

DRAFT ENVIRONMENTAL ASSESSMENT

**GLENWOOD, PAHOA AND VOLCANO CONVENIENCE
CENTER IMPROVEMENTS**

TMKs (3rd): 1-8-008:017, 023 & 028, 1-5-008:007 & 1-9-001:002 and 004
County of Hawai'i

November 2008

Prepared for:

County of Hawai'i
Department of Environmental Management
Solid Waste Division
25 Aupuni Street
Hilo, Hawai'i 96720

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PROPOSING/
APPROVING AGENCY:

County of Hawai'i
Department of Environmental Management
Solid Waste Division
25 Aupuni Street
Hilo, Hawai'i 96720

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CLASS OF ACTION:

Use of County Lands and Funds
Use of State Land
Use of Conservation District Lands

This document is prepared pursuant to:

The Hawai'i Environmental Policy Act,
Chapter 343, Hawai'i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai'i Department of Health Administrative Rules (HAR).

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SUMMARY OF THE PROPOSED ACTION, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The project would completely re-design and renovate three solid waste convenience centers (often referred to as transfer stations) located at Glenwood, Pahoā, and Volcano in the Puna District of the County of Hawai‘i. The improvements would make them more user-friendly, with enhanced traffic-flow, space for roll-off recycling container bins, HI5 redemption and re-use areas, drainage improvements, maintenance, office and volunteer structures, retaining wall improvements, greenwaste collection (no processing), and white goods (i.e., appliance) collection. Overall design would integrate these components to improve ease-of-use and traffic flow, permit more people to utilize a refuse chute simultaneously, and allow for future expansion of these components. The convenience centers will be landscaped and their perimeters fenced. Construction will be phased in order to keep a part of the convenience centers open for use. Residents will also be able to use other nearby convenience centers.

These convenience centers are in urgent need of improvement. Built in the 1970s and largely unimproved since then, they are deteriorating to the point that their use may be restricted and they may also present safety hazards to County personnel and users. Additionally, they were not designed for current needs such as recycling, and their current layout restricts their effective and convenient use. At the same time, DEM is trying to increase diversion of materials from the waste stream. This project presents an opportunity to redesign the convenience centers to fulfill multiple objectives.

Because they have long been in use as solid waste convenience centers and the project would not change the overall character of use, impacts are generally minor. The sites would be re-graded in order to implement new designs, and the areas of use on the Glenwood site would be expanded into portions of adjacent properties that have already been disturbed. Primarily non-native plant species would be affected; no rare, threatened, or endangered species are present. The project would include drainage facilities in the designs and long-term water quality impacts would improve relative to existing conditions.

Ongoing use would result in the continued potential for so-called nuisance impacts, which would be mitigated through design, operational, and good housekeeping strategies. Strategies to reduce the potential for nuisance odors will include staffing, signage, and other good housekeeping strategies. In order to minimize the potential for invasive species to become established their presence would be monitored and eradicated when necessary. A coqui frog-proof fence would be constructed at Volcano Convenience Center to confine any frogs that were accidentally introduced on the site until they could be eradicated. Mitigation for nuisance issues may result in a net improvement over existing conditions.

PART 1: PROJECT DESCRIPTION, PURPOSE AND NEED AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Project Description and Location

The County of Hawai‘i does not provide household solid waste collection for single-family residences, as the long haul distances and low population density in Hawai‘i County currently appear to make this cost-prohibitive, especially in rural areas. Instead, private companies collect from about half of residences, mostly in urban areas, while the other half haul their own household waste to one of the 21 County convenience centers that provide convenient and free disposal for single-family households. These centers are operated by the Department of Environmental Management (DEM), Solid Waste Division.

DEM proposes to completely re-design the Glenwood, Volcano and Pahoa convenience centers (Figures 1 and 2) . The improvements would make them more user-friendly, with enhanced traffic flow, space for roll-off recycling container bins, HI5 redemption and re-use areas, drainage improvements, maintenance, office and volunteer structures, retaining wall improvements, and white goods (i.e., appliance) collection. Overall design would integrate these components to improve ease-of-use and traffic flow and also allow for future expansion of these components. Increasing the ease of use of the recycling areas and improving signage is expected to encourage recycling. The convenience centers would be fenced with six-foot chain link fencing and provided with professionally designed landscaping, using native and Polynesian plants, which will reduce or eliminate the need for permanent irrigation and intensive maintenance, reinforce the strong sense of place by utilizing plants common to each locale, serve to define and enhance points of entry, direct traffic, control storm water run-off, mask undesirable odors, and mitigate views of the center from neighboring properties.

Construction will be phased in order to keep a part of the convenience centers open for use. Design also includes water catchment, information kiosks, and office and maintenance structures for staff and volunteers. The design allows the presence of staff during all open hours, rather than having roving staff, which should also help increase recycling and keep centers cleaner. DEM plans on greenwaste collection, but not processing. Disposal chutes would be covered to shelter users and rubbish from the elements. A hand sanitizer dispenser will be provided outside office buildings for sanitary purposes. Space for future expansion is included in the design.

Design elements particular to each convenience center are discussed below and site plans are attached in Appendix 1. Throughout this document the convenience centers are referred to individually (and are generally underlined) when the discussion pertains to setting, impacts and mitigation particular to each. When the discussion pertains to all three convenience centers they are referred to collectively.

Figure 1a
Project Sites Location Map

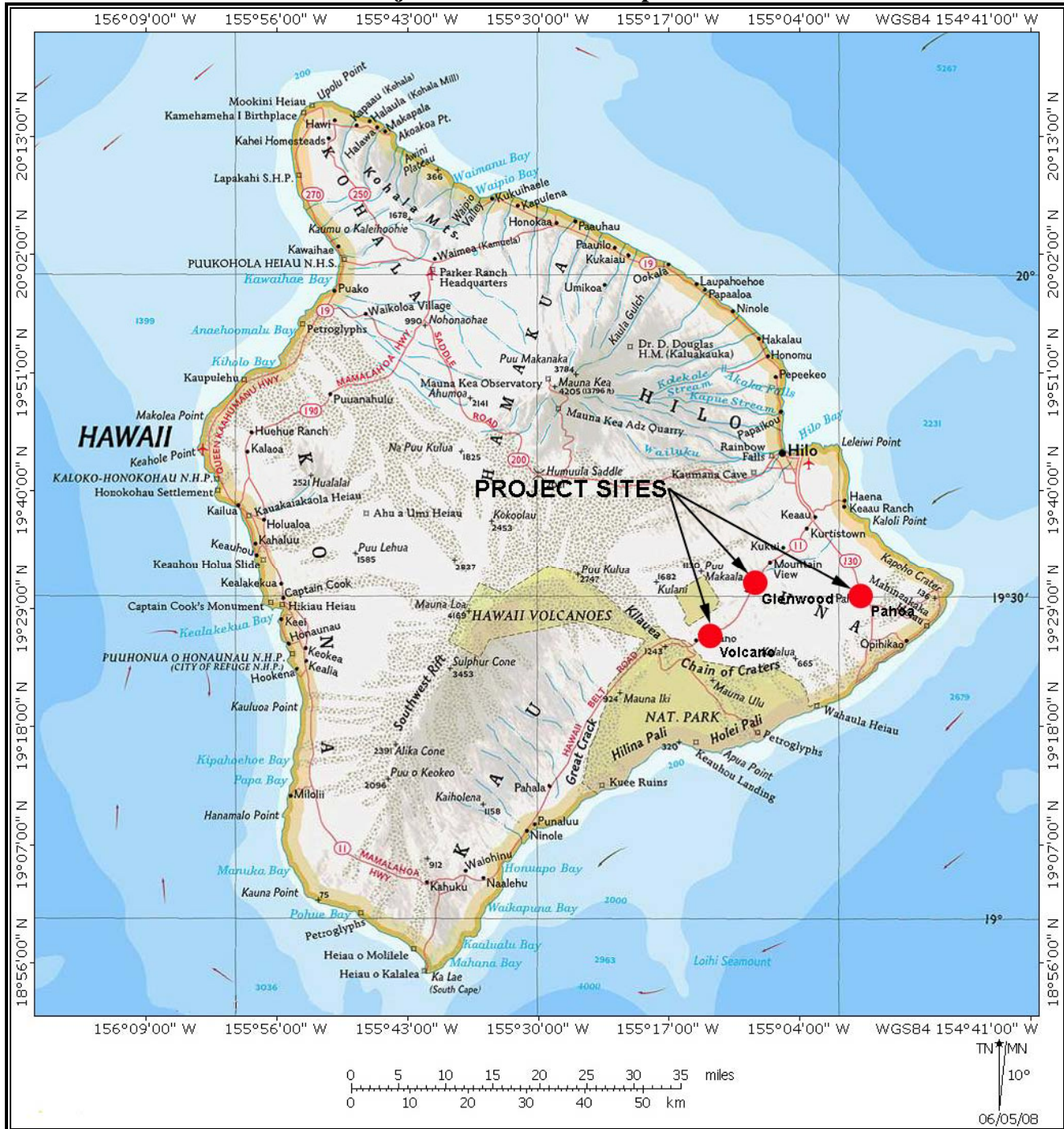
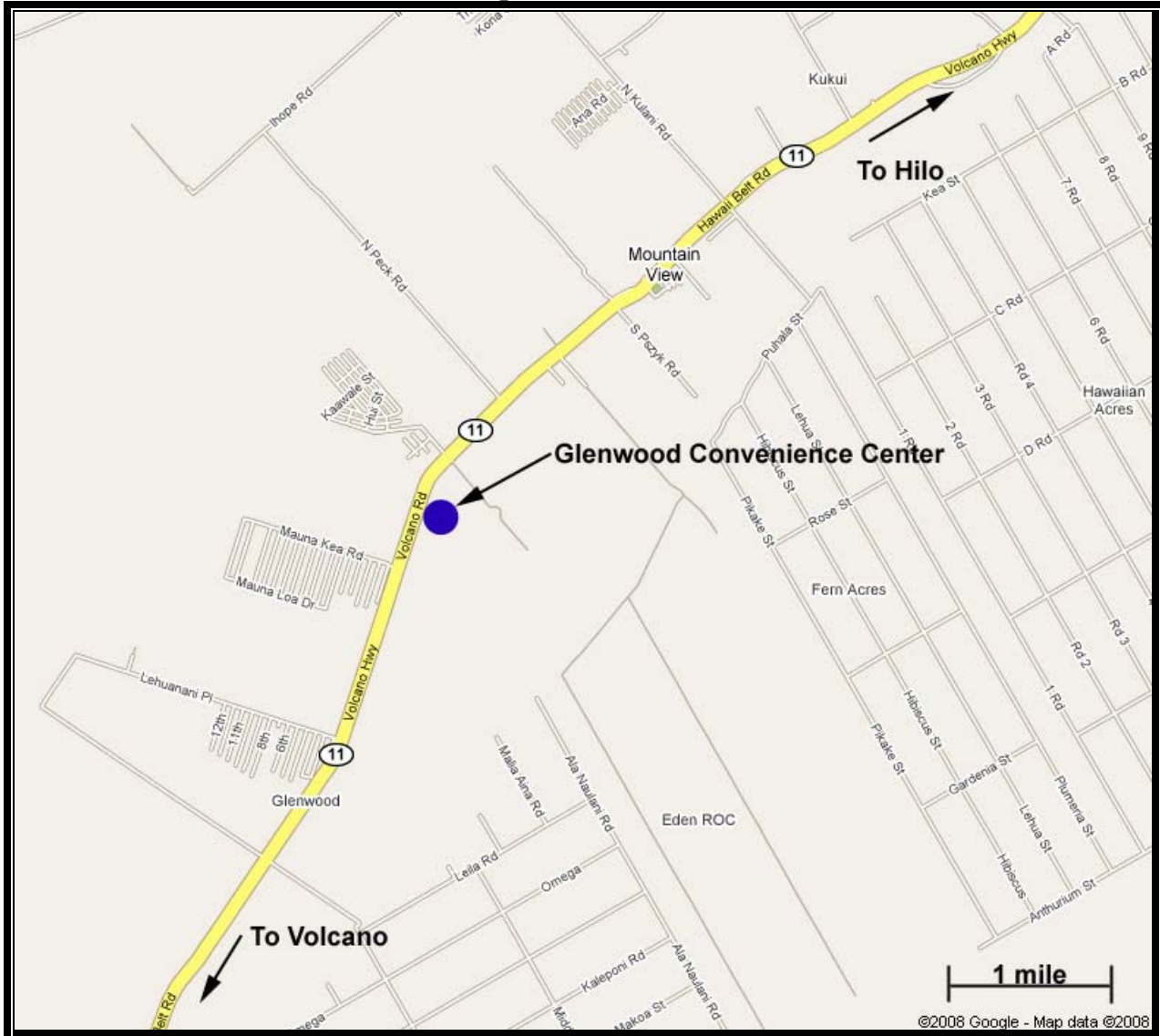
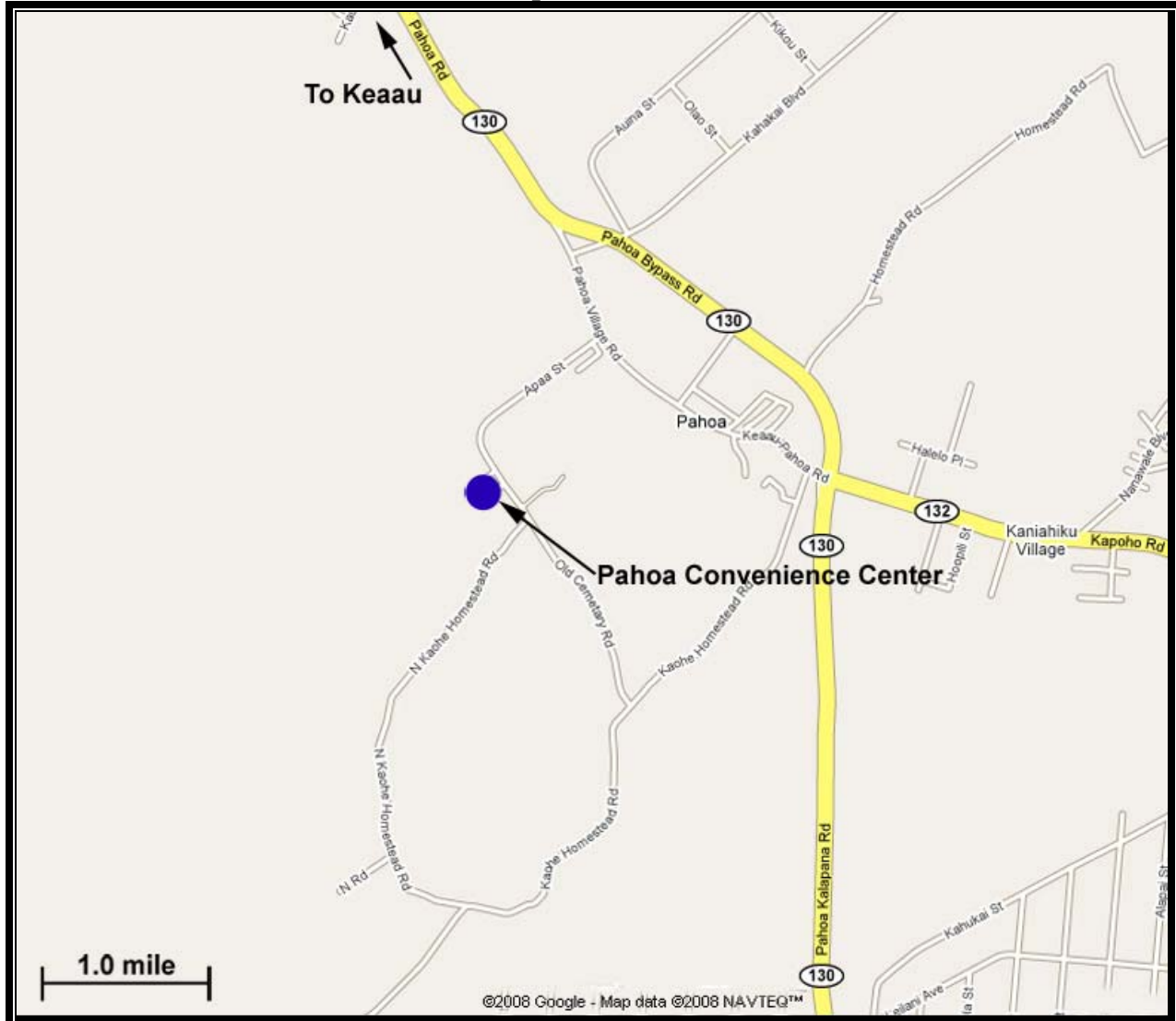


Figure 1b
Detailed Location Map, Glenwood Convenience Center



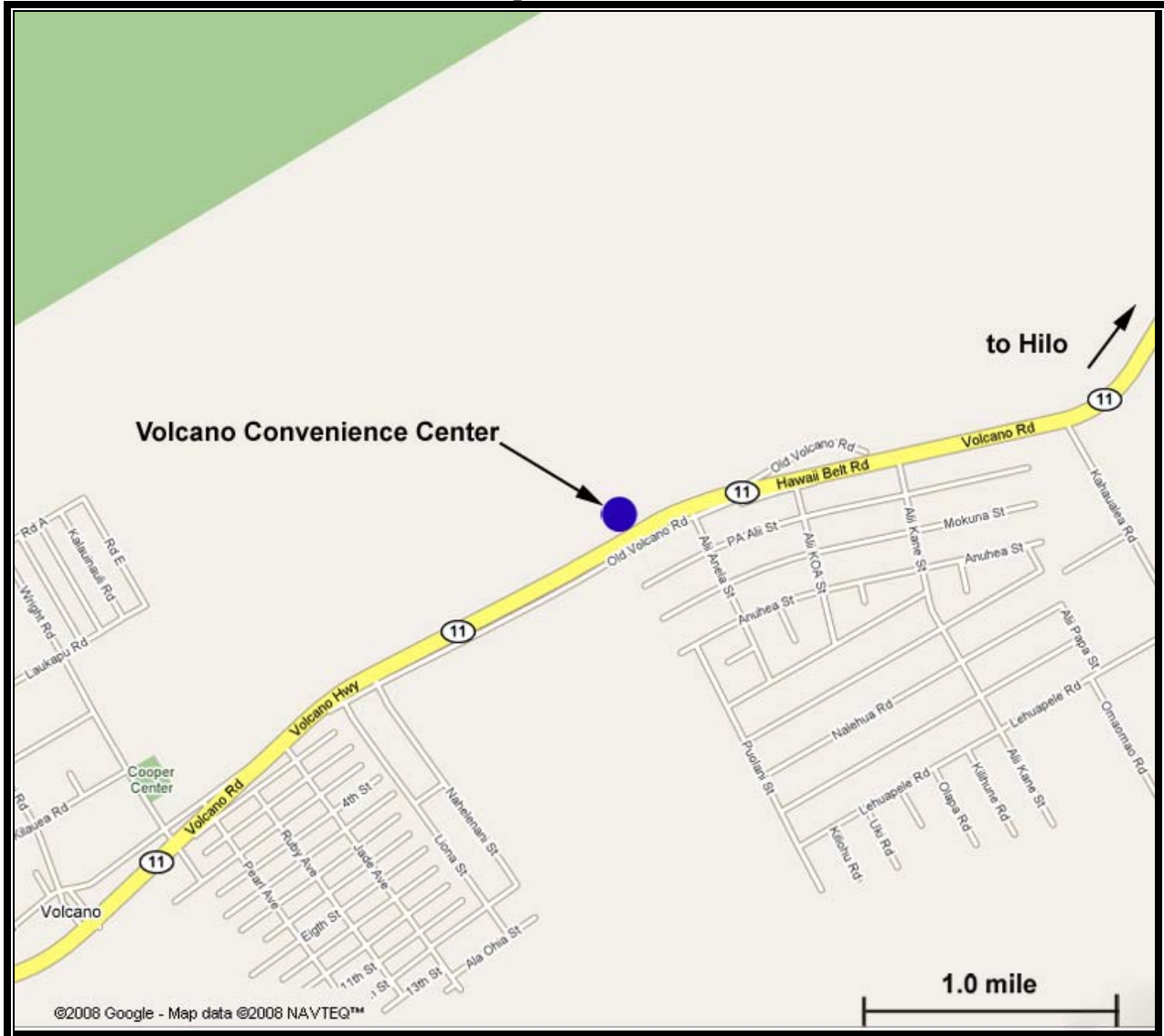
Glenwood Convenience Center (Figures 1b, 2a and 3a) is located on a 1.97-acre parcel (TMK 1-8-008:023) owned by the County of Hawai‘i on the Hawai‘i Belt Road (SR 11) about 0.4 miles north of Mauna Kea road. Because the existing site is too small to accommodate improvements, it will require expansion, which involves two options. The first would acquire a portion of the State-owned Forest Reserve parcel (i.e., the “beautification strip”) (TMK 1-8-008:017) located along the Hawai‘i Belt Road, which would be used for access and improvements. The second would acquire and use a portion of a privately-owned parcel (TMK 1-8-008:028) adjacent to the existing site and would continue to utilize the existing access road. The Site Plan included in Appendix 1 assumes the first option, and if the second option is used, a revised, but similar, layout will be developed using part of the adjacent privately owned parcel.

Figure 1c
Detailed Location Map, Pahoia Convenience Center



Pahoia Convenience Center (Figures 1c, 2b and 3b) is located on a 3.768-acre parcel (TMK 1-5-008:007), on Old Cemetery Road about one mile west-southwest of downtown Pahoia. The property is owned by the State of Hawai‘i and is under Executive Order 2825 to the County of Hawai‘i. As shown in the Site Plan in Appendix 1, drainage improvements would be outside of the convenience center’s existing footprint but within the property.

Figure 1d
Detailed Location Map, Volcano Convenience Center



Volcano Convenience Center (Figures 2c and 3c) is located on a 2.194-acre parcel (TMK 1-9-001:002) owned by the County of Hawai‘i on the Hawai‘i Belt Road (SR 11), about two miles east of Wright Road in Volcano Village, adjacent to the Ola‘a Forest Reserve. The property is owned by the State of Hawai‘i and is under Executive Orders 2878 and 1137 to the County of Hawai‘i. The project would use the existing site more efficiently with addition of the standard components and improvement in traffic flow. Hunter access to the State Forest Reserve at the rear of the facility would be maintained with construction of an unpaved roadway along the edge of the adjacent State-owned property (TMK 1-9-001:004), which is part of the Ola‘a Forest Reserve.

Figure 2a
 TMK Map, Glenwood Convenience Center

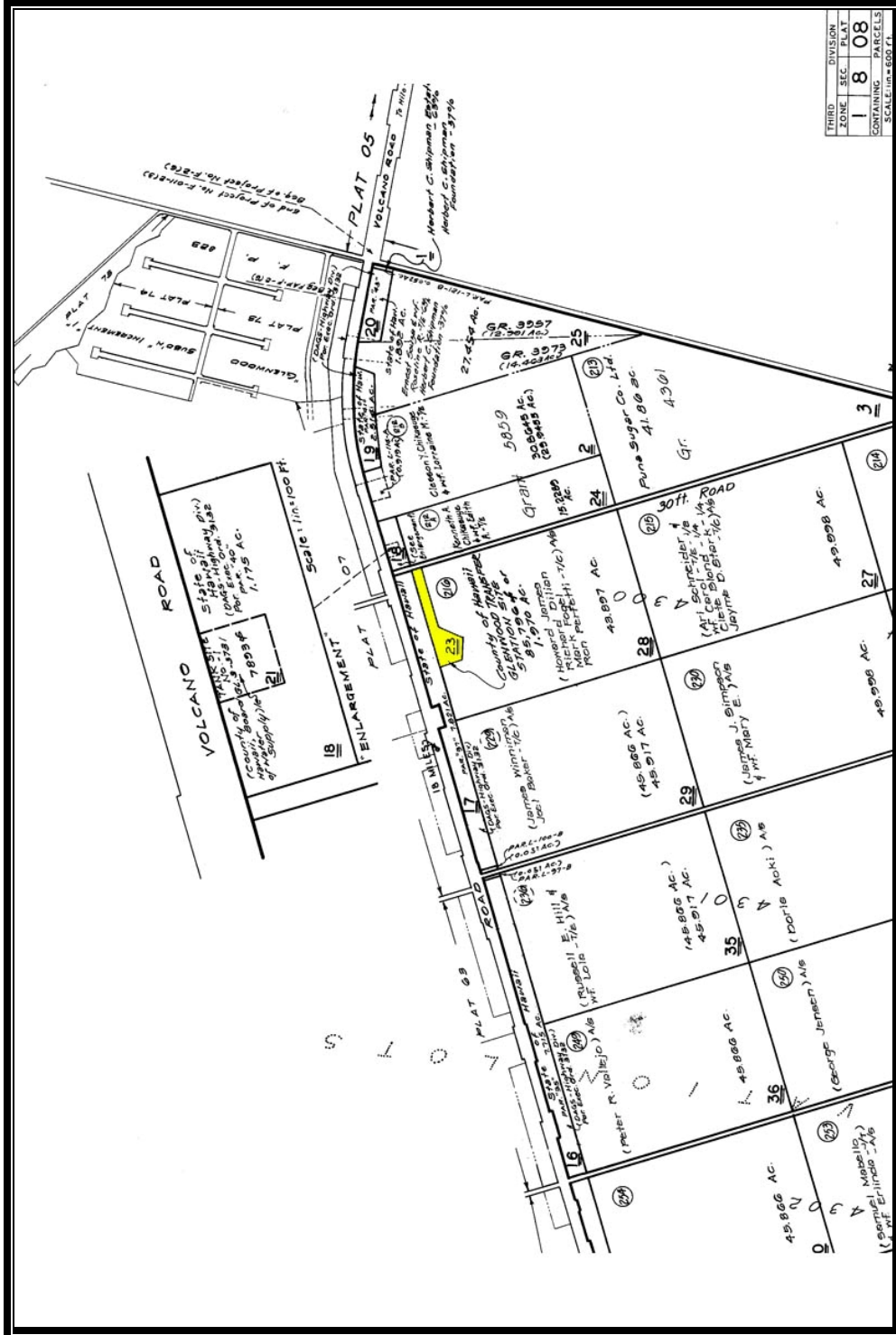


Figure 2b
 TMK Map, Pahoia Convenience Center

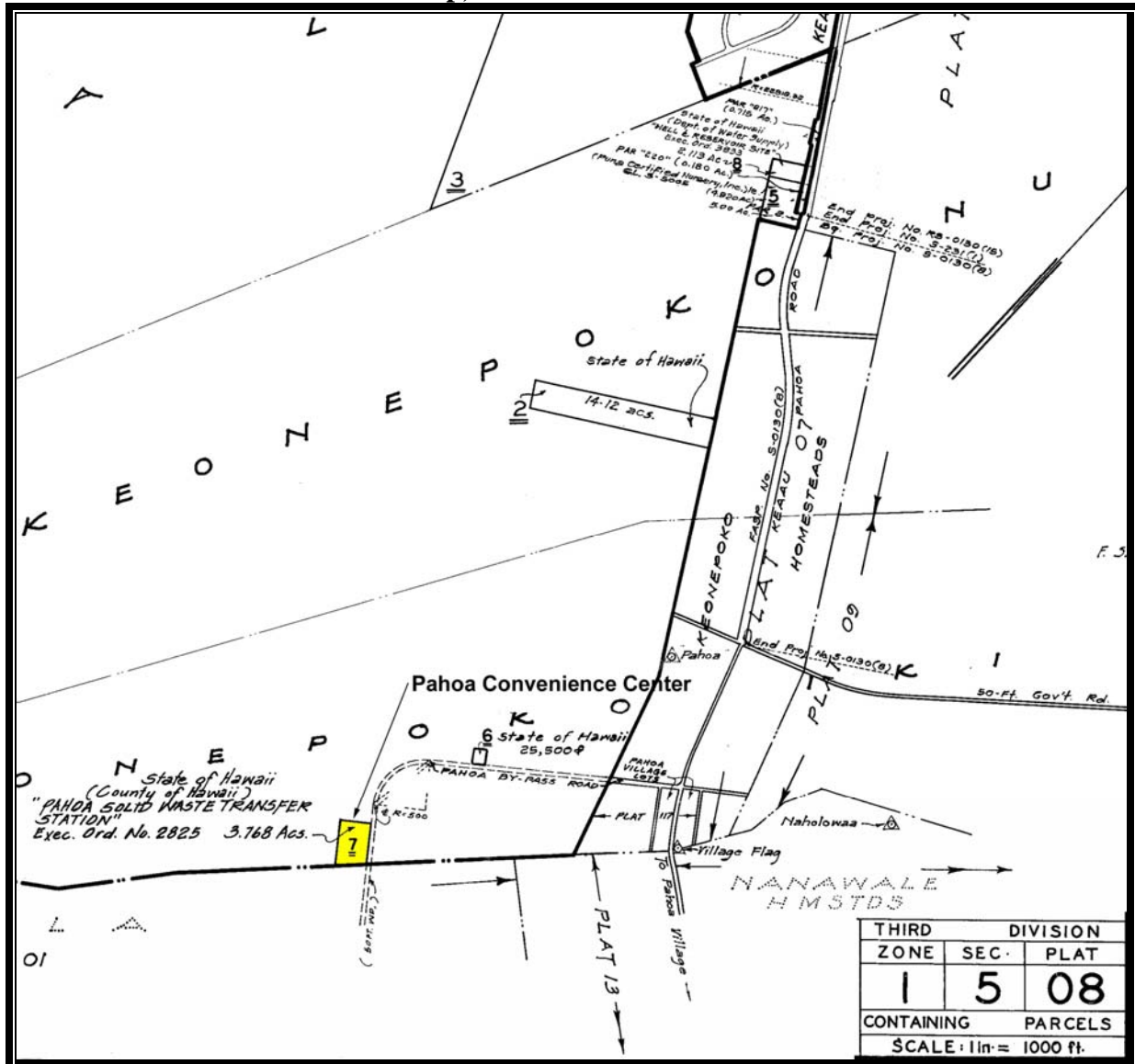


Figure 2c
TMK Map, Volcano Convenience Center

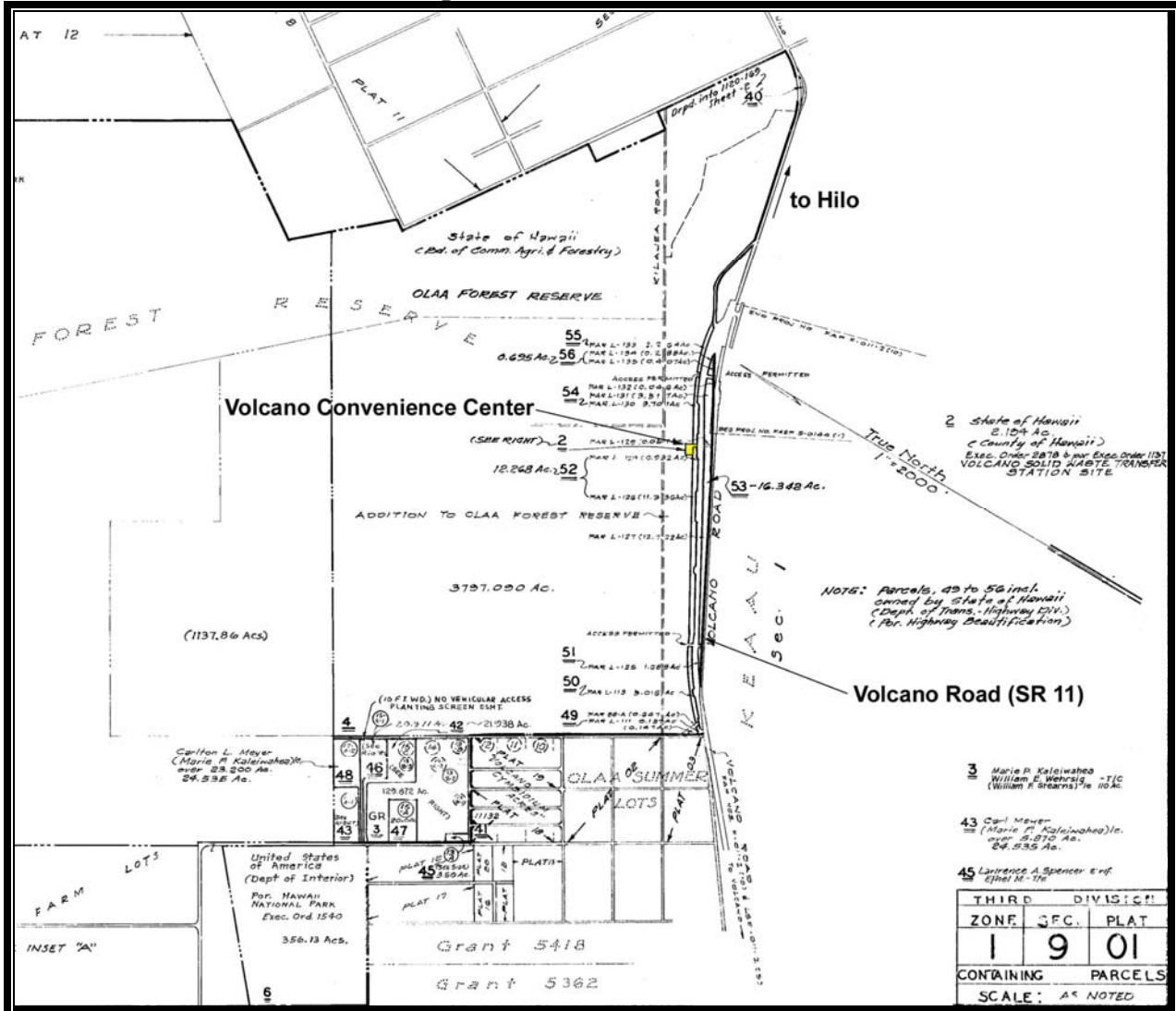


Figure 3a Photographs of Glenwood Convenience Center



Figure 3b Photographs of Pahoa Convenience Center



Figure 3c Photographs of Volcano Convenience Center



1.2 Purpose and Need

DEM undertook the *Island Wide Transfer Stations Repair and Enhancement Plan* in 2006 in order to appraise the condition of the 21 County convenience centers and prioritize improvements. Glenwood, Pahoia, and Volcano convenience centers were all assessed as having serious deficiencies possibly requiring complete reconstruction. Built in the 1970s and largely unimproved since then, they are deteriorating to the point that they may present safety hazards to County personnel and the public, and their use may need to be restricted. Wooden beams used in retaining wall support are severely decomposed. In early February 2008, one of the two retaining walls at the Pahoia Convenience Center collapsed after three days of significant rainfall. The potential for collapse of more of these walls exists.

