landfill site, equipment, refuse transfer trucks, methane and carbon dioxide resulting from the decomposition of refuse, and lesser amounts of non-methane organic compounds (NMOC) and dust are the only sources of pollutants and these are kept to a minimum by implementing dust control techniques and daily cover (Belt Collins, 1998).

3.6 Noise

At Kekaha landfill the sources of ambient noise are generated by garbage trucks and equipment used to operate the landfill and highway traffic. Around the perimeter of the phase II site operational noises are no more noticeable than the natural wind sounds and traffic on Kaumuali'i Highway. The nearest residential population is located 1.3 miles away in the community of Kekaha. To date there have not been any complaints about noise (Guzman & Kaohi, personal communication, 2004).

3.7 Flora & Fauna

Prior to construction of the Phase II addition to Kekaha landfill a biological survey was conducted. No uncommon or rare native plants were found. The irrigation ditches that were used by Kekaha Sugar Company provide a marginal wetland habitat and in 1992 no rare or endangered species were found (Belt Collins, 1998).

Later surveys at the Pacific Missile Range Facility (PMRF) at Barking Sands have observed federally listed endangered and endemic bird species. Among those sited are the Hawaiian duck (koloa), Hawaiian or American coot ('Alaeke'oke'o), Hawaiian or black necked stilt (ae'o), Hawaiian gallinule or common moorhen ('alae'ula), and the state listed Hawaiian owl (pueo). Non listed migratory and resident indigenous bird species have also been observed at PMRF. These species now congregate at the Kawaiele Waterbird Sanctuary that that is located approximately 2.0 miles west of the site.

3.8 Historic, Archaeological and Cultural Resources

Over the past 60 years beginning with Bennett's 1931, island wide investigations many archaeological surveys have been conducted. Prior to sugar cane cultivation the majority of Mānā plain was a marsh bounded by cliffs on the east and sand dunes to the west. Pre-contact Hawaiians built houses on the mauka side of the dunes and cultivated taro in the nearby marsh. Temporary shelters were located on top and on the Makai side of the dunes during the fishing season. Human remains have been found in the dunes along the coastline and north of the site

In 1982 prior to the development of Kekaha Landfill an archaeological investigation of the site was conducted and no evidence of archaeological or historic resources was found. This concurred with the fact that the site had been bulldozed and modified many times from the 1930's on. Prior to use as a landfill it was used for livestock pens and as a dumpsite for bagasse form the sugar mill (Belt Collins, 1998). The Phase II area was thoroughly investigated in 1993 and that led to the DLNR finding that no significant features are present (Belt Collins, 1998).

3.9 Land Use

The landfill is built on land that is owned by the State of Hawai'i and administered by the Department of Land and Natural Resources (DLNR) (Figure 2). In 1992, these lands were set aside to the County of Kaua'i for landfill use through an executive order. In accordance with HRS 171-11 the site is managed by the County of Kaua'i which "is authorized to exercise all of the powers vested in the board of land and natural resources with respect to the issuance of leases, easements, licenses, revocable permits, concessions, or rights or entry covering such land for such use as may be consistent with the purposes for which the lands were set aside on the same terms, conditions, and restrictions applicable to the disposition of public lands."

Phase II area for the landfill was approved for use by the State Land Use Commission by issuing a Special Permit on July 1, 1993. This special permit allows for land classified as a State Agricultural district to be used for landfill purposes. The Permit requires that use of the land follow specific conditions as provided by the County of Kaua'i Planning Department, County Planning Commission, and the approving agency, the State Land Use Commission. No time limit was set for this special permit.

3.10 Circulation and Traffic

Garbage deliveries consist of 35 commercial garbage trucks per weekday and 30 commercial garbage trucks on the weekends (Guzman & Kaohi, personal communication, 2004). Kaumuali'i Highway is the only route to western Kaua'i and trucks directly enter the landfill after turning off the highway. Traffic along Kaumuali'i Highway is usually light and use is most commonly associated with Polihale State Park, Gay and Robinson Inc. and PMRF.

3.11 Public Services and Facilities

3.11.1 Water & Wastewater

Water for use in the office, scale house and maintenance shop is obtained from the County water system that serves the town of Kekaha. Wastewater from the office and shop is handled by an onsite septic system.

3.11.2 Solid Waste

Solid waste generated on site is either recycled or deposited in the open cell of Phase II section of the landfill.

3.11.3 Drainage System

Soils in the vicinity have a very high percolation rate. Typically precipitation rates are low and evaporation rates are high on Mānā Plain. This results in very little runoff and eliminates the need for a drainage system surrounding the facilities.

Storm water runoff from the facilities area is collected in catch basins, and discharged into infiltration ditches or perforated culverts. Storm that drains off soil covered areas of the landfill is directed into the sand lined infiltration ditch that surrounds the Phase II areas of the landfill.

3.11.4 Electrical and Communications

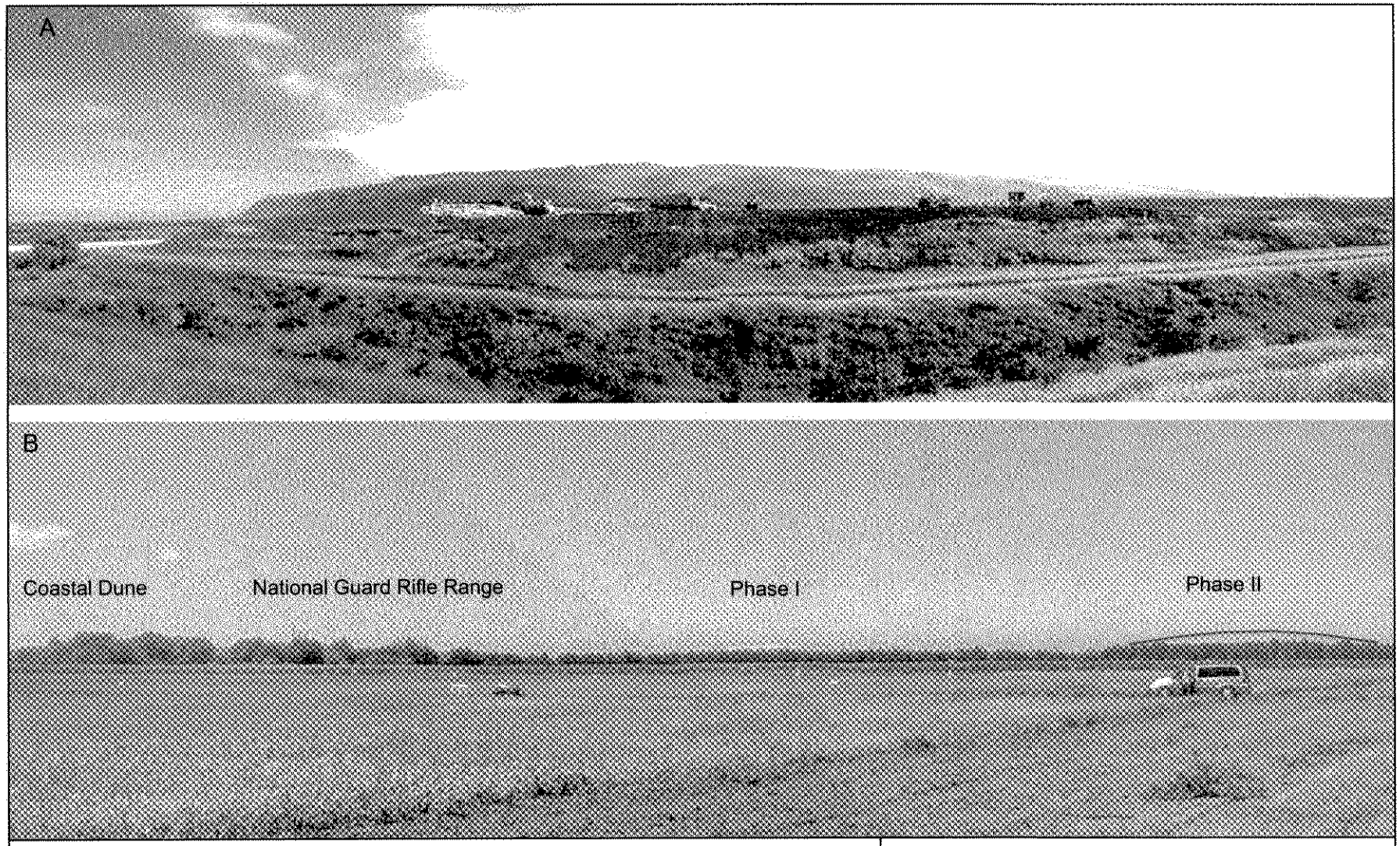
Electric and phone lines that run from the town of Kekaha are already in place. Operations will continue as they are now.

3.12 Visual Resources

Kekaha Landfill is located between the coastal dunes and Kaumuali'i Highway on the undeveloped Mānā Plain in the western end of Kaua'i. The area is used for agricultural purposes such as aquaculture, sugar and seed production, a National Guard Rifle Range and the Pacific Missile Range at Barking Sands (Figure 2).

The highest part of the closed Phase I landfill is approximately 50 feet above grade or 60 feet above mean sea level (msl) (Figure 3-1). Phase I is covered with grassy vegetation and it is barely visible from Kaumuali'i highway to the west and it is not visible from the Highway due to the ironwood trees and other vegetation that create a visual buffer that extends around the perimeter of the site. Phase I is not identifiable from the ocean due to the vegetative cover that blends in with vegetated coastal dunes fringing the coastline. Only the appliances that are temporarily stockpiled for recycling on top Phase I are visible from the ocean and Kaumuali'i Highway to the west and the east.

Phase II is currently 47 feet above grade or 57 feet above msl (Figure 8 & 9) and is only partially visible from the west and east of the site and from the front of the facilities due to the trees that create a vegetative visual buffer. Phase II difficult to see from the coastal dunes or sea. When driving from Kekaha to Polihale State Park the landfill is not readily visible or identifiable until the sign at the front entrance identifies it as landfill. From the opposite direction it is difficult to visually identify the landfill site without knowing exactly where to look, the vegetated top of Phase I blends in with the vegetated coastal dunes and Phase II can be identified if there is a moving truck near the top.



A View of Phase II with mountains in the background from the top of Phase I. Dozers spread and compact the garbage and it is covered at the end of each working day to control vectors and windblown debris.

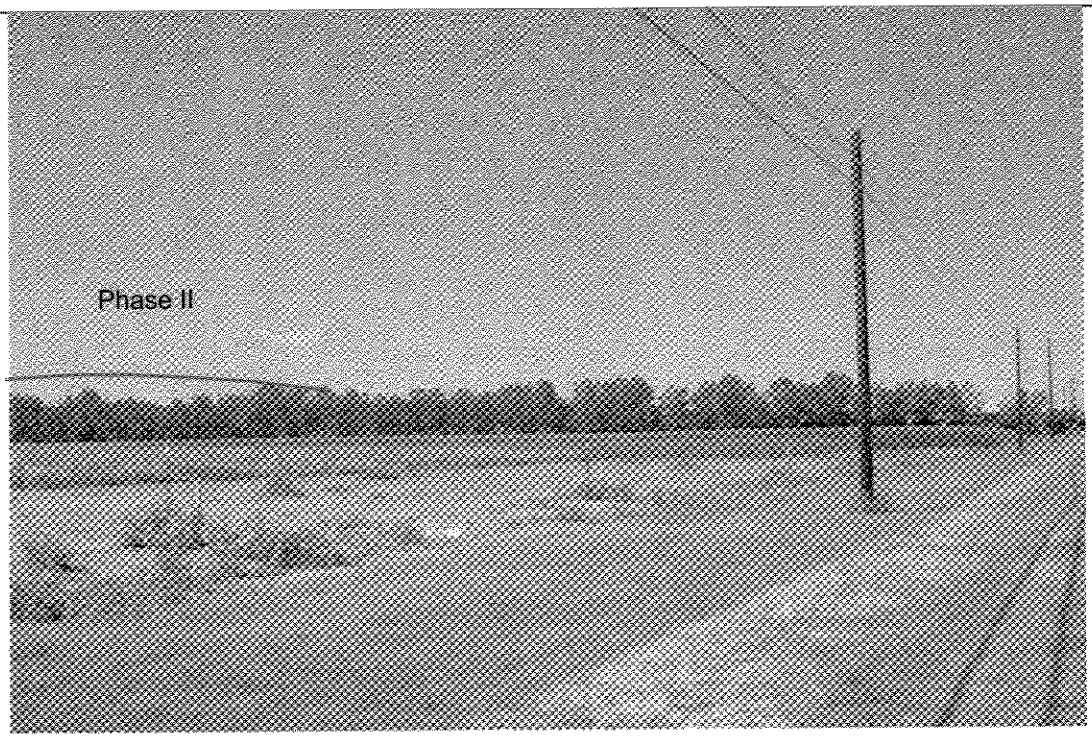
B Panoramic view 1.5 miles east of Kekaha Landfill and looking at Mana Plane and the landfill facilities. Only the temporary stock pile of recycled white appliances on top of Phase I is visible. Red line shows the approximate profile of the proposed vertical expansion of the Phase II Refuse Area.

* Photos taken 2/10/04

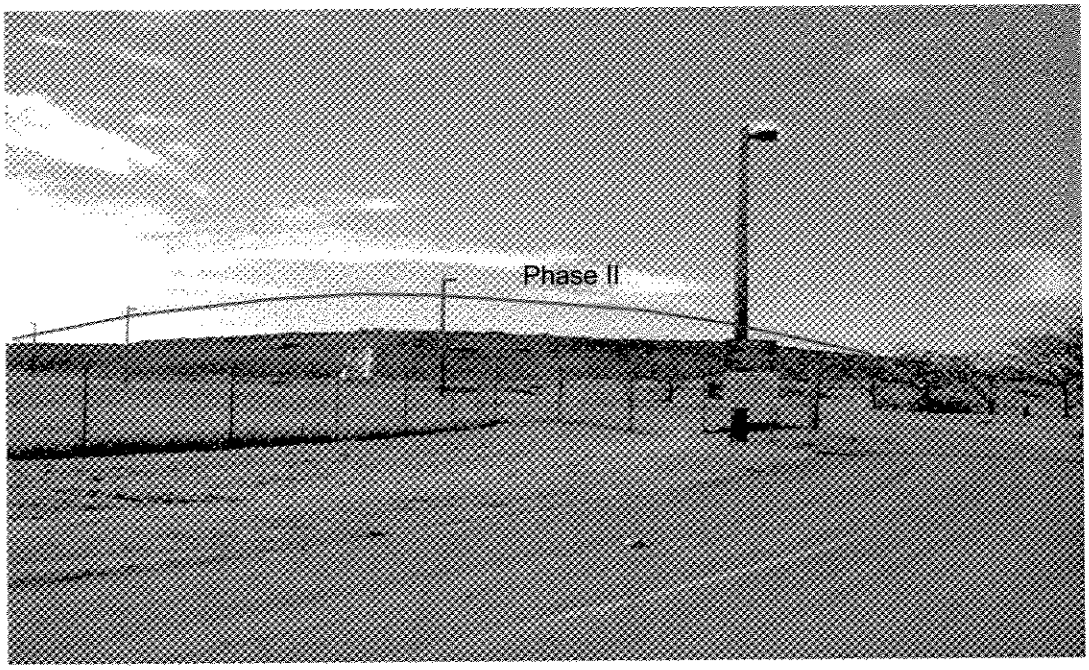
Figure 8
Cross Sectional Panoramic Views
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
March 2004

A



B



Views of Phase II. The red lie shows the approximate profile of the proposed Vertical Expansion.

A. Phase II through the trees from Kaumuali`i Highway road at Syngenta Seed Company.

B. Phase II and entry gate on driveway to landfill facilities.

* Photos taken 2/10/04

Figure 9
Views of Phase II
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
March 2004

4.0 Environmental Consequences of the Proposed Action

4.1 Geology and Topography

The vertical expansion of Kekaha Landfill will not significantly impact the geology in the area; however, it will change the topography by increasing the height of the landfill. The expansion will take place on the current Phase II area of Kekaha Landfill. The footprint will remain the same and no new areas will be altered.