The sites also have inadequate drainage; storm water runoff often ponds on the sites, and Pahoia Convenience Center's drainage is so poor that a portion of the site is under water after heavy rains.

Additionally, the existing convenience centers were not designed for current needs such as recycling, and their current layout restricts their effective and convenient use. This situation is hindering DEM's efforts to increase diversion of materials from the waste stream. This project presents an opportunity to redesign the convenience centers to fulfill multiple objectives.

1.3 Environmental Assessment Process

This Environmental Assessment (EA) process is being conducted in accordance with Chapter 343 of the Hawai'i Revised Statutes (HRS). This law, along with its implementing regulations, Title 11 Chapter 200, of the Hawai'i Administrative Rules (HAR), is the basis for the environmental impact assessment process in the State of Hawai'i. According to Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria. Part 4 of this document states the anticipated finding that no significant impacts are expected to occur; Part 5 lists each criterion and presents the preliminary findings for each made by the Department of Environmental Management, the proposing/approving agency. If, after considering comments to the Draft EA, this agency concludes that, as anticipated, no significant impacts would be expected to occur, then it will issue a Finding of No Significant Impact (FONSI), and the action will be permitted to occur. If the Department of Environmental Management concludes that significant impacts are expected to occur as a result of the proposed action, then an Environmental Impact Statement will be prepared.

1.4 Public Involvement and Agency Coordination

The following agencies and organizations were consulted in development of the EA.

State:

Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Department of Land and Natural Resources, Historic Preservation Division
Department of Land and Natural Resources, Division of Forestry and Wildlife
Department of Land and Natural Resources, Land Division
Office of Hawaiian Affairs

County:

Planning Department
Public Works Department
Police Department
County Council
Fire Department
Civil Defense

Private:

Hilo Hawaiian Civic Club
Recycle Hawai'i
Sierra Club
Hawai'i Island Chamber of Commerce
Malama O Puna
Mainstreet Pahoa Association
Volcano Community Association
Nearby property owners

Copies of communications received during early consultation are contained in Appendix 2a.

As part of early consultation, DEM held public meetings in Pahoa on December 4, 2007 and in Volcano Village on December 6, 2007. A record of the discussion and public comments from the meetings, as well as the results of surveys, are attached in Appendix 4.

PART 2: ALTERNATIVES

2.1 No Action

The No Action alternative is the baseline alternative to which build alternatives are compared. The No Action alternative would not resolve decaying infrastructure and accompanying safety issues at the three sites and may therefore result in restricted use of the sites. Drainage issues would also not be resolved. The convenience centers would continue to have inefficient layouts, some with an inadequate number of chutes, and hence diversion of recyclable materials would be hindered. For these reasons DEM considers the No Action alternative unacceptable.

2.2 Alternative Locations or Strategies

While some minor issues with siting of the existing convenience centers exist, the current sites are suitable. At the same time there are significant issues with respect to identification and acquisition of new sites, as new uses are generally seen as undesirable by neighbors and siting is usually problematic and costly. It is recognized that the question of whether to include long-term relocation of the Pahoia Convenience Center in the Puna Community Development Plan (CDP) was recently debated. The Puna CDP ultimately recommended relocating the Pahoia Convenience Center to a site more suitable for its service population (Hawai'i County Planning Department 2008: Action 3.4.2:g). Notwithstanding this issue, as no major problems exist with respect to the existing sites, no alternative sites have been examined in this EA. The DEM views re-siting of any of these convenience centers at this time as being ineffective in terms of time and cost.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

Basic Geographic Setting

Glenwood Convenience Center is located along the Hawai‘i Belt Road (SR 11) at an elevation of about 2,090 feet above mean sea level (see Figures 1, 2a and 3a). The site is within the Puna District in the ahupua‘a of Kea‘au. The Hawai‘i Belt Road (SR 11) is located just to the west. A portion of the project site is currently used as a convenience center, and an area adjacent to the existing site will be acquired for improvements. Land cover is non-native grasses, shrubs and trees. Nearby parcels are generally used for agriculture or are vacant.

Pahoa Convenience Center is located on Old Cemetery Road about one mile west-southwest of downtown Pahoa at an elevation of 730 feet. (see Figures 1, 2b and 3b). The site is within the Puna District in the ahupua‘a of Keonopoko Iki. Old Cemetery Road borders the project site on its east side. The property is currently used as a solid waste convenience center. Land cover is short-stature native forest outside of the existing convenience center footprint, and non-native grasses, shrubs, and trees within the developed area. Nearby parcels are primarily vacant, with some scattered agricultural use.

Volcano Convenience Center is located along the Hawai‘i Belt Road (SR 11) adjacent to Ola‘a Forest Reserve lands at an elevation of 3,190 feet (see Figures 1, 2c and 3c). The site is located in the Puna District in the ahupua‘a of Ola‘a. The project site borders the Hawai‘i Belt Road (SR 11) on its south side. The property is currently used as a solid waste convenience center. Land cover is primarily non-native grasses, shrubs and trees, with some larger native trees on the periphery. Nearby parcels are forest reserve with residential uses located to the south across the Hawai‘i Belt Road (SR 11).

3.1 Physical Environment

3.1.1 Geology, Soils and Geologic Hazards

Existing Environment

Glenwood Convenience Center is located on relatively old lava flows of the Ka‘u Basalt Series from Mauna Loa Volcano erupted 10,000 to 31,000 years ago, interlayered in some locations with lenses of weathered Pahala-like basaltic ash. The site’s soil is classified by the U.S. Natural Resources Conservation Service (USNRCS, formerly U.S. Soil Conservation Service) as Ohia silty clay loam with 0 to 10% slopes (OHC) (U.S. Soil Conservation Service 1973). This soil is typically about 9 inches thick overlying pahoehoe lava. The soil is extremely acid in the surface layer, and strongly acid to medium acid in the subsoil. Permeability is rapid and runoff is slow, with a slight erosion hazard. This soil is used mostly for pasture and woodland, with some areas used for truck crops and orchards.

Volcanic hazard in this area as assessed by the U.S. Geological Survey (USGS) is 3 on a scale of ascending risk of 9 to 1 (Heliker 1990). This high hazard designation is based on the fact that Mauna Loa is an active volcano, having last erupted in 1984. During the past 750 years, lava flows have covered about 15 to 20% of Zone 3 on Mauna Loa. These Zone 3 areas are lower risk than Zone 2 because they are generally located farther from rift areas. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

Pahoia Convenience Center is located on lava flows from Kilauea Volcano of the Puna Basalt series erupted 200 to 750 years ago. This site's soil is classified as raw pahoehoe lava (rLW) with no soil cover.

Volcanic hazard in this area as assessed by the USGS is 2 on a scale of ascending risk of 9 to 1. This high hazard risk is based on the fact that Kilauea is an active volcano. Zone 2 includes the areas that are adjacent to, and downslope from, the east rift zone. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

Volcano Convenience Center is located on the flank of Kilauea Volcano about five miles from its summit. The immediately surrounding terrain is lava from Kilauea of the Puna Basalt series erupted 200 to 400 years ago. This site's soil is classified as Keei extremely rocky muck with 6 to 20% slopes (rKGD), a well-drained, organic soil two to ten inches thick overlying pahoehoe bedrock. Rock outcrops occupy 25 to 50% of the surface of these soils. Keei soils are mostly used for pasture.

Volcanic hazard as assessed by the USGS in this area of Volcano is 3 on a scale of ascending risk of 9 to 1. This high hazard risk is based on the fact that Kilauea is an active volcano. Less than 5% of the area in Zone 3 has been covered with lava in historical time, and more than 75% has been covered in the last 750 years. Zone 2 includes areas that are adjacent to and downslope from the east rift zone of Kilauea Volcano. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

The entire Big Island is subject to geologic hazards, especially lava flows and earthquakes. In terms of seismic risk, the entire Island of Hawai'i is rated Zone 4 Seismic Hazard (*Uniform Building Code, 1997 Edition, Figure 16-2*). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built, as the 6.7-magnitude (Richter) quake of October 15, 2006 demonstrated.

Impacts and Mitigation Measures

In general, geologic conditions do not appear to impose any overriding constraints on the project, and no mitigation measures are expected to be required. However, it is recognized that most of the surface of Hawai'i Island is subject to eventual lava inundation, and that buildings and infrastructure in locales such as Puna face risk. Convenience centers placed in a relatively lower hazard areas would need to be far from the communities they were meant to serve and would not meet the goal of the project to provide the serviced areas with solid waste management services.

Special Contract Requirements that will be incorporated into the construction contract documents will stipulate that in the event that a previously undetected lava tube is breached during construction, DEM will implement a contingency plan in coordination with the State Historic Preservation Division incorporating the following key points:

1. If a previously undetected lava tube cave is encountered, all construction with the potential to impact the lava tube will immediately cease;
2. The appropriate personnel at DEM will be contacted;
3. These DEM personnel will contact the State Historic Preservation Division (SHPD) to determine whether historic sites or burials are present and to determine appropriate further action.

Because the sites are already in use as solid waste collection sites, the No Action alternative would not help avoid geologic hazards and the potential loss of or damage to the centers, and it would thus not avoid adverse impacts relating to geologic conditions.

3.1.2 Water Resources, Floodplains, and Water Quality

Existing Environment

None of the three project sites has surface water features or wetlands in their vicinity.

The FEMA Flood Insurance Rate Maps (FIRM) for the project sites are unprinted, indicating that the project sites and surrounding areas are designated Zone X, or Special Flood Hazard areas identified in the community flood insurance study as areas outside of the 100- or 500-year floodplains. There is thus relatively low hazard from the principal sources of flood in the area, although local sources can still cause flooding.

The unprinted FIRM map panel numbers are as follows:

- Glenwood - 1551661125C
- Pahoā - 1551661350C
- Volcano - 1551661325C

The State of Hawai‘i Department of Health’s (DOH) Underground Injection Control maps show that the three sites are above (mauka of) the underground injection control line, meaning that the groundwater in these areas may be used for drinking water and that injection wells require permits or exemptions (DOH 1999).

Impacts and Mitigation Measure

The project will not adversely affect drainage, and all sites will have drainage improvements that account for the additional impermeable surface area and contain storm water runoff on-site. No impacts to stream banks or stream waters will occur, as none are present. The project will be

regulated through review, revision and approval by the Hawai'i County Department of Public Works (DPW) to ensure compliance with drainage standards. Single or multiple stormwater detention/infiltration areas are proposed at each convenience center (see Site Plans in Appendix 1 for locations). Household waste collection containers will be covered by sheltering structures, protecting them from precipitation and the elements, thereby preventing formation of contaminated water. Trailers and bins will be changed frequently, as volume warrants, and in no case less frequently than once a week.

In any construction project, uncontrolled excess sediment from soil erosion during and after excavation and construction has the potential to impact natural watercourses, water quality and flooding. Also, contaminants associated with heavy equipment and other sources during construction have the potential to impact surface water and groundwater if not mitigated effectively, although such potential at the project sites is limited because of the absence of surface water bodies and the great depths to water table.

In order to minimize the potential for sedimentation and erosion, the contractor shall perform all earthwork and grading in conformance with Chapter 10, Erosion and Sediment Control, Hawai'i County Code. If the construction disturbs more than one acre of soil at each of the three sites, a National Pollutant Discharge Elimination System (NPDES) permit must be obtained by the contractor before the project commences. This permit would require the completion of a Storm Water Pollution Prevention Plan (SWPPP). In order to properly manage storm water runoff, the SWPPP will describe the emplacement of a number of best management practices (BMPs) for the project. These BMPs may include, but will not be limited to, the following:

- Minimization of soil loss and erosion by revegetation and stabilization of slopes and disturbed areas of soil, possibly using hydromulch, geotextiles, or binding substances, as soon as possible after working;
- Minimization of sediment loss by emplacement of structural controls possibly including silt fences, gravel bags, sediment ponds, check dams, and other barriers in order to retard and prevent the loss of sediment from the site;
- Minimizing disturbance of soil during periods of heavy rain;
- Phasing of the project to disturb the minimum area of soil at a particular time;
- Application of protective covers to soil and material stockpiles;
- Construction and use of a stabilized construction vehicle entrance, with designated vehicle wash area that discharges to a sediment pond;
- Washing of vehicles in the designated wash area before they egress the project site;
- Use of drip pans beneath vehicles not in use in order to trap vehicle fluids;
- Routine maintenance of BMPs by adequately trained personnel; and
- Proper clean-up and disposal at an approved site of material from any significant leaks or spills.

Individual wastewater treatment systems with leach fields will be installed at each convenience center to treat water from sinks, toilets, and any liquid dripping out of refuse containers.

3.1.3 Flora, Fauna and Ecosystems

Existing Environment

Glenwood Convenience Center: The original vegetation of this area was lowland wet forest dominated by ‘ohi‘a (*Metrosideros polymorpha*) (Gagne and Cuddihy 1990). This preexisting ecosystem has been removed by agricultural activities and is now dominated by waiawi (*Psidium cattleianum*), swamp mahogany (*Eucalyptus robusta*) and other non-native species. A walk-through biological survey of the project site was performed on January 21, 2008. Table 1 is a list of plant species detected.

No threatened or endangered plant species listed by the U.S. Fish and Wildlife Service (USFWS) were present on the site (USFWS 2008). In terms of conservation value, no botanical resources requiring special protection are present.

Few endangered or otherwise rare bird species would be expected in this area of Glenwood. The endangered Hawaiian Hawk (*Buteo solitarius*) undoubtedly forages in the general area, as it is commonly seen in the project area. The project site contains a number of large trees (e.g., swamp mahogany) that may be utilized as nesting sites by the Hawaiian Hawk, although there is no evidence of any nesting on or near the site. Little is known about the habits of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), which is often found in a surprisingly broad range of sites in both alien and native vegetation in a variety of locations throughout the island of Hawai‘i. This species is cryptic and it is not possible to systematically detect their roosting sites. This species is vulnerable during its pupping period from March to September. The site is likely to contain non-native animal species typically at these sites, including mongooses, rats, and cats.

Pahoa Convenience Center: The original vegetation of this area is lowland wet forest dominated by ‘ohi‘a and uluhe fern (*Dicranopteris linearis*) (Gagne and Cuddihy 1990), which is still present on the periphery of the site where not disturbed. A walk-through biological survey of the project site was performed on January 21, 2008. Table 2 is a list of plant species detected.

Table 1: Glenwood Convenience Center Plant Species List

Scientific Name	Family	Common Name	Life Form	Status*
<i>Acacia koa</i>	Fabaceae	Koa	Tree	I
<i>Adenophorus tamariscinus</i>	Grammitidaceae	Adenophorus	Fern	I
<i>Ageratum conyzoides</i>	Asteraceae	Ageratum	Herb	A
<i>Begonia sp.</i>	Begoniaceae	Begonia	Herb	A
<i>Brachiaria mutica</i>	Poaceae	California Grass	Herb	A
<i>Buchnera pusilla</i>	Scrophularaceae	Buchnera	Herb	A
<i>Buddleia asiatica</i>	Buddleiaceae	Buddleia	Shrub	A
<i>Clidemia hirta</i>	Melastomataceae	Clidemia	Herb	A
<i>Commelina diffusa</i>	Commelinaceae	Honohono	Herb	A
<i>Cordyline fruticosa</i>	Agavaceae	Ki	Shrub	A
<i>Crococsmia x crocosmiiflora</i>	Iridaceae	Tritonia	Herb	A
<i>Cuphea carthagenensis</i>	Lythraceae	Cuphea	Herb	A
<i>Cuphea hyssopifolia</i>	Lythraceae	Cuphea	Herb	A
<i>Dicranopteris linearis</i>	Gleicheniaceae	Uluhe	Fern	I
<i>Digitaria sp.</i>	Poaceae	Digitaria	Herb	A
<i>Dracaena fragrans</i>	Agavaceae	Dracaena	Shrub	A
<i>Dracaena marginata</i>	Agavaceae	Money Tree	Shrub	A
<i>Drymaria cordata</i>	Caryophyllaceae	Drymaria	Herb	A
<i>Elaphoglossum crassifolium</i>	Lomariopsidaceae	Ekaha	Fern	I
<i>Eleusine indica</i>	Poaceae	Wiregrass	Herb	A
<i>Eragrostis brownie</i>	Poaceae	Sheepgrass	Herb	A
<i>Erechtites hieracifolia</i>	Asteraceae	Erechtites	Herb	A
<i>Eucalyptus robusta</i>	Myrtaceae	Swamp Mahogany	Tree	A
<i>Grevillea robusta</i>	Proteaceae	Silver Oak	Tree	A
<i>Grammitis tenella</i>	Grammitidaceae	Grammitis	Fern	I
<i>Hedychium sp.</i>	Zingiberaceae	Ginger	Herb	A
<i>Hippobroma longiflora</i>	Campanulaceae	Star of Bethlehem	Herb	A
<i>Lindernia crustacea</i>	Scrophularaceae	Lindernia	Herb	A
<i>Melaleuca quinquenervia</i>	Myrtaceae	Paperbark	Tree	A
<i>Metrosideros polymorpha</i>	Myrtaceae	Ohia	Tree	I
<i>Monstera sp.</i>	Araceae	Monstera	Shrub	A
<i>Nephrolepis multiflora</i>	Nephrolepidaceae	Sword Fern	Fern	A
<i>Ophioglossum pendulum</i>	Ophioglossaceae	Ophioglossum	Fern	I
<i>Oplismenus sp.</i>	Poaceae	Oplismenus	Herb	A
<i>Paederia foetida</i>	Rubiaceae	Maile Pilau	Vine	A
<i>Panicum repens</i>	Poaceae	Torpedo Grass	Herb	A
<i>Paspalum conjugatum</i>	Poaceae	Hilo Grass	Herb	A
<i>Paspalum sp.</i>	Poaceae	Paspalum	Herb	A
<i>Polygala paniculata</i>	Polygalaceae	Milkwort	Herb	A
<i>Psidium cattleianum</i>	Myrtaceae	Waiawi	Tree	A
<i>Pycurus polystachyos</i>	Cyperaceae	Cyperus	Herb	I
<i>Sacciolepis indica</i>	Poaceae	Glenwood Grass	Herb	A
<i>Schizachyrium condensatum</i>	Poaceae	Beardgrass	Herb	A
<i>Solanum americanum</i>	Solonaceae	Popolo	Herb	A
<i>Spermacoce sp.</i>	Rubiaceae	Buttonweed	Herb	A
<i>Syzygium jambos</i>	Myrtaceae	Roseapple	Tree	A
<i>Tibouchina urvilleana</i>	Melastomataceae	Glory Bush	Shrub	A
<i>Torenia asiatica</i>	Scrophulariaceae	Olaa Beauty	Herb	A
<i>Verbena litoralis</i>	Verbenaceae	Verbena	Herb	A
<i>Wedelia trilobata</i>	Asteraceae	Wedelia	Herb	A
<i>Youngia japonica</i>	Asteraceae	Crepis	Herb	A

A = alien, E = endemic, I = indigenous, End = Federal and State listed Endangered Species

No listed, candidate or proposed endangered plant species were found or would be expected to be found in this area of Pahoā. In terms of conservation value, no botanical resources requiring special protection are present. While the property contains native flora, no resources requiring special protection are present. No threatened or endangered plant species listed by the USFWS were present on the parcel (USFWS 2007).

Few endangered or otherwise rare bird species would be expected in this area. As with Glenwood, the Hawai'i 'Amakihi and Apapane could be present. Similarly, the endangered Hawaiian Hawk also forages in the general area, as it is commonly seen in the forests around Pahoā, as well as the endangered Hawaiian hoary bat. The project site does not contain the type of large trees that may be utilized as nesting sites by the Hawaiian Hawks, but Hawaiian hoary bats may roost on or near the site. The site contains a breeding population of feral cats that is being routinely fed, as evidenced by the presence of food and water bowls. The site is likely to contain other non-native animal species typically at these sites, including mongooses and rats.

Table 2: Pahoā Convenience Center Plant Species List

Scientific Name	Family	Common Name	Life Form	Status*
<i>Ageratum conyzoides</i>	Asteraceae	Ageratum	Herb	A
<i>Andropogon virginicus</i>	Poaceae	Andropogon	Herb	A
<i>Arundina graminifolia</i>	Orchidaceae	Bamboo Orchid	Herb	A
<i>Begonia sp.</i>	Begoniaceae	Begonia	Herb	A
<i>Blechnum appendiculatum</i>	Blechnaceae	Blechnum	Fern	A
<i>Brachiaria mutica</i>	Poaceae	California Grass	Herb	A
<i>Buddleia asiatica</i>	Buddleiaceae	Dog Tail	Shrub	A
<i>Castilleja arvensis</i>	Scrophulariaceae	Indian Paintbrush	Herb	A
<i>Cecropia obtusifolia</i>	Cecropiaceae	Cecropia	Tree	A
<i>Chamaecrista nictitans</i>	Fabaceae	Partridge Pea	Herb	A
<i>Chloris sp.</i>	Poaceae	Chloris	Herb	A
<i>Christella dentate</i>	Thelypteridaceae	Cyclosorus	Fern	A
<i>Clidemia hirta</i>	Melastomataceae	Clidemia	Herb	A
<i>Clusia rosea</i>	Clusiaceae	Autograph Tree	Tree	A
<i>Coix lacryma-jobi</i>	Poaceae	Job's Tears	Herb	A
<i>Conyza bonariensis</i>	Asteraceae	Conyza	Herb	A
<i>Cordylina fruticosa</i>	Agavaceae	Ki	Shrub	A
<i>Crotalaria sp.</i>	Fabaceae	Rattlebox	Herb	A
<i>Cuphea carthagenensis</i>	Lythraceae	Cuphea	Herb	A
<i>Cyperus sp.</i>	Cyperaceae	Cyperus	Herb	A
<i>Desmodium cajanifolium</i>	Fabaceae	Desmodium	Shrub	A
<i>Desmodium triflorum</i>	Fabaceae	Desmodium	Herb	A
<i>Dicranopteris linearis</i>	Gleicheniaceae	Uluhe	Fern	I
<i>Digitaria sp.</i>	Poaceae	Digitaria	Herb	A
<i>Dissotis rotundifolia</i>	Melastomataceae	Dissotis	Herb	A
<i>Drymaria cordata</i>	Caryophyllaceae	Drymaria	Herb	A
<i>Eleusine indica</i>	Poaceae	Wiregrass	Herb	A
<i>Emilia sonchifolia</i>	Asteraceae	Emilia	Herb	A
<i>Eragrostis brownie</i>	Poaceae	Eragrostis	Herb	A
<i>Eragrostis sp.</i>	Poaceae	Eragrostis	Herb	A
<i>Erechtites hieracifolia</i>	Asteraceae	Fireweed	Herb	A
<i>Fimbristylis dichotoma</i>	Cyperaceae	Fimbristylis	Herb	I
<i>Hedychium sp.</i>	Zingiberaceae	Ginger	Herb	A

Table 2, continued				
Scientific Name	Family	Common Name	Life Form	Status*
<i>Ipomoea tribloba</i>	Convolvulaceae	Ipomoea	Vine	A
<i>Kyllinga brevifolia</i>	Cyperaceae	Kyllinga	Herb	A
<i>Lindernia crustacean</i>	Scrophulariaceae	Lindernia	Herb	A
<i>Melastoma sp.</i>	Melastomataceae	Melastoma	Shrub	A
<i>Metrosideros polymorpha</i>	Myrtaceae	Ohia	Tree	I
<i>Microsorium scolopendria</i>	Polypodiaceae	Maile Scented Fern	Fern	A
<i>Mimosa pudica</i>	Fabaceae	Sleeping Grass	Herb	A
<i>Nephorolepis multiflora</i>	Nephorlepidaceae	Sword Fern	Fern	A
<i>Paederia foetida</i>	Rubiaceae	Maile Pilau	Vine	A
<i>Panicum maximum</i>	Poaceae	Guinea Grass	Herb	A
<i>Panicum repens</i>	Poaceae	Torpedo Grass	Herb	A
<i>Paspalum conjugatum</i>	Poaceae	Hilo Grass	Herb	A
<i>Pennisetum purpureum</i>	Poaceae	Elephant Grass	Herb	A
<i>Persea Americana</i>	Lauraceae	Avocado	Tree	A
<i>Phyllanthus debilis</i>	Euphorbiaceae	Niruri	Herb	A
<i>Pilea microphylla</i>	Urticaceae	Artillery Plant	Herb	A
<i>Pityrogramma calomelanos</i>	Pteridaceae	Silver Fern	Fern	A
<i>Polygala paniculata</i>	Polygalaceae	Milkwort	Herb	A
<i>Polygonum capitatum</i>	Polygonaceae	Polygonum	Herb	A
<i>Psidium cattleianum</i>	Myrtaceae	Waiawi	Tree	A
<i>Psidium guajava</i>	Myrtaceae	Guava	Tree	A
<i>Psilotum nudum</i>	Psilotaceae	Moa	Herb	I
<i>Pycnus polystachyos</i>	Cyperaceae	Cyperus	Herb	I
<i>Rhynchelytrum repens</i>	Poaceae	Natal Red Top	Herb	A
<i>Sacciolepis indica</i>	Poaceae	Glenwood Grass	Herb	A
<i>Schefflera actinophylla</i>	Araliaceae	Octopus Tree	Tree	A
<i>Schizachyrium condensatum</i>	Poaceae	Beardgrass	Herb	A
<i>Setaria gracilis</i>	Poaceae	Setaria	Herb	A
<i>Spathoglottis plicata</i>	Orchidaceae	Ground Orchid	Herb	A
<i>Spermacoce assurgens</i>	Rubiaceae	Buttonweed	Herb	A
<i>Stachytarpheta jamaicensis</i>	Verbenaceae	Jamaican Vervain	Herb	A
<i>Thunbergia fragrans</i>	Acanthaceae	Thunbergia	Vine	A
<i>Verbena litoralis</i>	Verbenaceae	Verbena	Herb	A
<i>Waltheria indica</i>	Sterculiaceae	Uhaloa	Herb	I
<i>Wedelia tribloata</i>	Asteraceae	Wedelia	Herb	A
<i>Youngia japonica</i>	Asteraceae	Youngia	Herb	A

A = alien, E = endemic, I = indigenous, End = Federal and State listed Endangered Species

Volcano Convenience Center: The native vegetation of this area is a montane wet forest dominated by ‘ohi‘a and hapu‘u (*Cibotium spp.*) (Gagne and Cuddihy 1990). The site, however, has been largely disturbed by landfill and quarrying activities and now mostly supports non-native grasses and shrubs, although some native plants exist on the periphery. A walk-through biological survey of the project site was performed on January 21, 2008. Table 3 is a list of plant species detected.

Table 3: Volcano Convenience Center Plant Species List

Scientific Name	Family	Common Name	Life Form	Status*
<i>Acacia koa</i>	Fabaceae	Koa	Tree	I
<i>Ageratum conyzoides</i>	Asteraceae	Ageratum	Herb	A
<i>Anagallis arvensis</i>	Primulaceae	Pimpernel	Herb	A
<i>Arundina graminifolia</i>	Orchidaceae	Bamboo Orchid	Herb	A
<i>Begonia sp.</i>	Begoniaceae	Begonia	Herb	A
<i>Brachiaria mutica</i>	Poaceae	California Grass	Herb	A
<i>Buddleia asiatica</i>	Buddleiaceae	Dog Tail	Shrub	A
<i>Cardamine flexuosa</i>	Brassicaceae	Bittercress	Herb	A
<i>Cibotium chamissoi</i>	Dicksoniaceae	Hapuu Pulu	Fern	I
<i>Commelina diffusa</i>	Commelinaceae	Honohono	Herb	A
<i>Conyza bonariensis</i>	Asteraceae	Conyza	Herb	A
<i>Cuphea carthagenensis</i>	Lythraceae	Cuphea	Herb	A
<i>Cuphea hyssopifolia</i>	Lythraceae	Cuphea	Herb	A
<i>Cyperus halpan</i>	Cyperaceae	Cyperus	Herb	A
<i>Cyperus sp.</i>	Cyperaceae	Cyperus	Herb	A
<i>Dicranopteris linearis</i>	Gleicheniaceae	Uluhe	Fern	I
<i>Digitaria sp.</i>	Poaceae	Crabgrass	Herb	A
<i>Dissotis rotundifolia</i>	Melastomaceae	Dissotis	Herb	A
<i>Eragrostis sp.</i>	Poaceae	Love Grass	Herb	A
<i>Hedychium gardnerianum</i>	Zingiberaceae	Kahili Ginger	Herb	A
<i>Hedyotis corymbosa</i>	Rubiaceae	Hedyotis	Herb	A
<i>Hedychium flavescens</i>	Zingiberaceae	Yellow Ginger	Herb	A
<i>Hypochoeris radicata</i>	Asteraceae	Cat's Ear	Herb	A
<i>Kyllinga brevifolia</i>	Cyperaceae	Kyllinga	Herb	A
<i>Medicago sp.</i>	Fabaceae	Clover	Herb	A
<i>Melinis minutiflora</i>	Poaceae	Molasses Grass	Herb	A
<i>Metrosideros polymorpha</i>	Myrtaceae	Ohia	Tree	I
<i>Myrica faya</i>	Myricaceae	Faya	Tree	A
<i>Nephrolepis exaltata</i>	Nephrolepidaceae	Sword Fern	Fern	I
<i>Nephrolepis multiflora</i>	Nephrolepidaceae	Sword Fern	Fern	I
<i>Oxalis sp.</i>	Oxalidaceae	Oxalis	Herb	A
<i>Pennisetum clandestinum</i>	Poaceae	Kikuyu Grass	Herb	A
<i>Persea americana</i>	Lauraceae	Avocado	Tree	A
<i>Physalis peruviana</i>	Solanaceae	Husk Tomato	Herb	A
<i>Polygala paniculata</i>	Polygalaceae	Milkwort	Herb	A
<i>Polygonum sp.</i>	Polygonaceae	Smartweed	Herb	A
<i>Polygonum capitatum</i>	Polygonaceae	Knotweed	Herb	A
<i>Pycurus polystachyos</i>	Cyperaceae	Cyperus	Herb	I
<i>Pycurus sp.</i>	Cyperaceae	Cyperus	Herb	A
<i>Rubus sp.</i>	Rosaceae	Rubus	Shrub	A
<i>Sacciolepis indica</i>	Poaceae	Glenwood Grass	Herb	A
<i>Sambucus mexicana</i>	Caprifoliaceae	Mexican Elder	Shrub	A
<i>Schizachyrium condensatum</i>	Poaceae	Beardgrass	Herb	A
<i>Setaria gracilis</i>	Poaceae	Yellow Foxtail	Herb	A
<i>Setaria palmifolia</i>	Poaceae	Palmgrass	Herb	A
<i>Solanum americanum</i>	Solanaceae	Popolo	Herb	I
<i>Sonchus oleraceus</i>	Asteraceae	Sonchus	Herb	A
<i>Spermacoce sp.</i>	Rubiaceae	Borreria	Herb	A
<i>Tibouchina urvilleana</i>	Melastomataceae	Glory Bush	Shrub	A
<i>Tropaeolum sp.</i>	Tropaeolaceae	Nasturtium	Vine	A
<i>Veronica sp.</i>	Scrophulariaceae	Speedwell	Herb	A

A = alien, E = endemic, I = indigenous, End = Federal and State listed Endangered Species

Unlike the other two locations, a larger variety of native birds is likely to be present in the surrounding forest because it is a relatively intact native forest at an elevation of almost 3,000 feet. Although few endangered or otherwise rare bird species would be expected, birds that might regularly be seen could include ‘Amakihi and Apapane (*Himatione sanguinea*), as well as ‘I‘iwi (*Vestiaria coccinea*) and ‘Oma‘o (*Myadestes obscurus*). As with the other sites, the endangered Hawaiian Hawk undoubtedly forages in the general area and the Hawaiian hoary bat may also be present, but the site contains few large trees that might be utilized as Hawaiian Hawk nesting sites. The site is likely to contain non-native animal species typically at these sites, including mongooses, rats, and cats.

Impacts and Mitigation Measures

Some native plants would be removed during improvements at the Pahoia and Volcano Convenience Centers. Several large ‘ohi‘a and koa trees are located along the periphery of the Volcano Convenience Center; and improvements will avoid disturbing as many of these trees as possible. Pahoia Convenience Center has largely native habitat outside of the existing convenience center footprint. Drainage improvements will disturb this area.

No threatened or endangered plant species listed by the USFWS were present on the parcel (USFWS 2007). While the property contains native flora, in terms of conservation value, no botanical resources requiring special protection are present. Loss of native habitat would be mitigated by use of native plants in landscaping.

Glenwood Convenience Center, and possibly Volcano Convenience Center, have trees nearby of the size and type that might be utilized by the Hawaiian Hawk for nesting. Because virtually all shrubby or forest vegetation on Hawai‘i Island, including orchards and landscaping around homes, has the potential to offer bat roosting sites, bats may be present in undeveloped parts of the convenience centers as well. In order to minimize the potential for impacts upon these species, DEM will restrict initial land clearing to periods outside March to September, during which Hawaiian Hawks may be nesting and/or Hawaiian hoary bats may be roosting with pups.

No streams, lakes or wetlands are present or would be affected in any way by the project, and no effects to aquatic flora, fauna or ecosystems would occur.

3.1.4 Air Quality and Scenic Resources

Environmental Setting

The climates of the three project sites are similar, being mild and wet due to their location on the windward side of the island. Average annual rainfall at the sites is in the range of 110 to 160 inches, with Glenwood and Pahoia near the high end of this range and Volcano near the low end. Winds are generally light onshore breezes during the day, replaced by down slope drainage winds at night. This pattern is occasionally replaced by light and variable southwesterly “kona” winds, most often in winter (UH-Manoa Dept. of Geography 1998).

Air pollution in East Hawai‘i is minimal, and is mainly derived from volcanic emissions of sulfur dioxide from Kilauea Volcano, which convert into particulate sulfate and produce a volcanic haze, or vog, that occasionally blankets the district, particularly during periods of Kona winds. Vog contains sulfuric acid and particulates and can be a hazard to human health (USGS 2000). The persistent tradewinds keep the project area relatively free of vog for most of the year. Human sources of air pollution in this rural area may be fugitive dust emissions from nearby agricultural and construction activities and vehicle traffic.

Impacts and Mitigation Measures

Although the proposed project is not expected to produce any permanent substantial air quality impacts, construction-phase dust control is an important issue. Construction, without mitigation, has the potential to produce localized and temporary fugitive dust emissions. A dust control plan will be implemented for construction activities with potential to generate substantial dust. Operation and use of the convenience centers is not expected to produce other air quality impacts, due to the restriction of vehicles to paved surfaces and the presence of buffers that will allow dispersal of vehicle emissions before impacting nearby receptors. Both the Volcano and Pahoa convenience centers utilize unpaved areas and therefore the improvements will reduce the potential for fugitive dust emissions.

3.2 Land Use Impacts and Nuisance Issues

Solid waste facilities by their nature often involve certain nuisances including litter, odors, noise, and vermin. In this case nuisance issues may be particularly apparent given the rural nature of the project areas. In the most severe conditions these issues could be expected to present quality-of-life issues for project area residents and to constrain future uses of land. This section discusses these long-term potential nuisance impacts and their mitigation. These concerns are common to all solid waste facilities and are therefore of concern for the three project sites. However, DEM is committed to the idea that a convenience center, if properly built and managed and adopted by the community, will not present these problems.

County zoning designations for the project sites and adjacent properties are as follows:

- Glenwood Convenience Center (TMK 1-8-08:23) is County zoned agricultural, five-acre minimum lot size (A-5a). The current use is conformant with this zoning given plan approval. Most surrounding land, including the portion of the adjacent property that represents an alternative for the expansion area, is zoned agricultural, also A-5a. The adjacent State parcel (TMK 1-8-08:17) is State Land Use Conservation and therefore does not have a County zoning designation.
- Pahoa Convenience Center (TMK 1-5-08:07) and all surrounding lands are zoned agricultural (A-20a or A5a).
- Volcano Convenience Center (TMK 1-9-001:002) is in the State Land Use Conservation district and therefore does not have a County zoning designation. Surrounding land is also designated Conservation. Land across Volcano Highway is zoned A-3a and A-1a.

As illustrated in the airphotos in Figure 3, there are few active land uses directly adjacent to any of the convenience centers. All three are separated from significant numbers of sensitive receptors (including residences and other active public or private uses):

- Glenwood Convenience Center is located more than 1,500 feet from the nearest residence, and has only about twelve residences within one mile. A farm operation and art studio are located directly adjacent, on the makai side of the center.
- Pahoa Convenience Center is located about 300 feet from the nearest residence, and has about ten residences within one mile.
- Volcano Convenience Center is located about 1,500 feet from the nearest residence, and has about ten residences within one mile.

Future land use in the areas surrounding the convenience centers is expected to be either low density (five acre or greater lots) agricultural, conservation, or open space uses. Due to the existing and expected future rural character of the project sites and surrounding areas, no nearby residents would be substantially affected by the continued use of these sites as convenience centers.

In response to early consultation, a landowner of TMK 1-5-001:001, which is across Old Cemetery Road from the Pahoa Convenience Center, shared subdivision plans from 2001 (see Appendix 2a for letter). DEM has also been coordinating with the nearest landowner to the Glenwood Convenience Center, from whom land may be acquired to expand this center, in order to minimize land use and nuisance impacts from the existing and potentially expanded uses here. The continuing use of the convenience centers should not affect the legal uses of nearby lands for agricultural and conservation purposes. No adverse effects to drainage, roadways, or utilities will occur.

In general, nuisance issues can be minimized through a combination of efforts beginning with design and including, but not limited to, good-housekeeping practices and community involvement. Community input has shown that there is great interest in making convenience centers focal points for community activity. DEM anticipates the active participation in an “Adopt a Convenience Center” program in which community groups would participate in activities that may include HI5 redemption, neighborhood watch, management of a re-use facility, and landscaping, among others. These programs have been highly successful at other County convenience centers, such as Kea‘au.

In general, the No Action alternative would result in a greater magnitude of nuisance issues of greater severity, as design changes that reduce nuisances would not be implemented. Furthermore, continuing deficiencies may lead to use restrictions at one or more of the convenience centers. The resulting inconvenience to users can be reasonably expected to result in an increase in illegal dumping.

3.2.1 Noise

Existing Environment

Noise levels at all three project sites are currently low to moderate and are derived primarily from use of the sites themselves and vehicle traffic on nearby roadways. Currently, no highly sensitive noise receptors such as residences, schools, or parks are present within a few hundred feet of any of the three project sites, as discussed in the preceding sections. Because of the rural character of the surrounding areas, the potential for having many and/or very sensitive receptors is small.

Impacts and Mitigation Measures

Construction will elevate noise levels during short periods over the course of several months. The DOH will be consulted, and if appropriate, the contractor will be required to obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction. DOH will review the proposed activity, location, equipment, project purpose, and timetable in order to decide upon conditions and mitigation measures, such as restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers.

Daily operations of the convenience centers will continue to involve noise from vehicle traffic, including movement of tractor-trailers, solid waste collection containers and roll-off recycling bins. The improvements may produce a small net increase in noise due to increased use encouraged by enhanced ease-of-use, but no sensitive receptors would be affected.

3.2.2 Invasive Species and Pests

Existing Environment, Impacts and Mitigation Measures

The project sites contain both invasive plant and animal species. Botany surveys performed on the project site and discussed in Section 3.1.3 found most identified plant species to be non-natives common to disturbed areas in Hawai'i. Many of these can be regarded as pest plant species.

Invasive or pest animal species including cats, rats, mongoose, and various bird species are found nearly everywhere in the Hawaiian Islands. Coqui frogs are established in the Pahoia and Glenwood areas, but are not widespread in the Volcano area. These animals generally do not present problems as solitary individuals. But breeding populations near residences and urban areas can present nuisances and, at times, disease vectors and hazards to human health.

Wind-blown seeds, spores and cuttings of invasive plant species that escape collection can be a nuisance issue at solid waste management facilities. Greenwaste processing is not expected to be conducted on the sites; however, seeds and cuttings may still escape from greenwaste collection containers. This risk will be minimized by sheltering collection containers from wind and by routine weeding of buffer areas.

While certain pests such as rats are nearly ubiquitous in Hawai‘i, procedures exist that can minimize pests. This can be done most effectively by practicing good housekeeping, including routine site cleaning, and, if necessary, trapping (in the case of feral cats, live trapping). The presence of pests, including feral cats, will be routinely monitored by DEM staff or community volunteers in coordination with the Hawai‘i Division of Forestry and Wildlife (DOFAW), when appropriate. These personnel will also actively discourage the feeding of feral cats. Trapping and live trapping of animals will be conducted by trained personnel when animals present nuisances, and also to prevent a breeding population from developing. Monitoring and eradication of other invasive pests, such as coqui frogs and any new and presently unidentified invasive species, will similarly occur in coordination with DOFAW, the Department of Agriculture and other agencies. DEM and community groups will identify responsible entities for these activities.

DEM will do the following in order to minimize the potential for invasive species and pests to become nuisances:

- Conduct good housekeeping practices at all times, including routine site cleaning and weeding of buffer areas;
- Monitor the presence of pests, including feral cats, with the facilitation of community volunteers and in coordination with other agencies;
- Build and maintain a coqui frog-proof fence at the Volcano Convenience Center to confine any frogs that accidentally become introduced on the site until they can be eradicated;
- Eradicate pests when necessary, in coordination with other agencies;
- Minimize the potential for the wind-blown release of seeds by sheltering collection containers from wind and by staffing with and attendant; and
- Replace greenwaste collection containers when nearly full to minimize release of seeds and cuttings.

3.2.3 Odors

Household waste is by nature malodorous, and some odor is unavoidable near household waste collection containers. Severe nuisance odors may arise, however, when users deposit certain prohibited materials into waste collection containers, including decaying animal carcasses and commercial food waste. Visits to County convenience centers suggest that collection containers themselves are often not the main source of severe odors, the deposition of animal carcasses nearby being a more significant source.

Nuisance odors can be effectively managed through several strategies. First, disposal of prohibited wastes in household waste collection containers can be minimized with the supervision of convenience center attendants. After-hours gating of the facilities can also reduce this activity. While all three convenience centers are currently gated during closed hours, dumping at the gated access roads does still occur. Prevention of illegal dumping at the gates during closed hours will discourage dumping of prohibited malodorous materials; strategies for this should include monitoring of the areas by community volunteers (i.e., neighborhood watch), lighting of the access roads, and placement of gates as close to major roadways as possible. Signage specifying allowed substances is an essential element in mitigation of nuisance odors.

Odors from household waste collection containers are mainly managed by routine removal; collection containers will be removed from the convenience centers and transported to a County sanitary landfill as they fill (probably daily and in no cases less than twice weekly), limiting decay of household waste on-site and thereby reducing odors. Additionally, buffers around the convenience centers will minimize the potential for odors to impact nearby residents and motorists.

In summary, DEM will perform the following in order to minimize the potential for nuisance odors to impact nearby receptors:

- Trailers and bins will be changed frequently and transported to a County sanitary landfill, as volume warrants, and in no case less frequently than twice a week;
- Adequate buffers will be maintained around the convenience centers;
- The convenience centers will be staffed, with the possible assistance of volunteers, in order to prevent the disposal of prohibited wastes in collection containers;
- The access roads will be gated during night time hours;
- Assistance with monitoring of the access roads by neighborhood watch will be solicited;
- Signage will advise users what wastes are prohibited and permitted; and
- Good housekeeping practices, including routine site cleaning, will be conducted.

3.2.4 Hazardous Substances, Toxic Waste and Hazardous Conditions

Existing Environment and Impacts

No known hazardous substances are present on the project sites. The documented history of use of the sites and their surroundings, confirmed by visual surveys, did not reveal any structures, equipment, or storage containers that indicate hazardous material use. Therefore, based upon prior and present use of the project site, no hazardous substances, toxic wastes, or hazardous conditions are expected to be present on the site.

County convenience centers do not accept hazardous materials in excess of reportable quantities, including household hazardous waste materials such as paints, pesticides, and car batteries, or biological hazards such as animal carcasses. The potential exists for illegal dumping of hazardous waste, both within the household waste chutes during operational hours and on the access road to the convenience centers during non-operational hours.

Mitigation Measures

DEM will employ several strategies to discourage illegally disposed hazardous materials and prompt cleanup when necessary:

- A DEM employee or security guard will be present at the convenience centers during open hours to deter and prevent users from dumping hazardous materials into convenience center chutes.
- Illegal dumping outside of the convenience centers during closed hours will be discouraged by gating access roads as close to their intersections with main roadways as permitted, and lighting the sites at night, in order to increase visibility of this area.
- Cleanup of convenience center access roads is part of routine maintenance activities by DEM.
- DEM plans to conduct periodic collections of household hazardous waste, encouraging proper disposal of these items. Household hazardous waste collection will require the presence of personnel with 40-hour Hazardous Safety Training Certified (HAZWPR 40) training, as well as provision of spill kits. Preparation for hazardous material releases, including large vehicle fluid spills, should be addressed in an Emergency Management Plan.
- Pahoia Convenience Center will have a household hazardous waste collection area. The total building space is planned to be approximately 500 square feet. The following materials are anticipated to be collected in limited quantities: automotive batteries, high intensity discharge lamps and fluorescent lamps, E-waste, automotive coolant, paint, pesticides, and household cleaners.
- Community watch organizations will be welcomed to include the sites in their watch areas.

The No Action alternative would not produce any benefit because it would continue issues related to inadequate opportunities to properly dispose of hazardous household waste.

3.2.5 Scenic Value and Visual Impacts

Existing Environment

The project sites are rural and forested, generally precluding visibility of the facilities from roadways. The Hawai‘i County General Plan contains Goals, Policies and Standards intended to preserve areas of natural beauty and scenic vistas from encroachment. The plan refers to just one significant viewplane near the Volcano Convenience Center.

Glenwood Convenience Center is completely screened from view by a thick screen of waiawi along the Hawai‘i Belt Road. No residences exist within 1,500 feet of the project site. Depending on the layout of the facility, it may be visible from the roadway after construction. If DEM does acquire and use a portion of the parcel of State land parallel to the Hawai‘i Belt Road the facility would be more visible from the roadway, and landscaping improvements would partially mitigate for the increased visibility.

Pahoa Convenience Center is partially screened from view from Old Cemetery Road by both vegetation and site topography. No residences exist in the project area within about 300 feet. Improvements would make the convenience center more visible from Old Cemetery Road.

Volcano Convenience Center is partially screened from view from the Hawai‘i Belt Road (SR 11) by both vegetation and site topography. The nearest residences are located across the Hawai‘i Belt Road approximately 1,500 feet away. The convenience center is not likely to be visible from any of the nearby residences due to intervening vegetation. The Hawai‘i County General Plan notes that the view of Mauna Kea and Mauna Loa from the Hawai‘i Belt Road (SR 11) is a designated Natural Beauty Site for the District of Puna.

Impacts and Mitigation Measures

Convenience centers may visually clash with their surroundings, causing a nuisance. Elements of the convenience centers that may be visible from nearby areas include vehicles, the structures sheltering the chutes and recycling bins, office, break room, and mechanical/electrical structures, household waste collection containers, roll-off recycling bins, and the re-use facility. Also, visual nuisances can arise from litter blown from convenience centers or vehicles bound to or from a convenience center.

Glenwood Convenience Center’s visibility from the Hawai‘i Belt Road (SR 11) would increase if a portion of the State-owned beautification strip is acquired to accommodate improvements. However, there are no sensitive receptors such as residences nearby to be adversely impacted by these changes.

The modified area at Pahoa Convenience Center will be increased primarily to accommodate drainage improvements, which will require the removal of some vegetation along Old Cemetery Road. However, there are currently no sensitive receptors such as residences nearby to be adversely impacted by these changes, particularly considering the offsetting benefits of landscaping near the road.

The improvements at Volcano Convenience Center will not affect the State-owned parcel paralleling the Belt Road. While the visibility of the convenience center will increase because the developed area will increase, there are no residences or other public facilities nearby that would be adversely affected.

In order to minimize the visual impact of the convenience centers, DEM will:

- Site structures utilizing the project sites' natural relief to minimize visibility from surrounding properties;
- Paint permanent structures with unobtrusive colors;
- Maintain visual buffers on the project sites;
- Maintain landscaping, using plant species conformant with the character of the sites, preferably native plant species;
- Shelter collection containers from wind to minimize the potential for windblown litter; and
- Conduct good housekeeping practices, including routine cleaning of access roads to remove litter.

3.3 Socioeconomic and Cultural

3.3.1 Socioeconomic Characteristics

Existing Environment, Impacts and Mitigation Measures

The project sites are located in the Puna District, the fastest growing district of Hawai'i County (County of Hawai'i Department of Research and Development 2008). Agriculture is the Puna District's dominant industry, and tourism is also growing, particularly near Kilauea Volcano. Many Puna residents commute to the Hilo area for work, shopping and services.

In the big picture, the project simply continues existing land uses and would have negligible socioeconomic impact to Hawai'i Island. A difficult-to-measure but positive economic impact would be the increase in diversion of recyclables from the waste stream, which would reduce costs to the County of Hawai'i and stimulate industries that use these resources.

Table 4. Selected Socioeconomic Characteristics

CHARACTERISTIC	Hawai'i Island	Puna District
Total Population	148,677	31,335
Percent White	31.5	34.4
Percent Asian	26.7	21.0
Percent Hawaiian or Pacific Islander	9.7	11.1
Percent Two or More Races	28.4	21.1
Median Age (Years)	38.6	36.7
Percent Under 18 Years	26.1	29.5
Percent Over 65 Years	13.5	10.2
Percent Households with Children	37.5	35.4
Average Household Size	2.75	2.79
Percent Housing Vacant	15.5	14.8
Median Household Income	\$39,805	\$31,014
Percent Below Poverty Level	15.7	23.4

Source: U.S. Bureau of the Census. May 2001. *Profiles of General Demographic Characteristics, 2000 Census of Population and Housing, Hawai'i*. (U.S. Census Bureau Web Page).

3.3.2 Cultural and Historic Resources

Existing Environment: Cultural Resources

The traditional cultural value of the project sites was assessed by discussing their historical uses and determining whether they support any traditional gathering uses, are vital for access to traditional cultural sites, or have other important symbolic associations for native Hawaiians or other cultural groups.

The project sites are located in upland areas of the Puna District, which is one of the six major districts on the island that remain intact today. This division of districts (and likely of all of the smaller land divisions) extends back in time to at least A.D. 1475, in the time of Chief Liloa. The districts were brought together under a single ruler when 'Umi a Liloa came to power in about A.D. 1525 (Maly 1999). Barrere (1959) summarized the Precontact politics of the Puna District as follows:

Puna, as a political unit, played an insignificant part in shaping the course of history of Hawai'i Island. Unlike the other districts of Hawai'i, no great family arose whose support one or another of the chiefs seeking power had to depend for his success. Puna lands were desirable, and were eagerly sought, but their control did not rest upon conquering Puna itself, but rather upon control of the adjacent districts, Ka'u and Hilo.

The first people probably began utilizing the agricultural resources of upland Puna District during the early expansion period of Hawai'i Island ca. 600-1,100 A.D. (Burtchard and Moblo 1994). As populations increased in more desirable locations political competition would have pressured people to settle the upland and more marginally agricultural areas of the Puna District.

The entire district of Puna has always been dominated by the activities of Kilauea Volcano. A great lava flow covered much of this part of Puna, in the era prior to western contact. Termed by geologists the 'Aila'au flow, it occurred 260-450 years before the present (Holcomb 1987). There appears to be no specific legend concerning the flow that has survived to the present, but based on specific ethnographic analogy (with historic lava flows in Kona and Ka'u) it is likely that this flow was a storied event with cosmologic and mythical associations.

The Puna District generally remained under the control of outside chiefs until the time of Kalani'opu'u's reign in the 18th century. Shortly before his death in 1782, Kalani'opu'u's dominion over Puna and portion of Ka'u was challenged by the Puna chief 'Imakakoloa. Kalani'opu'u resolved the unrest, but following his death the disposition of Puna once again became an issue until Kamehameha I successfully brought the entire island under his control in 1773.

The Lower Puna area, well-populated by Hawaiians before 1800, was nearly abandoned in the 19th century. Cattle raising and agriculture dominated land use in Puna in the late 1800s (Community Management Associates 1992). Despite such economic ventures, the population in Puna remained the lowest of any district on the island, reaching a nadir of 834 in 1890. The advent of plantation sugar in Puna in about 1900, and for a relatively short period of time, timber production, brought with it villages of immigrant laborers, and Puna's population began to slowly grow. Growth has accelerated since 1970 as a result of the creation and occupancy of tens of thousands of residential agricultural lots in substandard subdivisions. The low costs and relaxed standards have drawn thousands of residences, including retirees, commuters to Hilo, and individuals and families relying on transfer payments for income. Many native Hawaiians have come to occupy the variety of communities that make up Puna and have thus spurred an interest in the perpetuation and revival of cultural practices.

In general the mid-elevation parts of Puna possess a variety of floral and lithic resources that have documented cultural uses, primarily the gathering of plants for medicinal and ceremonial purposes (Burtchard and Moblo 1994; Holmes 1985; Maly 1992 & 1999). The continuation of traditional gathering practices in Puna has often been asserted as part of the community response to the geothermal development in the region.

As part of the early consultation process, the Hilo Hawaiian Civic Club and the Office of Hawaiian Affairs were contacted in an effort to obtain information about any potential traditional cultural properties that might be present at the project sites. Neither of the organizations had any information relative to the existence of traditional cultural properties in the immediate

vicinity of the project sites, nor did they provide any information indicating current use of these sites for traditional and customary practices. Documentary and archaeological surveys (see below) revealed no evidence of structures, unique natural features or activities that would be valuable for gathering, ceremonial, or access purposes, probably because of their history of disturbance for solid waste use and their limited resources.

Cultural and Historic Resources: Impacts and Mitigation Measures

As discussed in Section 3.1.3, above, no biological resources (e.g., valuable native or Polynesian gathering plants) are found on the sites or would be expected to be impacted by the improvements. No resources with traditional association of a potential traditional cultural nature (i.e., such as special hills, groves of trees, lava tube openings, etc.) appear to be present on or near the project sites. Hunting may be considered a traditional cultural activity; access to hunting areas to the north of the Volcano Convenience Center would be maintained by construction of an access roadway. In that the improvements enhance solid waste collection services, they may help to protect cultural resources in the Puna District.

As no resources or practices of a traditional cultural nature (i.e., landform, vegetation, etc.) appear to be present on or near the project sites, and there is no evidence of any traditional gathering uses or other cultural practices, the improvements would not appear to impact any culturally valued resources or cultural practices. This Draft EA has been distributed to groups knowledgeable in the area's resources to ensure that this conclusion is valid.

Historic Resources: Existing Environment

On April 14, 2008, a team of archaeologists from Rechtman Consulting performed a field inspection of each of the convenience centers and adjacent areas that may be acquired or affected. No archaeological resources or other historic properties were observed within the project sites and the possibility of encountering subsurface resources was assessed as being extremely remote. The archaeological assessment prepared for each project is contained in Appendix 3 and summarized in the section below, which provides a background on archaeological sites for the general areas surrounding each convenience center and more details on the investigation of each site.

Glenwood Convenience Center and Vicinity

There have been very few archaeological studies conducted in this portion of the upper Puna District, and none have resulted in significant archaeological findings. No previous archaeological research has been undertaken on this study parcel and little is known of the prehistoric land use in the area. The site falls within *Zone III – the Lower Forest Zone* of McEldowney's Early Historic Period Land Use Model (McEldowney 1979), which is based on environmental variables and human resource needs, as well as early historical accounts. Burtchard and Moblo (1994) state:

“This zone represents the upper limit of subsistence agriculture... Most human use of this zone should have been directed towards travel; task-specific collection of wood, fiber, and bird products; and for scattered plantings for travel and crop-failure insurance. Structures should have been limited to temporary huts, agricultural mounds, and other low-investment structures at very low overall density” (Burtchard and Moblo 1994).

The April 14, 2008, inspection by Rechtman Consulting found no archaeological resources or other historic properties on the Glenwood site.

Pahoa Convenience Center

Archaeological surveys in the interior portions of the Puna District have been few, and very few prehistoric archaeological features have been found (Ibid). Most of the archaeological sites identified in these upland areas are either historic or limited in scope to the prehistoric use of trails and lava tubes. Such sites reflect a trend of intensifying land use from early prehistoric agricultural use with scattered habitation, to early 20th century agriculture, to modern residential subdivisions.

No previous archaeological research has ever been undertaken on this project site. Only a handful of studies have been conducted within the general vicinity of Pahoa Town, and the only archaeological resources identified were historic (i.e., 20th century) structures.

Little is known of the prehistoric land use in this area. This site falls within *Zone II – the Upland Agricultural Zone* of McEldowney’s Early Historic Period Land Use Model (McEldowney 1979). According to Burtchard and Moblo (1994), this region’s use was characterized by scattered settlement engaged in subsistence agriculture, utilizing the relatively ample precipitation as compared to coastal environs, including small groves of economically important trees, with intensive use of lava tubes for habitation, refuge and burial.

On April 14, 2008 Rechtman Consulting performed a field inspection of the Pahoa Convenience Center property. No archaeological resources were observed within the project site, and the possibility of encountering subsurface resources was assessed as being extremely limited.

Volcano Convenience Center

Similarly, few archaeological studies have been conducted in this portion of the upper Puna District, and none have resulted in significant archaeological findings. Little is known of the prehistoric land use in the area. This site falls within *Zone IV – the Rainforest Zone* of McEldowney’s Early Historic Period Land Use Model (McEldowney 1979). The Rainforest Zone extends between 2,500 and 5,500 feet above sea level and according to Burtchard and Moblo (1994), “The upper elevation rainforest extends well above the limits of all but the most marginally productive agriculture... Use of the upper rainforest... can be expected to have been limited... Accordingly, the density of structural remains related to prehistoric use should be comparably low.”

On April 14, 2008 Rechtman Consulting performed a field inspection of the site. No archaeological resources were observed within the project site, apart from 20th century objects associated with use of the site as a landfill, and the possibility of encountering significant subsurface archaeological resources within the site was assessed as being extremely remote.

Historic Resources: Impacts and Mitigation Measures

By letters of June 13, 2008, the archaeologist requested written determinations from the State Historic Preservation Division of “no historic properties affected” for the project site, in accordance with HAR 13§13-284-5(b)1. On July 13, 2008, SHPD responded with three letters concurring with these determinations (see Appendix 3 for assessments and approval letters).