HAR § 11-58.1-13(e) and the Code of Federal Regulations, Section 40 (Subtitle D), Part 258.14 require that "New municipal solid waste landfill (MSWLF) units and later expansions shall not be located in seismic impact zones unless the owner or operator demonstrates that all containment structures are designed to resist the Maximum horizontal acceleration in lithified earth material for the site." "Seismic Impact zone" is defined as an area with a 10% or greater probability that the maximum horizontal acceleration in lithified earth material (rock) will exceed 0.1 g in 250 years. For the first vertical expansion EMCON determined that the peak ground acceleration at the site is less than the 0.1 g threshold that requires an evaluation of the seismic effects for the foundation soil and waste stability under seismic loading (EMCOM, 1998). Thus, an evaluation of seismic loading effects is not required.

An unconsolidated sand layer underlies the landfill which indicates that there is the remote possibility of liquefaction, resulting in lateral spreading or differential settlement during a large seismic event. EMCON studied the liquefaction potential and determined the settlement of the sand layer would be approximately 1 inch. However an earlier study by Harding Lawson Associates in 1993 concluded that there would be roughly 1.5 inches of settlement. Both studies indicated that there would be no lateral spreading.

4.2 Soils

The vertical expansion of Kekaha Landfill will not significantly impact the soils of the landfill. The expansion will take place on the active Phase II area of Kekaha Landfill. The footprint will remain the same, no new areas will be altered and the existing liner and leachate collection system will prevent contamination of soils beneath and surrounding the site.

The potential for lateral spreading and ground failure related to liquefaction has been studied. The liquefaction potential is very low and estimates indicate that settlement during a seismic event would amount to no more than 1 inch. This can be attributed directly to the packing of clay particles and the cementing properties of calcareous sand that form marl.

4.3 Slope Stability of the Vertical Expansion

Earth Tech performed a stability analysis for the existing base liner system and the proposed vertical expansion. Their analysis investigated three different failure scenarios based upon the geometry of the facility, foundation soils, and mass of the waste. The results of this stability investigation indicate that the geometry of the slope and design of

the expansion has an acceptable factor of safety. Additionally Earth Tech evaluated the final cover slope stability for the proposed vertical expansion. Static and seepage conditions were evaluated and were found to have acceptable factors of safety. Thus the landfill including the proposed vertical expansion is expected to remain stable (Earth Tech, 2003).

4.4 Hydrology

Impacts on hydrology are a major environmental concern for landfills.

4.4.1 Groundwater

The groundwater level is 5 feet below the bottom of the phase II liner and the porosity of the aquifer layer is such that it is unlikely that the water table level could rise significantly. The only way the groundwater could become contaminated is if there is a failure of the basal liner or leachate lagoon, or if leachate generation increases significantly.

In accordance with HAR 11-58 regulations, semi-annual groundwater monitoring has been preformed at the Phase II landfill since its construction in 1993. No evidence of groundwater contamination from leachate has been detected in the groundwater monitoring wells surrounding the site indicating the landfill liner and leachate collection systems are functioning as designed. Earth Tech evaluated the capacity of the existing leachate collection system to handle leachate from the proposed vertical expansion (Earth Tech, 2003). The leachate generation rate was calculated for each 2.3 acre cell using the EPA developed Hydraulic Evaluation of Landfill Performance (HELP) Model and was determined to be approximately 3,926 gallons per day (gpd). The 8 inch diameter leachate collection pipe in each cell is capable of handling approximately 400,000 gpd, therefore the system is suitable for the vertical expansion.

Earth Tech also evaluated the effects of the increased refuse load on the leachate collection pipes. Both the deflection and the pipe wall strength were found to be acceptable for the increased loads (Earth Tech, 2003)

4.4.2 Surface Water

Leachate liquids are collected in tanks with electronic sensors that detect when leachate levels should be pumped. Once this level is reached leachate is collected and pumped to a lined leachate evaporation lagoon. The 1.9 acre lagoon is sufficiently lined and can accommodate water up to a maximum depth of 5 feet with 2 foot freeboard and is more than sufficient to handle the anticipated leachate quantities. If severe weather conditions provide an abnormally large amount of precipitation then leachate can be pumped with a trailer-mounted pump from the lagoon to water trucks for appropriate disposal.

All storm water runoff is collected on site and allowed to percolate into infiltration ditches along the site perimeter. Since the area footprint for the expansion will remain the same, the runoff flows will not change significantly and the system capacity will be sufficient.

4.4.3 Flood Potential

Flood Insurance Rate Maps (FEMA Panel 150002 0152 D Kaua'i County, Hawai'i, revised Sept. 30, 1995), indicate that Kekaha Landfill is 2,000 feet inland from the

coastal high hazard area for the 100 year coastal floods. The site is in the designated tsunami zone. However due to the presence of a coastal dune sequence and no rivers, streams or drainages near by it is unlikely that the land fill would be inundated or damaged by a tsunami. First the energy of any tsunami would be dampened when it hits, washes over and moves the coastal dunes, then it would flood the National Guard firing range where is would lose velocity before it reached the closed Phase I facility. Therefore, it is unlikely that Kekaha Landfill will ever be impacted by a flood.

4.5 Climate

The scope of the project and area affected is such that any potential impact on climate will be insignificant.

4.6 Air Quality

The proposed vertical expansion will result in continued operations at the Phase II landfill. Potential emissions from landfill equipment and refuse trucks will remain unchanged because the number of daily trips to the land fill and amounts of waste placed on the landfill will not change.

4.6.1 Landfill Gas

The proposed vertical expansion will result in more refuse volume at the landfill and ultimately more landfill gas will be produced. In order to control this additional gas, the landfill gas collection system design will need to be modified. The currently planned landfill gas collection system (will be installed once the landfill is full) consists of a network of perforated PVC pipes (wells) and a flare for burning the gas. The gas system can easily be modified by increasing well depths, pipe diameters and flare size to accommodate the increased gas production.

4.6.2 Odors

Currently procedures which are part of the daily operations of the landfill control odors. These procedures consist of compacting the debris and covering the active cell with either a layer of soil or a geosynthetic (plastic) tarp. The soil cover is fine clay that is obtained from the former Kekaha Sugar Company mill wastewater settling basin and is used when the design grade of the working layer is achieved. This part of the daily operating procedure will not be changed and will mitigate any potential for odors generated by decomposing garbage.

4.6.3 Landfill Fires

The Phase II landfill has had only two surface fires occurred; one was due to a leaking acid container and the other was a result of decomposing debris that had been transferred from one of the temporary hurricane debris sites. Both of these surface fires were quickly extinguished. Only one underground fire has occurred and was located in the north corner of Phase II (near the entrance) where some green waste and woodchips from downed trees were placed. All fires were extinguished within 24 hours.

Daily operational procedures consist of compacting and covering the waste to limit the supply of oxygen needed for the combustion of landfill gases and the growth of underground fires. Daily operations include the practice of checking incoming loads to

prevent potentially combustible material from going into the landfill. It is anticipated that there will not be any significant impacts from landfill fires in the vertical expansion of Kekaha Landfill, because these daily operational procedures and fire suppression methods are successful.

4.7 Noise

Parcels surrounding the landfill site are used as a National Guard Rifle Range, the Pacific Missile Range Facility, agricultural operations and a drag strip. The nearest town, Kekaha, is located 1.3 miles to the northwest. The daily operations of the landfill will not change as a result of the vertical expansion, therefore, it is not anticipated that noise levels will change or significantly impact the surrounding parcels.

4.8 Flora & Fauna

The U.S. Fish and Wildlife Service has determined that there will be no detrimental impact as long as the footprint is not changed, the use remains the same and there is no leachate discharge into ground or surface waters. (Bruegmann, personal communication.)

4.9 Wind Blown Debris

Daily operating procedures consist of compacting and covering the landfill. Other methods of controlling windblown debris consist of movable fences placed at key locations as traps and manually picking up trash on an as needed basis. Due to daily monitoring, daily compaction, and daily covering and upkeep of the facilities it is not anticipated that windblown debris will create any significant impact.

4.10 Historic, Archaeological and Cultural Resources

Since the footprint of the Phase II facilities is not changing and no new ground will be disturbed it is anticipated that there will be no impact to Historic, archaeological and cultural resources. The State Historic Preservation Office has been contacted regarding the proposed action. (Appendix A)

4.11 Land Use

There will be no significant changes in land use; therefore there will be no significant impacts or socioeconomic impacts.

4.12 Circulation and Traffic

Currently the facility handles 35 commercial trucks per day and 30 commercial trucks on weekends that deliver waste to the landfill. It is not anticipated that the number of trucks coming to dump waste will increase significantly over the next 5 years. Therefore, there will not be any significant impact to traffic and circulation patterns on Kaumuali'i Highway

4.13 Public Services and Facilities

4.13.1 Water and Wastewater

The vertical expansion of Kekaha Landfill will result in operations continuing as they are now. Therefore it is anticipated that there will be no change in water use and there will be no impacts to water supplies in the area.

The amount of waste water generated at Kekaha Landfill is not likely to increase since operations will continue as they are now. Therefore, there will be no impacts to waste water systems.

4.13.2 Solid Waste

The proposed vertical expansion of Kekaha Phase II Landfill will have no effect on the volume of waste produced by the island. However, if the vertical expansion is not constructed the entire Island of Kaua'i will be left without an operational sanitary landfill. This will severely impact the cost of solid waste disposal and could have far reaching ramifications to related health hazards, vector control, and the problem of random dumping of garbage which destroys the visual beauty of the island.

4.13.3 Drainage System

Since this is a vertical expansion and the footprint of the facilities remains the same there should be no new runoff for the drainage system to handle.

4.13.4 Electrical and Communications

Since this will be just be a vertical expansion of the landfill and operations will not be expanded there will be no additional use of electricity or the need for additional communications systems

4.14 Visual Resources

The vertical expansion as proposed will raise the height of Phase II 25 feet to a total height of 75 feet above ground level and 85 feet above mean sea level. This will result in the mound being higher than the existing ironwood trees and more visible from Kaumuali'i Highway (Figure 10). To mitigate the visual impacts of the increased height it is recommended that the existing trees and vegetation be improved (irrigated and fertilized) to allow effective screening to continue. This way the trees will become established and grow taller as height of the landfill slowly increases.

Operations will continue and will not be modified. Only one cell will be open and operational at a time and debris will be spread, compacted and covered each night with daily cover. When the landfill is closed the surface will be covered with an engineered cap and soil then planted with vegetation that will blend in with the coastal dunes and surrounding features. There should be minimal impact to the visual resources of Mānā plain.

4.15 Socio Economic Impact

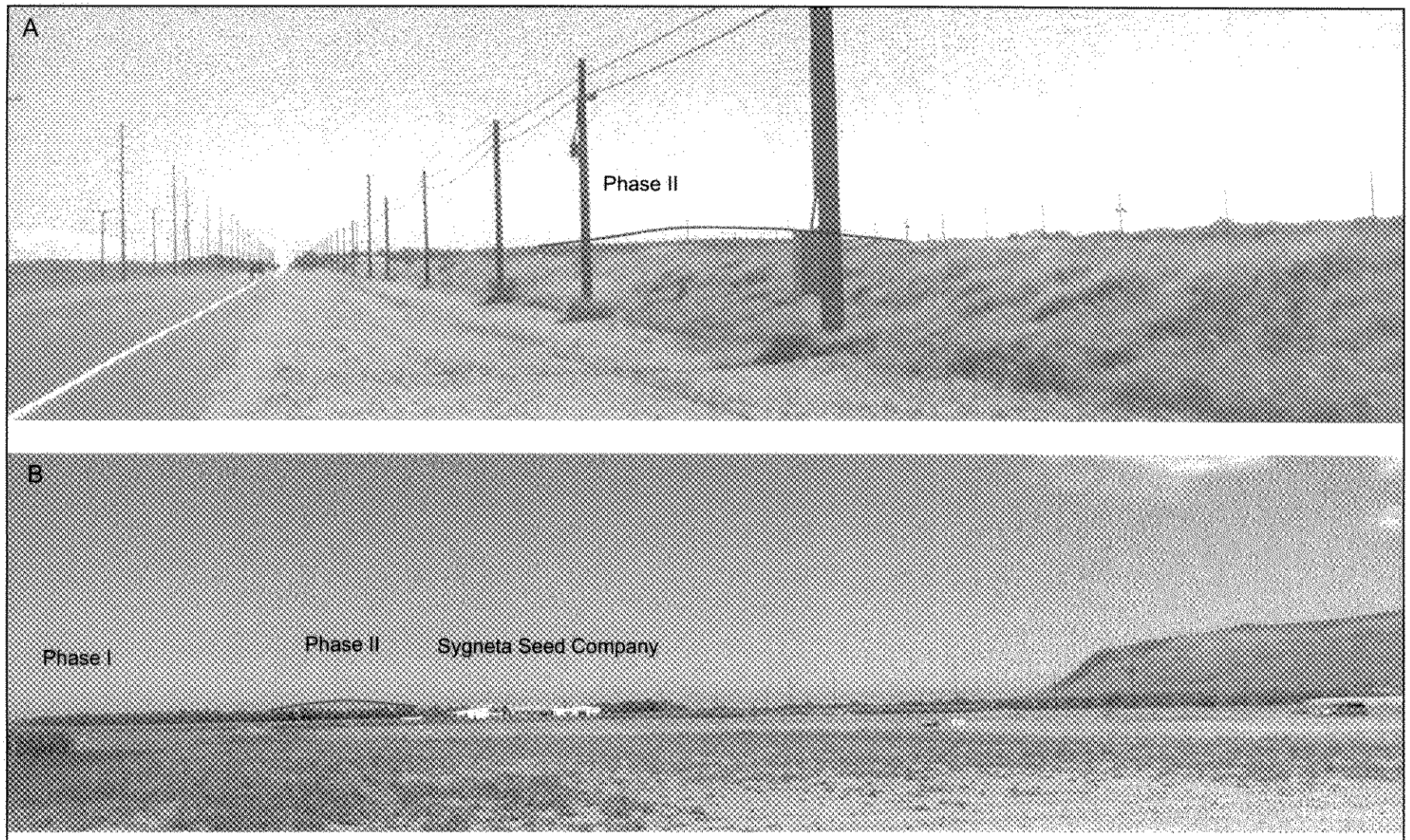
Landfills are a necessity of modern life, but few people want them in their communities. The communities of Kekaha and Waimea may prefer having Kekaha landfill close rather

than expand its capacity. This may be due to the increased traffic through those communities by garbage trucks and other haulers going to the Kekaha Landfill Phase II facilities and the fact that few people want a landfill in their neighborhood.

However, if the vertical expansion is not constructed the entire Island of Kaua'i will be left without an operational sanitary landfill. Kekaha Phase II landfill facility will have to close when it reaches the current permitted capacity and the County of Kaua'i needs between 5-6 years to site, design, permit and construct a new facility. This will severely impact the cost of solid waste disposal possibly resulting in shipping waste off island.

A public Informational Meeting on the Expansion of the Kekaha Landfill by the county of Kaua'i was held on January 22, 2002 at the Kekaha Neighborhood center. The agenda included an overview of Kaua'i's Landfill needs, progress in the landfill siting process and Landfill expansion options. Included in the meeting was a question and comment session.

The proposed vertical expansion of Kekaha Phase II Landfill will have no significant socio economic impact. Operations will continue as they are now with no significant increases in waste disposal costs and no jobs lost.



The red line shows the approximate profile of the proposed Vertical Expansion for Phase II facility at Kekaha Landfill.

A View 1 mile west of Kekaha Landfill.

B View 1.5 miles east of Kekaha Landfill and looking at Mana Plane, Syngenta Seed Company and the landfill facilities in the background.