In the unlikely event that archaeological resources, Hawaiian cultural sites, or human remains are encountered during future development activities within the project sites, work in the immediate area of the discovery will be halted and DLNR-SHPD contacted as outlined in Hawai‘i Administrative Rules 13§13-275-12.

3.4 Infrastructure

3.4.1 Utilities

Existing Facilities and Services, Impacts and Mitigation Measures

There are no utilities servicing the project sites.

The following utilities are planned at the convenience centers:

- Non-potable water supply for washing and toilet room from a catchment systems utilizing rain from roofs;
- Septic systems will be located at the low point of the trailer roads and will be constructed per septic tank and soil absorption bed standards for treating all wastewater from sinks, the toilet, and any liquid dripping out of refuse containers; and
- Electric line extensions from local utility will be requested for the Pahoa and Volcano Convenience Centers and photo-voltaic powered lighting standards will be considered where deemed feasible.

3.4.2 Roadways

Existing Facilities, Impacts and Mitigation Measures

Glenwood and Volcano Convenience Centers are accessed via the Hawai‘i Belt Road. Pahoa Convenience Center is accessed by Old Cemetery Road. Glenwood Convenience Center may

utilize a portion of the adjacent State-owned beautification strip parcel for improvements and access, requiring a new right-of-way to the Hawai‘i Belt Road. This would not adversely affect traffic using the center relative to existing conditions, but may result in more efficient traffic flow, since this would be a more direct route than the current access road.

Because the project takes place at existing solid waste facilities, increases in motor vehicle traffic near the project sites are not expected.

3.5 Secondary and Cumulative Impacts

The proposed project will not involve any secondary or cumulative impacts, such as population changes or effects on public facilities, because of the project’s small time scale and scope. The project would provide some short-term jobs that will be filled by workers presently on the Island and is not expected to produce immigration.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. The adverse effects of the project – very minor and temporary disturbance to noise and visual quality during quarrying operations – are very limited in length of time, severity, nature and geographic scale.

3.6 Required Permits and Approvals

The following permits and approvals would be required:

- Conservation District Use Permit(s)
- NPDES Permit(s)
- Plan Approval
- Work Within State Highway Right-of-Way Approval (depending on build option for Glenwood Convenience Center)

3.7 Consistency With Government Plans and Policies

3.7.1 Hawai‘i State Plan

Adopted in 1978 and last revised in 1991 (Hawai‘i Revised Statutes, Chapter 226, as amended), the Plan establishes a set of themes, goals, objectives and policies that are meant to guide the State’s long-run growth and development activities. The three themes that express the basic purpose of the *Hawai‘i State Plan* are individual and family self-sufficiency, social and economic mobility and community or social well-being. The proposed project would promote these goals by modernizing and improving solid waste collection services for the Puna District and the County of Hawai‘i.

3.7.2 Hawai'i County General Plan

The *General Plan* for the County of Hawai'i is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawai'i. The plan was adopted by ordinance in 1989. The *General Plan* itself is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai'i. Most relevant to the proposed project are the following goals, policies, and standards:

Economic - Goals

- (a) Provide residents with opportunities to improve their quality of life through economic development that enhances the County's natural and social environments.
- (b) Economic development and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawaii.
- (f) Strive for diversification of the economy by strengthening existing industries and attracting new endeavors.
- (h) Promote and develop the island of Hawaii into a unique scientific and cultural model, where economic gains are in balance with social and physical amenities. Development should be reviewed on the basis of total impact on the residents of the County, not only in terms of immediate short run economic benefits.

Economic - Policies

- (h) The land, water, air, sea, and people shall be considered as essential resources for present and future generations and should be protected and enhanced through the use of economic incentives.
- (y) Encourage new industries that provide favorable benefit-cost relationships to the people of the County. Benefit-cost relationships include more than fiscal considerations.

Discussion: Proper solid waste management is a key component of prudent land use. Enhancement of recycling facilities will improve the long-term cost-effectiveness of tax expenditures, and improved ease-of-use will encourage responsible use of the environment. Diversion of recyclable materials from the waste stream also yields potential for private ventures to use this resource. Therefore the proposed project satisfies relevant goals and policies of the Economic Chapter of the County of Hawai'i General Plan.

Environmental Quality – Goals

- (a) Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.
- (b) Maintain and, if feasible, improve the existing environmental quality of the island.
- (c) Control pollution.

Environmental Quality – Policies

- (a) Take positive action to further maintain the quality of the environment.
- (d) Encourage the concept of recycling agricultural, industrial, and municipal waste material.
- (i) Support programs to prevent harmful alien species from becoming established.

Environmental Quality - Standards

- (a) Pollution shall be prevented, abated, and controlled at levels that will protect and preserve the public health and well being, through the enforcement of appropriate Federal, State and County standards.
- (c) Federal and State environmental regulations shall be adhered to.

Discussion: The project will facilitate the protection of the environment by increasing the ease-of-use of solid waste collection facilities, thereby encouraging proper disposal of municipal waste and discouraging illegal dumping, assisting in pollution control. Although the facility will not include greenwaste processing, it will encourage recycling and re-use of waste materials. Also, design and operational strategies would be emplaced to prevent the establishment of propagation of harmful alien species. Therefore the proposed project satisfies relevant goals, policies, and standards of the Environmental Quality Chapter of the County of Hawai'i General Plan.

Flooding and Other Natural Hazards - Goals

- (a) Protect human life.
- (b) Prevent damage to man-made improvements.
- (c) Control pollution.
- (d) Prevent damage from inundation.
- (e) Reduce surface water and sediment runoff.
- (f) Maximize soil and water conservation.

Flooding and Other Natural Hazards - Policies

- (g) Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works and in compliance with all State and Federal laws.
- (j) The County and the private sector shall be responsible for maintaining and improving existing drainage systems and constructing new drainage facilities.
- (q) Consider natural hazards in all land use planning and permitting.

Flooding and Other Natural Hazards - Standards

- (a) "Storm Drainage Standards," County of Hawaii, October, 1970, and as revised.
- (b) Applicable standards and regulations of Chapter 27, "Flood Control," of the Hawaii County Code.
- (c) Applicable standards and regulations of the Federal Emergency Management Agency (FEMA).
- (d) Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawaii County Code.
- (e) Applicable standards and regulations of the Natural Resources Conservation Service and the Soil and Water Conservation Districts.

Discussion: The project sites are not within designated floodplains, and the project will comply with applicable drainage, erosion, and flood control standards. Site design will handle local drainage problems. Therefore the proposed project satisfies relevant goals, policies and standards of the Flooding and Other Natural Hazards Chapter of the General Plan.

Historic Sites – Goals

(a) Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawaii.

Historic Sites - Policies

(a) Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.

(c) Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.

Historic Sites – Standards

(a) The evaluation of the importance of specific historic sites is necessary for future action. The following standards establish a framework for evaluating sites.

(b) Importance in the life or activities of a major historic person.

(c) Associated with a major group or organization in the history of the island or community.

(d) Associated with a major historic event (cultural, economic, military, social, or political).

(e) Associated with a major recurring event in the history of the community (such as annual celebrations).

(f) Associated with a past or continuing institution that has contributed substantially to the life of the community.

(g) Unique example of a particular style or period.

(h) One of the few of its age remaining.

(i) Original materials and/or workmanship that can be valued in themselves.

(j) Sites with a preponderance of original materials in context and complexes rather than single isolated sites unless they are of great significance.

(k) Sites of traditional and cultural significance.

Discussion: The sites have been surveyed for archaeological resources as part of the EA process (none were found) and consultation with both private and public agencies and organizations has been conducted. Therefore the project satisfies relevant goals, policies and standards of the Historic Sites Chapter of the County of Hawai‘i General Plan.

Natural Beauty – Goals

(a) Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.

(b) Protect scenic vistas and view planes from becoming obstructed.

(c) Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

Natural Beauty – Policies

(f) Consider structural setback from major thoroughfares and highways and establish development and design guidelines to protect important viewplanes.

(h) Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction during all land use reviews.

(i) Do not allow incompatible construction in areas of natural beauty.

Natural Beauty - Standards

The following standards provide guidelines for designating sites and vistas of extraordinary natural beauty that shall be protected.

- (a) Distinctive and identifiable landforms distinguished as landmarks, e.g. Mauna Kea, Waipio Valley.
- (b) Coastline areas of striking contrast , e.g. Laupahoehoe Point.
- (c) Vistas of distinctive features.
- (d) Natural or native vegetation attractive to a particular area.
- (e) Areas that are harmoniously developed and enhanced by man to appear natural.

Discussion: The sites are generally well-screened from view from nearby roadways by intervening vegetation. In the case where this vegetation may be disturbed or removed landscaping will maintain visual screening. Therefore the project satisfies relevant goals, policies, and standards of the Natural Beauty chapter of the Hawai‘i County General Plan.

Natural Resources and Shoreline – Goals

- (a) Protect and conserve the natural resources from undue exploitation, encroachment and damage.
- (b) Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.
- (c) Protect and promote the prudent use of Hawaii's unique, fragile, and significant environmental and natural resources.
- (d) Protect rare or endangered species and habitats native to Hawaii.
- (e) Protect and effectively manage Hawaii's open space, watersheds, shoreline, and natural areas.
- (f) Ensure that alterations to existing land forms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of an earthquake.

Natural Resources and Shoreline – Policies

- (a) Require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.
- (g) Promote sound management and development of Hawaii's land and marine resources for potential economic benefit.
- (h) Encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.
- (i) Encourage an overall conservation ethic in the use of Hawaii's resources by protecting, preserving, and conserving the critical and significant natural resources of the County of Hawaii.
- (j) Encourage the protection of watersheds, forest, brush, and grassland from destructive agents and uses.
- (p) Encourage the use of native plants for screening and landscaping.
- (u) Ensure that activities authorized or funded by the County do not damage important natural resources.

Discussion: By its nature this project will facilitate natural resource protection. The project will not cause adverse effects to natural resources. While the project will disturb a small amount of native forest, this will be mitigated through use of native plants in landscaping. The potential for introduction of invasive species will also be mitigated. Therefore the project satisfies relevant goals and policies of the Natural Resources and Shoreline chapter of the County of Hawai'i General Plan.

Public Facilities – Goal

(a) Encourage the provision of public facilities that effectively service community and visitor needs and seek ways of improving public service through better and more functional facilities in keeping with the environmental and aesthetic concerns of the community.

Public Facilities – Policies

(a) Continue to seek ways of improving public service through the coordination of service and maximizing the use of personnel and facilities.

(b) Coordinate with appropriate State agencies for the provision of public facilities to serve the needs of the community.

Public Facilities – Health and Sanitation – Policies

(c) Appropriately designed and cost-effective solid waste transfer station sites shall be located in areas of convenience and easy access to the public.

(f) Continue to encourage programs such as recycling to reduce the flow of refuse deposited in landfills.

(h) Encourage the full development and implementation of a greenwaste recycling program.

Discussion: Design has taken community needs and input into consideration. The locations are appropriate for this use, and design will encourage recycling. While the convenience centers do not include greenwaste processing, DEM is searching for other, private means to provide this service to the public. The current plan for greenwaste collected at the convenience centers is for hauling it to Hilo for processing. Therefore, the project is consistent with the relevant goals and policies of the Public Facilities chapter of the Hawai'i County General Plan.

Land Use – Overview – Goals

(b) Protect and encourage the intensive and extensive utilization of the County's important agricultural lands.

(c) Protect and preserve forest, water, natural and scientific reserves and open areas.

Land Use – Public Lands – Goals

(a) Utilize publicly owned lands in the best public interest and to the maximum benefit for the greatest number of people.

Discussion: The project will not impact the County's important agricultural lands, and is a prudent use of public lands in the public interest. Therefore the project is consistent with the relevant goals and policies of the Land Use chapter of the Hawai'i County General Plan.

The *Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG)*. The LUPAG map component of the *General Plan* is a graphic representation of the Plan's goals, policies, and standards as well as of the physical relationship between land uses. It also establishes the basic urban and non-urban form for areas within the planned public and cultural facilities, public utilities and safety features, and transportation corridors. The project sites' LUPAG map designations and the consistency of the proposed use with these designations are as follows:

- Glenwood: Important Agricultural Lands. While a convenience center is not a use consistent with this LUPAG classification, the site itself, as well as adjacent areas that may be acquired to accommodate improvements, is not currently used for agricultural purposes, nor is it likely to be in the future.
- Pahoa: Urban Expansion. This LUPAG map classification is consistent with use as a convenience center.
- Volcano: Conservation. While use as a convenience center is not consistent with the LUPAG map classification of Conservation, the site has been long used for this purpose and a Conservation District Use Permit has been obtained for the project (see below).

3.7.3 Hawai'i State Land Use Law

All land in the State of Hawai'i is classified into one of four land use categories – Urban, Rural, Agricultural, or Conservation – by the State Land Use Commission, pursuant to Chapter 205, HRS. Pahoa and Glenwood convenience centers are both located within the agricultural land use district, where convenience centers are permitted uses. Volcano Convenience Center is located within the Conservation District, Protective Subzone, and the convenience center has an existing permit (HA-496) issued on January 11, 1974. Additionally, a portion of a State property within the Conservation District adjacent to the Glenwood Convenience Center may be acquired for the project. Any proposed use must undergo an examination for its consistency with the goals and rules of the Conservation district and specific subzone. If required, the applicant will prepare a Conservation District Use Application (CDUA), to which this EA would be an Appendix. The action is a *Public Purpose Use* as defined in Section 13-5-22 (P-6, D-1), which is defined as a land use undertaken by the State of Hawai'i or the counties to fulfill a mandated governmental function, activity, or service for public benefit and in accordance with public policy and the purpose of the conservation district. Such land uses may include transportation systems, communications systems, and recreational facilities.

The CDUA, if required, will include a detailed evaluation of the relationship of the project to the criteria of the Conservation District permit process. Briefly, the following individual consistency criteria should be noted, with respect to the Volcano Convenience Center Improvements.

1. The proposed land use is consistent with the purpose of the Conservation District;

The purpose of the Conservation District is to conserve, protect and preserve the important natural resources of the State through appropriate management and use to promote their long-

term sustainability and the public health, safety and welfare. By its nature the project is protective of natural resources and is consistent with this purpose.

2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;

The proposed action is consistent with the objectives of the Protective subzone, which is to protect valuable resources in designated areas such as restricted water-sheds, marine, plant, and wildlife sanctuaries, significant historic, archaeological, geological, and volcanological features and sites, and other designated unique areas. The project would not affect such resources.

3. The proposed land use complies with provisions and guidelines contained in Chapter 205A, HRS, entitled "Coastal Zone Management," where applicable;

The properties are not within the SMA and are not otherwise subject to the CZM regulatory process. Furthermore, the project is not inconsistent with the CZM goals or objectives.

4. The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region;

The project will facilitate protection to natural resources with the area, community and region.

5. The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels;

The site, having been in use for decades, is compatible with conditions and surroundings. Only three to five small structures will be constructed on the site.

6. The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;

The improvements will enhance the appearance of the site, and will include landscaping with native plants.

7. Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District;

The proposed action does not involve or depend upon subdivision.

8. The proposed land use will not be materially detrimental to the public health, safety and welfare.

The proposed action will not be detrimental to the public health, safety, and welfare in any way.

3.7.4 Integrated Solid Waste Management Plan

The current version of the County's Integrated Solid Waste Management Plan (ISWMP) was adopted by the Hawai'i County DEM in 2002. The plan was prepared using a public/private Solid Waste Advisory Committee (SWAC) to document existing facilities and conditions as well as future needs, and to set planning priorities for the County's solid waste management system over a 20-year planning period (Hawai'i County DEM 2002). SWAC members were chosen to represent many different stakeholders.

The ISWMP recognized that the two most urgent needs in the County were to identify a strategy to manage the waste produced in East Hawai'i in anticipation of the closure of the South Hilo Landfill, and to aggressively increase island-wide waste recycling and diversion to protect the life of the Pu'uana'hulu Landfill. The ISWMP also discussed expansion of the existing solid waste transfer system, including upgrading convenience centers, establishing drop-off centers, and reconfiguring convenience centers to emphasize recycling.

Discussion: The proposed project is fully consistent with the current ISWMP. DEM is currently undertaking an update to the ISWMP which is expected to be complete and approved in mid-2009. Initial meetings of the SWAC and the public indicate varying opinion on the advisability and the financial and operational feasibility of replacing some or all of the functions of some or all of the convenience centers with curbside household waste and recycling service. DEM will be monitoring the ISWMP process to determine whether to advance the proposed improvements at the Glenwood, Paho'a and Volcano Convenience Centers and decide on what modifications might be necessary to be consistent with the revised ISWMP.

PART 4: DETERMINATION

Based on information to this point, the County of Hawai‘i DEM has preliminarily determined that the project will not have any significant effect in the context of Chapter 343, Hawai‘i Revised Statutes and section 11-200-12 of the State Administrative Rules. Impacts appear to be minimal or mitigable to minimal levels and an Environmental Impact Statement is not warranted. DEM is thus expected to issue a FONSI. Comments on the Draft EA will be reviewed in order to ascertain whether this anticipated determination is appropriate.

PART 5: FINDINGS AND REASONS

Chapter 11-200-12, Hawai‘i Administrative Rules, outlines those factors agencies must consider when determining whether an Action has significant effects:

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.*

No valuable natural or cultural resources would be committed or lost.

2. *The proposed project will not curtail the range of beneficial uses of the environment.*

No restriction of beneficial uses would occur. The project represents a beneficial use of the environment.

3. *The proposed project will not conflict with the State's long-term environmental policies.*

The State’s long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The project would facilitate protection of the State’s natural resources and is thus consistent with all elements of the State’s long-term environmental policies.

4. *The proposed project will not substantially affect the economic or social welfare of the community or State.*

The project would not have any adverse effect on the economic or social welfare of the County or State.

5. *The proposed project does not substantially affect public health in any detrimental way.*

The project would have a positive impact on public health and safety relative to existing conditions.

6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.*

No secondary effects would result from the proposed action.

7. *The proposed project will not involve a substantial degradation of environmental quality.*

The project is environmentally positive.

8 *The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.*

The project sites support mostly alien vegetation. Impacts to rare, threatened or endangered species of flora or fauna will not occur with proper timing of landclearing, as planned. Impacts to native habitat would be partly mitigated by use of native plants in landscaping.

9. *The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.*

The project is not related to other activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions.

10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.*

Improvements would have a positive impact on water quality. Construction-phase and operational noise impacts would affect no nearby residents.

11. *The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.*

Although the project is located in an area with volcanic and seismic risk, the entire Island of Hawai'i shares this risk, and the project is not imprudent to conduct the action given its short timescale. No water resources exist near the project sites.

12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.*

Landscaping would mitigate adverse visual impacts near the project sites.

13. *The project will not require substantial energy consumption.*

Construction and operation of the facilities would require minimal consumption of energy. No adverse effects would be expected.

REFERENCES

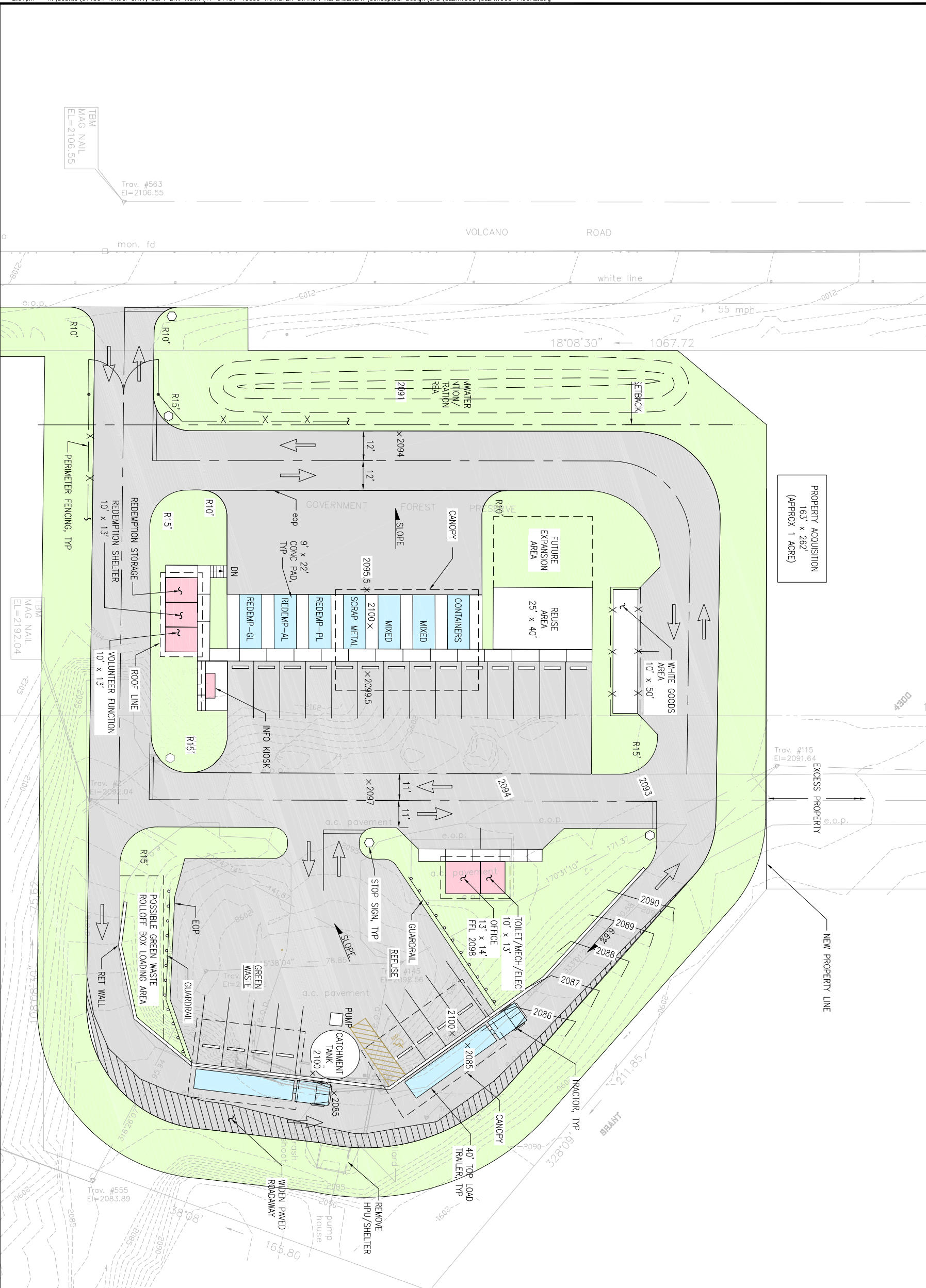
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ENVIRONMENTAL ASSESSMENT

**GLENWOOD, PAHOA AND VOLCANO
CONVENIENCE CENTER IMPROVEMENTS**

County of Hawai'i
Department of Environmental Management
Solid Waste Division

APPENDIX 1
Site Plans



PROPERTY ACQUISITION
163' x 262'
(APPROX 1 ACRE)

NEW PROPERTY LINE

PLAN SHOWING
PARCEL 23
BEING A PORTION OF LOT 216,
A PORTION OF GRANT 4300 TO
OLAA COFFEE CO. LTD.
OLAA RESERVATION LOTS
OLAA, PUNA, ISLAND OF HAWAII, HAWAII
Top Map Key (3rd. Division): 1-8--008: 023
THIS TOPOGRAPHIC SURVEY MAP WAS PREPARED BY
ENGINEERING PARTNERS, INC.
DATE OF SURVEY: AUG 16 THRU AUG 20, 2007
TBM - RIM OF TANK-MTN VIEW TANK SITE NO. 1
EL. = 2073.50

- ABBREVIATIONS:
- c CONCRETE
 - g/g GROUND GRADE
 - 1/3 TOP OF WALL
 - epg EDGE OF PAVEMENT
 - sd STORM DRAIN MAN HOLE
 - s SANITARY SEWER MAN HOLE
 - cmr CORRUGATED METAL ROOF
 - cnp CORRUGATED METAL PIPE
 - pvc POLYVINYL CHLORIDE

GLENWOOD RECYCLING STATION
SCALE: 1" = 20'

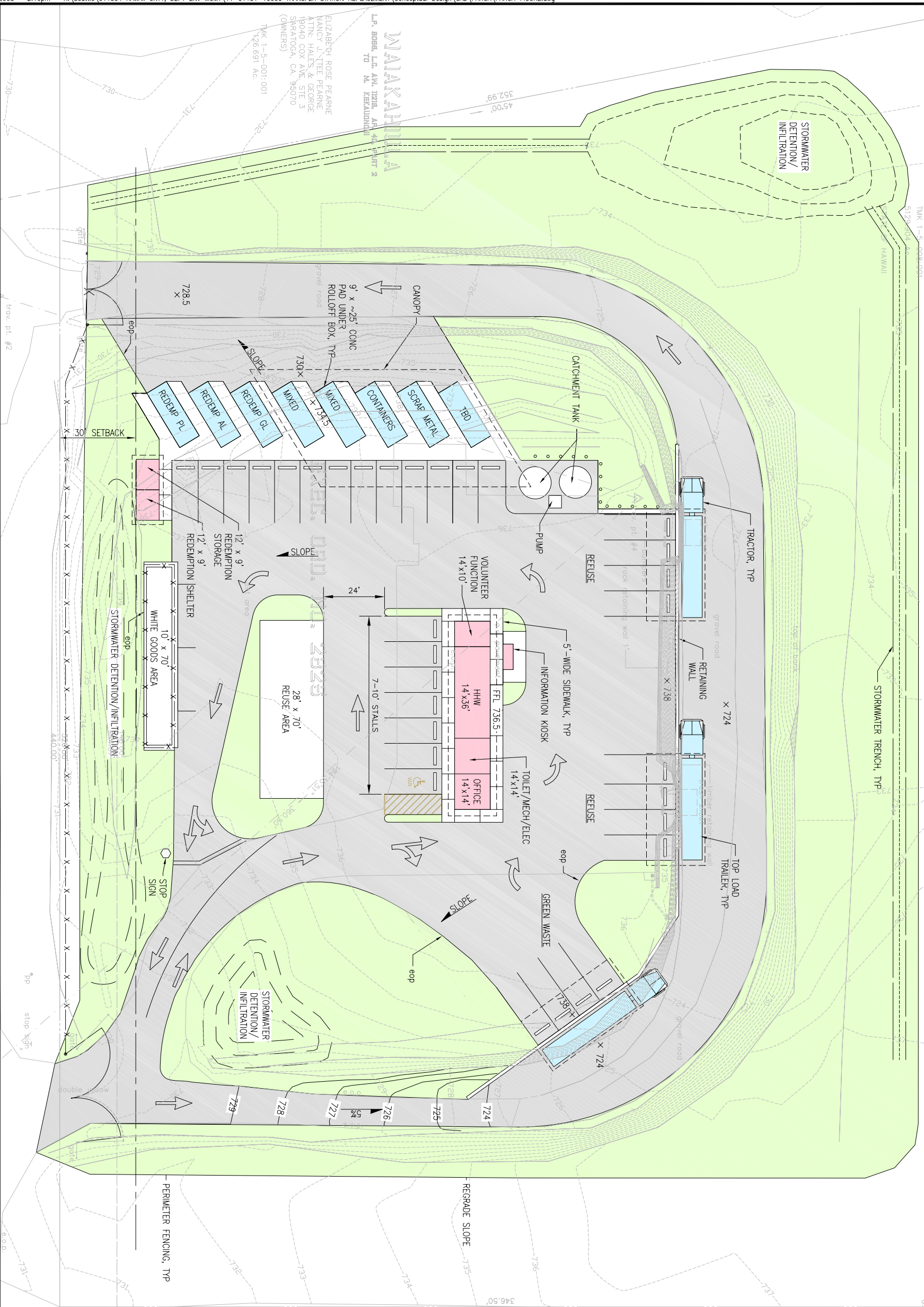


DESIGNED	
DRAWN	
VERIFIED SCALE	BAR IS ONE INCH ON ANSI D DRAWING
REV	DATE
B	9/17/07
CHK'D	APP'D
	REVISED PER COUNTY COMMENTS
	REVISION DESCRIPTION

R.W. Beck, Inc.
1001 Fourth Avenue, Suite 2500
Seattle, WA 98154-1004
(206) 695-4700

COUNTY OF HAWAII	PROJECT NUMBER: 11-010
GLENWOOD RECYCLING STATION	SHT. OF: 1
	DRAWING NUMBER:

(OWNER)
TKM 1-5-008-001
5129.904 AC. HAWAII



PLAN SHOWING
PARCELS 7
OF THE GOVERNMENT
LAND OF KEONEPOKO-KI
AT KEONEPOKO
PUNA, ISLAND OF HAWAII, HAWAII

Tax Map Key (3rd Division): 1-5-008-007

THIS TOPOGRAPHIC SURVEY MAP WAS PREPARED BY
ENGINEERING PARTNERS, INC.
DATE OF SURVEY: JULY 31 THRU AUG 3, 2007

TEAM - ALUM CAP-RIM NEW PAHOA ELEMENTARY
SCHOOL WELL AND RESERVOIR
EL. = 6711.39

- ABBREVIATIONS:
- c CONCRETE
 - g GROUND
 - l/w TOP OF WALL
 - l/g TOP OF GRADE
 - eop EDGE OF PAVEMENT
 - sd STORM DRAIN MAN HOLE
 - s SBRAN STORM MAN HOLE
 - cmr CORRUGATED METAL PIPE

STATE OF HAWAII
(OWNER)
TKM 1-5-008-001
5129.904 AC.

PAHOA RECYCLING STATION
SCALE: 1" = 20'



EASEMENT E-8
9682 SQ.FT.
PERPETUAL NON-EXCLUSIVE ELECTRIC TRANSMISSION
LINE EASEMENT

EASEMENT E-9
160,079 SQ. FT.

job Number: 07-064
Engineering Partners, Inc.
453-B E. LinnKuhilo St.
Hilo, HI, 96720

COUNTY OF HAWAII

PAHOA RECYCLING STATION

PROJECT NUMBER:
11-010

SHT. OF:
1

DRAWING NUMBER:

VERIFY SCALE
BARS ONE INCH ON
ANSI D DRAWING

0	1
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REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION



R.W. Beck, Inc.
1001 Fourth Avenue, Suite 2500
Seattle, WA 98154-1004
(206) 695-4700

DESIGNED
 DRAWN
 CHECKED
 DATE
 CHK'D APP'D
 REVISION DESCRIPTION

VERITY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 1'	REV	DATE	CHK'D APP'D	REVISION DESCRIPTION

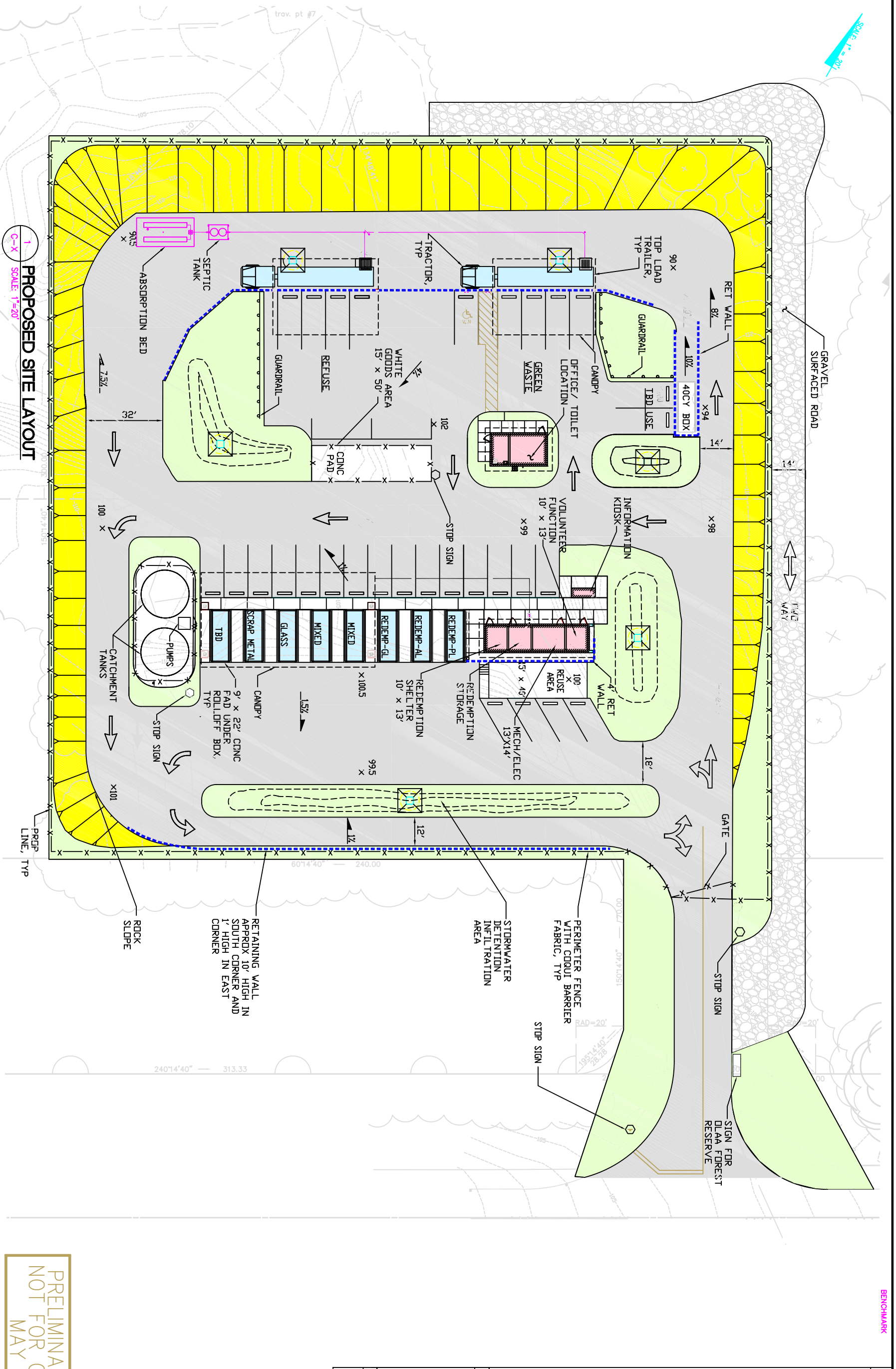


R.W. Beck, Inc.
 1001 Fourth Avenue, Suite 2500
 Seattle, WA 98154-1004
 (206) 695-4700

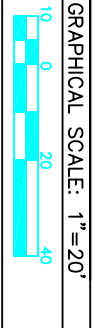
COUNTY OF HAWAII
 VOLCAND RECYCLING STATION

PROJECT NUMBER 11-010	SHT. 01	DRAWING NUMBER 1
--------------------------	------------	---------------------

1 PROPOSED SITE LAYOUT
 C-X SCALE: 1"=20'



PRELIMINARY DRAWINGS
 NOT FOR CONSTRUCTION
 MAY 16, 2008



ZONING NOTES:

- LEGEND:
- GRAVEL SURFACE ROAD
 - PROPOSED FENCE LINE
 - RETAINING WALL
 - PROPOSED GUARD RAIL

BENCHMARK

ENVIRONMENTAL ASSESSMENT

**GLENWOOD, PAHOA AND VOLCANO
CONVENIENCE CENTER IMPROVEMENTS**

County of Hawai‘i
Department of Environmental Management
Solid Waste Division

APPENDIX 2a
Comments in Response to Pre-consultation

To Ron Terry, Principal

Hi Ron;

Thank you for informing us that your firm (Geometrician Associates, LLC at Tel 969 - 7090) is doing the EA for Volcano Convenience Center AKA Recycling Center. In a very belated response to your inquiry whether the Volcano Community Assn. wishes to be involved in the EA for the proposed Volcano Convenience Center, our answer would be an emphatic "Yes.".....

We sponsored the 1st public meeting about with the consultants from Seattle and have met with Bobby Jean and staff about it as well.....We are thrilled that there will be a green-waste collection area, for the people of Volcano do alot of removal on non-native plants as they landscape their properties...Few will go the distance to Hilo to recycle the green waste.....

One of the biggest concerns raised environmentally was the concern that people could actually bring their coqui frogs to the Convenience Center with their green waste, thus possibly dispersing them even more.. Some kind of containment (Barrier?) needs to be constructed.

Again, we sincerely appreciate being involved in any way we can support you in this very valuable work you are doing...

.(and yes, a copy of the completed EA would be appreciated.)

Yours truly

Jeffrey Mermel, President, Volcano Community Assn.

PO Box 342

Volcano, HI 96785

Tel 967 - 7426

Harry Kim
Mayor



Darryl J. Oliveira
Fire Chief

Glen P.I. Honda
Deputy Fire Chief

County of Hawai'i
HAWAII FIRE DEPARTMENT
25 Aupuni Street • Suite 103 • Hilo, Hawai'i 96720
(808) 981-8394 • Fax (808) 981-2037

February 21, 2008

Mr. Ron Terry
Geometrician Associates, LLC
PO Box 396
Hilo, Hawaii 96720

RE: ENVIRONMENTAL ASSESSMENT (EA)
CONVENIENCE CENTER IMPROVEMENTS,
VOLCANO, GLENWOOD, AND PAHOA
TMKs 1-9-01:002, 1-8-08:023, 1-5-08:007

In reference to the above property, our office has no comments for the above reference Environmental Assessment.

A handwritten signature in black ink, appearing to be "Glen Honda".

GLEN HONDA
Deputy Fire Chief

PBE:lpc



LINDA LINGLE
GOVERNOR OF HAWAII



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

March 3, 2008

Laura H. Thielen
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

Russell Y. Tsujii
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR FOR
THE COMMISSION ON
WATER RESOURCE MANAGEMENT

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE
COMMISSION
LAND MANAGEMENT
STATE PARKS

Mr. Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

Subject: Preconsultation Environmental Assessment Review for 1) Mamalahoa Highway (SR11) Drainage Improvements at Kawa Flats, Kau, Hawaii; 2) Hotel Renovations, King Kamehameha's Kona Beach Hotel, Kailua, Kona, Hawaii; and 3) Convenience Center Improvements, Volcano, Glenwood, and Pahoa, Hawaii.

DLNR, Division of Forestry and Wildlife provide the following comments to your request. Our preliminary review of the three Environmental Assessments shows no impacts to our management programs or endangered plant species. However, we would like to receive copies of the three subject EA documents through the Environmental review process. For the Convenience Centers of Volcano, Glenwood, and Pahoa involving Conservation lands, a copy of our response will be sent to DLNR, OCCL. Thank you for allowing us to review your intention to prepare Environmental Assessments for these proposed projects.

Sincerely yours,

A handwritten signature in cursive script that reads "Paul J. Conry".

Paul J. Conry
Administrator

C: DLNR, OCCL

----- Original Message -----

From: Chas and Marilee Stanton

To: gpknopp@hawaii.rr.com

Sent: Wednesday, February 13, 2008 10:34 AM

Subject: Re: County of Hawai'i Convenience Center Improvements

Thanks for asking my opinions Graham, Terry

Here are a few suggestions:

1. The overhangs at the chutes need to be extended to cover the users when it is pouring rain, as it often does on the East Side. Current design is a waste of effort excepting it does reduce water weight.
2. Train the transfer station guards to politely ask the public to recycle goods
3. Have covered ramps available at recycle bins, it would not increase unit construction cost more than maybe 15-20%
4. Have large colorful and/or fragrant plantings available that invite the public in
5. Color the recycle bins, use very large 'recycle for the aina' or 'mahalo for your kokua' logos on the sides and ends. Have a design contest in the schools for the logo and use the kids new logo with the porpoises.
6. Have cleanliness a priority of the guards, today there is a vast difference between sites i.e. Pahoa and Kea`au.
7. Put hand sanitizer out for public use
8. Have an area where users could hose out their vehicles - under supervision
9. Have your up grade plans highly publicized

Dressing up the waste sites, **and making them more user friendly** would change perceptions which would in turn encourage responsible use for many. But not for all.

Mahalo

Charlie Stanton

Original Message-----

From: Paul J. Buklarewicz <pjb01@hawaii.rr.com>

Sent: Wednesday, February 13, 2008 10:05 AM

To: gpknopp@hawaii.rr.com

Subject: Re: County of Hawai`i Convenience Center Improvements

Graham -

Yes, please send a copy of the EA when /pau/.

Recycle Hawai`i, having delivered the Kea`au Recycling and Reuse Center (KRRC) project via EPA funding in 2003, continues to operate KRRC under contract with the County. We have also initiated limited, volunteer-driven reuse centers at two transfer station sites under a USDA - Rural Utilities Service grant (Laupahoehoe and Keauhou).

When planning for any reuse facilities that would replicate the success of the Kea`au site, please feel free to include Recycle Hawai`i as a resource in development and planning for enhancements to Pahoa, Volcano and Glenwood transfer stations.

Regards - Paul

gpknopp@hawaii.rr.com wrote:

> Aloha,

>

February 25, 2008

Mr. Ron Terry
Geometician
PO Box 396
Hilo, Hawaii 96721

Re: *Tax Parcel 3-1-5-01-1-126 (6.91 Acres)*

Dear Mr. Terry:

We are in receipt of your letter dated February 12, 2008 regarding the Environmental Assessment for Convenience Center Improvements of Pahoa which is the station closest to our property. Our property is approximately 127 acres which lies to the east of the Pahoa Convenience Center and immediately adjacent to the property. I have enclosed maps of our property as well as a Metes & Bounds description for your use, as well as a Department of Finance Property Assessment Parcel Number.

After reading your letter, we would be most interested in having the following questions answered:

1. Is the road to the convenience center going to be widened to handle larger vehicles?
2. What type of fence would be put up around the property and the height (i.e., concrete-wood slats, wood, etc.)?
3. Is the County running sewer out to the site or will it use septic? If it is septic, where will the leach field be located?
4. Will a public water line be run out to the property, or does one already exist?
5. Just to the west of the Pahoa site, there is a large water storage tank. Where does the water come from to fill this tank and what area does the water tank service? Is water/sewer currently provided to the Pahoa site?

Pahoa

6. We would like to receive a copy of the EA Report when it is completed and we'll be most interested to see the maps of how drainage will work in the area.
7. Will the EA Report take into account all of our land, as well as the other few hundred acres surrounding your site to see how things will affect us?
8. Are any of the current zoning laws for the area being changed?
9. Are there any plans to include storm drains along the road to prevent flooding and have them channeled into a creek bed?

If you would be so kind as to respond to this letter in writing, it would be most appreciated. After I have received your letter, I will then call you to discuss any questions that would remain.

Thanks in advance for your attention to this matter.

Best regards,

Nancy Pearne
122 El Olivar
Los Gatos, CA 95032
408.374.1160

cc: Elizabeth Pearne

AMFAC/JMB HAWAII, INC.

700 Bishop Street
P.O. Box 3230
Honolulu, Hawaii 96801
(808) 945-8111
Fax (808) 945-8153

CERTIFIED RETURN RECEIPT

September 10, 1990



Mr. John Pearne
1152 Newhall Street
San Jose, California 95126

Subject: Promissory Note Dated 6/25/85 Held by Puna Sugar
Company, Ltd. Covering TMK (3) 1-5-01:1, 126.691 Acres

Dear Mr. Pearne:

I am following up on my June 28, 1990 letter to you regarding the Promissory Note we hold in connection with your purchase of a piece of property from Puna Sugar Company, Ltd.

Since that time, you have informed me that you are working with Ms. Marie Darris of U. S. Bank Corp. Mortgage to secure financing in order to pay off the note. I have had an opportunity to talk to Ms. Darris last week, who informed me that she has yet to receive a loan application from you. I have also been informed that your interest payment has been delinquent since July 19, 1990. I acknowledge and appreciate your payment of \$30,000 toward principal which we received in mid-July. Nevertheless, a substantial balance remains.

Since more than two months have gone by and in an effort to bring this matter to a conclusion, you will be given another 15 days from the date of this notice to cure the default. If no progress is made within the next 15 days, we will have to proceed with foreclosure to repossess the property.

For your information, the per diem interest on the principal balance of \$70,335.17 is \$23.12. The interest you owe on that balance is \$1,017.45, totalling \$71,352.62 as of August 31, 1990.

Please feel free to contact me at 945-8363 if you have any questions.

Very truly yours,


Anne Lo-Shimazu
Project Manager

ALS/kk

Encl.

At the date hereof exceptions to coverage in addition to the Exceptions and Exclusions in said Policy form would be as follows:

1. REAL PROPERTY TAXES

County of Hawaii

TAX MAP KEY: (3) 1-5-1-1 (HPR N/A)

Real property taxes that may be due and owing on the property hereinafter described. This information has been ordered from the Tax Office of the above county and will be forwarded as soon as it is received.

2. AGREEMENT

Dated: May 15, 1968
Book: 6071
Page: 113
Re: Granting a right-of-way over the roadway (Pahoa Bypass Road), containing an area of 3.6205 acres.

3. Provisions of that certain "Notice of Approval to Change Use" dated December 17, 1984, made by GARY M. KIYOTA, Real Property Tax Administrator, as disclosed by that certain "Affidavit of Bert L. Hatton" dated January 11, 1985, recorded in said Bureau of Conveyances in Book 18391, Page 54.

(ALSO AFFECTS OTHER PROPERTY)

4. MORTGAGE

Dated: June 4, 1985
Recorded: June 25, 1985
Book: 18728
Page: 671
Mortgagor: JOHN A. PEARNE and NANCY J. PEARNE, husband and wife.
Mortgagee: PUNA SUGAR COMPANY, LIMITED, a Hawaii corporation.
To secure an indebtedness of \$100,875.00 and any other amounts payable under the terms thereof.

5. ASSIGNMENT

Dated: May 15, 1985
Book: 18728
Page: 685
Assignor: PUNA SUGAR COMPANY, LIMITED, a Hawaii corporation.
Assignee: JOHN A. PEARNE and NANCY J. PEARNE, husband and wife.
Re: 20 year Dedication Permit No. H-53 AA dated June 18, 1974.

NOTES

- (a) IF THIS TRANSACTION INVOLVES A CONSTRUCTION LOAN, we must inspect the subject property immediately prior to recordation of the mortgage on said loan in order to determine our priority over potential mechanic's lien. In the event of a loss of priority due to construction work having commenced on the site prior to the recordation of the construction loan mortgage, signed Indemnity Agreements and financial statements from all the owners, developer and general contractor, must be submitted to the title department at least 3 working days prior to the close of escrow.

EXHIBIT "A"

All of that certain parcel of land, being a portion of Part 2 of Land Patent No. 8095, L. C. Aw. No. 11216, Apana 20 to M. Kekauonohi, situate at Waiakahiula, in the District of Puna, Island and County of Hawaii, State of Hawaii, and being more particularly described as follows:

Beginning at a spike (set) at the North corner of this parcel of land, also being the East corner of Government Land on the West side of Pahoa By-Pass Road, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PAHOA" being 3,956.05 feet South and 895.01 feet West and running by azimuths measured clockwise from true South:

- | | | | | |
|---------------------------------|------|---------|----------|--|
| 1. | 326° | 00' | 1,799.02 | feet along Pahoa By-Pass Road to a spike (set); |
| Thence along Pahoa By-Pass Road | | | | on a curve to the left with a radius of 525.00 feet, the chord azimuth and distance being: |
| 2. | 314° | 44' 30" | 204.99 | feet to a 1/2" pipe (set); |
| 3. | 303° | 29' | 26.07 | feet along Pahoa By-Pass Road to a 1/2" pipe (set); |
| 4. | 326° | 00' | 1,042.47 | feet along the remainder of L. C. Aw. No. 11216, Apana 20 to M. Kekauonohi, to a 1/2" pipe (set); |
| 5. | 55° | 51' | 1,942.57 | feet along the remainder of L. C. Aw. No. 11216, Apana 20 to M. Kekauonohi, to a 1/2" pipe (set); |
| 6. | 145° | 55' 30" | 2,700.46 | feet along the remainder of L. C. Aw. No. 11216, Apana 20 to M. Kekauonohi, to a 1" pipe in concrete (found); |
| 7. | 224° | 55' 19" | 1,932.09 | feet along Government Land of Keonepoko-Iki to the point of beginning and containing an area of 126.691 acres. |

Being all the property described in the following:

DEED
Dated: May 15, 1985
Book: 18728
Page: 665
Grantor: PUNA SUGAR COMPANY, LIMITED, a
Hawaii corporation.
Grantee: JOHN A. PEARNE and NANCY J.
PEARNE, husband and wife, as
Tenants by the Entirety.

DEPARTMENT OF FINANCE
REAL PROPERTY TAX DIVISION
COUNTY OF HAWAII
865 PIILANI STREET
HILO, HI 96720

AMENDED NOTICE OF PROPERTY ASSESSMENT

MK: 1-5-001-001-0000

DATE: 10/17/97

OWNER: PEARNE, JOHN A/NANCY J

YEAR: 1997 LAND CLASS: 5 LAND AREA: 126.69100 A

TYPE: B CASE # 812

ORIGINAL	VALUATION	EXEMPTION	NET TAXABLE	TX RATE	TAXES
BLDG				8.500	
LAND	268400		268400	10.000	2684.00
TOTAL	268400		268400		2684.00

AMENDED	VALUATION	EXEMPTION	NET TAXABLE	TX RATE	TAXES
BLDG					
LAND	216700		216700	10.000	2167.00
TOTAL	216700		216700		2167.00

PENALTY	
OTHER	
NET DECREASE	517.00
DEPOSIT	-15.00

NOTE: BOARD OF REVIEW DECISION
LAND VALUE CORRECTED

IF YOU DISAGREE WITH THE BOARD'S DECISION, YOU MUST APPEAL TO THE
TAX APPEAL COURT WITHIN 30 DAYS FROM THE DATE OF THIS NOTICE.

PEARNE JOHN A/NANCY J
1152 NEWHALL ST
SAN JOSE CA

95126


ASSESSOR

10/17/97
DATE

PAHOA
KUBISH
TRANSEK
STATION

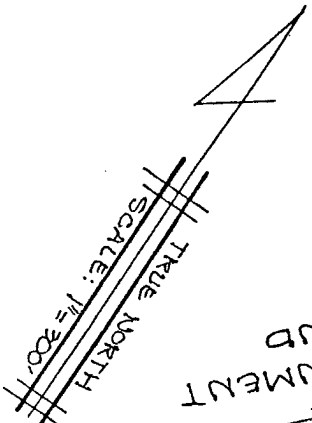
PAHOA

BY - PASS ROAD

ROAD

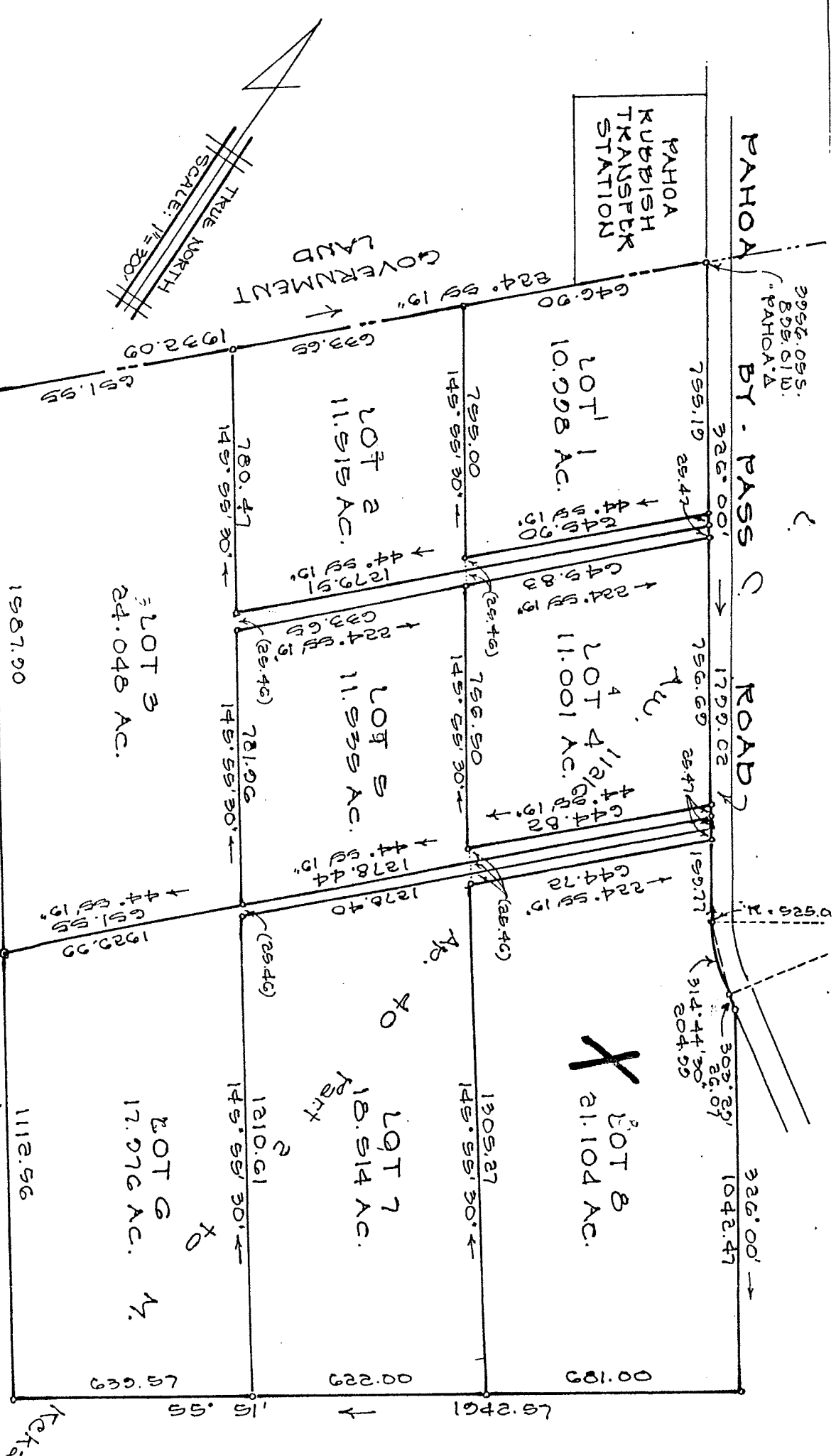
2956.05 S.
859.61 W.
PAHOA A

GOVERNMENT
LAND



OWNER:

TMK 280/1-5-01:1
January 15, 2001

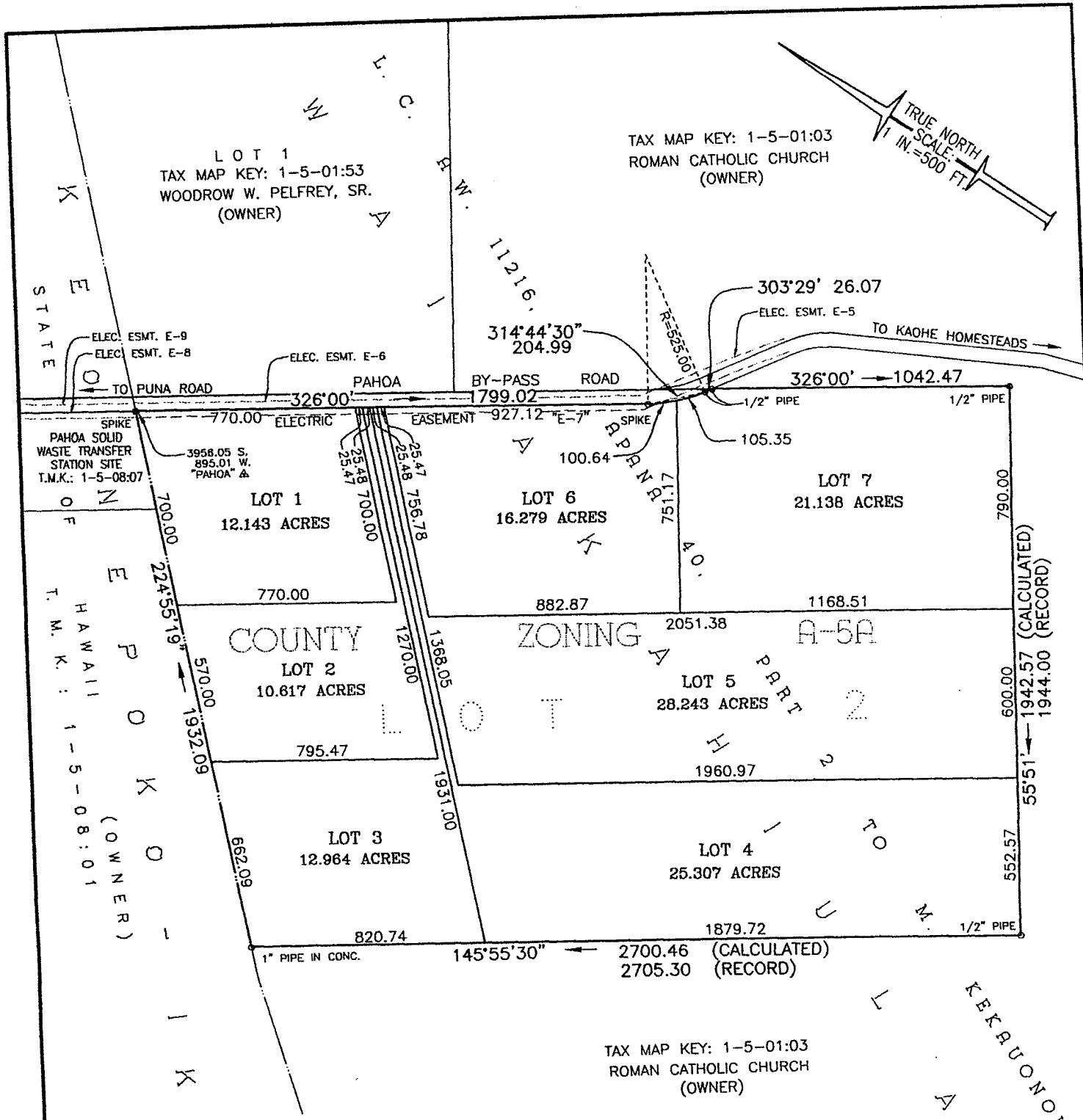


LOTS 1-8 (inclusive)

Subdivision of Portion of

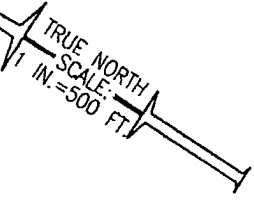
L.C. Adv. 1121G, Ap. 40 Part 2 to M. Kekeauonohi
Waiakahiula, Puna, Hawaii, Hawaii

Survey and Plan by Murray, Smith & Associates, Ltd.
Honolulu, Hawaii



LOT 1
 TAX MAP KEY: 1-5-01:53
 WOODROW W. PELFREY, SR.
 (OWNER)

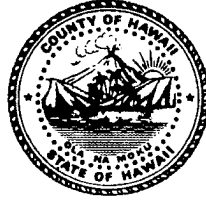
TAX MAP KEY: 1-5-01:03
 ROMAN CATHOLIC CHURCH
 (OWNER)



PROPOSED
 SUBDIVISION OF LOT 2
 BEING A PORTION OF
 L. C. AW. 11216, APANA 40, PART 2
 TO M. KEKAUONOHI



Harry Kim
Mayor



Lawrence K. Mahuna
Police Chief

Harry S. Kubojiri
Deputy Police Chief

County of Hawaii

POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-2389

February 28, 2008

Mr. Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96720

Dear Mr. Terry:

Upon reviewing your letter dated February 12, 2008 and recognizing the need for improvements at the identified transfer stations, law enforcement does not anticipate any public safety concerns at this time.

Thank you for allowing us to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence K. Mahuna", is written over a large, light-colored oval shape.

LAWRENCE K. MAHUNA
POLICE CHIEF

SG

PHONE (808) 594-1888

FAX (808) 594-1865



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

HRD08/3519

March 12, 2008

Ron Terry
Geometrician Associates LLC
P.O. Box 396
Hilo, HI 96721

RE: Pre-consultation on Draft Environmental Assessment for Convenience Center Improvements, Volcano, Glenwood and Pāhoa, TMKs: 1-9-01:002, 1-8-08:023 and 1-5-08:007.

Dear Ron Terry,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-referenced pre-consultation letter. The County of Hawai'i Department of Environmental Management is planning to improve three solid waste convenience centers in Volcano, Glenwood and Pāhoa. OHA offers the following comments.

We request the applicant complete a Cultural Impact Assessment for the project. In addition, OHA recommends that the applicant use native vegetation in its landscaping plan for subject parcel. Landscaping with native plants furthers the traditional Hawaiian concept of mālama 'āina and creates a more Hawaiian sense of place.

We request the applicant's assurances that should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during the construction of the project, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Ron Terry
Geometrician Associates LLC
March 12, 2008
Page 2

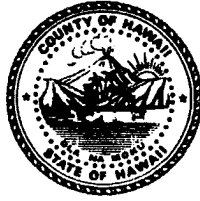
Thank you for the opportunity to initially comment, and we look forward to reviewing the Draft Environmental Assessment when it becomes available. If you have further questions, please contact Sterling Wong (808) 594-0248 or e-mail him at sterlingw@oha.org.

Sincerely,

A handwritten signature in black ink, appearing to read "Clyde W. Nāmu'o". The signature is fluid and cursive, with a prominent loop at the end.

Clyde W. Nāmu'o
Administrator

Harry Kim
Mayor



Christopher J. Yuen
Director

Brad Kurokawa, ASLA
LEED® AP
Deputy Director

County of Hawaii
PLANNING DEPARTMENT

101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-4224
(808) 961-8288 • FAX (808) 961-8742

April 1, 2008

Mr. Ron Terry
Geometrician Associates, LLC
P. O. Box 396
Hilo HI 96721

Dear Mr. Terry:

SUBJECT: Pre-consultation on Environmental Assessment
Applicant: Department of Environmental Management, Solid Waste Division
Project: Convenience Center Improvements
Land Owner: County of Hawaii
TMK: 1-5-8:7 Pahoia
TMK: 1-8-8:23 Glenwood
TMK: 1-9-1:2 Volcano (Executive Order No. 1137)

This is to acknowledge receipt on February 14, 2008 of your request for comments on a Draft Environmental Assessment for the proposed improvements to three solid waste convenience centers, also known as transfer stations.