* Photos taken 2/10/04

Figure 10
Cross Sectional Views of Proposed Expansion
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
March 2004

5.0 Evaluation of Alternatives

In Compliance with the provisions of Title 11 Chapter 200, Hawai'i Administrative Rules, Department of Health outlines specific requirements for an EA. One of the objectives delineated in Title 11 Chapter 200 is to evaluate alternatives to the proposed project including the "no project" alternative.

The County of Kaua'i needs to find a way to dispose of solid waste for another 5-6 years until a new facility is sited, planned and constructed. The alternatives discussed are: 1) The vertical expansion as proposed, 2) Horizontal Expansion into the Leachate Lagoon, 3) Horizontal Expansion into Phase III Area, 4) Off Island sites, 5) Alternative Technologies, 6) No Action

5.1 Vertical Expansion

Vertical expansion to the existing landfill is the County's preferred alternative to handle the expected deficiency in solid waste capacity. The vertical expansion of the existing Phase II area would use the existing liner and leachate collection system and remain within the Phase II footprint. Therefore, no new ground will be disturbed which reduces the cost of expansion, minimizes negative impacts on flora, fauna and potential archaeological/cultural sites. Vertical expansion will also allow for more use of the gas collection system that will be installed in the existing Phase II area, creating an economic efficiency that could not occur with the use of a new site.

5.2 Horizontal Expansion into the Leachate Lagoon Area

A possible area considered for horizontal expansion is the existing leachate lagoon and soil stockpile area. This alternative would also require a new liner for the expanded area, a leachate system and soil stockpile area which would cost around $3,000,000. This horizontal expansion would provide an area of 6.3 acres for a volume of 359,000 cy. At the current rate of filling this alternative would accommodate only 2.6 years worth of refuse, much less than the 5-6 years needed until a new facility is located.

5.3 Horizontal Expansion into Phase III Area

Expansion of Kekaha Landfill into the area designated as Phase III could add 15 years of landfill life. The primary advantage of expanding into the Phase III area is that the Kekaha landfill has a history of use as a landfill and an EIS has already been completed that includes the Phase III area. Costs associated with siting and acquiring land for a new landfill would be eliminated.

Disadvantages of developing Phase III as a landfill are that the costs could be higher because of the flat topography, the shallow groundwater that restricts the depth of waste that can be buried there, and the site has been rezoned by the State as conservation land. More importantly the Phase III area is currently located in the 100 year flood plain and tsunami zone. It is technically possible to construct a landfill on a flood plain in a conservation area, however obtaining approvals and permits would be more difficult, and it would more expensive to design and build.

5.4 Off Island Sites

This is the least favorable of all of the alternatives for the following reasons. First transporting solid waste to off island sites would proportionally increase the chances of accidental releases during transport. Secondly the high cost of inter island transportation would raise costs and fees for using appropriate waste disposal facilities and more than likely result in widespread illegal disposal of garbage throughout rural Kaua'i.

5.5 Alternative Technologies

Alterative technologies are not a viable option, because the design and permitting of such technologies would take several years and a landfill will still be required to accommodate the disposal of ash and residual waste.

Incineration is a technology that should be incorporated in the plans for the new landfill facility, and be patterned after City & County of Honolulu's H-POWER Plant. H-POWER reduces the volume of municipal solid waste by 90% when it processes and burns 2,160 tons of garbage per day in furnaces that produce steam that drives a turbine generator. The electricity generated by this waste-to-energy plant is distributed to customers by HECO.

5.6 No Action

The no action alternative would have no environmental effects at the proposed site. However the entire island would be severely impacted. This alternative would leave the island of Kaua'i without an operating landfill. In that case the county would have to find other ways of disposal including shipping garbage off island. This would increase the cost of disposal and waste generators would look for less costly and less environmentally friendly ways of waste disposal. This alternative is not acceptable and would have a much greater adverse impact than the proposed vertical expansion of the landfill.

6.0 Consistency with Land Use Plans, Policies

The proposed second vertical expansion of Kekaha Landfill Phase II is on land owned by the State of Hawai'i, managed by the State Department of Land and Natural Resources, and is regulated by the State Department of Health, as required by federal regulations. The County of Kaua'i operates the landfill and has contracted Waste Management of Hawai'i, Inc. to manage the facilities.

6.1 Policy Plans

Both the State of Hawai'i and the County of Kaua'i have plans that provide guidelines for physical, social and economic development. These plans outline policies and objectives for development.

6.1.1 State Plan

The Hawai'i State Plan provides guidelines for the long range development of the State in Chapter 226, HRS. Solid waste and the disposal of solid waste directly impact many aspects from public health to aesthetics to economics. Therefore, the State has developed one section of the plan that is devoted just to solid waste.

Section 226-15.

Objectives and policies for facility systems – Solid and Liquid wastes.

(a) Planning for the States Facility systems with regard to solid and liquid wastes shall be directed toward 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.

(b) To achieve solid and liquid waste objectives, it shall be the policy of this state to:

1) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.

2) Promote research to develop more efficient and economical treatment of solid and liquid wastes.

As proposed the second vertical expansion of the Kekaha Landfill will meet the objective and policy in Section 226-15 (a) since it will provide a means to maintain the basic public health and sanitation standards relating to the disposal of solid wastes.

6.1.2 County General Plan

In 2000 the County of Kaua'i, Planning Department completed the Kaua'i General Plan. This plan describes the County's 20 year vision for Kaua'i and sets policies for achieving that vision. The General Plan functions as a direction setting policy document that provides the vision and strategies for achieving that vision and it devotes an entire section to Solid Waste.

Section 7.8 Solid Waste outlines the County's role in solid waste management that is guided by Federal and State laws and regulations. The County provides direct service to the public by collecting solid waste and operating facilities and programs for reuse and disposal.

a) Using long-range integrated resource planning, the County shall manage an island wide system of solid waste collection, recycling and disposal that is environmentally sound and cost effective; increases diversion of waste from the island's landfill; and provides for the timely and orderly expansion of solid waste facilities.

The proposed second vertical expansion is consistent with section 7.8 because it provides an environmentally sound and cost effective way to provide a timely and orderly expansion of solid waste facilities on Kaua'i.

6.2 Land Use Plans

6.2.1 State Land Use Districts

In 1961 the State Land Use Law became effective and classified all land into one of four categories: Urban, Conservation, Agriculture and Rural.

The Kekaha Phase II site is located within the region designated as Agricultural (Figure 11). Siting the Phase II Landfill facilities on Agricultural land was allowed by a Special Permit granted by the State Land Use Commission on July 1, 1993. This Special Permit includes nineteen conditions that pertain to the handling of wastewater, oil, Department of Health programs and requirements of the State Historic Preservation Division.

The Kaua'i County Planning Department and the Land Use Commission receive an annual operating report on the nineteen Special Permit conditions. (see permits in appendix C).

6.2.2 Comprehensive Zoning Ordinances

The County of Kaua'i developed comprehensive zoning ordinances as an implementing tool for the General Plan to address long-range growth and development. Twenty-three sub-district designations regulate land use under the County's jurisdiction. The major zoning districts around Kekaha Landfill are Agricultural, Conservation and Urban. The Phase II part of the landfill facilities is on Agricultural land and Phase I and the proposed Phase III parts are within the Conservation district (Figure 12).

6.2.3 Special Management Areas

Special Management Areas (SMA) as established by the counties are the areas between the shoreline and no less than 100 yards inland. Parcels within the Special Management Area require an SMA permit for any development. The Kekaha Landfill Phase II site is just out of the Special Management Area. (Figure 13)

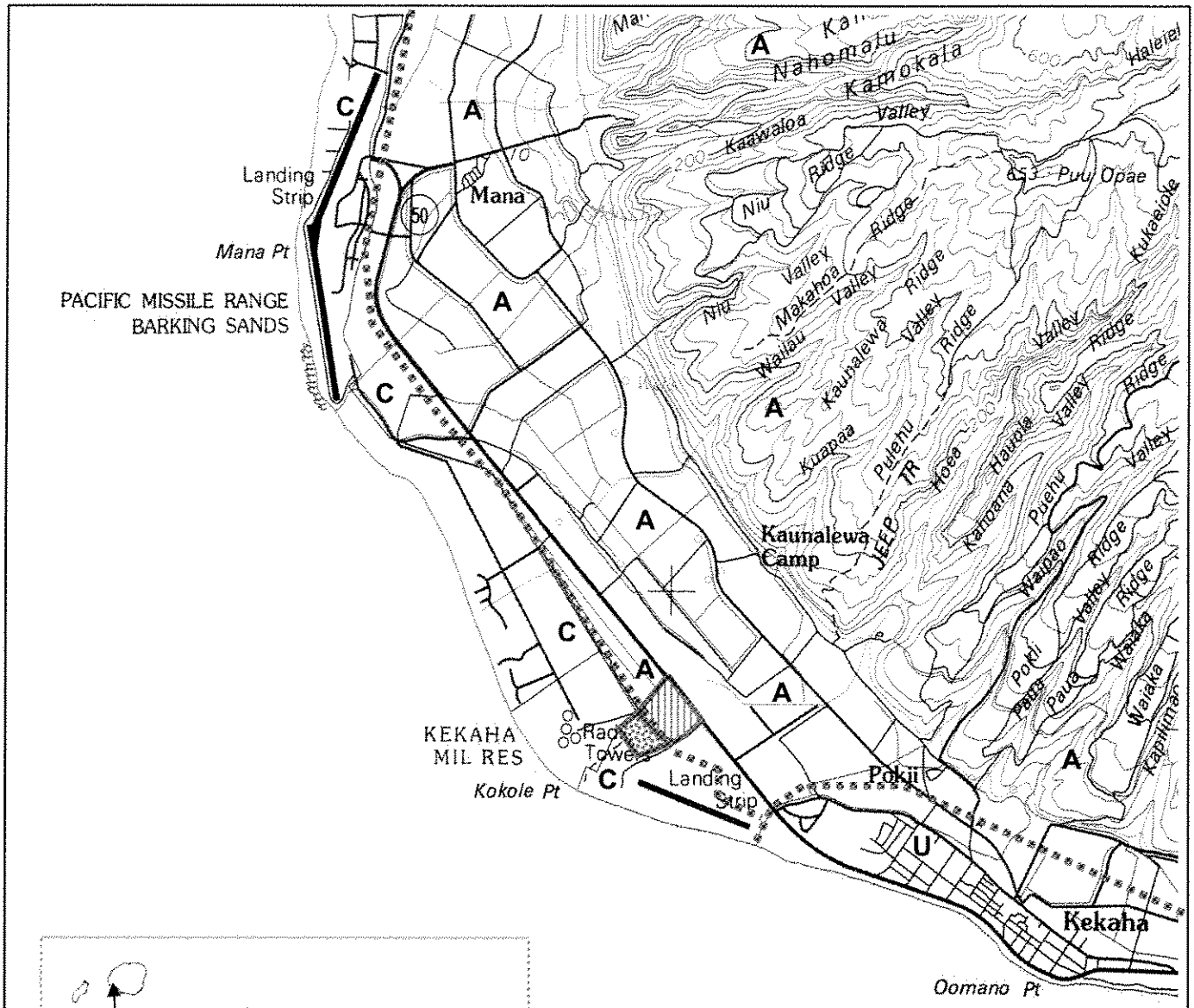


Figure 11
State Land Use Districts
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
March 2004

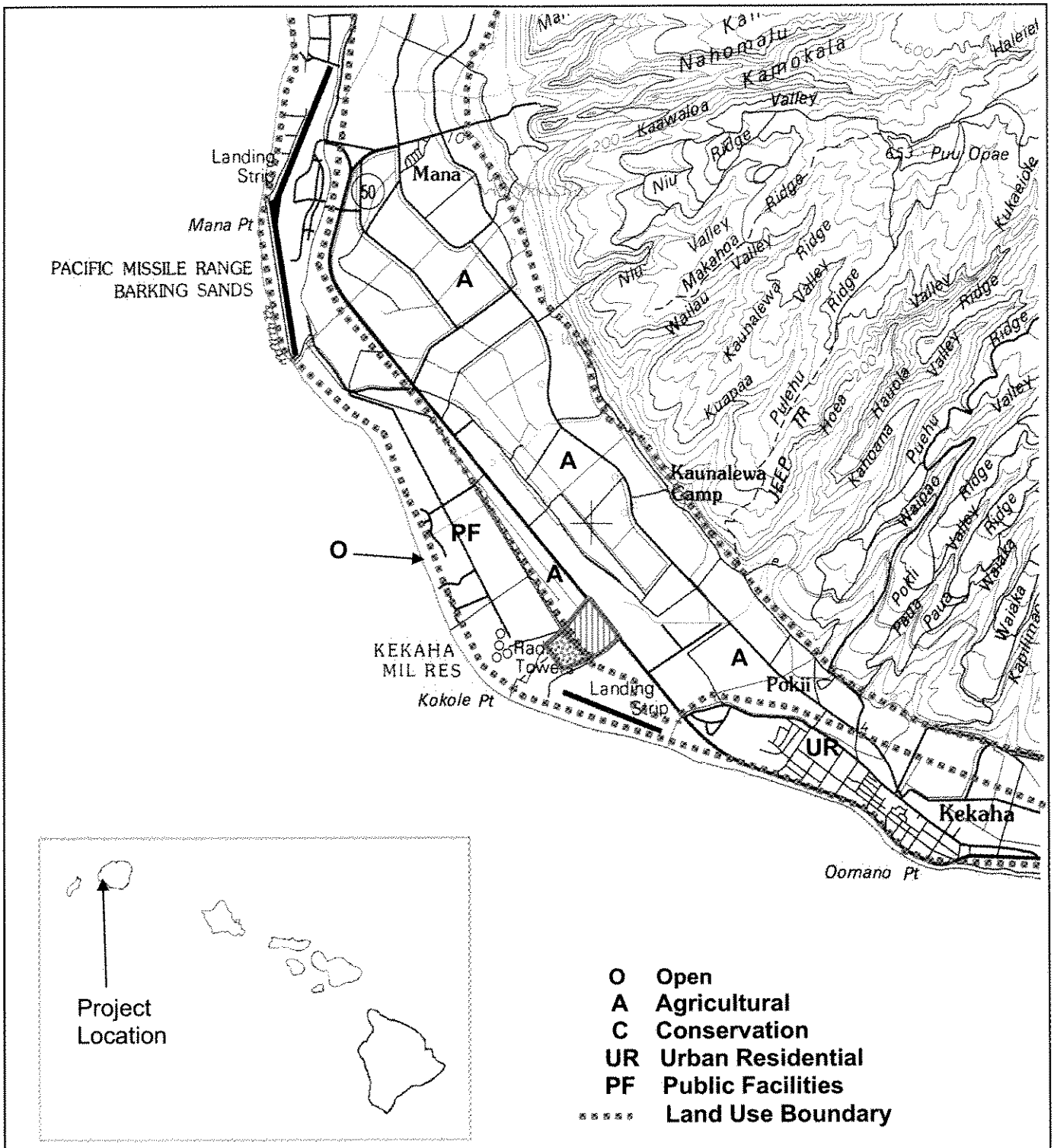


Figure 12
County of Kaua`i Land Use
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
March 2004