The project would completely re-design the convenience centers, making them more user-friendly, with improved traffic flow, space for roll-off recycling container bins, HI5 redemption and re-use areas, green-waste collection (but not processing), drainage improvements, office and volunteer structures, retaining wall improvements, and white goods (i.e. appliance) collection. There would also be landscaping and perimeter fences.

The Glenwood convenience center may also include construction of a new access road connecting directly to Volcano Highway (SR 11).

Mr. Ron Terry
Geometrician Associates, LLC
Page 2
April 1, 2008

We have the following to offer on the three parcels:

TMK NUMBER	LOCATION	STATE LAND USE DESIGNATION	COUNTY ZONING
1-5-8:7	Pahoa	Agricultural	Agricultural (A-20a)
1-8-8:23	Glenwood	Agricultural	Agricultural (A-5a)
1-9-1:2	Volcano	Conservation	Forest Reserve

All three are not located within the County's Special Management Area.

According to Hawaii Revised Statutes, §205-4.5(a)(7), permitted uses within the State land use Agricultural districts includes *"Public, private, and quasi-public utility lines and roadways, transformer stations, communications equipment buildings, solid waste transfer stations, major water storage tanks, and appurtenant small buildings such as booster pumping stations, but not including offices or yards for equipment, material, vehicle storage, repair or maintenance, treatment plants, corporation yards, or other similar structures."* Therefore, the proposed project is a permitted use.

The Volcano convenience center parcel, however, is designated Conservation by the State Land Use Commission. Due to this Conservation designation, there is no County zoning per se. Therefore, the Department of Land and Natural Resources has jurisdiction on any use which occurs on this parcel.

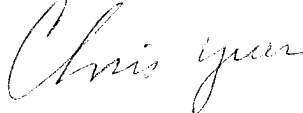
Finally, the Hawaii County Code, Chapter 25, §25-4-11(c) states that *"Public uses, structures and buildings and community buildings are permitted uses in any district, provided that the director has issued plan approval for such use."* Therefore, Plan Approval is required from the Planning Director prior to obtaining a building permit for the proposed improvements.

Please provide us with a copy of the Environmental Assessment for our review and file.

Mr. Ron Terry
Geometrician Associates, LLC
Page 3
April 1, 2008

If you have questions, please feel free to contact Esther Imamura at 961-8288, ext. 257.

Sincerely,

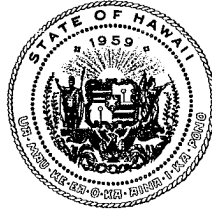
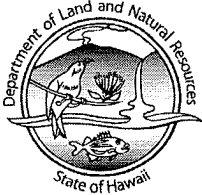
A handwritten signature in cursive script that reads "Chris Yuen".

CHRISTOPHER J. YUEN
Planning Director

ETI:cs

P:\wpwin60\ETI\AdraftPre-consul\Terry Convenience Ctr Imps 1-9-1-2 1-8-8-23 1-5-8-7.rtf

LINDA LINGLE
GOVERNOR OF HAWAII



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

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAIHOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF:OCCL:TM

Correspondence: HA 08-232

MAY 12 2008

Ron Terry, Principal
Geometric Associates, LLC.
PO Box 396
Hilo, Hawaii 96721

Dear Mr. Terry,

SUBJECT: Environmental Assessment Preparation for the Volcano Convenience Center Improvements Located at Volcano, Hawaii, TMK: (3) 1-9-001:002

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your correspondence regarding the subject matter dated April 23, 2008. You are requesting information regarding existing permits and the conservation district Subzone for the site.

The OCCL has the following Conservation District Use Permits (CDUPs) on file for the subject vicinity:

HA-323 for Commercial Quarry Use approved by the Board on August 11, 1972;

HA- 391 for a Borrow Pit and Waste Material Disposal Site approved on February 23, 1973; and

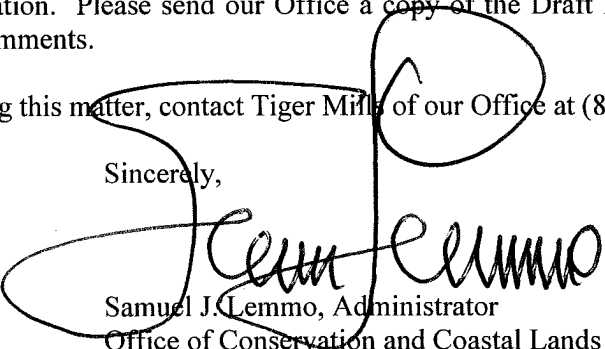
HA-496 for the Expansion of an Existing Dump Site Area For Solid Waste Disposal Transfer Station approved on January 11, 1974.

The site appears to lie within the Protective subzone of the Conservation District.

As the subject site has been established as a Solid Waste Disposal Transfer Station, the proposal may not require the filing of a Conservation District Use Application (CDUA). However more information is required prior to making that determination. Please send our Office a copy of the Draft Environmental Assessment for determination and/or comments.

Should you have any questions regarding this matter, contact Tiger Mills of our Office at (808) 587-0382.

Sincerely,


Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

c: HDLO
Hawaii County Planning Department

ENVIRONMENTAL ASSESSMENT

**GLENWOOD, PAHOA AND VOLCANO
CONVENIENCE CENTER IMPROVEMENTS**

County of Hawai'i
Department of Environmental Management
Solid Waste Division

APPENDIX 3

**Archaeological Assessments and
State Historic Preservation Division Letters**

RECHTMAN CONSULTING, LLC

HC 1 Box 4149 Kea'au, Hawai'i 96749-9710

phone: (808) 966-7636 fax: (808) 443-0065

e-mail: bob@rechtmanconsulting.com

ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL STUDIES

June 13, 2008

RC-0564b

Morgan Davis
Assistant Hawai'i Island Archaeologist
DLNR-SHPD
2100 Kanoelehua Avenue, Unit C-5
Hilo, HI 96720

Dear Morgan:

At the request of Ron Terry, Ph.D. of Geometrician Associates, Rechtman Consulting, LLC has prepared this request for determination of "no historic properties affected" associated with the expansion of the Glenwood Solid Waste Transfer Station in a roughly 2.3 acre project area (TMK:3-1-8-08:023, 017 por., 028 por.) in Ola'a Ahupua'a, Puna District, Island of Hawai'i. (Figures 1 and 2). The current study parcel, situated adjacent to Highway 11 (Volcano Road), appears to have been mostly mechanically altered in the past (Figure 3). The site is currently used as a solid waste transfer station (Figure 4), and the currently undeveloped portions of the study area are heavily overgrown with *waiawī* (*Psidium cattleianum*) (Figure 5).

The project area exhibits a thick soil profile that overlays Mauna Loa volcanics dating older than 10,000 years (Wolfe and Morris 1996). At an elevation of roughly 2,100 feet above sea level, average rainfall in the area measures greater than 200 inches annually. The current vegetation regime can be characterized as a mixed secondary growth forest dominated by *waiawī* (*Psidium cattleianum*), with *uluhe* (*Dicranopteris linearis*) and ginger (*Hedychium sp.*).


There have been very few archaeological studies conducted in this portion of the upper Puna District, and none have resulted significant archaeological findings. No previous archaeological research has been undertaken on this study parcel. Little is known of the prehistoric land use in this area. According to McEldowney's Early Historic Period Land Use Model (McEldowney 1979), the current study falls within Zone III- the Lower Forest Zone. While this model is largely based on early historical accounts, it also considers environmental variables and human resource needs, and offers insights into the prehistoric past (Burtchard and Moblo 1994). The Lower Forest Zone begins at roughly 1,500 feet elevation at the edge of the cleared agricultural lands and extends to about 2,500 to the lower *koa* band. Burtchard and Moblo (1994) point out that, "This zone represents the upper limit of subsistence agriculture. . . . Most human use of this zone should have been directed toward travel; task-specific collection of wood, fiber and bird products; and for scattered plantings for travel and crop-failure insurance. Structures should have been limited to temporary huts, agricultural mounds and other low-investment structures at very low overall density" (Burtchard and Moblo 1994:21).

On April 14, 2008, J. David Nelson, B.A., John R. Dudoit, B.A. under the supervision of Robert B. Rechtman, Ph.D. performed a field inspection of the project area, the limits of which were clearly identifiable in the field. The entire surface area of the property was visually inspected. No archaeological resources were observed within the project area and the likelihood of encountering subsurface resources is extremely remote. Based on these negative findings, on behalf of our client, we are requesting that DLNR-SHPD issue a written determination of "no historic properties affected" in accordance with HAR 13§13-284-5(b)1.

In the unlikely event that archaeological resources are encountered during expansion activities within the current study parcel, work in the immediate area of the discovery will be halted and DLNR-SHPD contacted as outlined in Hawai'i Administrative Rules 13§13-275-12.

Should you require further information, or wish to visit the parcel, please contact me directly.

Respectfully,



Bob Rechtman, Ph.D.
Principal Archaeologist

References Cited

Burtchard, G. and P. Moblo

1994 Archaeology in the Kīlauea East Rift Zone, Part 1: Land-Use Model and Research Design, Kapoho, Kamā'ili and Kīlauea Geothermal Subzones, Puna District, Hawai'i. Prepared for U.S. Department of Energy, Oak Ridge Operations Office, Tennessee.

McEldowney, H.

1979 *Archaeological and Historical Literature Search and Research Design, Lava Flow Control Study, Hilo, Hawai'i*. Report prepared for U.S. Army Engineer Division, Pacific Ocean, Honolulu. Department of Anthropology, B.P. Bishop Museum. Honolulu.

Wolfe, E., and J. Morris

1996 *Geologic Map of the Island of Hawai'i*. Geologic Investigations Series Map 1-2524-A. U.S. Department of the Interior, U.S. Geological Survey.

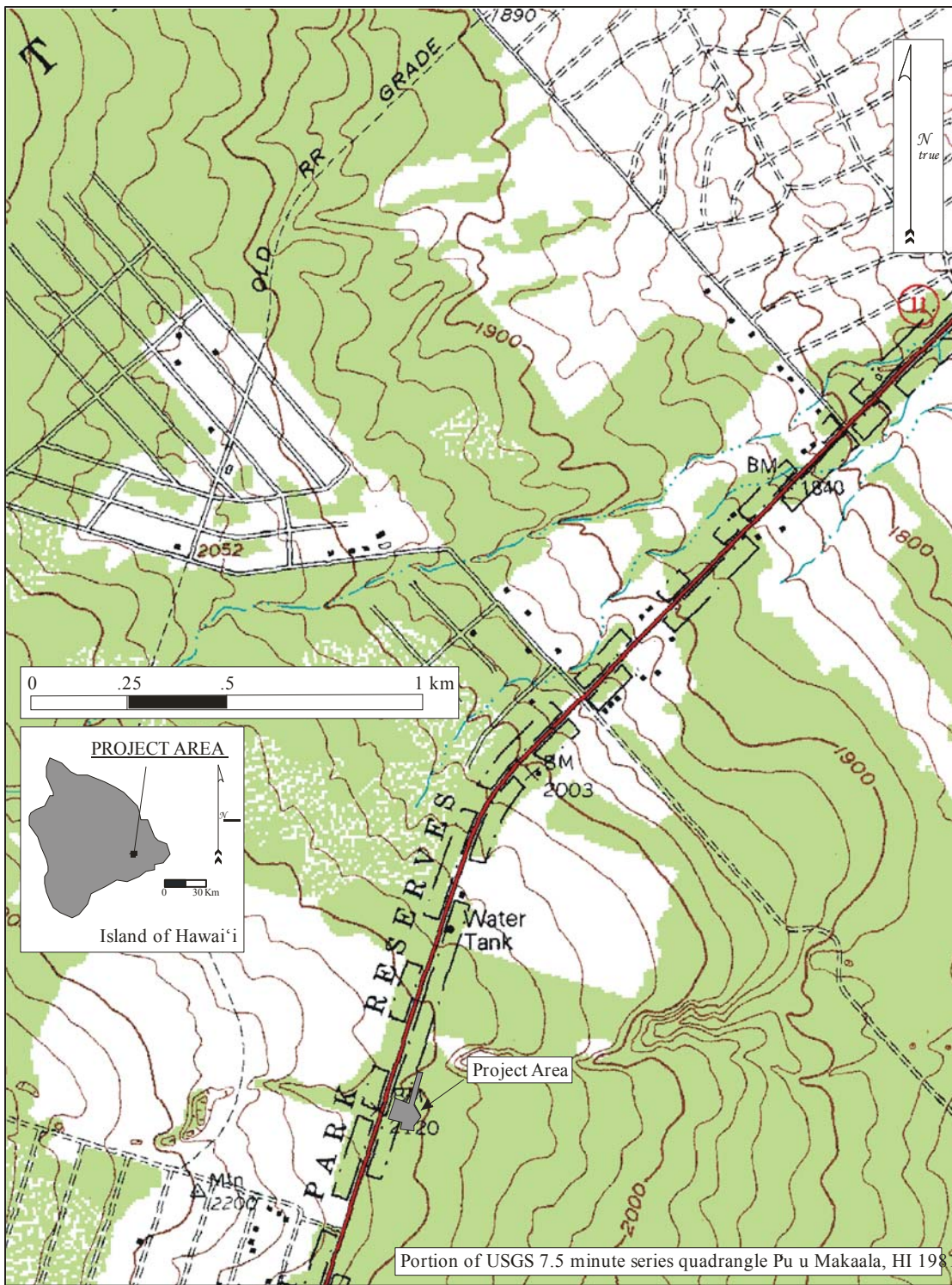


Figure 1. Project area location.

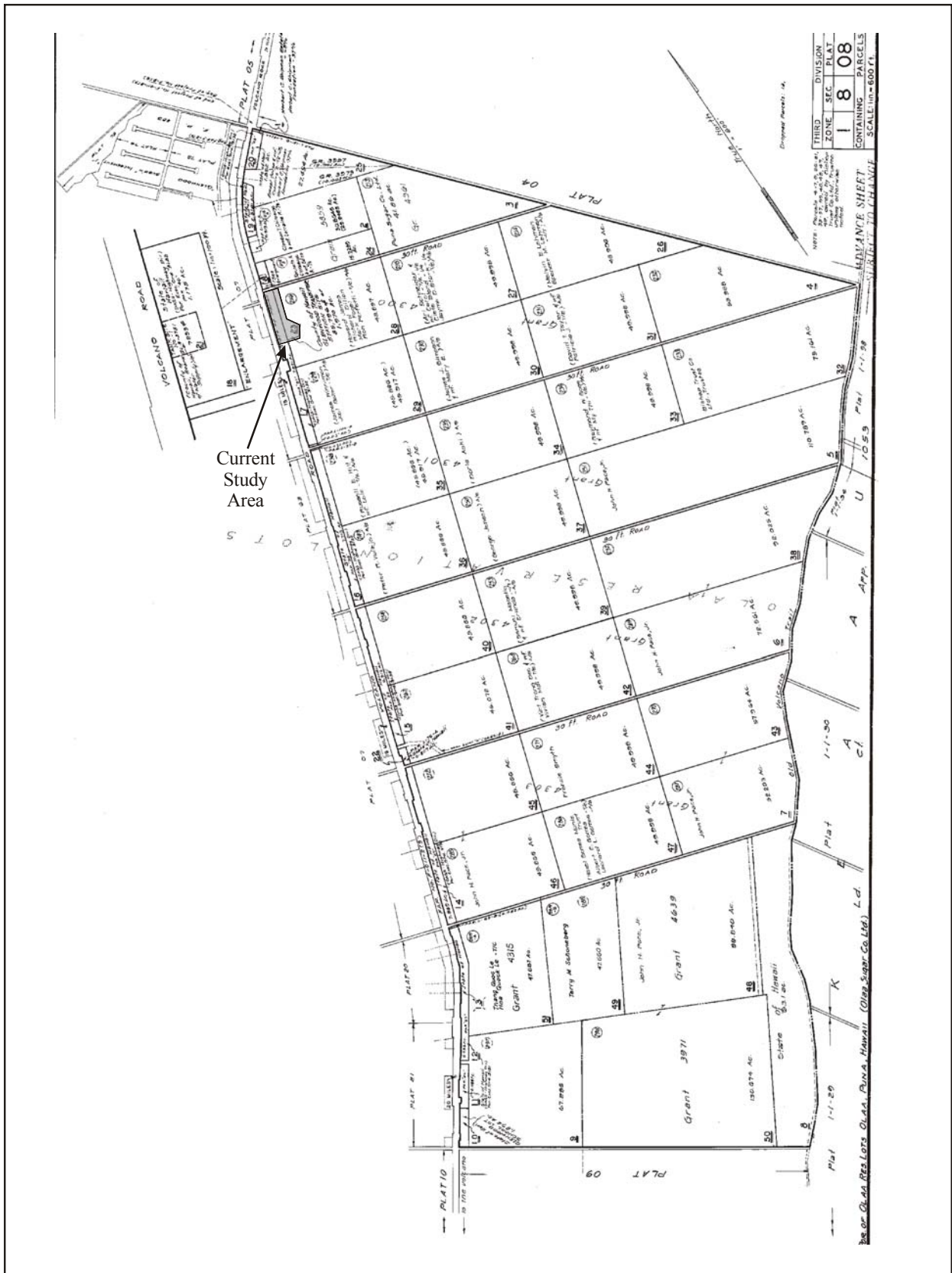


Figure 2. Tax Map Key 3-1-8-08 showing project area (Parcels 023, 017 por., 028 por.).

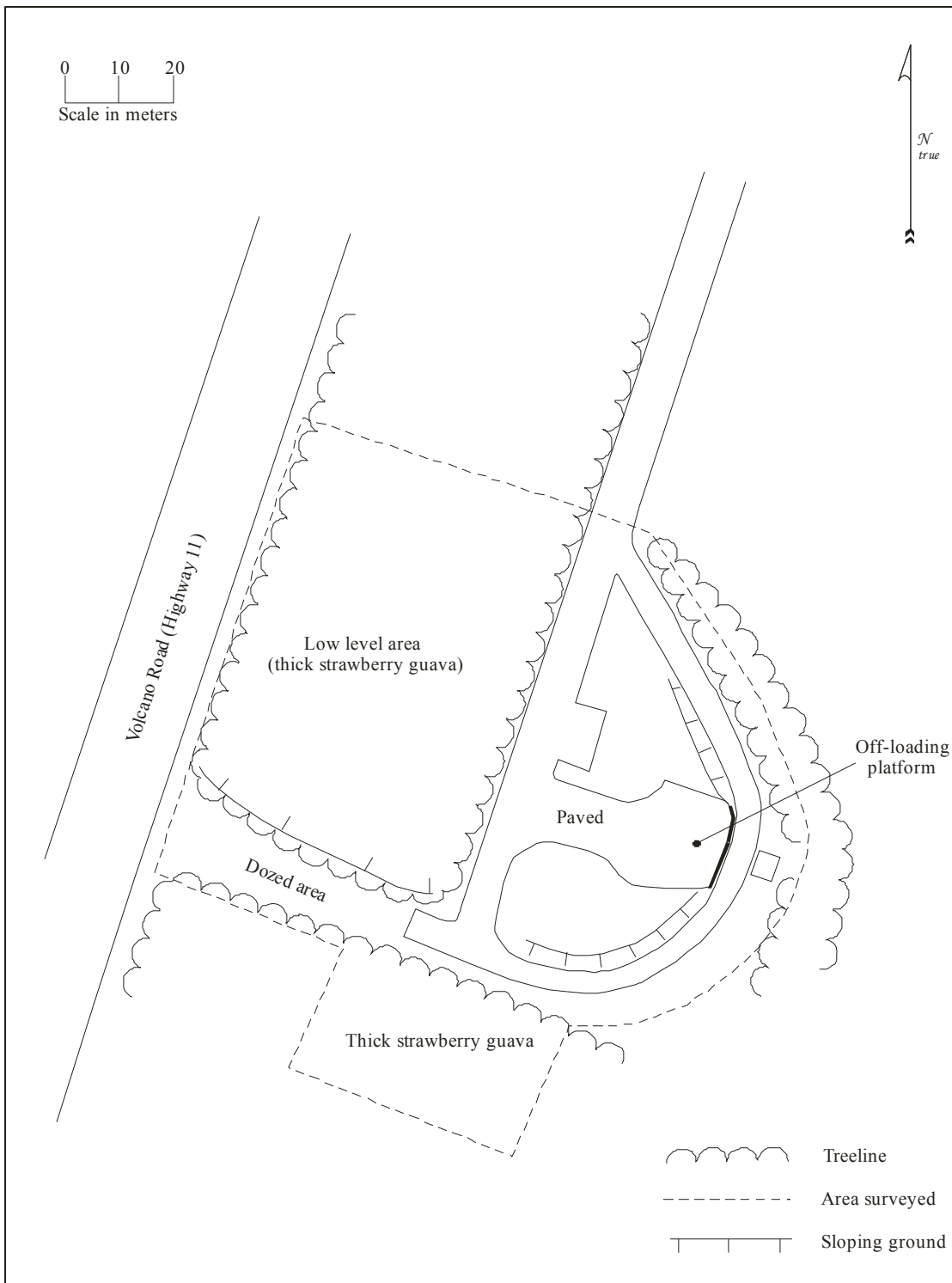


Figure 3. Glenwood Transfer Station plan view.



Figure 4. Glenwood Transfer Station, view to the east.



Figure 5. Glenwood Transfer Station undeveloped area.

RECHTMAN CONSULTING, LLC

HC 1 Box 4149 Kea'au, Hawai'i 96749-9710

phone: (808) 966-7636 fax: (808) 443-0065

e-mail: bob@rechtmanconsulting.com

ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL STUDIES

June 13, 2008

RC-0564a

Morgan Davis
Assistant Hawai'i Island Archaeologist
DLNR-SHPD
2100 Kanoiehua Avenue, Unit C-5
Hilo, HI 96720

Dear Morgan:

At the request of Ron Terry, Ph.D. of Geometrician Associates, Rechtman Consulting, LLC has prepared this request for determination of "no historic properties affected" associated with the expansion of the Pāhoa Solid Waste Transfer Station on a roughly 3.8 acre parcel (TMK:3-1-5-08:007) in Keonepoko Iki Ahupua'a, Puna District, Island of Hawai'i, situated roughly 1 kilometer from the center of Pāhoa Town (Figures 1 and 2). The current study parcel, located along the southwestern side of Apa'a Road (Figure 3), is mostly developed (Figure 4) and currently used as a solid waste transfer station (Figure 5). Only the peripheral portions of the study parcel have not been developed and remain forested (Figures 6 and 7).

The general project area consists of *pāhoehoe* flows that emanated from Kīlauea between 200 and 750 years ago (Wolfe and Morris 1996). Rainfall in the area measures 150-200 inches annually and there is very little soil development. The current vegetation regime can be characterized as a young *'ōhi'a* forest.

Archaeological studies in the Puna District generally reflect land use patterns within the district itself. Since the early 1900s, several studies have been undertaken examining the coastal areas of Puna where prehistoric (and early historic) populations tended to concentrate. Surface surveys conducted further inland are significantly fewer and relatively consistent in their failure to recognize any prehistoric archaeological features (Burtchard and Moblo 1994). The majority of archaeological sites identified in these upland areas are either historic or limited in scope to the prehistoric use of trails and lava tubes. Previous archaeological studies reflect a trend of increasing land use in upland areas including Pāhoa Town, from early prehistoric agricultural use with scattered habitation sites to later historic population increases and into modern population dominance.

Much of the archaeological research conducted in this area has concentrated on the exploration of lava tubes. Kenneth Emory of the Bishop Museum was the first archaeologist to study a lava tube in the area when he conducted an exploration of the "Shipman Cave" near Kea'au in 1945 (Emory 1945). Martha Yent identified no less than six lava tubes exhibiting signs of prehistoric use within the vicinity of Pāhoa Town (Yent 1983). These tubes acted as places of refuge, habitation, and internment. No lava tube entrances were previously noted on the study parcel.

No previous archaeological research has ever been undertaken on this study parcel. Only a very small amount of previous archaeological work has ever been conducted within the general vicinity of Pāhoa Town. Their studies, one for the Pāhoa Main Post Office (Rosendahl 1986), one covering three proposed sites for the Pāhoa Elementary School (Rosendahl 1988), and one for the proposed Pāhoa Fire Station (Rechtman 2004) revealed no significant archaeological sites. A fourth study (Federal Highway Administration 1979) identified several historic structures in and around the Pāhoa Town itself. These structures were mainly commercial business or residences dating to the first half of the 20th century when the lumber and sugar industries were thriving. A fifth study was conducted by Rechtman Consulting, LLC (Clark et al. 2001) on a parcel in the center of Pāhoa Town that once housed the timber mill. Only twentieth century resources were identified during that study.

Little is known of the prehistoric land use in this area. According to McEldowney's Early Historic Period Land Use Model (McEldowney 1979), the current study falls within Zone II- the Upland Agricultural Zone. While this model is largely based on early historical accounts, it also considers environmental variables and human resource needs, and offer insights into the prehistoric past (Burtchard and Moblo 1994). Burtchard and Moblo offer an apt summary of the Upland Agricultural Zone in their report "Archaeology in the Kilauea East Rift Zone. Part 1: Land Use Model and Research Design." They write,

The zone was characterized by scattered huts with garden plots and small groves of economically useful trees. Exploiting increased rainfall, dry-land taro and bananas may have been more extensively planted than in the Coastal Zone. Related structural features should have been limited largely to low construction investment residences, agricultural terraces and walls, and ceremonial features and burials. Features should be more widely scattered than at the coast, but still biased toward older, agriculturally productive lava flows. Trails and lava tube caves are also found in this (and other) land-use zones, their locations determined by transportation needs and presence of tube-fed *pāhoehoe* flows respectively. Residential, refuge, burial features may be quite elaborate in lava tube caves. (Burtchard and Moblo 1994:21)

The first people probably began utilizing the agricultural resources of upland Puna district during the early expansion period of Hawai'i Island, ca. A.D. 600-1100 (Burtchard and Moblo 1994). As coastal populations increased, the need for food would induce people to seek arable land at higher elevations. This trend of population increase along desirable coastal locations and the expansion into upland regions to support the coastal populations would have continued throughout prehistory, slowly populating more marginal areas of Puna District. As population density increased through A.D.1600-1700s, so would political competition. This competition would, undoubtedly, produce conflict, which would lead to political exiles and the further expansion into upland areas as these refugees sought asylum in more remote places and hidden lava tubes (Burtchard and Moblo 1994).

Then came the Europeans. Although far removed from the hubs of Hawaiian politics and economics, Puna District soon underwent the same transformations as the rest of the island. During the *Māhele* of 1848, Land Commission Awards were given in *ahupua'a* size chunks to high- ranking Puna chiefs. Many of these lands soon ended up in the hands of the sugar barons (Burtchard and Moblo 1994). From the end of the 19th century on, the sugar industry, along with the railroad and lumber industries, would play a major role in the socioeconomic development of the town of Pāhoa and Puna District as a whole.

The economic-historical story begins in 1899 when the 'Ōla'a Sugar Company began operating in the Kea'au area. The directors of the company realized early that the lack of mass transportation in the area was going to be the main hindrance to the success of their business. As a result, they organized the Hilo Railroad Company and, on April 8, 1899, were granted a 50 year charter (Best 1978).

The railroad's infrastructure developed quickly. Rail service to 'Ōla'a (Kea'au) from Hilo began on June 18, 1900. Another sugar company, the Puna Sugar Company, located near the village of Kapoho, had been organized within the Puna District on March 2 of that same year. Puna Sugar had cane fields scattered all over lower Puna from Kapoho to Pāhoa Town itself. So, when Hilo Railroad proposed to lay 4 miles of track from Kapoho to Pāhoa, the Puna Sugar Company paid for half the cost. By March 1, 1902 the Hilo Railroad was making regular stops at the 'Ōla'a Sugar Mill, the town of Pāhoa, and in lower Puna. The construction of this quick and reliable transportation system laid the tracks, so to speak, for the development of new industries within the District of Puna.

In 1906, the Hawaiian Mahogany Lumber Company requested and received permission from the Board of Agriculture and Forestry to establish a *koa* lumber venture in the Kona and Hilo Districts of Hawai'i Island. The company soon began cutting trees from both private and government lands within these districts. At this time a buyer from the Santa Fe Railroad visited Hawai'i Island to examine the forests controlled by the Hawaiian Mahogany Lumber Company. He discovered that '*ōhi'a* wood was much more suitable for railroad ties than the pine that was commonly being used. And that *koa* was excellent for the interior furnishings of passenger rail cars. On October 11, 1907 a contract was signed

between the Hawaiian Mahogany Lumber Company and the Atchison, Topeka, and Santa Fe Railroad for the delivery of 90,000,000 board feet of 'ōhi'a railroad ties to the mainland over the next five years. Subsequently, in 1908, the company erected a lumber mill in Pāhoa Town, and, in May of the same year, an agreement was made between the Hawaiian Mahogany Lumber Company and the labor-contracting firm Ariole Brothers, to cut lumber about a mile above Pāhoa and deliver it to the lumber mill. 2,500,000 'ōhi'a logs for railroad ties plus another 10,000,000 board feet of 'ōhi'a lumber for switch ties of different lengths, were to be cut from the forests within five years. This contract was one of the most important business/labor transactions completed on Hawai'i Island at that time.

Lorin A. Thurston, president of the Hawaiian Mahogany Company, was on Hawaii Island in August of 1908 dealing with the increasing business interests of the company when a reporter interviewed him for the *Hilo Tribune*. In an article dated September 1, 1908 Mr. Thurston states, "Puna is now becoming one of the liveliest places in the Territory, especially in the vicinity of Pāhoa, where the new tie mill has been erected. Several 'sky scrapers' of two stories in height have gone up there, the mill itself is the largest tie mill in the world and about 700 men are engaged there in the work of logging and milling." Puna District was rapidly transformed from a place where people looked at timber as a nuisance to be burned or given away into a thriving participant in the timber industry. In 1908 prices for Hawaiian forest lumber ranged in value from \$25-\$100 per acre.

On September 29, 1908 the *Hilo Tribune* reported that the Hawaiian Mahogany Lumber Company's offices in Hilo would soon close and that all business would, consequently be transacted in Pāhoa. Offices and residences for the staff were built in Pāhoa Town near the lumber mill. The mill itself was a large wooden structure. The main iron roofed building measured 120 feet long by 65 feet wide. It housed. Steam powered machinery, requiring 20 men to operate, which carried logs from ground level to the top floor where huge circular saws (Figure 8) cut the logs into boards six inches thick. The boards were then carried on conveyors using chains and rollers to another set of three saws that cut the boards into eight foot lengths, trimmed the ends, and dropped the finished ties into the railway trucks beneath. The mill machinery was driven by a 330 horsepower engine and a 13 ton flywheel, which, in turn, were powered by steam generated in 400 horsepower capacity boilers. When the mill was operating at optimum capacity, 2,500 'ōhi'a railroad ties were hewn each day. A network of narrow gauge railroad tracks, 3 feet wide, went from the lumber mill to the forests above Pāhoa. Three Shay geared locomotives built in 1908, 1909, and 1910 (Figure 9) were used to haul a steady procession of *koa* and 'ōhi'a logs along these tracks to the mill. Finished railroad ties traveled from the mill to Hilo harbor at a rate of eight truckloads a day. Waste timber fueled the mill furnace and was also sold for firewood in Hilo and Honolulu.

On March 24, 1909 the Hawaiian Mahogany Company became the Pāhoa Lumber Mill. James B. Castle, the former managing director of the mill, became the new owner and Col. Sam Johnson became the new managing director. The company then negotiated a contract with the Santa Fe Railway Company for the delivery 2,500,000 cross ties and 2,500 sets of switch ties. As a result, lumber processing continued uninterrupted in Pāhoa. That same year a dry-kiln was installed at the mill for seasoning the lumber. In addition to railway ties, the Pāhoa Lumber Mill began producing products such as roofing shingles, flooring, paving blocks and lumber for cars, wagons, and carriages. The mill also operated its own plant for building logging cars and repairing machinery. It maintained 10 miles of narrow gauge track, 3 (perhaps even 4) locomotives, 45 railway cars, 9 "logging donkeys," and several machines to drag logs from the forests to the railroad loading platforms. The Pāhoa Lumber Mill operated from 6 a.m. to 6 p.m. and employed 600 men at its peak, paying a reported \$12,000.00 in payroll each month. An article in "Paradise of the Pacific," July 1909 stated that a "New Pāhoa" arose around the mill essentially replacing "Old Pāhoa" town, about a mile away.

On the night of January 28, 1913 a raging fire broke out in the mill and it burned to the ground along with most of the stock of milled lumber. A front page, headline article in the *Hilo Tribune* dated February 4, 1913 describes the fire and gives a description of the mill area. The article reads:

The great mill or rather collection of mills formed the center. On the north side is a long building containing the railroad station, the store and the mill's offices. Between this building and the tie mill run the main railroad tracks where cars were loaded for export.

On both sides of the tracks were great stocks of ties waiting for shipment. Straggling houses are located all around the mill site, but the main village was northeast from the railroad station, separated from the mill by the tracks. On the east and west of the mill were great piles of lumber. Sam Johnson's house was on the east side of the mill, behind his house was a road and across was a line of dwellings and stores.

The article went on to report that flames from the burning Pāhoa Lumber Mill could be seen in Hilo, 22 miles distant. Fortunately for Pāhoa residents, the wind blew the flames and smoke to the north away from the village. In all, eight acres burned to the ground, including the mill, several hundred thousand board feet of flooring, and costly milled *koa* lumber. In spite of this disaster, J. B. Castle and Col. Sam Johnson rebuilt the mill.

By October 1913 the mill was operating again under a new name. The business, incorporated in June of 1913, was now called the Hawai'i Hardwood Company, part of the Hawaiian Development Company. By March of 1914, at the annual stockholders meeting, president J.B. Castle was reporting sales of over \$125,000.00 at a net profit of 6 percent. The new mill operation was said to be much more systematic and thorough than the previous one. Nearly all the lumber was milled or sold as firewood; little waste remained for the mill's trash fire. By this time, the mill was producing 'ōhi'a flooring and wainscoting, in addition to ties for the Santa Fe Railroad.

Hawaiian 'ōhi'a wood soon became renowned for its high quality. In 1913, the city of San Francisco paved the foot of Market Street with 'ōhi'a wood from the Pāhoa mill. So pleased were the city planners with the looks and durability of the wood that, in June of 1914 they placed a larger order with the Hawaiian Hardwood Company for enough 'ōhi'a wood blocks to surface Pier 39 at San Francisco Bay. Then, in April of 1915, the U.S. Navy placed an order with Col. Sam Johnson, managing director of the Hawaiian Hardwood Company, for 250,000 feet of 'ōhi'a lumber to be used as keel blocks for the Pearl Harbor dry dock. The United States Navy required the finest quality hardwood for these 14 by 14 inch blocks, so it was considered quite a compliment that Hawaiian 'ōhi'a was chosen.

Despite the excellent reputation of 'ōhi'a lumber from the Pāhoa mill, all was not well. The Santa Fe Railroad found that 'ōhi'a did not last as long as expected in the dry climate of the American Southwest. They did not renew their contract, and, in 1916, the Hawaiian Hardwood Company, Inc. closed their doors permanently (Burtchard and Moblo 1994). When the lumber business moved out of Pāhoa, the mill was leased to 'Ōla'a Sugar. Standard gauge railroad track replaced the old timber railroad grade tracks, and the timber producing forests were converted to sugarcane fields.

Passenger rail service in the Puna District also started to increase around this time. In 1916 the Hilo Railroad was reorganized as the Hawai'i Consolidated Railway. The railroad used Baldwin locomotives and Hall-Scott motorcars (Figure 10) with passenger trailers to haul freight and passengers. Then, in 1925 the Hawai'i Consolidated Railway ordered and received three railbusses from the White Motor Company (Figure 11). These railbusses were designed strictly for carrying passengers. They serviced Hawai'i Island's Puna and Hilo districts, and made daily stops in the town of Pāhoa. A railroad turntable at the Pāhoa station was used to turn the busses around and point them in the direction of their next stop. The railbusses became an especially popular form of transportation during World War II when mandatory gas rationing was in effect for all residents (Best 1978).

However, by 1946 rail travel, due to improved roads and trucking, was becoming less popular and, therefore, less profitable. In March of that year stockholders of Hawai'i Consolidated Railway voted to abandon all railroad operations. This decision was further reinforced on April 1, 1946 when a devastating *tsunami* destroyed Hilo Bay, including all the rail lines, a drawbridge in the bay, and part of the Waiākea freight yards. The tidal wave effectively ended all rail transport between Hilo and the Hāmākua coast. On November 20, 1946 the company shut down its remaining lines, including all Puna railroad operations, and began auctioning off all its assets. The 'Ōla'a railroad line remained in operating condition and continued to be used for hauling sugar until December of 1948. In that year the sugar industry began phasing out its operations in Puna and closed the tracks permanently. This was the end of all rail travel through the town of Pāhoa.


Given the culture-historical background, the results of previous archaeological studies in the general project area, and the existing conditions of the property, the archaeological expectations for the current study parcel are extremely limited. It is likely that if any archaeological features were ever present they have been significantly disturbed if not completely destroyed by modern land use activities. However remote, it is possible that remnant Precontact or Historic Period features may be present in the undisturbed portions of the parcel. Such Precontact features might include trails, lava tubes, and agricultural areas; historic features could be industrial infrastructure related to former railway, timber, or sugarcane operations.

On April 14, 2008, J. David Nelson, B.A., John R. Dudoit, B.A. under the supervision of Robert B. Rechtman, Ph.D. performed a field inspection of the project area, the limits of which were clearly identifiable in the field. The entire surface area of the property was visually inspected. No archaeological resources were observed within the project area and the likelihood of encountering subsurface resources is extremely remote. Based on these negative findings, on behalf of our client, we are requesting that DLNR-SHPD issue a written determination of “no historic properties affected” in accordance with HAR 13§13-284-5(b)1.

In the unlikely event that archaeological resources are encountered during expansion activities within the current study parcel, work in the immediate area of the discovery will be halted and DLNR-SHPD contacted as outlined in Hawai‘i Administrative Rules 13§13-275-12.

Should you require further information, or wish to visit the parcel, please contact me directly.

Respectfully,



Bob Rechtman, Ph.D.
Principal Archaeologist

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- 1988 Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS), Pāhoa Elementary School Sites. Puna, Hawai'i. PHRI Report 382-020988. Prepared for DAGS and Wilson Okamoto & Associates, Inc., Honolulu.

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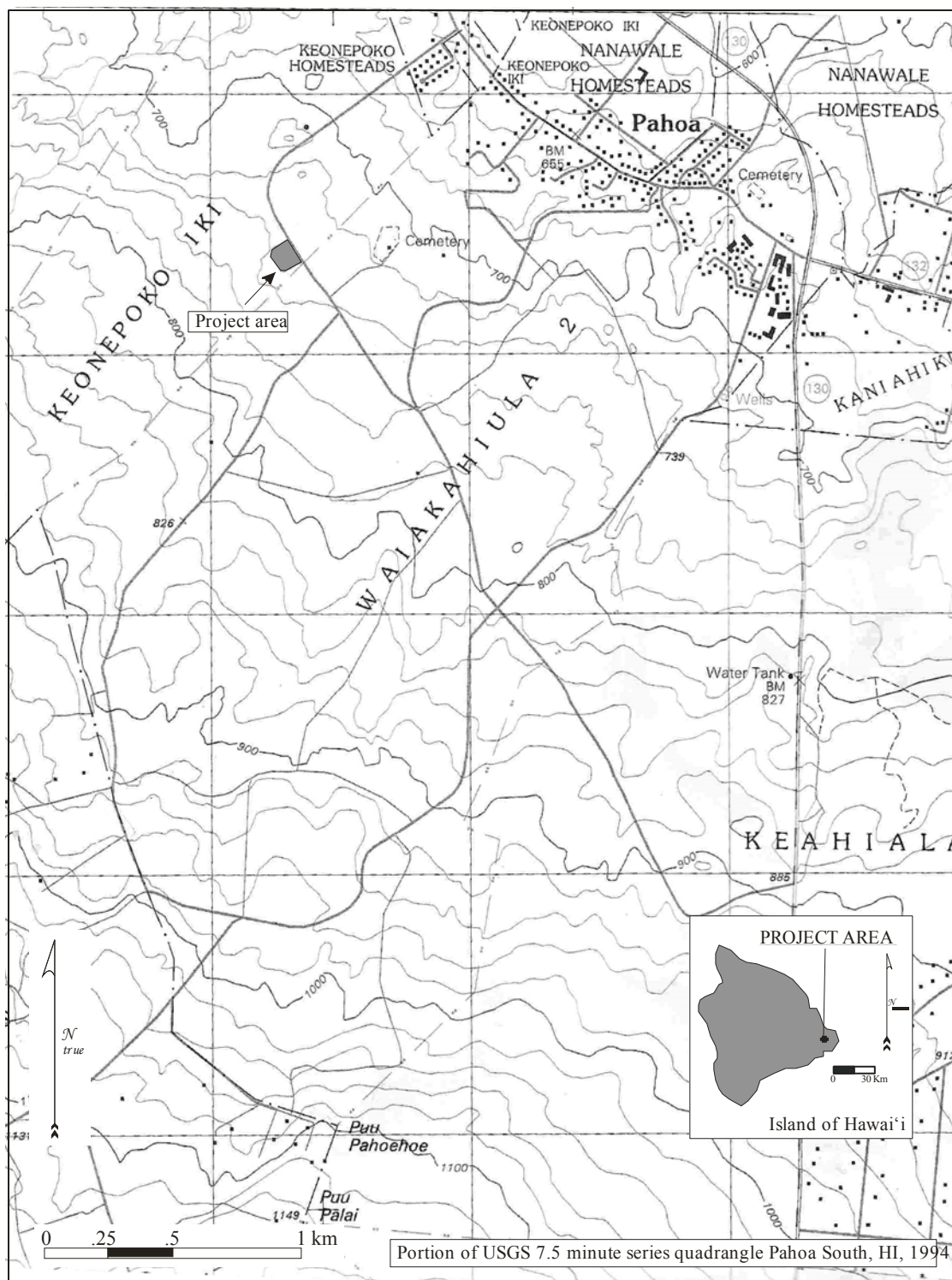


Figure 1. Project area location.

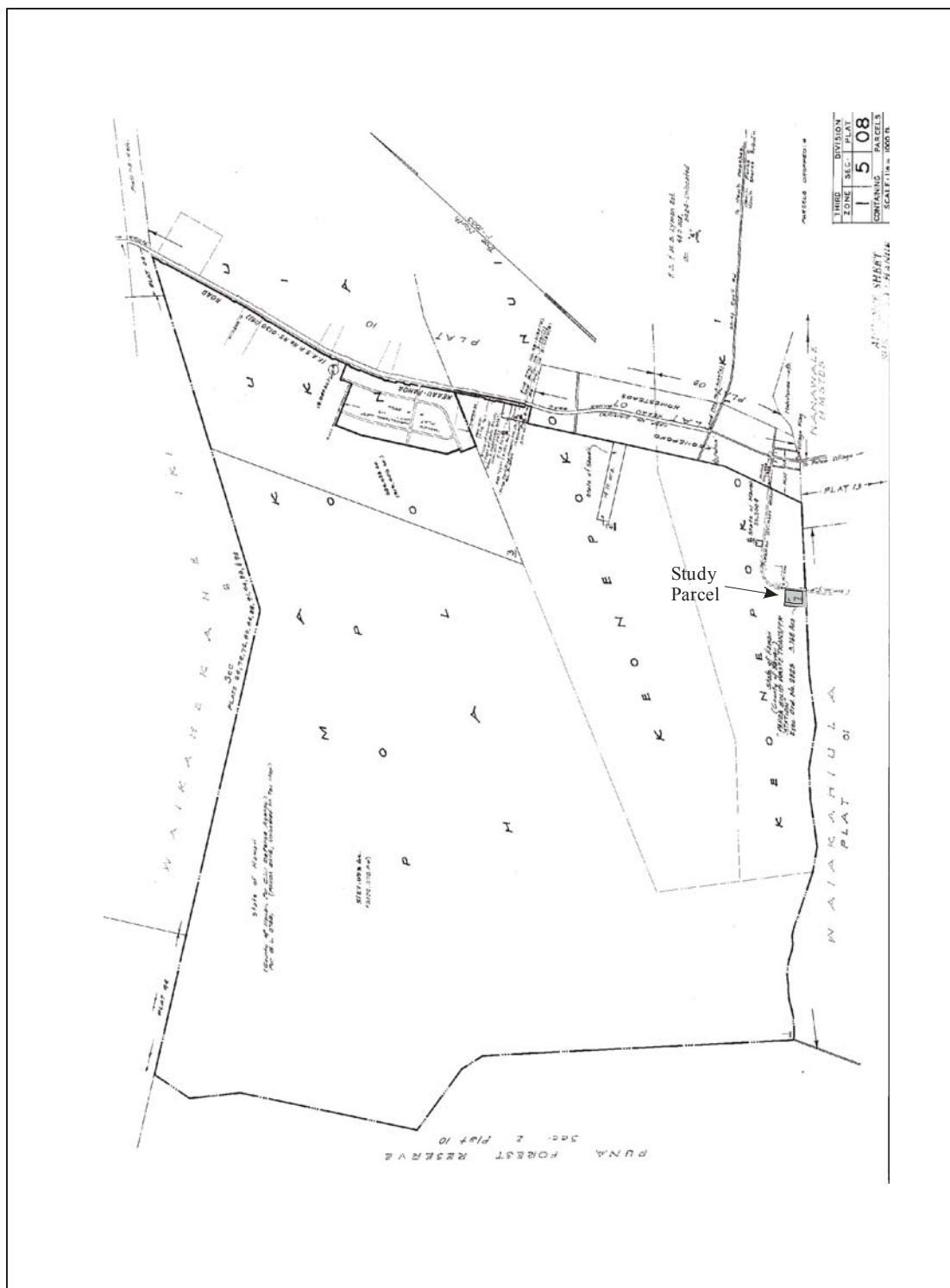


Figure 2. Tax Map Key 3-1-5-08 showing study parcel (Parcel 007).

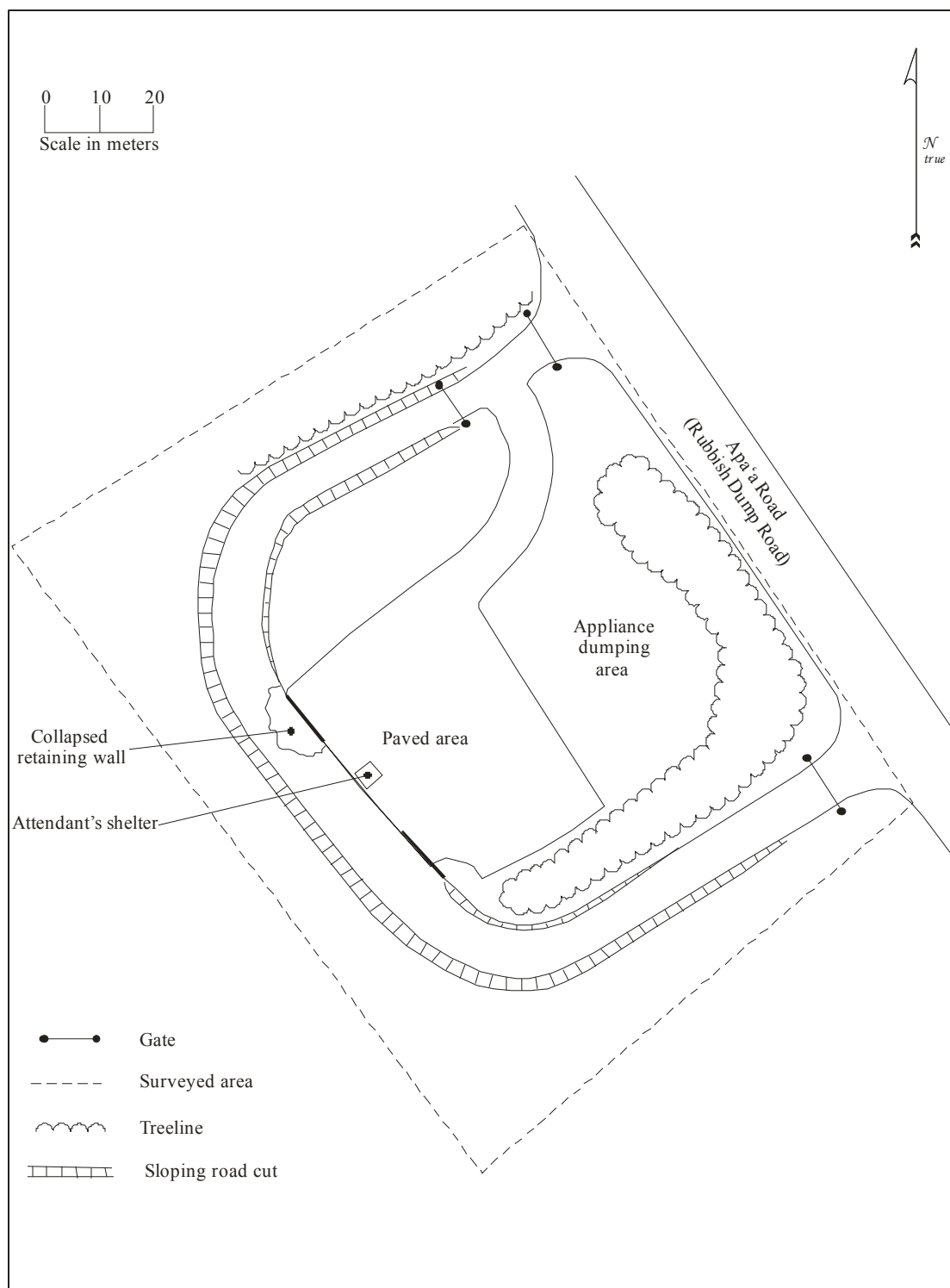


Figure 3. Pāhoa Transfer Station plan view.



Figure 4. Pāhoa Transfer Station appliance dumping area and gated entrance, view to the north.



Figure 5. Pāhoa Transfer Station asphalt paved surface, view to the northwest.



Figure 6. Undeveloped forest area along the periphery of the Pāhoia Transfer Station parcel.



Figure 7. Entrance to Pāhoia Transfer Station showing 'ōhi 'a forest and pāhoehoe lava.

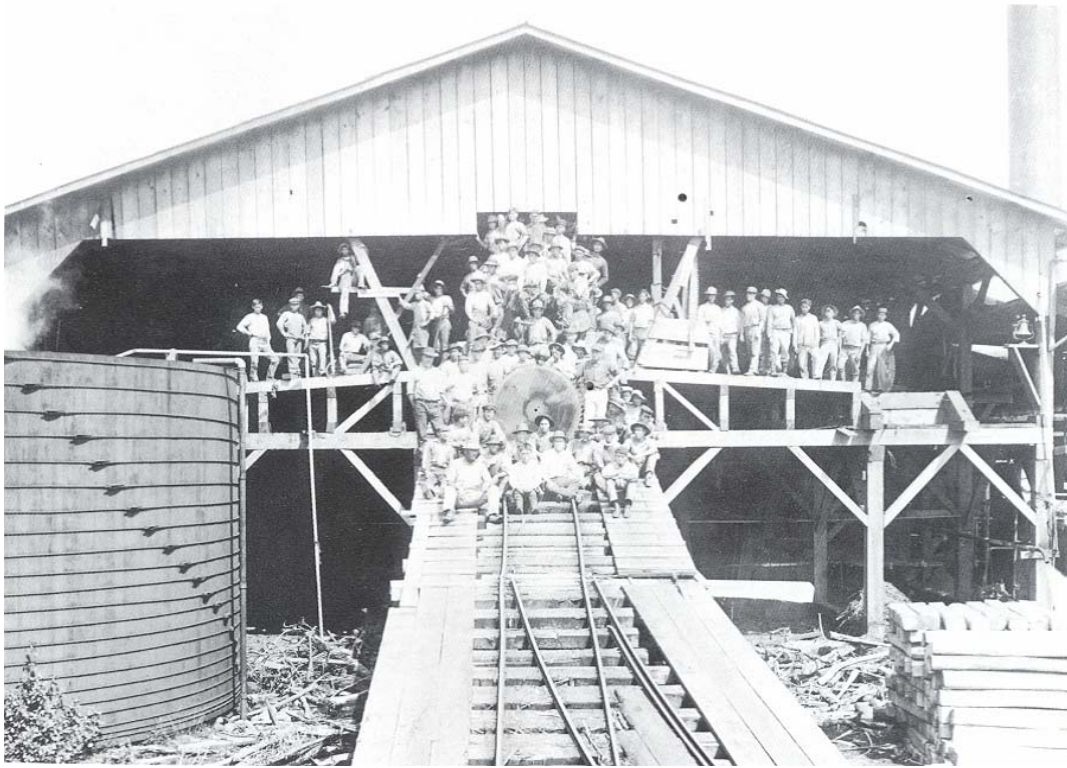


Figure 8. Timber mill in Pāhoa ca. 1910.

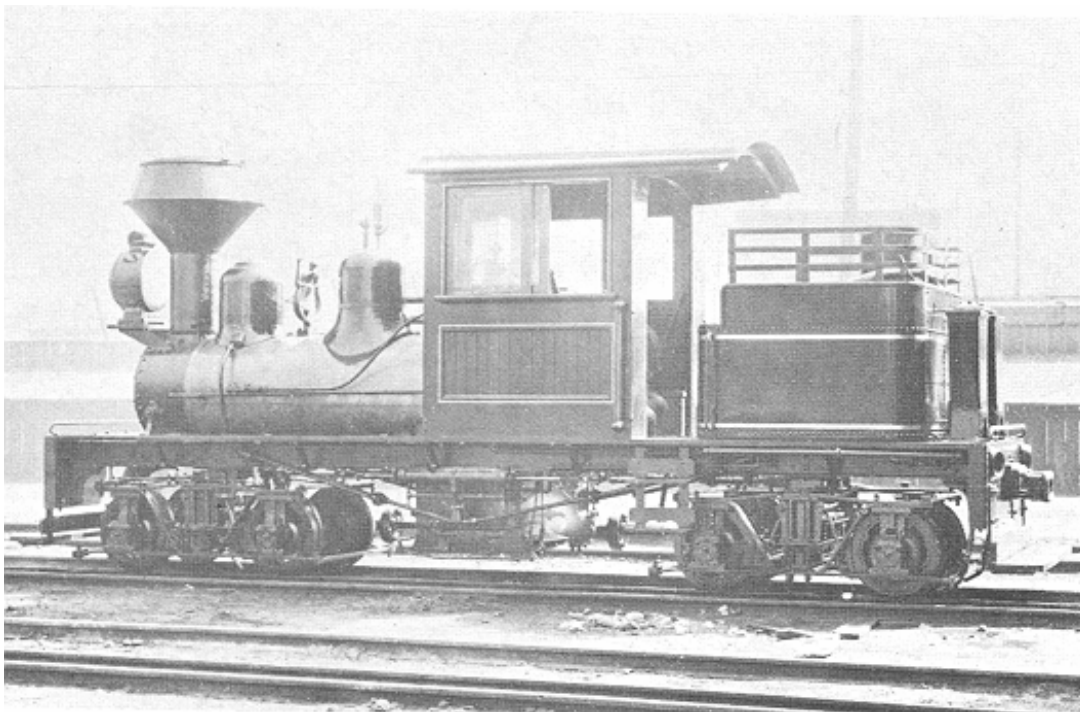


Figure 9. One of the three Shay geared locomotives built for the Hawaiian Mahogany Lumber Company (from Best 1978:130).

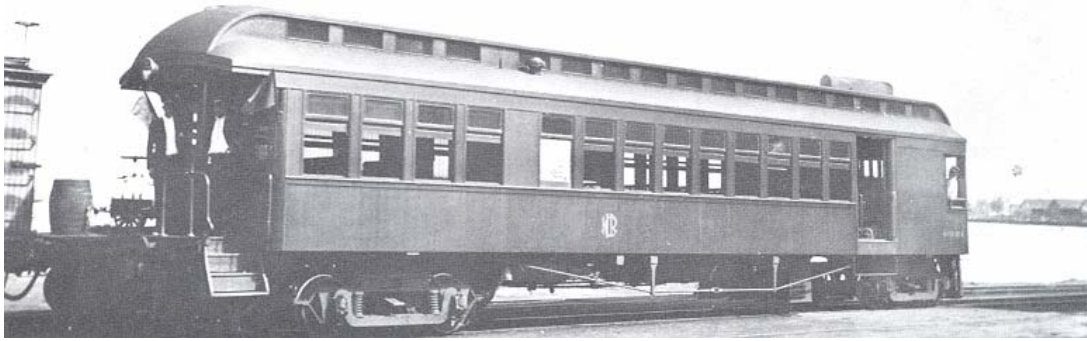


Figure 10. Hall-Scott motor car, photo dated 1925 (Best 1978:151).

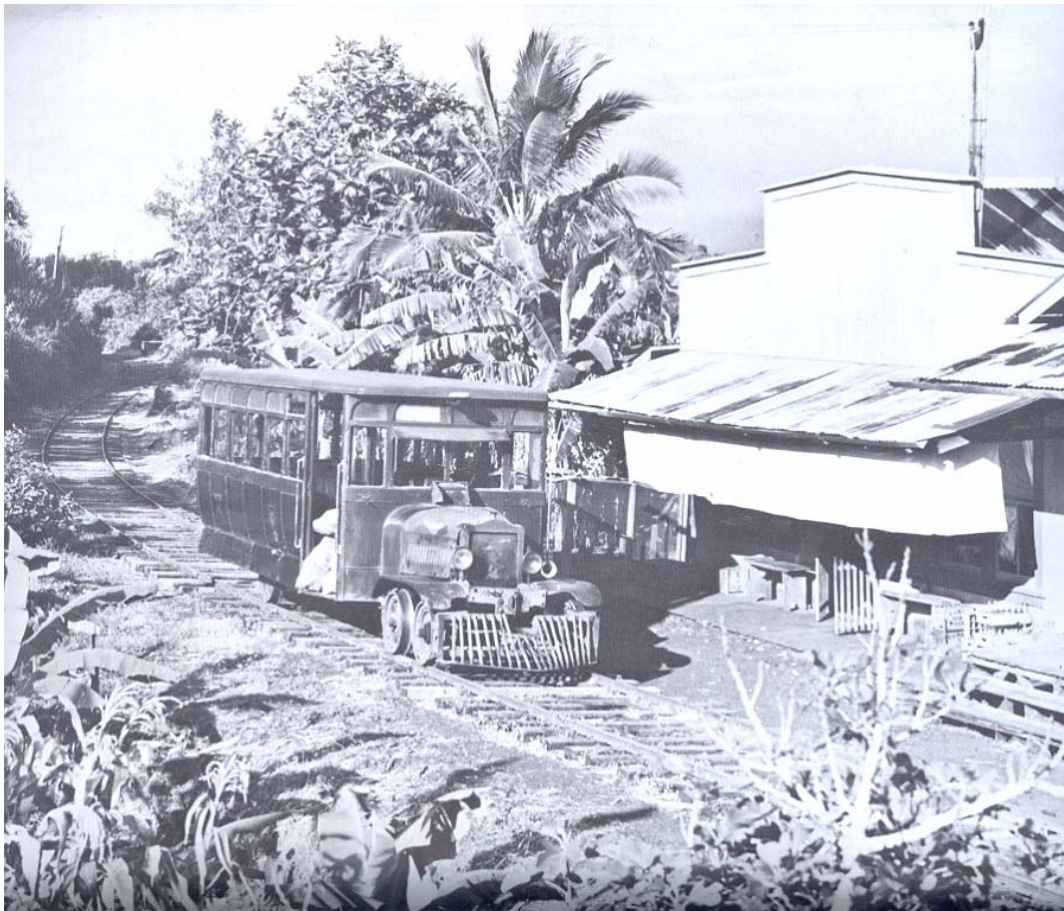


Figure 11. Railbus used on the Pāhoa line, pictured here at a station in Puna District in 1946 (Best 1978:150).

RECHTMAN CONSULTING, LLC

HC 1 Box 4149 Kea'au, Hawai'i 96749-9710

phone: (808) 966-7636 fax: (808) 443-0065

e-mail: bob@rechtmanconsulting.com

ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL STUDIES

June 13, 2008

RC-0564c

Morgan Davis
Assistant Hawai'i Island Archaeologist
DLNR-SHPD
2100 Kanoelehua Avenue, Unit C-5
Hilo, HI 96720

Dear Morgan:

At the request of Ron Terry, Ph.D. of Geometrician Associates, Rechtman Consulting, LLC has prepared this request for determination of "no historic properties affected" associated with the expansion of the Volcano Solid Waste Transfer Station in a roughly 2.4 acre project area (TMK:3-1-9-01:002, 004 por.) in Ola'a Ahupua'a, Puna District, Island of Hawai'i. (Figures 1 and 2). The current study parcel, situated adjacent to Highway 11 (Volcano Road), was historically used as a refuse dump site and quarry area prior to its current use as a transfer station (Figure 3). A substantial portion of the current study area has been previously bulldozed (Figure 4); although possible secondary growth, the northeastern corner of area is heavily vegetated with some *koa* (*Acacia koa*) and '*ōhi'a* (*Metrosideros polymorpha*) with an under story of ginger (Figure 5).

The general project area consists of *pāhoehoe* flows that emanated from Kīlauea between 200 and 750 years ago (Wolfe and Morris 1996). At an elevation of roughly 3,200 feet above sea level, average rainfall in the area measures 100-130 inches annually and there is very little soil development. The vegetation regime for the general area can be characterized as a young '*ōhi'a/koa* forest.