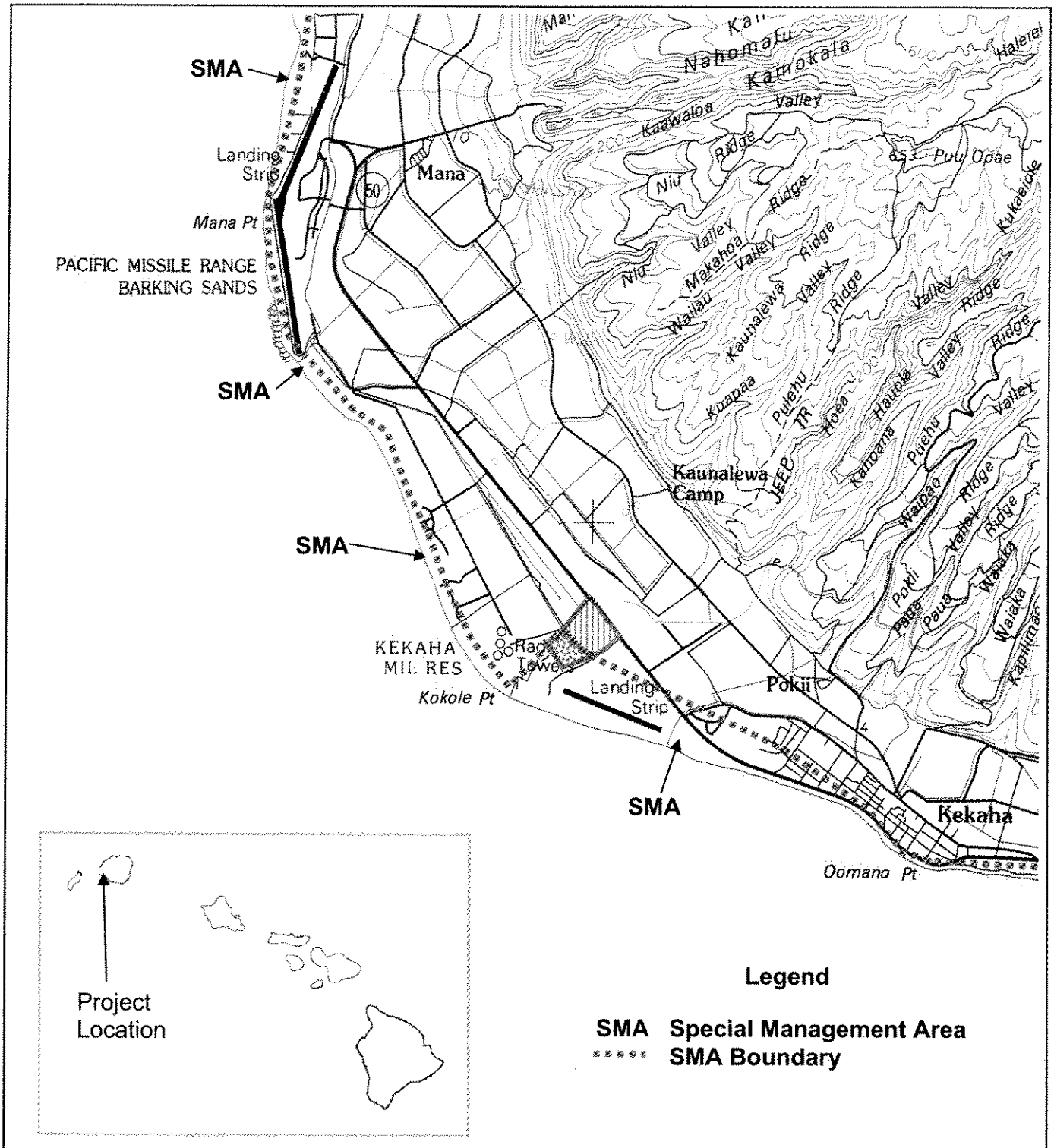


Figure 13
Special Management Area
Environmental Assessment
County of Kaua`i
Kekaha Landfill Phase II, Second Vertical Expansion

Prepared for: Earth Tech
Prepared by: Wil Chee – Planning, Inc.
March 2004

6.3 Other Programs and Controls

6.3.1 State Environmental Policy

Hawai'i's State Environmental review process was developed to ensure that the environmental consequences of proposed actions are considered. Hawai'i's Revised Statutes (HRS) Chapter 343, as amended define this review process. Eight triggers in the implementing rules identified in Chapter 343 delineate the criteria for preparing an EIS or EA. In this case the trigger for the vertical expansion of Kekaha Phase II Landfill is:

the use of State or County lands or the use of State or County funds....

The preparation of this EA is required by the proposing agency, The County of Kaua'i, Department of Public Works. This EA is prepared and processed according to Chapter 343 and its implementing rules provided in Title II, Chapter 200, HAR. Processing requirements include public notification through the Office of Environmental Quality Control (OEQC) in the Environmental Notice.

6.3.2 Hawai'i Coastal Zone Management Program

The Office of Planning, Department of Business, Economic Development & Tourism administers the Federal Coastal Zone Management Program that affects all projects on federal lands or involves federal agencies. However this action does not involve lands within Coastal Zone Management Area.

6.3.3 Kaua'i Integrated Solid Waste Management Plan

The Kaua'i Integrated Solid Waste Management Plan was developed in accordance with the State of Hawai'i Solid Waste Management Act of 1991. This document sets the guidelines for the County's intent to reach the following goals.

Reduce the amounts of waste generated

Recycle and Compost materials

Landfill and incinerate the remainder.

Landfilling is the final deposition of materials that are not recycled or reused, thus necessitating the continuing need and dependence upon long term landfill operations. Options to meet this need are outlined in the Solid Waste Management Plan. These options include:

Vertically expanding Kekaha Phase II above 37 msl;

Landfill reclamation to exhume the material in the Phase I area;

Laterally expanding into the Kekaha Landfill Phase III area;

Site and construct a new landfill full service disposal: and

Site a construction and demolition debris landfill.

The second vertical expansion of the Phase II area will allow for additional time to site the new landfill and its operations are consistent with the landfill plans and goals in the County's Solid Waste Management Plan.

6.3.4 Landfill Regulations

6.3.4.1 Federal Regulations (40 CFR 258)

Regulations that apply to waste management set by the Federal Government are found in 40 CFR 258. These regulations set the minimum national criteria under the Resource conservation and Recovery Act (RCRA) for all solid waste landfill facilities. When these regulations came into effect on October 9, 1993 Phase I area of Kekaha landfill was being closed and operations were beginning in the Phase II area. Phase II was designed and continues to operate in accordance with 49 CFR 258 requirements. The State of Hawai'i is responsible for administering and enforcing the solid waste management facility permit process of 40 CFR 258.

6.3.4.2 State Regulations (Title 11, Chapter 58.1,HAR)

Title 11, Chapter 58.1, Solid Waste Management Control, HAR contains the State's regulations. All of these State regulations are patterned after and incorporate the requirements of the Federal regulations discussed above. The purpose of these regulations is to:

- Prevent pollution of the drinking water supply or waters of the State;
- Prevent air pollution;
- Prevent the spread of disease and the creation of nuisances;
- Protect the public health and safety;
- Conserve natural resources; and
- Preserve and enhance the beauty and quality of the environment.

Phase II of Kekaha Sanitary Landfill was designed and continues to operate within the guidelines set in Title 11, Chapter 58.1. The proposed second vertical expansion of Phase II will require a modification of the existing Solid Waste Management permit. As outlined in Title 11, Chapter 58, HAR, all pertinent information will be submitted to the Solid Waste Management Branch of the Department of Health for review.

6.3.4.3 State Regulations Related to Airborne Emissions

Landfills are subject to NSPS and National Emissions Standards for Hazardous Air Pollutants (NESHP) under section 111 and 112 of the Clean Air Act. HAR guidelines require landfill facilities to be covered.

§ 60.60.750(a) of the MSWLF New Source Performance Standards (NSPS) found in 40 CFR 60, subpart WWW, the standards apply to each municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991. The County received an expansion after this date and became subject to this rule.

In order to demonstrate compliance with § 60.752(a) of the MSWLF NSPS found in 40 CFR 60, subpart WWW, sites with a design capacity less than 2.5 million mega grams (Mg) or cubic meters had to submit an initial Design Capacity Report upon becoming subject to the standard. The County became subject to the standard in March 1996 and submitted their Initial Design Capacity Report on June 5, 1996 to comply with that requirement.

Included in § 60.757(a)(3) is an amended Design Capacity Report to be submitted within 90 days of an increase in the maximum design capacity of the landfill to or above 2.5 million Mg and 2.5 million cubic meters. The proposed expansion to 85 feet above msl will result in a maximum design capacity that will exceed 2.5 million cubic meters as shown in table 3, but not 2.5 million Mg. Given that the rule specifies that both volume and mass must exceed 2.5 million and that this condition is not met, the requirement to submit an amended Design Capacity of the landfill in not triggered nor is the applicability of the Tier I Calculation that would establish the requirement to install a gas collection and control system.

Therefore, the NSPS requirements will not apply to the facility for the proposed vertical expansion.

The facility may elect to install a gas collection and control system for energy recovery purposes. This system would be designed to conform to the requirements of the NSPS, but would not otherwise be subject to the monitoring, reporting or record keeping requirements.

Table 3 Current and Proposed Amount of Waste for Kekaha Landfill

Phase	Design Capacity by Volume (CY)	Design Capacity by Volume (cubic meters)	Design Capacity by Weight [a] (Mg)
Phase I	1,717,245	1,312,928	545,107
Phase II (Landfill Height of 60 ft above MSL)	1,769,467	1,352,855	1,203,388
Current Permitted Amount of Waste	**3,486,712** [b]	**2,655,783** [b]	**1,748,495** [b]
Phase II (Landfill Height of 85 ft above MSL)	715,632	547,140 [c]	454,245 [d]
Proposed Total Amount of Waste Following Vertical Expansion	**4,202,344**	**3,202,923**	**2,202,740**

Notes:
CY cubic yards
ft feet
Mg megagrams
MSL mean sea level

[a] Approximate refuse density for Phase I is 700 pounds/CY (0.415 Mg/cubic meter). Approximate refuse density for Phase II w/Landfill Height of 60 ft above MSL is 1500 pounds/CY (0.89 Mg/cubic meter). Approximate refuse density for Phase II w/Landfill Height of 85 ft above MSL is 1400 pounds/CY (0.7 ton/CY or 0.83 Mg/cubic meter).

[b] Source: County of Kaua'i, Department of Public Works. 2000. New Performance Standards for New Municipal Solid Waste Landfills, Kekaha Landfill. Correspondence with State of Hawai'i Department of Health, Clean Air Branch. May 25. EMCON. 1998. Addendum Operations Manual for Kekaha Sanitary Landfill – Phase II, Kekaha, Kaua'i, Hawai'i. San Jose, California. May 27. With additional calculations on projected landfill life drafted 10/8/98, revised 12/3/98.

[c] 715,632 CY x 0.7645549 cubic meters/CY = 547,140 cubic meters

[d] (715,632 CY x 1400 pounds/CY x 453.39 grams/pounds) / 1,000,000 grams/Mg = 454,245 Mg

6.4 List of Required Permits and Approvals

As proposed the second vertical expansion of the landfill would require a modification of the existing State DOH Solid Waste Management landfill permit no. LF0073-98.

Approvals for the proposed vertical expansion include:

State Historic Preservation Division concurrence that the proposed expansion will have no effect on cultural and historical resources: and

County of Kaua'i's Planning Department approval that the increase in vertical height from 60 msl to 85 msl is allowed within the existing Special Permit.

See Appendix C Previous Permits for complete text of permits

7.0 Findings and Determinations

Based upon the previous information presented in this document the proposed vertical expansion of Kekaha Landfill will have no significant environmental impacts. This determination is based upon criteria outlined in Chapter 343, HRS, as amended and Title 11 Chapter 200 HAR 1996.

The results of this assessment are that the negative impacts that have been identified in this document shall be adequately minimized by the suggested mitigation measures. Therefore, the proposed action will result in no significant impact on the environment. It has been determined that an Environmental Impact Statement (EIS) is not required for the proposed project. A Finding of No Significant Impact (FONSI) is anticipated and determined to be in order.

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

As proposed the project does not involve a loss or destruction of any natural or cultural resources. This is based upon the fact that the footprint will not change and no new areas will be altered.

(2) Curtail the range of beneficial uses of the environment,

As proposed the project does not restrict the range of beneficial uses of the environment. Currently the site is used as a landfill and this project will extend the use of that landfill.

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

As proposed the project is in compliance with the State's long-term goals or guidelines as expressed in Chapter 344, HRS.

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

As proposed the project does not significantly impact the economic or social welfare of the community or state. No new land will need to be purchased and no new site will have to be developed. Therefore the costs will be minimal to keep the County of Kaua'i's only operating sanitary landfill open

(5) Substantially affects public health;

As proposed the project does not impact the public health. If the project was not approved it might severely affect the public health because the County of Kaua'i would have no place to deposit garbage.

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

As proposed the project does not have secondary effects such as changes in demographics and infrastructure. No new infrastructure will be required and the demand on the existing infrastructure will not change.

(7) Involves a substantial degradation of environmental quality;

The project as planned does not result in the significant degradation of the environment. This is based upon the fact that the footprint will not change and no new areas will be altered. Currently Kekaha Landfill Phase II is in compliance with all applicable environmental regulations.

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

As proposed there are no cumulative adverse effects on the environment or the need for larger actions on the site.

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

As proposed the project does not impact any rare, threatened, or endangered species or its habitat. The footprint of the landfill will remain the same and no new areas will be developed. Therefore there will be no change in the effects of the facilities on threatened or endangered species or habitat.

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

As proposed the project does not have any adverse impacts on air, water quality or ambient noise levels. Daily operations will remain the same and currently Kekaha Landfill Phase II is in compliance with all applicable environmental regulations that would affect air and water quality or noise levels.

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

Tsunami maps for inland of Kaua'i indicate that the landfill Phase II facility is the tsunami zone. However, due to the surrounding topography the presence of a coastal dune sequence and no rivers, streams or drainages near by, it is unlikely that the landfill would be inundated or damaged by a tsunami. First, the energy of any tsunami would be dampened when it hits, washes over and moves the coastal dunes, then it would flood the National Guard firing range where it would lose velocity before it reached the closed Phase I facility. Therefore, it is unlikely that there would be severe damage at the Phase II facility due to a tsunami.

As proposed the vertical expansion of Kekaha Landfill is not likely to incur any damage from floods, tsunami, erosion or any geological hazards. Nor is it located in any sensitive areas such as a beach, estuary, stream or coastal waters that would be impacted.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies;

The project as planned does not substantially impact scenic vistas and view planes identified in the County and State plans or studies.

(13) Requires substantial energy consumption.

As planned the proposed action does not require additional consumption of energy.

8.0 References Cited

Belt Collins Hawai'i Ltd., 1998, Final Environmental Assessment Kekaha Landfill Phase II Vertical Expansion, Prepared for: County of Kaua'i Department of Public Works

Bennett, W.C., 1931, *Archaeology of Kaua'i*, Bernice P. Bishop Museum Bulletin 80

Bruegmann, Marie. U.S. Fish & Wildlife Service. Personal communication.

County of Kaua'i Planning Department, 2000, *Kaua'i General Plan*, Kaua'i, Hawai'i

County of Kaua'i, *Comprehensive Zoning Ordinance*, Chapter 8, Kaua'i County Code 1987

Earth Tech, 2004, Annual Post Closure Report Period March 2002 to February 2003, Kekaha Landfill Phase I

Earth Tech, Inc, 2003, *Preliminary Engineering Report Kekaha Landfill Phase II Second Vertical Expansion Kekaha, Kaua'i, Hawai'i.*

Earth Tech, Inc, 2002, *New Kaua'i Municipal Solid Waste Landfill Kalepa Site Evaluation Kaua'i, Hawai'i.*

Earth Tech, Inc, 2001, *Kaua'i Municipal Solid Waste Landfill Siting Study, Kaua'i, Hawai'i.*

EMCON, 1998, *Addendum Operations Manual for Kekaha Sanitary Landfill – Phase II, Kekaha, Kaua'i.*

Harding Lawson Associates, 1994, Integrated Waste Management Plan, county of Kaua'i.

Juvik and Juvik, 1998, *Atlas of Hawai'i, Third Edition*, University of Hawai'i Press, Honolulu.

Mink, & Yuen, 2000, Memorandum –Geologic and Hydrologic Conditions on Kaua'i.

Macdonald, Abbot & Peterson, 1983, *Volcanoes of the Sea*, University of Hawai'i Press.

Sanifill of Hawai'i, Inc., 1998, *Groundwater Elevation Map.*

U.S. Department of Agriculture Soil Conservation service, 1972, *Soil Survey of the Island of Kaua'i, O'ahu, Maui, Moloka'i, and Lāna'i, State of Hawai'i.*

9.0 List of Preparers

Preparers	Responsibilities	Affiliation
Wilbert C.F. Chee	Principal Senior Planner	Wil Chee – Planning, Inc.
Richard McGerrow	Senior Planner / Assistant Production Manager	Wil Chee – Planning, Inc.
Judy J. Mariant	Planner / Document Writer / Production Manager	Wil Chee – Planning, Inc.
Ron Boyle	Project Manager	Earth Tech, Inc.

10.0 List of Agencies, Organizations, and Persons Consulted

Individuals

Bruegmann, Marie, U.S. Fish and Wildlife Service
Boyle, Ron, PE, Project Manager, EARTH TECH, Inc.
Collins, Sara, State Historic Preservation Officer, SHPD
Guzman, Juan Felix, Operations Supervisor, Waste Management of Hawai'i, Inc.
Kaohi, Jeffery, K., District Manager, Waste Management of Hawai'i, Inc.
Tanigawa, Troy, PE, Solid Waste Program Administrative Office
Mossman, Vida, Public Information Officer, Pacific Missile Range Facility

Agencies

Federal Government

U.S. Fish and Wildlife Service
Pacific Missile Range Facility

State of Hawai'i

Department of Land and Natural Resources
Department of Health
Office of Environmental Quality Control
State Historic Preservation Department

County of Kaua'i
Department of Public Works, Solid Waste Division
Planning Department

Public Meeting
Kekaha Neighborhood Center, January 22, 2002

11.0 Appendices

Appendix A Correspondence

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

January 26, 2004

Mr. Ron Boyle
EARTH TECH, Inc.
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813

Subject: Pre-consultant for Kekaha Landfill Phase II Second Vertical Expansion
Waimea, Kauai, Hawaii

Dear Mr. Boyle,

We have the following comments:

1. Please illustrate the visual impacts of the landfill from public places such as roads and lookouts. Photos of existing conditions taken from public view points are helpful in evaluating visual impacts. Rendering of future conditions superimposed on the photos of existing views should be provided.

2. Please provide a list of all complaints received on the landfill since its inception. Please describe what steps will be taken in this second phase to avoid or minimize similar complaints.

3. The proposed project is intended to address the need to provide sufficient space for disposal of Kauai's MSW until 2009. Will there be any type of recycling to further extend the life of the landfill?

We will reserve future comments until the documents are submitted. Should you have any questions, please feel free to call our office at 586-4185.

Sincerely,

Genevieve Salmonson

Genevieve Salmonson
Director

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/SHWB

April 28, 2004

Mr. Richard S. McGerrow
Wil Chee Planning, Inc.
1400 Rycroft Street, Suite 928
Honolulu, HI 96814

Dear Mr. McGerrow:

SUBJECT: Environmental Assessment for the Kekaha Landfill Phase II Vertical Expansion

Thank you for the opportunity to review and provide comments on this proposal. The proposal has been reviewed by the Solid Waste Section.

We note that the proposed landfill expansion will require a solid waste management permit from the Department of Health. The Department will address issues specific to the site upon receipt of a landfill permit application. We have no other comments to provide at this time.

Please contact Lane Otsu at 586-4226 with any questions.

Sincerely,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

Appendix B Recycling Program Summary

RECYCLING PROGRAMS SUMMARY
UPDATED FEBRUARY 5, 2004

1. **Public Outreach and Education:** *County Recycling Line* – Field calls on all waste diversion subjects. Log calls according to subject category and geographic area. *Facility Tours* – Host tours of the Kauai Resource Center school groups and Legislative Solid Waste Task Force. *Special Events* – Establish information booths at large events like the County Fair and Garden Fair. Performed beverage container recycling services at County Fair. Loan out display materials and disseminate Kauai Recycling Guide at smaller events. *Public Drop-Ins* – Meet with public upon request to discuss their experiences/issues/concerns/ideas in regards to recycling. *Publications* – Distribute Kauai Recycling Guide at the Kauai Resource Center, at special events, and upon request.
2. **Kauai Recycles Program:** Administered contract # 6867 with GID. Includes management of the seven Residential Drop Bins for collection of cardboard, newspaper, aluminum, glass and junk mail. Public participation in this program has increased steadily over the past 3 years, and hits at an all-time high in December 2003, at 90 tons per month. This program also includes the County Office Paper Recycling Program. Negotiated #1 and #2 plastic recycling into this contract. Plastic Recycling scheduled to commence in March 2004.
3. **Bottle Deposit Law:** Served on Advisory Committee for drafting administrative rules. Working with the state to incorporate redemption center recycling opportunities into the new Kauai Recycles Program. Plan to have a minimum of three remote redemption centers and two Lihue based redemption centers on Kauai. Deposit system, scheduled to go into effect in January 2005, will significantly increase recovery of plastic, glass and aluminum beverage containers.
4. **Recycling Operations at the Kauai Resource Center (KRC):** Administer contract #6644. Residential and commercial recycling drop point operated by Island Recycling. Data gathered during the first fiscal year of operations revealed that this facility has had a significant impact on overall recycling quantities on Kauai. It has also resulted in the startup of new recycling businesses and volunteer collection activities.
5. **Glass Recycling Contract:** Administer contract # 6295 with JC Sandblasting to process and reuse recycled glass. Quantities collected have increased significantly over the last year.
6. **State Advanced Disposal Fee Funding:** Manage State funds under Log G04-0001, which includes the Contract above with JC Sandblasting. Coordinating a demonstration project at the Kauai Resource Center, which will include free public demonstrations of recycled glass manufacturing, and the production of recycled glass prizes to be distributed to the public.
7. **Recycled Glass Manufacturing Operations at the KRC:** Contracted Kauai Recycling for the Arts to conduct Glass Manufacturing Operations for a five-year period. The Contractor will educate about recycled glass manufacturing and the importance of buying recycled products. This project will include the completion of a State funded ADF demonstration project described above. Contract No. 6982 is in the process of being executed.
8. **Household Hazardous Waste Program:** Managed annual collection event in September 2003. September's event was very successful, showing a 29% increase in oil based paints and ignitables over last year, and a 48% increase in non-regulated household hazardous waste.
9. **Plastic Recycling Grant:** Manage $10,000 grant to Plastic Recycling Group which has traditionally included periodic plastic recycling collection events, public education, school incentive program, plastic bag recycling at the KRC and outreach regarding reuse and source reduction. Since plastic collection will now be incorporated into the Kauai Recycles drop bin program, this year's Plastic Recycling Grant will focus on education to school groups and outreach to retailers regarding source reduction and reuse of plastic bags. Sit on Advisory Committee for this project.
10. **Waste Diversion Grant Program:** In 2003, Recycle Kauai was awarded $10,000 to provide recycling services to 15 public schools. The 2004 grant cycle has been advertised. Applications are due February 13, 2004.
11. **Reuse Grants Program:** $10,000 in grant funding available for reuse programs. Received three proposals, which are scheduled for evaluation February 10, 2004.
12. **Home Composting Program:** Distributed a total of 850 Earth Machine Home Composting since October 2001. The most recent survey results reveal that households are diverting an average of 18 gallons of food and yard waste per month using the Earth Machine. This 216 gallons per composter per year @ 7.5 pounds per gallon = 1,620 pounds diverted per composter. Through a donation from Hoike television, produced a workshop demonstration video that is now viewed by all bin recipients. Purchased 200 additional bins, which were delivered in February 2004, and will be distributed this year.
13. **Break Room Recycling Program:** November 10, kicked-off program to collect beverage containers at 22 County offices. Developed a Program Management Plan that will be implemented to keep operations smooth, and monitor program results. The 17 cubic yard recycling trailer is almost full as of February.
14. **Parks Recycling Pilot:** Coordinating pilot programs at Poipu Beach Park and Lydgate Beach Park. Labeled bins already on site at Poipu. Bins being constructed for Lydgate. Aluminum and Plastic collected by Parks staff. Glass collected for free through JC Sandblasting. Will assess program data to determine feasibility of large-scale parks recycling program.
15. **Computer Recycling:** Coordinating a short-term collection program for monitors and combination units. Contract with Island Recycling, the only permitted computer recycler in the state, is being circulated for signature. Will conduct a public awareness campaign to encourage program participation.
16. **School Education Program:** Disseminate curriculum and give presentations upon request (mostly composting bin demonstrations in the past). Host tours of the Kauai Resource Center; have conducted more than 30 tours since 4/20/02.
17. **Volunteer/Intern Coordination:** Oversee three student interns for Kauai Community College. One intern is developing a classroom presentation to pilot in local schools, one intern will assist with promotion campaigns, and one intern will develop a compost demonstration site at the Kauai Resource Center.
18. **Business Recycling:** Assist businesses with development of waste diversion programs upon request. Business recycling was the subject of a front-page news article published in the Garden Island News in January 2004. County assistance to business was promoted in the article.
19. **Program Development:** Tracked County Recycling rate, researched waste diversion trends, planned strategies, and developed new promotion program budget for next fiscal year.
20. **Greenwaste Diversion:** Greenwaste diversion areas are situated at the Lihue, Kapaa and Hanapepe Refuse Transfer Stations (RTS) and the Kekaha Debris Recycling Station. Greenwaste is shredded and used for beneficial purposes including being made available for pickup by residents. The County initiated the greenwaste diversion program in 1992.

21. **Used Motor Oil Recycling Program.** Beginning in 1990 the County began a Used Motor Oil Recycling Program for individuals that generate used oil through the maintenance of their personal vehicle (Do-It-Yourselfer). Collection Sites were set up at the Hanalei, Kapaa and Hanapepe Refuse Transfer Station. In 2003, collection sites were added at the Lihue RTS and the Kekaha Landfill. In FY 2003, approximately 8500 gallons were removed, an increase of 97% from FY 2002.

22. **Removal of Contaminated Used Motor Oil.** As a result of the Used Motor Oil Recycling Program a contract for the removal of contaminated used motor oil was required. From FY 2002 to FY 2003, a decrease of approximately 870% of contaminated used oil was removed.

23. **Recycling of Used Vehicle Tires.** As a direct result of the Dengue Fever outbreak, in 2002 scrap tire collection sites were established for residential users at all County's RTS's. Later, in 2003 an additional site was established at the Kekaha Landfill along with a yearly contract for the weekly removal of tires from all County collection sites. Since August 20, 2003 to date, approximately 12,450 tires have been removed for recycling. During the FY 2003 approximately 300 tons of tires were removed.

24. **Propane Cylinder Removal.** During FY 2003 approximately 1200 propane cylinders were removed from the various County RTS's for recycling.

County Recycling Rate FY 2002/2003
Tonnages By Material Type Recycled July 1, 2002 through June 30, 2003

Material	Tons Recycled
PAPER	
Newspaper	500.20
Cardboard	1,753.51
High Grade Paper	55.80
Mixed Paper (incl. mags.)	117.07
PLASTIC	
#1 PET Bottles	14.93
#2 HDPE Bottles	6.37
GLASS	1,107.47
METAL	
Aluminum Cans	203.10
Ferrous Metals	2,972.60
Nonferrous Metals	107.12
RUBBER	
Tires	944.48
ORGANIC	
Food Waste	
Yard Waste	12,300.00
Pallets	119.71
TOTAL	20,202.36

		Waste Disposed	81,062.42
MSW Recycled in Tons	19,869.39		
	Total MSW Recycled		19,869.39
Recycling Rate Formula =	Total MSW Recycled + Total MSW Disposed		100,951.81
		19.70%	
	Recycling rate =		

Appendix C Previous Permits

BRYAN J. BAPTISTE
MAYOR

GARY K. HEU
ADMINISTRATIVE ASSISTANT

COUNTY ENGINEER
TELEPHONE 241-6600

LADYE H. MARTIN
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6600

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
MO'IKEHA BUILDING, SUITE 275
LIHU'E, KAUA'I, HAWAI'I 96766-1340

The following is a facsimile transmission of 3 2 pages including the title pages. If you do not receive all of the pages or have any problems with the facsimile transmission, please call the sender.

FAX MESSAGE FOR:

Judy Marini
NAME

Will Chee Planning
FIRM

808 942-1851
FAX NUMBER

MESSAGE:

SENDER: Troy Tanigawa

TELEPHONE NO.: 808 241 6880

FAX NUMBER: 241-6204

DATE: 1/23/04

September 28, 1993

PERMITTEE:

OWNER: County of Kauai
Department of Public Works

OPERATOR: Sanifill of Hawaii, Inc.
Kekaha Integrated Solid
Waste Facility

PERMIT NUMBER: LF0073-93
DATE OF ISSUE: September 30, 1993
EXPIRATION DATE: September 1, 1998
COUNTY: Kauai
LATITUDE/LONGITUDE: 21°59'N/159°45'W
PROJECT: Kekaha Phase II
Integrated Solid Waste Facility

This permit is issued under the provisions of Chapter 342H, Hawaii Revised Statutes, and Title 11, Chapter 58, Solid Waste Management. The above-named permittee is hereby authorized to construct and to operate the facility shown on the application and additional submittals, and other documents on file with the Department as follows:

To Construct: A 32-acre municipal solid waste (MSW) sanitary landfill identified as Kekaha Phase II on a 62.3-acre site, with a bottom and sideslope-lined landfill system consisting of new cells numbered 1 through 14. The liner of the cells shall consist of a 60-mil high-density polyethylene (HDPE) flexible membrane liner (FML) on top of a minimum 1 pound per square foot geosynthetic clay liner (GCL) of 1×10^{-9} cm/sec hydraulic conductivity. A 24-inch granular soil leachate collection system will be on top of the liner system.

Appurtenant facilities for the landfill will include a groundwater monitoring system, a gas migration monitoring system, surface water management system, public convenience area, leachate collection system, scale house, maintenance facility, and administration building.

The total landfill refuse disposal acreage shall be limited to 32 acres.

A 4-acre public materials recovery facility (MRF) to consist of a mixed waste drop-off area, a green waste drop-off area, and a recyclables drop-off area. A commercial recycling station shall be developed in the future.

To Operate: A municipal solid waste sanitary landfill consisting of a lined landfill of 32 acres and associated facilities. The MSW sanitary landfill liner shall consist of a 60-mil high-density polyethylene (HDPE) flexible membrane liner (FML) and a bentonite-geotextile needle-punched geosynthetic clay liner (GCL). A 24-inch granular soil leachate collection system will be on top of the liner system.

IN ACCORDANCE WITH: An application for a permit to operate a Solid Waste Facility dated July 29, 1993, along with certified engineering drawings, and additional information received on September 3, 1993 and subsequent submittals as approved by the Department.

LOCATED AT: Kaumualii Highway, Kekaha, Kauai, Hawaii.

SUBJECT TO: General Conditions I, Special Conditions II, and Special Conditions III.

Thomas E. Arizumi, P.E., Chief
Environmental Management Division
Department of Health

0170LA

BRYAN J. BAPTISTE
MAYOR

GARY K. HEU
ADMINISTRATIVE ASSISTANT

COUNTY ENGINEER
TELEPHONE 241-6800

LADYE H. MARTIN
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6800

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
MO'IKEHA BUILDING, SUITE 275
LIHU'E, KAUA'I, HAWAII 96766-1340

The following is a facsimile transmission of 31 pages including the title pages. If you do not receive all of the pages or have any problems with the facsimile transmission, please call the sender.

FAX MESSAGE FOR:

Judy Marini
NAME

Will Chee Planning
FIRM

808 942-1851
FAX NUMBER

MESSAGE:

SENDER: Peay Tanigawa

TELEPHONE NO.: 808 241 6880

FAX NUMBER: 241-6204

DATE: 1/23/04

Permit No.: LP0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

GENERAL CONDITIONS I:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Chapter 342H, Hawaii Revised Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the submitted application and additional submittals on file with the Department. Any unauthorized deviation from the submitted application, approved drawings, additional submittals, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules.

4. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

   a. Having access to and receiving copies of any records that must be kept under the conditions of the permit;

   b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

   c. Requiring the sampling or monitoring of any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

   Reasonable time may depend on the nature of the concern being investigated.

5. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in the permit, the permittee shall immediately notify, in writing, and provide the Department with the following information:

   a. A description of and cause of non-compliance; and

   b. The period of non-compliance, including exact dates and times, or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

The use of an electronic facsimile device (FAX) for use in notifications is acceptable. Any data transmission or detailed explanations transmitted shall be accompanied by regular mail submissions.

6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under Chapter 342H, Hawaii Revised Statutes, and Title 11, Chapter 58, Solid Waste Management Control, Hawaii Administrative Rules.

7. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

8. This permit also constitutes a Determination of Best Practicable Technology (BPT) for the construction and operation of an MSW landfill by the use of liners, liquid collection systems, monitoring and operational systems in accordance with Title 11, Chapter 58, Solid Waste Management Control rules dated October 20, 1981.

9. The permittee shall comply with the following monitoring and recordkeeping requirements:

   a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

   b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original recordings of monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The period of retention shall be a minimum of three years from the date of the sample, measurement, report or application, unless otherwise specified by Department rule.

   c. Records of monitoring information shall include:
      1) Date, exact place, and time of sampling or measurements;
      2) Name of person responsible for performing the sampling or measurements;
      3) Date(s) analyses were performed;
      4) Name of the person responsible for performing the analyses;
      5) Analytical techniques or methods used; and
      6) Results of such analyses.

10. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

11. A permanent sign shall be posted at the facility entrance identifying the facility, the hours and days of operation, and the name and address of the operator, and other pertinent information.

12. An all-weather access road shall be maintained into the facility site.

13. The permittee shall provide and maintain controlled access to the facility site in the form of fences and gates along the perimeter where natural barriers do not provide a means of controlled access. All gates shall be kept locked when an attendant is not on duty.

14. Scavenging at the facility by the general public is prohibited.

15. The permittee shall obtain the services of a licensed land surveyor in the state of Hawaii to provide a minimum second order of accuracy boundary survey on the municipal solid waste (MSW) landfill. Alternate survey methods may be proposed subject to the approval of the Director. The existing MSW landfill unit shall only consist of Cells 1 through 4, in accordance with 40 CFR 258, "Criteria for Municipal Solid Waste Landfills." A certified drawing of the existing MSW landfill unit to document as-built details of construction prior to October 9, 1993, and total acreage of Cells 1 through 4 shall be prepared and maintained in the facility's operating record within 30 days of its completion. A copy shall be provided to the Department.

16. The MSW landfill shall provide a demonstration that they meet the requirements pertaining to airports, floodplains, wetlands, fault areas, seismic impact zones, and unstable areas in accordance with Subpart B, Location Restrictions, of 40 CFR 258 by October 9, 1993.

17. The permittee shall submit a Closure Plan to the Director no later than October 9, 1993, in accordance with Section 11-58-4(b) of Chapter 58. A preliminary outline of the topics to be within the Closure Plan may be submitted to the Department for review at any time prior to the one-year proposed closure of the facility.

    The closure of the landfill facility should accomplish the following objectives:

    a. Provide an assessment of the landfill site's present and future impacts on public health and the environment;

    b. Provide engineering controls to minimize the impacts from drainage, leachate and other health impacts from the closed site;

    c. Provide for long-term care and maintenance of the closed landfill, including necessary monitoring;

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

d. Provide recommendations on the uses and restrictions from use of the closed landfill site and its surrounding environment; and

e. Provide a notification to the title that the site was used for the landfilling of waste.

After October 9, 1993, the requirements of Federal Regulation 40 CFR 258 Subpart F, Closure and Postclosure Care, and Subpart G, Financial Assurance Criteria, are in effect. The effective date to meet the requirements shall be as specified in the regulation or any amendments thereto.

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

SPECIAL CONDITIONS II, MUNICIPAL SOLID WASTE (MSW) LANDFILL:

Construction:

1. Prior to the liner installation, the subgrade shall be prepared, consisting of well- graded materials, to provide a firm, unyielding foundation.

2. The permittee is responsible for obtaining the services of a registered land surveyor who shall provide a minimum second order of accuracy on the base grades as shown on the approved drawings. The base grade shall be certified in writing by the liner contractor and installer prior to liner placement.

3. A documented control program shall be established for the lined landfill cells as follows:

   a. A map of each cell showing panel layouts as installed.

   b. A letter of certification signed by the liner manufacturer or manufacturer's representative and the quality assurance officer stating that all weld test results and vacuum or pressure testing of all welded seams were visually observed by both.

   c. A professional engineer registered in the State of Hawaii shall review the inspections and test records for each cell as certified by the liner manufacturer or manufacturer's representative and the quality assurance officer. The professional engineer shall certify in writing that the bottom liner and leachate collection system have been installed in accordance with the plans as approved by the Department. Such certification shall be submitted to the Department and the County of Kauai after construction is completed.

4. Installation of any geosynthetic liner shall be performed by an experienced installer who has installed a minimum of 500,000 square feet of similar type liners or shall be performed under the supervision of the manufacturer. An experienced quality assurance officer responsible to the engineer of record shall observe liner installation and grade elevations. The permittee shall notify the Department, in writing, five (5) days prior to the start of any liner installation work.

5. In order to protect the liner, a minimum 24-inch sand drainage layer shall be placed over the liner.

6. The leachate collection system shall be installed according to the approved plans and drawings.

7. No solid waste shall be disposed of into any new cell until a professional engineer certifies completion of construction and contacts the Department to arrange for an inspection of each new sector with the engineer and onsite facility operator. The professional engineer cannot certify completion without the letter of certification signed by the liner manufacturer or manufacturer's representative and the quality assurance officer.

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

8. The permittee is responsible to retain a professional engineer registered in the State of Hawaii for the supervision of the construction of this project, and upon the completion, the engineer shall submit a summary report to the Department as to the complete conformity to the plans and specifications as approved. This summary report shall include a documented control program of the liner installation, liner inspections and the quality assurance and quality control testing procedures, laboratory analyses and engineer's certification of construction.

Operations:

9. The permittee shall submit an annual operating report (AOR), using June 30 of each year as year-end point, within 30 days to:

Office of Solid Waste Management
Environmental Health Division
Hawaii Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

The Reports shall include the following information:

a. Type of solid waste received. Total MSW received and an annual estimate of the waste composition. The waste categories are commercially hauled waste, residential, residential self-haul, special waste, and recoverable waste. Special waste includes materials such as asbestos, petroleum-contaminated soils, and animal waste. Recoverable waste includes materials such as tires, wood, metals, white goods, and green waste;

b. Quantities of solid wastes received by type with totals;

c. Quantities of leachate (gallons) collected and how it was handled or disposed of; and

d. Quantities of materials recycled from the waste stream by type.

An accuracy in gross values of tons, cubic yards, or quantity count as appropriate is sufficient.

A discussion and analysis shall be provided within the AOR on the feasibility of implementing programs for recycling, minimizing, or diverting for separate disposal special waste, such as fluorescent bulbs, household chemicals, household batteries, tires, wood waste, green waste, and grease trap waste. A single report providing an overview of all county coordinated recycling efforts at all facilities will satisfy this condition.

10. Stormwater that comes in contact with refuse shall be treated as leachate.

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

11. Stormwater shall meet the "Water Quality Standards" as established in Title 11 Chapter 54, Hawaii Administrative Rules, at the point of discharge at the property boundaries.

12. An interim groundwater and leachate monitoring plan shall be prepared and shall include a hydrogeological description of the site, proposed monitoring well design and locations, proposed monitoring parameters, frequency of sampling, sampling and analytical procedures. The interim monitoring program shall be submitted for approval to the Department by October 9, 1993. Upon approval of the plan by the Department, the interim plan shall be implemented within six months.

The permittee shall submit a final monitoring program which shall meet the requirements of Subpart E. "Groundwater Monitoring and Corrective Action," of 40 CFR Subpart 258 by October 9, 1995, to the Department for approval. The final monitoring program shall be implemented by October 9, 1996.

13. The permittee shall maintain reasonable access to all the monitoring stations (owned by the permittee) required by this permit. In order to assure that representative samples are obtained, it shall be the responsibility of the permittee to maintain the integrity of the monitoring stations and protect them from destruction or vandalism. Should any of these stations be destroyed, the permittee shall notify the Department immediately. The notification shall include pertinent information as to the cause, and what steps are being taken to replace the monitoring station and prevent the recurrence of such problems in the future. A Well Completion Report shall be sent to the Department within thirty (30) days of any new well construction.

14. All groundwater and leachate analyses shall be submitted to the Department within ninety (90) days of sampling and shall include a discussion and analysis as to its meaning as part of the groundwater and leachate monitoring plan required by Item 12 of these Special Conditions.

15. The maximum height of this landfill shall be 37 feet above mean sea level in accordance with the Closure Plan.

16. On or before June 30th of each year, the permittee shall submit an annual elevation survey of the site as prepared by a land surveyor registered in the State of Hawaii. This survey shall clearly show the horizontal and vertical dimensions of the landfilled area. The survey shall be included as part of the AOR required by Item 9 of the Special Conditions.

17. Adequate equipment and personnel to operate the landfill facility shall be maintained. A written Operations Plan shall be prepared and shall include a list of the equipment and personnel necessary and their duties. The Operations Plan shall include the following topics:

a. General Site Description, which shall include information on the location, size, elevations and limits of the site, and the types and quantities of waste received per day, a discussion of the climate, and a discussion of the surrounding area.

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

b. Site Utilization Concept, which shall include a plan to coordinate the overall use of the landfill site including the designation of areas for the storage or disposal of special waste, such as appliances, tires, or vehicles.

c. Operating Procedures, which shall include procedures for the following items:

1) Hazardous Waste Receipt Exclusion. A written plan shall be included with recordkeeping for random inspections, training, and notification to the State Department of Health within 24 hours or the next working day, in accordance with 40 CFR (Code of Federal Regulation) 258.20. This restriction shall be in full effect on October 9, 1993.

2) Cover Material Requirements. Six inches of earthen material or an alternative in accordance with 40 CFR 258.21. Request for alternative materials as cover shall be submitted to the Director of the Department of Health at the address listed in item 9 of these Special Conditions.

Request for the use of alternative materials shall include a written discussion and evaluation that shall demonstrate that the alternative material and its thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment.

The use of alternative cover materials is limited to daily cover only.

3) Disease Vector Control. A written plan with recordkeeping shall be prepared to provide measures to prevent or control onsite populations of disease vectors and minimize nuisance conditions. At a minimum, such measures shall be taken on a monthly basis. The plan shall meet the requirements of 40 CFR 258.22.

4) Explosive Gases Control. A written plan shall be included with recordkeeping for a routine methane gas monitoring program in accordance with 40 CFR 258.23. The plan shall include a minimum monitoring frequency of once per month.

5) Air Criteria. The permittee is responsible for obtaining permits and maintaining compliance with any State or Federal Clean Air regulations.

6) Access Control. A written plan with recordkeeping shall be prepared to provide measures to control public access in accordance with 40 CFR 258.25.

7) Run-on/Runoff Control Systems. A written plan with necessary drawings and a recordkeeping system shall be prepared to provide measures to control run-on and runoff in accordance with 40 CFR 258.25.

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

8) Surface Water Requirements. The permittee is responsible for obtaining permits and maintaining compliance with any State or Federal Clean Water regulations.

9) Liquids Restrictions. A written plan with recordkeeping shall be prepared to provide measures to restrict the disposal of bulk or noncontainerized liquid waste in accordance with 40 CFR 258.28. The restriction shall be phased in and be in full effect on October 9, 1993.

10) Litter Control. A written plan with recordkeeping shall be prepared to provide measures to minimize free litter in the landfill and prevent its occurrence beyond the property line of the facility.

11) Recordkeeping Requirements. The permittee shall comply with the recordkeeping requirements of 40 CFR 258.29.

12) Asbestos Disposal. A written plan with recordkeeping shall be prepared to ensure that the disposal of asbestos waste is in accordance with current NESHAP (National Emission Standards for Hazardous Air Pollutants) regulations, 40 CFR 61.

13) Dead Animals and Offal. A written plan shall be prepared requiring a minimum of 2 feet of solid waste or other approved cover material and compaction before the end of the workday.

14) Climatic Information. Data shall be collected, as applicable, on a daily basis and shall include daily rainfall, solar radiation, evaporation, wind speed and direction, humidity, temperature, and other meteorological data for modeling evapotranspiration at the landfill. Alternate sources of meteorological data may be used if approved by the Department.

15) Medical-Related Waste. A written plan to prevent the disposal of such waste at the facility shall be prepared. Medical-related waste may not be disposed of at any solid waste facility unless it is incinerated, sterilized, or otherwise rendered noninfectious in accordance with the requirements of Title 11 Chapter 104, Management and Disposal of Infectious Waste.

16) Fugitive Dust. Reasonable precautions such as covers or the use of water, as appropriate, shall be required of all vehicles entering the facility to prevent materials from becoming airborne.

d. Personnel position descriptions and duties.

e. Heavy equipment requirements and listings.

f. Emergency Operating Procedures. The following situations shall be included in a

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

written plan with recordkeeping:
1) Aboveground fires;
2) Below ground fires;
3) Severe storm events; and
4) Hazardous material spills.

g. Regular Training. On a minimum of an annual basis for all landfill operators.

The Operations Plan shall be kept at or near the facility and be available for review by the Department or its representative upon request at the facility. A copy of the written Operations Plan shall be submitted to and approved by the Department by October 9, 1993. The Operations Plan shall be submitted to the address listed in Item 9 of these Special Conditions.

16. Adequate storage procedures for all vehicles and white goods shall be included in a written plan with recordkeeping to prevent vector and pollution problems. Measures shall include:

a. Standards for the acceptance of all items to ensure that fluids, engine oils, gasoline, tires, lead-acid batteries, and general waste have been removed prior to or at their receipt;

b. Adequate devices and operational practices to minimize spills and prevent pollution problems; and

c. Signs at the facility stating the acceptance standards and public education by mass media methods.

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

SPECIAL CONDITIONS III, MATERIALS RECOVERY FACILITY (MRF)

The materials recovery facility (MRF) shall consist of the mixed waste drop-off area, the green waste drop-off area, the recyclables drop-off area and the commercial recycling station to be developed in the Phase I area.

1. The mixed waste drop-off area shall be monitored to ensure that only residential users deposit waste at the provided drop-off boxes. Adequate measures shall be provided to:

a. Exclude the acceptance of regulated hazardous waste as defined by 40 CFR 261.

b. Exclude the acceptance of nonhousehold liquid wastes in accordance with 40 CFR 258.28.

c. Minimize the development of vector and nuisance problems.

d. Collect and properly dispose of all leachates generated.

e. Prohibit the bulk disposal of infectious waste except in accordance with Hawaii Administrative Rules, Title 11, Chapter 104, Management and Disposal of Infectious Waste.

f. Ensure the proper handling and final disposal of all dead animals and offal.

g. Exclude the disposal of lead-acid batteries, whole tires, white goods and derelict vehicles.

h. Prevent the occurrence of and respond to fires.

2. The green waste drop-off area shall be monitored to ensure that only clean residential green waste is accepted at the drop-off area. Adequate measures shall be provided to:

a. Minimize the development of vector and nuisance problems.

b. Collect and handle stormwater based on a 25-year, 24-hour storm event.

c. Prevent the occurrence of and respond to fires.

3. The recycling drop-off area shall be monitored to ensure that only clean, well-sorted recyclable materials are accepted in the drop-off area. Adequate measures shall be provided to:

a. Minimize the development of vector and nuisance problems.

b. Collect and handle stormwater based on a 25-year, 24-hour storm event.

Permit No.: LF0073-93
Date of Issue: September 30, 1993
Date of Expiration: September 1, 1998

c. Collect and handle any leachates generated.

d. Prevent the occurrence of and respond to fires.

4. The following items shall be submitted for review by June 1, 1994, for the commercial recycling station to be developed in the Phase I area:

a. A conceptual use plan for the various types of recycling activities on the commercial recycling station site; and

b A proposed timetable to implement the activities of the commercial recycling station.

The required items shall be submitted to the Department of Health, Office of Solid and Hazardous Waste Management at the address found in Condition 9, Special Conditions II of this permit.

01/23/2004 09:50 808-2416204 COUNTY OF KAUAI

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/SWM

PERMITTEE:

OWNER: County of Kauai
Department of Public Works
OPERATOR: Sanifill of Hawaii, Inc.
Kekaha Integrated Solid
Waste Facility

PERMIT NUMBER: LF-0027-98
DATE OF ISSUE: October 1, 1998
EXPIRATION DATE: October 30, 2003
COUNTY: Kauai
LATITUDE/LONGITUDE:
21°59'N/159°45'W
PROJECT: Kekaha Phase II
Integrated Solid Waste Facility
Page 1 of 16

This permit is issued under the provisions of Chapter 342H, Hawaii Revised Statutes (HRS), and the Hawaii Administrative Rules (HAR), Title 11, Chapter 58.1, *Solid Waste Management Control*. The above-named permittee is hereby authorized to construct and to operate the facility shown on the application and additional submittals, and other documents on file with the Department as follows:

To Construct: A 32-acre integrated solid waste facility (ISWM) sanitary landfill, identified as Kekaha Phase II, on a 62.3 acre site, with a bottom and side slope-lined, landfill system consisting of new cells numbered 1 through 14. The liner of the cells shall consist of a 60-mil high-density polyethylene (HDPE) flexible membrane liner (FML) on top of a minimum one-pound per square foot geosynthetic clay liner (GCL) of 1 X 10^{-9} cm/sec hydraulic conductivity. A 24-inch granular soil leachate collection system will be on top of the liner system.

Appurtenant facilities for the landfill will include a groundwater monitoring system, a gas migration monitoring system, surface water management system, public convenience area, leachate collection system, scale house, maintenance facility, and administration building.

The total landfill refuse disposal acreage shall be limited to 32 acres with a **vertical expansion** constructed over the existing boundary.

A public materials recovery facility (MRF) which may consist of a mixed waste drop-off area, a green waste drop-off area, and a recyclables waste drop-off area. A commercial recycling station shall be developed, in part or whole, in the future.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF
Page 2 of 16

To Operate: A municipal solid waste (MSW) sanitary landfill consisting of a lined landfill of 32 acres and associated facilities. The MSW sanitary landfill liner shall consist of a 60-mil high-density polyethylene (HDPE) flexible membrane liner (FML) and a bentonite-geotextile needle-punched geosynthetic clay liner (GCL). A 24-inch granular soil leachate collection system will be on top of the liner system.

The **Interim Approval for the Inclusion of Public Works Employees** at the Kekaha integrated solid waste facility, Phase II, is satisfied by conditions required under this permit. The conditions require that administrative changes be made to the Operations Plan for the Kekaha Integrated Solid Waste Facility and be approved by the Office of Solid Waste Management within the Department of Health.

IN ACCORDANCE WITH: An application for a permit to operate a Solid Waste Facility dated July 29, 1993, a permit renewal application of February 18, 1997, along with certified engineering drawings, the facility Operational Plan, and additional information received on September 3, 1993, and subsequent submittals as approved by the Department.

LOCATED AT: Kaumualii Highway, Kekaha, Kauai, Hawaii.

SUBJECT TO: General Conditions I, Special Conditions II, and Special Conditions III.

for Director of Health
State of Hawaii

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF

GENERAL CONDITIONS I:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are **"Permit Conditions"** and as such **are binding** upon the permittee and enforceable pursuant to the authority of Chapter 342H, Hawaii Revised Statues. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants, or representatives.

2. This permit is valid only for the **specific process and operations applied for and indicated in the submitted application and additional submittals on file with the Department.** Any unauthorized deviation from the submitted application, approved drawings, additional submittals, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. The permittee shall at all times **properly operate and maintain the facility and systems of treatment and control** (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules.

4. The permittee, by accepting this permit, **specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents** as may be required by law, access to the premises at reasonable times, where the permitted activity is located or conducted for the purpose of:

   a. Having access to and receiving copies of any records that must be kept under the conditions of the permit;

   b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

   c. Requiring the sampling or monitoring of any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

   Reasonable time may depend on the nature of the concern being investigated.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF

5. If, for any reason, **the permittee does not comply with or will be unable to comply with any condition** or limitation specified in the permit, the permittee shall immediately notify, in writing, and provide the Department with the following information:

   a. A description of and cause of **non-compliance**; and

   b. The period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

   The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

   The use of an electronic facsimile device (FAX) for use in notifications is acceptable. Any data transmission or detailed explanations transmitted shall be accompanied by regular mail submissions.

6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under HRS Chapter 342H, and HAR Title 11, Chapter 58.1, *Solid Waste Management Control.*

7. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

8. This permit also constitutes a **Determination of Best Practicable Technology (BPT)** for the construction and operation of a MSW landfill by use of liners, liquid collection systems, monitoring, and operational systems, in accordance with HAR Title 11, Chapter 58.1, *Solid Waste Management Control.*

9. The permittee shall comply with the following monitoring and **recordkeeping requirements**:

   a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF
Page 5 of 16

automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

b. The permittee shall retain at the facility or other location designated by this permit, records of all monitoring information (including all calibration and maintenance records and all original recordings of monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The period of retention shall be a minimum of three years from the date of the sample, measurement, report, or application, unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

1) Date, exact place, and time of sampling or measurements;
2) Name of person responsible for performing the sampling or measurements;
3) Date(s) analyses were performed;
4) Name of the person responsible for performing the analyses;
5) Analytical techniques or methods used; and
6) Results of such analyses.

10. When requested by the Department, the permittee shall, within a reasonable time, furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

11. A **permanent sign** shall be posted at the facility entrance identifying the facility, the hours and days of operation, the name and address of the operator, and other pertinent information.

12. An **all-weather access road** shall be maintained into the facility site.

13. The permittee shall provide and maintain **controlled access** to the facility site in the form of fences and gates along the perimeter where natural barriers do not provide a means of controlled access. All gates shall be kept locked when an attendant is not on duty.

14. **Scavenging** at the facility by the general public is prohibited.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF
Page 6 of 16

15. The permittee shall obtain the services of a licensed land surveyor in the State of Hawaii to provide a minimum second order of accuracy boundary survey on the municipal solid waste (MSW) landfill. Alternate survey methods may be proposed, subject to the approval of the Director. The **existing MSW landfill** unit shall only consist of Cells 1 through 4, in accordance with 40 CFR 258, *Criteria for Municipal Solid Waste Landfills*. A certified drawing of the existing MSW landfill unit to document as-built details of construction prior to October 9, 1993, and total acreage of Cells 1 through 4 shall be prepared and maintained in the facility's operating record within 30 days of its completion. A copy shall be provided to the Department.

16. The MSW landfill shall provide a demonstration that they meet the requirements pertaining to airports, floodplains, wetlands, fault areas, seismic impact zones, and unstable areas, in accordance with Subpart B, *Location Restrictions*, of CFR 40 258, by October 9, 1993.

17. The permittee shall submit a **revised Closure Plan** to the Director, no later than October 1, 1999, in accordance with Section 11-58.1-4(b) of Chapter 58.1. A preliminary outline of the topics to be within the Closure Plan may be submitted to the Department for review at any time prior to the one-year proposed closure of the facility.

The closure of the landfill facility should accomplish the following objectives:

a. Provide an **assessment** of the landfill site's present and future impacts on public health and the environment;

b. Provide **engineering controls** to minimize the impacts from drainage, leachate, and other health impacts from the closed site;

c. Provide for **long-term care and maintenance of the closed landfill**, including necessary monitoring;

d. Provide **recommendations on the uses and restrictions from** use of the closed landfill site and its surrounding environment; and

e. Provide a **notification to the title** that the site was used for the landfilling of waste.

After October 9, 1993, the requirements of Federal Regulation 40 CFR 258 Subpart F, *Closure and Post-closure Care*, and Subpart G, *Financial Assurance Criteria*, are in effect. The effective date to meet the requirements shall be as specified in the regulation or any amendments thereto.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF

SPECIAL CONDITIONS II, MUNICIPAL SOLID WASTE (MSW) LANDFILL:

Construction:

1. Prior to the liner installation, the subgrade shall be prepared, consisting of well-graded materials, to provide a firm, unyielding foundation.

2. The permittee is responsible for obtaining the services of a registered land surveyor who shall provide a minimum second order of accuracy on the base grades as shown on the approved drawings. The base grade shall be certified in writing by the liner contractor and installer prior to liner placement.

3. A documented control program shall be established for the lined landfill as follows:

   a. A map of each cell showing panel layouts as installed.

   b. A letter of certificate signed by the liner manufacturer or manufacturer's representative and the quality assurance officer stating that all weld test results and vacuum or pressure testing of all welded seams were visually observed by both.

   c. A professional engineer, registered in the State of Hawaii, shall review the inspections and test records for each cell as certified by the liner manufacturer or manufacturer's representative and the quality assurance officer. The professional engineer shall certify in writing that the bottom liner and leachate collection system have been installed in accordance with the plans as approved by the Department. Such certification shall be submitted to the Department and the County of Kauai after construction is completed.

4. **Installation of any geosynthetic liner** shall be performed by an experienced installer who has installed a minimum of 500,000 square feet of similar type liners, or shall be performed under the supervision of the manufacturer. An experienced quality assurance officer responsible to the engineer of record shall observe liner installation and grade elevations. The permittee shall notify the Department, in writing, five (5) days prior to the start of any liner installation work.

5. In order to protect the liner, a minimum 24-inch sand drainage layer shall be placed over the liner.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF

6. The **leachate collection system** shall be installed according to the approved plans and drawings.

7. **No solid waste shall be disposed of into any new cell** until a professional engineer certifies completion of construction and contacts the Department to arrange for an inspection of each new sector with the engineer and an on-site facility operator. The professional engineer cannot certify completion without the letter of certification signed by the liner manufacturer or manufacturer's representative and the quality assurance officer.

8. The **permittee is responsible to retain a professional engineer**, registered in the State of Hawaii, for the supervision of the construction of this project, and upon the completion, the engineer shall submit a summary report to the Department as to the complete conformity to the plans and specifications as approved. This summary report shall include a documented control program of the liner installation, liner inspections, and the quality assurance and quality control testing procedures, laboratory analyses, and engineer's certification of construction.

Operations:

9. The permittee shall submit an **annual operating report (AOR)**, using June 30 of each year as year-end point, within 30 days to:

   Office of Solid Waste Management
   Environmental Management Division
   Hawaii Department of Health
   P. O. Box 3378
   Honolulu, Hawaii 96801-3378

   The **Reports** shall include the following information:

   a. **Types of solid waste received.** Total MSW received and an annual estimate of the waste composition. The waste categories are commercially hauled waste, residential, residential self-haul, special waste, and recoverable waste. Special waste includes material such as asbestos, petroleum-contaminated soils, and animal waste. Recoverable waste includes materials such as tires, wood, metals, white goods, and green waste;

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF
Page 9 of 16

b. **Quantities of solid wastes** received by type with totals;

c. **Quantities of leachate** (gallons) collected and how it was handled or disposed of; and

d. **Quantities of materials** recycled from the waste stream by type.

An accuracy in gross values of tons, cubic yards, or quantity count as appropriate is sufficient.

A discussion and analysis shall be provided within the AOR on the feasibility of implementing programs for recycling, minimizing, or diverting for separate disposal, special waste, such as fluorescent bulbs, household chemicals, household batteries, tires, wood waste, green waste, and grease trap waste. A single report providing an overview of all county coordinated recycling efforts at all facilities will satisfy this condition.

10. **Stormwater** that comes in contact with refuse shall be treated as leachate.

11. **Stormwater** shall meet the "Water Quality Standards" as established in Hawaii Administrative Rules, Title 11, Chapter 54, at the point of discharge at the property boundaries.

12. The permittee shall submit a **groundwater and leachate monitoring program** which shall meet the requirements of HAR Title 11, Chapter 58.1-16, *Groundwater Protection*.

13. The permittee shall **maintain** reasonable access to all the monitoring stations (owned by the permittee) required by this permit. In order to assure that representative samples are obtained, it shall be the responsibility of the permittee to maintain the **integrity of the monitoring stations** and protect them from destruction or vandalism. Should any of these stations be destroyed, the permittee shall notify the Department immediately. The notification shall include pertinent information as to the cause, and what steps are being taken to replace the monitoring station and prevent the recurrence of such problems in the future. A Well Completion Report shall be sent to the Department within thirty (30) days of any new well construction.

14. All **groundwater and leachate analyses** shall be submitted to the Department within ninety (90) days of sampling and shall include a discussion and analysis as to its meaning, as part of the groundwater and leachate monitoring plan required by item 12 of these Special Conditions.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF
Page 10 of 16

15. The **maximum height of this landfill** shall be 60 feet above mean sea level (MSL), in accordance with the Closure Plan.

16. **On or before June 30 of each year, the permittee shall submit an annual elevation survey of the site** as prepared by a land surveyor registered in the State of Hawaii. This survey shall clearly show the horizontal and vertical dimensions of the landfilled area. The survey shall be included as part of the AOR required by item 9 of the Special Conditions.

17. Adequate equipment and personnel to operate the landfill facility shall be maintained. A written **Operations plan** shall be prepared and shall include a list of the equipment and personnel necessary and their duties. The Operations Plan shall include the following topics:

a. **General Site Description**, which shall include information on the location, size, elevations and limits of the site, and the types and quantities of waste received per day, a discussion of the climate, and a discussion of the surrounding area.

b. **Site Utilization Concept**, which shall include a plan to coordinate the overall use of the landfill site, including the designation of areas for the storage or disposal of special waste, such as appliances, tires, or vehicles.

c. **Operating Procedures**, which shall include procedures for the following items:

1) **Hazardous Waste Receipt Exclusion.** A written plan shall be included with recordkeeping for random inspections, training, and notification to the State Department of Health within 24 hours or the next working day, in accordance with HAR 11-58.1-15(a).

2) **Cover Material Requirements.** Six inches of earthen material or an alternative, in accordance with HAR 11-58.1-15(b). Request for alternative materials as cover shall be submitted to the Director of the Department of Health at the address listed in item 9 of these Special Conditions.

Request for the use of alternative materials shall include a written discussion and evaluation that shall demonstrate that the alternative material and its thickness control disease vectors, fires, odors, blowing

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF

litter, and scavenging without presenting a threat to human health and the environment.

The use of alternative cover materials is limited to daily cover only.

3) **Disease Vector Control.** A written plan with recordkeeping shall be prepared to provide measures to prevent or control onsite populations of disease vectors and minimize nuisance conditions. At a minimum, such measures shall be taken on a monthly basis. The plan shall meet the requirements of HAR 11-58.1-15(c).

4) **Explosive Gases Control.** A written plan shall be included with recordkeeping for a routine methane gas monitoring program, in accordance with HAR 11-58.1-15(d). The plan shall include a minimum monitoring frequency of once per month.

5) **Air Criteria.** The permittee is responsible for obtaining permits and maintaining compliance with any State or Federal Clean Air regulations.

6) **Access Control.** A written plan with recordkeeping shall be prepared to provide measures to control public access, in accordance with HAR 11-58.1-15(f).

7) **Run-on/run-off Control Systems.** A written plan with necessary drawings and a recordkeeping system shall be prepared to provide measures to control run-on and run-off, in accordance with HAR 11-58.1-15(g).

8) **Surface Water Requirements.** The permittee is responsible for obtaining permits and maintaining compliance with any State or Federal Clean Water regulations.

9) **Liquids Restrictions.** A written plan with recordkeeping shall be prepared to provide measures to restrict the disposal of bulk or noncontainerized liquid waste, in accordance with HAR 11-58.1-15(i). The restriction shall be phased in and be in full effect on October 9, 1993.

10) **Litter Control.** A written plan with recordkeeping shall be prepared to provide measures to minimize free litter in the landfill and prevent its occurrence beyond the property line of the facility.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF

11) **Recordkeeping Requirements.** The permittee shall comply with the recordkeeping requirements of HAR 11-58.1-15(j).

12) **Asbestos Disposal.** A written plan with recordkeeping shall be prepared to ensure that the disposal of asbestos waste is in accordance with current NESHAP (National Emission Standards for Hazardous Air Pollutants) regulations, 40 CFR 61.

13) **Dead Animals and Offal.** A written plan shall be prepared requiring a minimum of two feet of solid waste or other approved cover material and compaction before the end of the workday.

14) **Climatic Information.** Data shall be collected, as applicable, on a daily basis and shall include daily rainfall, solar radiation, evaporation, wind speed and direction, humidity, temperature, and other meteorological data for modeling evapotranspiration at the landfill. Alternate sources of meteorological data may be used if approved by the Department.

15) **Medical-Related Waste.** A written plan to prevent the disposal of such waste at the facility shall be prepared. Medical-related waste may not be disposed of at any solid waste facility unless it is incinerated, sterilized, or otherwise rendered noninfectious, in accordance with the requirements of Title 11, Chapter 104, *Management and Disposal of Infectious Waste*.

16) **Fugitive Dust.** Reasonable precautions such as covers or the use of water, as appropriate, shall be required of all vehicles entering the facility to prevent materials from becoming airborne.

d. **Personnel position descriptions and duties.**

e. **Heavy equipment requirements and listings.**

f. **Emergency Operating Procedures.** The following situations shall be included in a written plan with recordkeeping:

1) Above ground fires;
2) Below ground fires;
3) Severe storm events; and
4) Hazardous material spills.

g. **Regular Training.** On a minimum of an annual basis for all landfill operators.

The Operations Plan shall be kept at or near the facility and be available for review by the Department or its representative upon request at the facility. A copy of the written Operations Plan shall be submitted to and approved by the Department by October 9, 1993. The Operations Plan shall be submitted to the address listed in item 9 of these Special Conditions.

18. Adequate storage procedures for all vehicles and white goods shall be included in a written plan with recordkeeping to prevent vector and pollution problems. Measures shall include:

a. Standards for the acceptance of all items to ensure that fluids, engine oils, gasoline, tires, lead-acid batteries, and general waste have been removed prior to or at their receipt;

b. Adequate devices and operational practices to minimize spills and prevent pollution problems; and

c. Signs at the facility stating the acceptance standards and public education by mass media methods.

19. **Administrative changes** shall be made to the Operations Plan to reflect the inclusion of Public Works Employees at the integrated solid waste facility. The changes shall, at a minimum, address the following issues:

a. The role of the County workers in respect to the lines of supervision shall be clearly established. Site management must be able to demonstrate its ability to satisfy daily operational requirements through the work efforts of the County employees.

b. Procedures which need to be followed by County employees in the event of site incidents or emergencies. Such events include hazardous waste releases, fires, and routine waste screening.

c. Procedures which need to be followed by management employees in the event of site incidents or emergencies. Site management must be able to respond to incidents regarding the facility with the total work force at its command and be able to add additional forces as necessary without delays.

d. Define which work force will complete the various operational elements within the permit. The operational elements include hazardous waste screening program, cover material staging, cover material application, disease and vector control program, dead animal and offal disposal program, medical waste disposal program and dust control program. A well-defined operation is essential to meeting regulatory requirements and protecting public health.

e. Training shall be provided to all operators.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF
Page 15 of 16

SPECIAL CONDITIONS III, MATERIALS RECOVERY FACILITY (MRF):

The materials recovery facility (MRF) shall consist of the mixed waste drop-off area, the green waste drop-off area, the recyclables drop-off area, and the commercial recycling station to be developed in the Phase I area.

1. The mixed waste drop-off area shall be monitored to ensure that only residential users deposit waste at the provided drop-off boxes. Adequate measures shall be provided to:
   a. Exclude the acceptance of regulated hazardous waste as defined by 40 CFR 261.
   b. Exclude the acceptance of non-household liquid wastes, in accordance with HAR Title 11, Chapter 58.1-15(i).
   c. Minimize the development of vector and nuisance generated.
   d. Collect and properly dispose of all leachate generated.
   e. Prohibit the bulk disposal of infectious waste except in accordance with HAR, Title 11, Chapter 104, *Management and Disposal of Infectious Waste.*
   f. Ensure the proper handling and final disposal of all dead animals and offal.
   g. Exclude the disposal of lead-acid batteries, whole tires, white goods, and derelict vehicles.
   h. Prevent the occurrence of and respond to fires.
2. The green waste drop-off area shall be monitored to ensure that only clean, residential green waste is accepted at the drop-off area. Adequate measures shall be provided to:
   a. Minimize the development of vector and nuisance problems.
   b. Collect and handle stormwater based on a minimum 25-year, 24-hours storm event.
   c. Prevent the occurrence of and respond to fires.

Permittee:

Owner: County of Kauai
Department of Public Works
Operator: Sanifill of Hawaii, Inc.

Permit Number: LF-0027-98
Date of Issue: October 1, 1998
Expiration Date: October 30, 2003
Project: Kekaha Phase II, ISWF
Page 16 of 16

3. The recycling drop-off area shall be monitored to ensure that only clean, well sorted, recyclable materials are accepted in the drop-off area. Adequate measures shall be provided to:
   a. Minimize the development of vector and nuisance problems.
   b. Collect and handle stormwater based on a minimum 25-year, 24-hours storm event.
   c. Collect and handle any leachate generated.
   d. Prevent the occurrence of and respond to fires.

Appendix D Comments

Department of Water
County of Kaua'i

Water has no substitute.....Conserve it

July 29, 2004

Mr. Ronald Boyle, Project Manager
Earth Tech Inc.
841 Bishop Street, Suite 500
Honolulu, HI 96813

Dear Mr. Boyle:

Subject: Draft Environmental Assessment (EA), Kekaha Landfill Phase II Second Vertical Expansion, TMK: 1-2-02: por. 1, Kekaha, Kaua'i, Hawai'i

Any actual subdivision or development of this area will be dependent on the adequacy of the source, storage and transmission facilities existing at that time.

At the present time, water service is limited to the existing water meter by an agreement between the County, Department of Water and PMRF. Any request for additional or larger sized meter will be dependent on the adequacy of the source, storage and transmission facilities existing at that time.

Sincerely,

Gregg Fujikawa
Chief of Water Resources and Planning

KA:bdm
wl-2-02-001 ea landfill

4398 Pua Loke St., P.O. Box 1706, Lihue, HI 96766 Phone: 808-245-5400
Engineering and Fiscal Fax: 808-245-5813, Operations Fax: 808-245-5402, Administration Fax: 808-246-8628

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813

September 15, 2004

County of Kauai, Department of Water
4398 Loke St., P.O. Box 1706
Lihue, Hawaii 96766

Attention: Mr. Gregg Fujikawa
Chief of Water Resources and Planning

Subject: Draft Environmental Assessment (EA),
Kekaha Landfill Phase II Second Vertical Expansion
Kekaha, Kauai, TMK: 1-2-2:Por. 1

Dear Mr. Fujikawa,

Telephone
808.523.8874
Facsimile
808.523.8950

There will be no subdivisions or development on TMK: 1-2-02: por. 1. The only change taking place will be a permit modification to allow for the continued use of Kekaha Landfill Phase II. This permit modification will provide the vertical expansion needed to continue operations for another 5 years, thus allowing the County of Kauai adequate time to site, design, permit and construct a new landfill facility.

There will be no changes in operations at the Phase II facilities and there will be no changes in the amount of water currently used. Therefore, there will not be a request for additional water or a larger sized meter.

Thank you for your comments.

Very Truly Yours

Earth Tech

Ronald E. Boyle, P.E.
Project Manager

Enclosure

cc: Troy Tanigawa
Wil Chee Planning

EARTH TECH
A TETRA TECH INTERNATIONAL LTD COMPANY

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/SHWB

August 25, 2004

S0837LO

Mr. Ronald E. Boyle, P.E.
Earth Tech, Inc.
941 Bishop Street, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Boyle:

SUBJECT: Draft Environmental Assessment
Kekaha Landfill Phase II Second Vertical Expansion

Thank you for providing us the opportunity to review and provide comments on this document. The Solid Waste Program offers the following comments:

1. We note that the landfill expansion will require a solid waste management permit from the Department's Solid Waste Program. All technical issues will be addressed through the permitting process.

2. Integrated Solid Waste Management (ISWM) Planning Comment
With regard to integrated solid waste management planning, Hawaii Revised Statutes Chapter 342G-24 states:

> *(d) The office (of Solid Waste Management) may require a county to modify and submit to the office an entire plan or specific elements of a plan at a date earlier than the schedule outlined in this section if:*
> *(1) The county, in total, within the county and through access to capacity within another county, has fewer than five years of available permitted disposal capacity, and in the judgment of the office is not making sufficient progress toward developing or gaining access to new capacity; or*

We understand that the county is currently selecting a contractor to prepare an update to its ISWM plan. This proposed update should include planning for waste disposal for periods greater than 5 years. We recommend a period of at least 20 years. The proposed action will only provide the county with approximately 5 years of capacity, which is barely sufficient to plan, design, permit and construct a new or expanded disposal facility. In light of this, we believe that planning for landfill expansion for five years worth of capacity is inadequate. Therefore, this is an especially opportune time to consider extending the planning horizon for the landfill's expansion as the county is in the process of revising its ISWM Plan.

3. Specific Comments on the Project's Design
We recommend appropriate buffer zones be maintained surrounding the landfill. Other land uses should be at least 500 feet from the waste edge, with urban type uses a minimum of one-quarter mile to prevent odor, litter, visual and nuisance issues from arising. Maintaining such buffer zones would require the county solid waste program to closely coordinate planning activities with the appropriate county planning and zoning entities. This issue may also be appropriately addressed during the revision of the county's ISWM Plan.

Please contact Lane Otsu at (808) 586-4226 with any questions regarding these comments.

Sincerely,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813

Telephone
808.523.8854

Facsimile
808.523.8950

September 15, 2004

Hawaii State Department of Health, Solid and Hazardous Waste Branch
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Attention: Mr. Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch

Subject: Draft Environmental Assessment (EA),
Kekaha Landfill Phase II Second Vertical Expansion
Kekaha, Kauai, TMK: 1-2-2:Por. 1

Dear Mr. Chang,

The proposed second vertical expansion will raise the maximum fill elevation from 60 feet to 85 feet above mean sea level (MSL) and will require a solid waste management permit. As noted in your first comment, all technical issues will be addressed through the permitting process.

The second comment on the update of the Integrated Solid Waste Management (ISWM) Plan is valid and provides constructive suggestions for the update of the ISWM Plan. The County of Kauai will include your recommendations in the ISWM Plan Update that is planned to commence this year.

Currently, there are adequate buffers surrounding all of the Kekaha Landfill facilities. Please refer to figures 2, 3, 6, 8, 9, 10, 11 and 12 of the Draft EA.

Thank you for your insightful comments on the Vertical Expansion project, ISWM Planning and concern about the adequacy of the existing buffers.

Very Truly Yours

Earth Tech

Ronald E. Boyle, P.E.
Project Manager

Enclosure

cc: Troy Tanigawa
Wil Chee Planning

EARTH TECH

A Tyco International Ltd. Company

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
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
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 2, 2004
LD-NAV
KEHAHALANDFILLKAUAI.RCM

EARTH TECH

Earth Tech
Ronald E. Boyle, P.E.
Project Manager
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Boyle:

SUBJECT: Draft Environmental Assessment
Kekaha Landfill Phase II Vertical Expansion
Island of Kauai, Hawaii
TMK: (4) 1-2-002: 001 (portion)

Thank you for the opportunity to review and comment on the subject matter.

The Department of Land and Natural Resources' (DLNR) Land Division made available or distributed a copy of the document pertaining to the subject matter to the following DLNR Divisions for their review and comment:

- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Division of Forestry and Wildlife
- Engineering Division
- Office of Conservation and Coastal Lands
- Kauai District Land Office

Enclosed please find a copy of the Engineering Division comment.

Based on the attached responses, the Department of Land and Natural Resources has no other comment to offer.

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0384.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: KDLO

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
2004 AUG 16 D 3

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
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

July 23, 2004

LD/NAV
KEKAHALANDFILLKAUAI.CMT

L-310
Suspense Date: 8/12/04

MEMORANDUM:

TO:
- Division of Aquatic Resources
- XXX Division of Forestry & Wildlife
- Na Ala Hele Trails
- XXX Engineering Division
- Division of State Parks
- Division of Boating and Ocean Recreation
- XXX Commission on Water Resource Management
- XXX Office of Conservation and Coastal Lands
- XXX Land-Kauai District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (EA)
Kekaha Landfill Phase II Second Vertical Expansion
Kekaha, Island of Kauai, Hawaii
TMK: (4) 1-2-002: 001 (portion)

Please review the attached EA pertaining to the subject matter and submit your comments (if any) to us on Division letterhead signed and dated by the suspense date.

Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments.

(X) Comments attached.

Signed: Eric T. Hirano

Name: ERIC T. HIRANO, CHIEF ENGINEER

Date: 8/16/04

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LA/NAV

Ref.: KEKAHALANDFILLKAUAI.CMT

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not have any regulations for development within this area.**

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- ( ) Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
- ( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
- ( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- ( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

( ) Other: _____

Should you have any questions, please call Mr. Andrew Monden of the Planning Branch at 587-0229.

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER

Date: 8/16/04

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
2004 AUG 16 A 10:01

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
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

July 23, 2004

LD/NAV
KEKAHALANDFILLKAUAI.CMT

L-310
Suspense Date: 8/12/04

MEMORANDUM:

TO:
- Division of Aquatic Resources
- XXX Division of Forestry & Wildlife
- Na Ala Hele Trails
- XXX Engineering Division
- Division of State Parks
- Division of Boating and Ocean Recreation
- XXX Commission on Water Resource Management
- XXX Office of Conservation and Coastal Lands
- XXX Land-Kauai District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (EA)
Kekaha Landfill Phase II Second Vertical Expansion
Kekaha, Island of Kauai, Hawaii
TMK: (4) 1-2-002: 001 (portion)

Please review the attached EA pertaining to the subject matter and submit your comments (if any) to us on Division letterhead signed and dated by the suspense date.

Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments. ( ) Comments attached.

Signed:

Name: THOMAS H. OI

Date: 8/12/2004

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
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

July 23, 2004

LD/NAV
KEKAHALANDFILLKAUAI.CMT

L-310
Suspense Date: 8/12/04

MEMORANDUM:

TO:
- Division of Aquatic Resources
- XXX Division of Forestry & Wildlife
- Na Ala Hele Trails
- XXX Engineering Division
- Division of State Parks
- Division of Boating and Ocean Recreation
- XXX Commission on Water Resource Management
- XXX Office of Conservation and Coastal Lands
- XXX Land-Kauai District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (EA)
Kekaha Landfill Phase II Second Vertical Expansion
Kekaha, Island of Kauai, Hawaii
TMK: (4) 1-2-002: 001 (portion)

Please review the attached EA pertaining to the subject matter and submit your comments (if any) to us on Division letterhead signed and dated by the suspense date.

Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments. ( ) Comments attached.

Signed:

Name: LENORE N. NAKAMU

Date: 8-13-04