There have been very few archaeological studies conducted in this portion of the upper Puna District, and none have resulted significant archaeological findings. No previous archaeological research has been undertaken on this study parcel. Little is known of the prehistoric land use in this area. According to McEldowney's Early Historic Period Land Use Model (McEldowney 1979), the current study falls within Zone IV- the Rainforest Zone. While this model is largely based on early historical accounts, it also considers environmental variables and human resource needs, and offers insights into the prehistoric past (Burtchard and Moblo 1994). The Rainforest Zone extends between 2,500 feet elevation and 5,500 to the Subalpine or Montane Zone (McEldowney 1979). Burtchard and Moblo (1994) point out that, "The upper elevation rainforest extends well above the limits of all but the most marginally productive agriculture . . . Use of the upper rainforest . . . can be expected to have been limited . . . Accordingly, the density of structural remains related to prehistoric use should be comparably low" (Burtchard and Moblo 1994:21-22).

On April 14, 2008, J. David Nelson, B.A., John R. Dudoit, B.A. under the supervision of Robert B. Rechtman, Ph.D. performed a field inspection of the project area, the limits of which were clearly identifiable in the field. The entire surface area of the property was visually inspected. While it is recognized that a portion of the area was used as a refuse dump, the majority of the objects observed on the surface (Figures 6 and 7) appeared to have a mid-twentieth century temporal origin. Thus, no archaeological resources were observed within the project area and the likelihood of encountering subsurface resources is extremely remote. Based on these negative findings, on behalf of our client, we are requesting that DLNR-SHPD issue a written determination of "no historic properties affected" in accordance with HAR 13§13-284-5(b)1.

In the unlikely event that archaeological resources are encountered during expansion activities within the current study parcel, work in the immediate area of the discovery will be halted and DLNR-SHPD contacted as outlined in Hawai'i Administrative Rules 13§13-275-12.

Should you require further information, or wish to visit the parcel, please contact me directly.

Respectfully,



Bob Rechtman, Ph.D.
Principal Archaeologist

References Cited

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1994 Archaeology in the Kīlauea East Rift Zone, Part 1: Land-Use Model and Research Design, Kapoho, Kamā'ili and Kīlauea Geothermal Subzones, Puna District, Hawai'i. Prepared for U.S. Department of Energy, Oak Ridge Operations Office, Tennessee.

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Wolfe, E., and J. Morris

1996 *Geologic Map of the Island of Hawai'i*. Geologic Investigations Series Map 1-2524-A. U.S. Department of the Interior, U.S. Geological Survey.

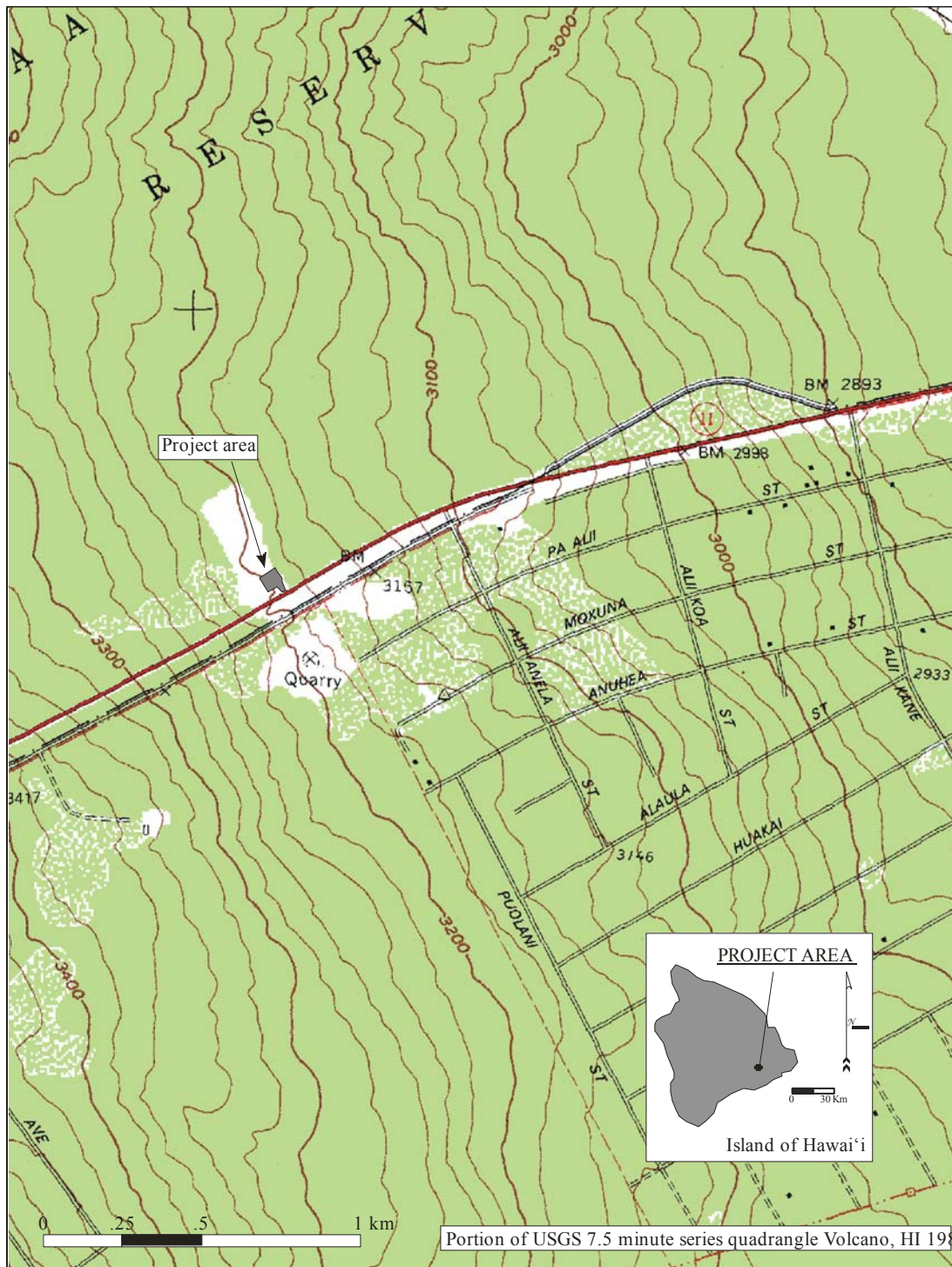


Figure 1. Project area location.

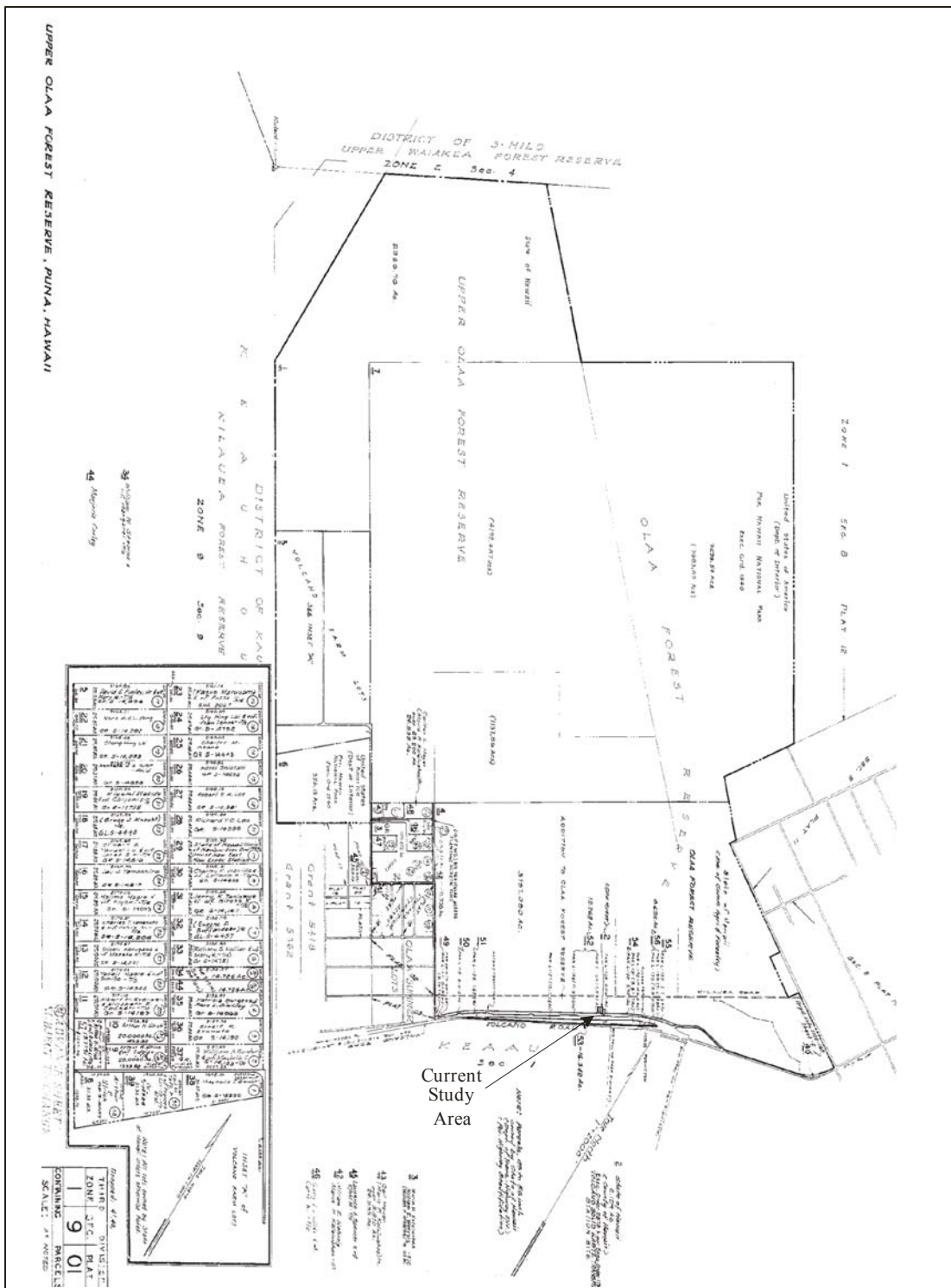


Figure 2. Tax Map Key 3-1-9-01 showing project area (Parcels 002, 004 por.).

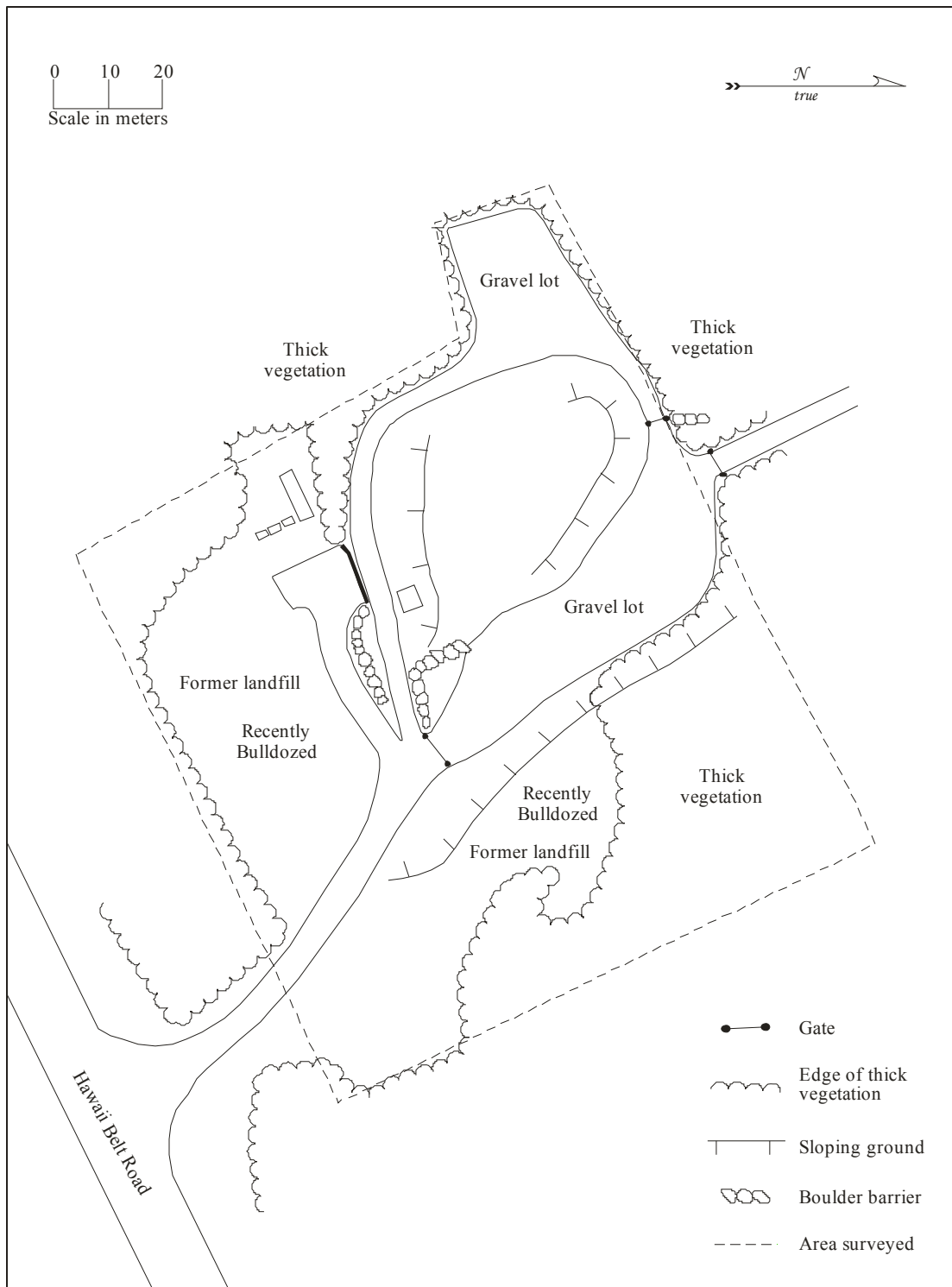


Figure 3. Volcano Transfer Station plan view.



Figure 4. Volcano Transfer Station, view to the southwest.



Figure 5. Volcano Transfer Station undeveloped area.

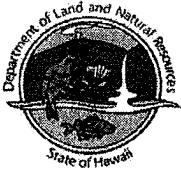


Figure 6. Surface objects from former dump area.



Figure 7. Surface objects from former dump area.

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

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CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
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CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

July 13, 2008

Robert B. Rechtman, Ph.D.
Rechtman Consulting, LLC
HC 1 Box 4149
Kea`au, HI 96749-9710

LOG NO: 2008.2147
DOC NO: 0806MD37
Archaeology

Dear Dr. Rechtman:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Request for Determination of “No Effect” for a 2.3 acre project area for the
expansion of the Glenwood Solid Waste Transfer Station
Ola`a Ahupua`a, Puna District, Island of Hawai`i
TMK: (3) 1-8-008:023, 017 por., 028 por.**

This letter reviews the report submitted to us on June 23, 2008 (*RC-0564b*) regarding an expansion of the current transfer station referenced above. Based on your site visit report, we concur that no historic properties will be affected by this project.

In the event that historic resources, including human skeletal remains, cultural materials, lava tubes, and lava blisters/bubbles are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Hawaii Island Section, needs to be contacted immediately at (808) 981-2979.

If you have any questions about this letter please contact Morgan Davis at our Hawaii Island office at (808) 981-2979.

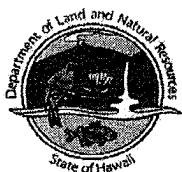
Aloha,

Handwritten signature of Nancy A. McMahon in black ink.

Digitally signed by Nancy
A. McMahon
Date: 2008.07.13 13:48:35
-10'00'

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
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LAURA H. THIELEN
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BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

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AQUATIC RESOURCES
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CONSERVATION AND COASTAL LINES
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

July 13, 2008

Robert B. Rechtman, Ph.D.
Rechtman Consulting, LLC
HC 1 Box 4149
Kea'au, HI 96749-9710

LOG NO: 2008.2146
DOC NO: 0806MD36
Archaeology

Dear Dr. Rechtman:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Request for Determination of “No Effect” for a 3.8 acre parcel for the expansion of
the Pahoia Solid Waste Transfer Station
Keonepoko Iki Ahupua`a, Puna District, Island of Hawai`i
TMK: (3) 1-5-008:007**

This letter reviews the report submitted to us on June 23, 2008 (*RC-0564a*) regarding an expansion of the current transfer station referenced above. Based on your site visit report, we concur that no historic properties will be affected by this project.

In the event that historic resources, including human skeletal remains, cultural materials, lava tubes, and lava blisters/bubbles are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Hawaii Island Section, needs to be contacted immediately at (808) 981-2979.

If you have any questions about this letter please contact Morgan Davis at our Hawaii Island office at (808) 981-2979.

Aloha,

A handwritten signature in black ink that reads "Nancy A. McMahon".

Digitally signed by Nancy A.
McMahon
Date: 2008.07.13 13:47:34
-10'00'

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
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Laura H. Thielen
CHAIRPERSON
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COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

July 13, 2008

Robert B. Rechtman, Ph.D.
Rechtman Consulting, LLC
HC 1 Box 4149
Kea`au, HI 96749-9710

LOG NO: 2008.2148
DOC NO: 0806MD35
Archaeology

Dear Dr. Rechtman:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Request for Determination of “No Effect” for 2.4 acres for the Expansion of the
Volcano Solid Waste Transfer Station
Ola`a Ahupua`a, Puna District, Island of Hawai`i
TMK: (3) 1-9-001:002, 004 (por.)**

This letter reviews the report submitted to us on June 23, 2008 (RC-0564c) regarding an expansion of the current transfer station referenced above. Based on your site visit report, we concur that no historic properties will be affected by this project.

In the event that historic resources, including human skeletal remains, cultural materials, lava tubes, and lava blisters/bubbles are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Hawaii Island Section, needs to be contacted immediately at (808) 981-2979.

If you have any questions about this letter please contact Morgan Davis at our Hawaii Island office at (808) 981-2979.

Aloha,

Handwritten signature of Nancy A. McMahon.

Digitally signed by Nancy A.
McMahon
Date: 2008.07.13 13:46:33 -10'00'

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager

ENVIRONMENTAL ASSESSMENT

**GLENWOOD, PAHOA AND VOLCANO
CONVENIENCE CENTER IMPROVEMENTS**

County of Hawai‘i
Department of Environmental Management
Solid Waste Division

APPENDIX 4
Public Meeting Notes and Survey Results Summary

**County of Hawai'i
Transfer Station Replacement Project
Pahoa Public Input Meeting**

Tuesday, December 4 at 6:00 pm

Meeting Attendance by Design Team:

Terin Gloor, County of Hawai'i
Linda Peters, County of Hawai'i
Ron Terry, Geometrician Associates, LLC
Karl Hufnagel, RW Beck, Inc.(RWB)
Mary Shanks, RWB

Meeting Sign In Sheet Information:

Gwen Kupahu, GKupahu@co.hawaii.hi.us
Leimana Pleton
Rene Siracusa, POB 1520 Pāhoa, malamaopuna@yahoo.com
Glorious and Murice Schreiber
David Shaw and Nancy Kramer, Kramernshaw@hawaiiintel.net
Jackie Prell, jacqueprell@hotmail.com
Heather Gleason, PO Box 1714, Hilo, HI 96721, hgleason@haiaii.edu
Jason Winnett, Kalapana

Copy of sign in sheet is attached.

Questions and/or Comments and Answers

Question: Is there a need to acquire more land?

Answer (Terin): No, the existing property size is adequate to fit the site improvements. However, John Olson indicated the CDP has identified a possible other location for a transfer station.

Question: Moving for highway access?

Answer (Terin): No, the current plan is to keep the recycling station at the current transfer station location.

Comment: Green waste is an illegal dumping issue. He suggested a small chipper at stations rather than just in Hilo. He suggested demonstrating mulch use with site landscaping.

Answer (Terin): Discussed upcoming composting RFP.

Comment: Agreed with comment to have small chipper at stations rather than just in Hilo because of coqui spreading.

Comment: Spread of invasive species is a problem and green waste composting could help. Fire ants and coqui can be controlled by the heat composting piles.

Question: Landscaping is nice, but expensive. Has the County considered having local volunteers complete the landscaping?

Answer (Terin): No, but that is a good way to promote the public ownership the County is trying to promote.

Question: Could an area be set aside for a community garden?

Answer (Terin): The County will not consider a community garden at this location but will consider the idea for the composting RFP.

Comment: Additional education for recycling is needed.

Answer (Terin and Linda): Introduced Linda Peters and she discussed education programs in place. The County wants to provide more information at the new stations.

Question: Will new stations have expanded recyclables collection?

Answer (Karl and Linda): Yes, plus maybe E-waste and other household hazardous waste. The first ever Pahoehoe household hazardous waste collection event will be on March 1.

Question: Would it be possible to have household hazardous waste collection by appointment?

Answer (Linda): Yes, however an appointment system is not currently being considered.

Comment: Household hazardous waste collection should be a priority to protect the environment. Storing the materials until they can be collected is better than dumping.

Answer (Terin): The household hazardous waste collection area may start out small and scale up if warranted.

Question: Agreed with the idea to have household hazardous waste collection by appointment.

Will construction waste materials be accepted for recycling or reuse?

Answer (Terin): That has not yet been determined. The County would like to address construction waste because it is 18-19% of the waste stream, according to the 2000 waste composition study.

Question: Will tires be accepted?

Answer (Karl and Terin): Accepting tires has not been considered by design team. Currently, tires are banned in the landfill. Tires collected by others are baled, shipped to Honolulu, shredded, and burned for electricity generation.

Question: Will mattresses and furniture be accepted?

Answer (Karl and Terin): The County code currently says nothing larger than 4 by 4 by 4-feet can be disposed of in chutes. Larger materials can jam in chutes and possibly damage the existing trailers. The new trailers and chutes will not have the same size restrictions. It is possible that the code will be changed for the new stations.

Question: Is the fencing all around the perimeter?

Answer (Karl): Yes.

Question: Is the fencing an expensive item?

Answer (Karl and Terin): The cost of the fencing is very small compared to the expensive of the concrete retaining walls and finger piers and the buildings. The County wants the sites secured to protect photovoltaic panels and buildings and to avoid vandalism in general.

Question: Could plastic shopping bags be collected since it would be more convenient to be able to recycle everything at one location?

Answer (Terin and Linda): Wal-Mart and Safeway currently collect the bags and send them to the mainland. The County can look into plastic bag collection.

Question: Could plastic shopping bags be banned?

Answer (Linda): Rather than ban the plastic shopping bags the County is working on

alternatives, such as encouraging stores to give a discount to customers for using their own cloth bags.

Question: Could the operating hours be extended since that might help with illegal dumping issues?

Answer (Terin): The County is currently considering shortening hours during winter months.

Question: Could the operating hours be shifted, so that some days the stations open and close earlier and on other days open and close later?

Answer (Terin): Variable hours may lead to confusion as to when the station will be open.

Question: Could the station be open early on the weekdays and late on the weekends?

Comment: One week night the station should be open late.

Answer (Terin): How late?

Comment: 8 pm.

Answer (Terin): The County will have difficulty staffing the stations for extended hours because the union workers have a four 10-hour work week schedule. Also, staff check in at a base office before going out to stations.

Question: Could the County put dumpsters in various locations to try and minimize illegal dumping?

Answer (Terin): The approach the County is taking is to make the stations convenient so that people use them rather than illegally dump materials.

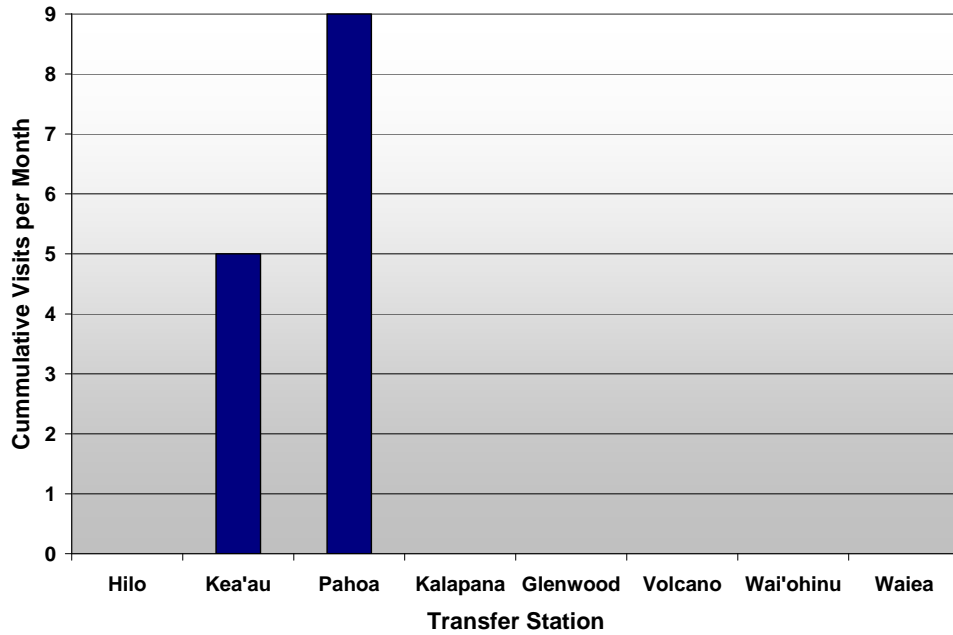
Question: Could the County write tickets to people who illegally dump?

Answer (Terin and Ron): Because of priorities, the police writing tickets for illegal dumping is not likely. The County needs a solution to illegal dumping that does not rely on police enforcement.

Comment Cards

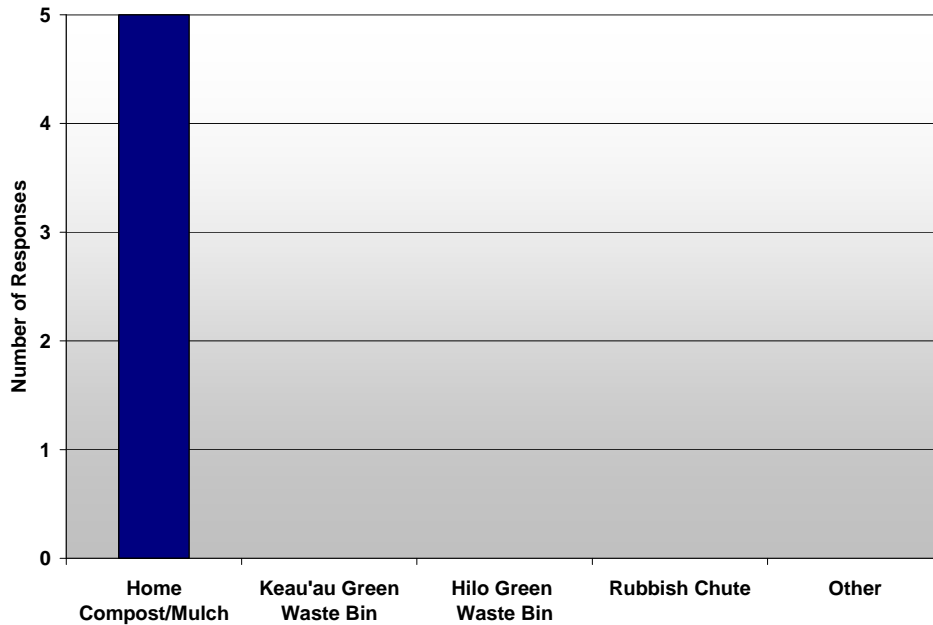
- Five comment cards were returned at the end of the meeting. Copies are attached.
- The respondents indicated five different living areas.

- Which Transfer Station do you use? Approximate number of times per month you use the transfer station?



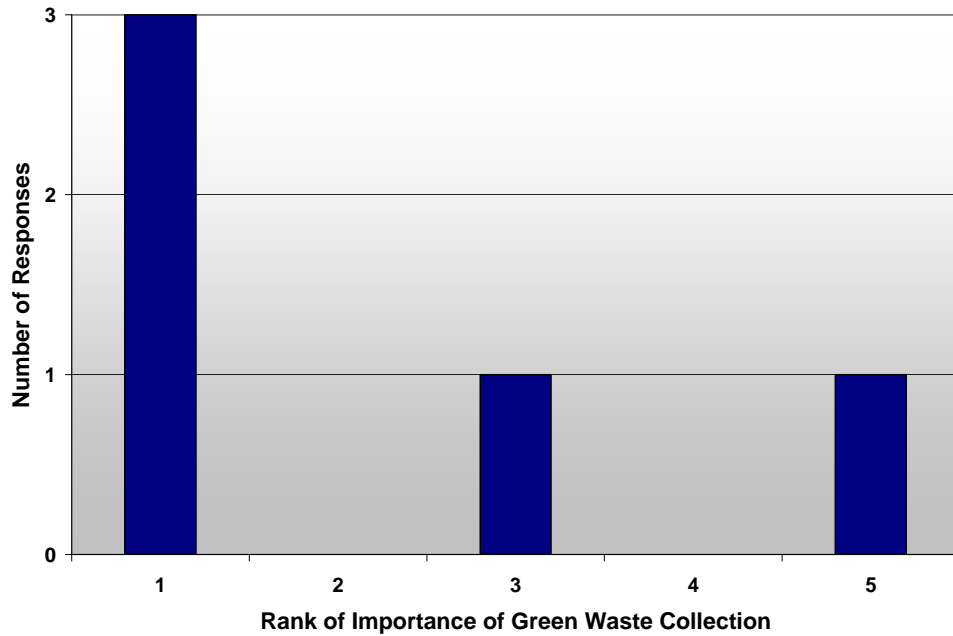
Two respondents indicated the number of times per month they visited each transfer stations. Three respondents indicated that they either the Kea'au, Pahoa or Kalapana Transfer Station, but did not indicate the number of visits per month.

- What do you currently do with your green waste?



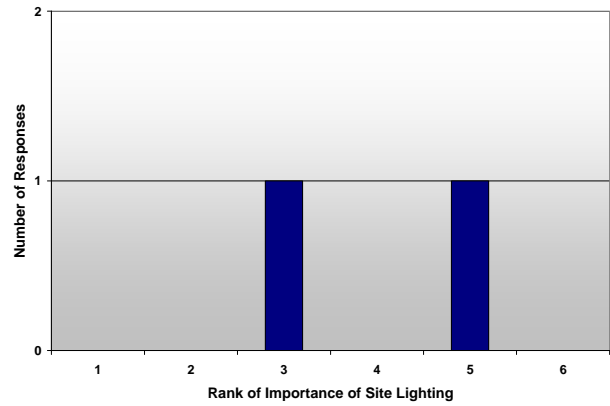
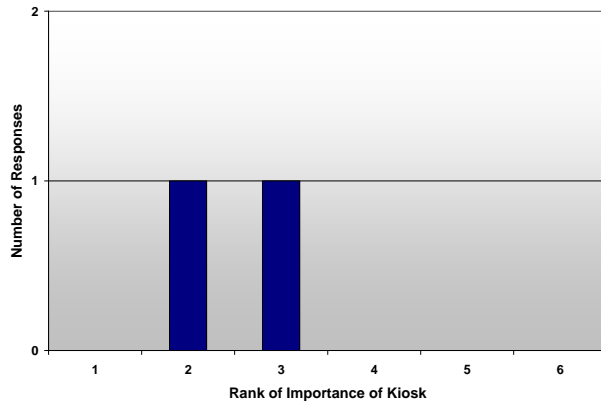
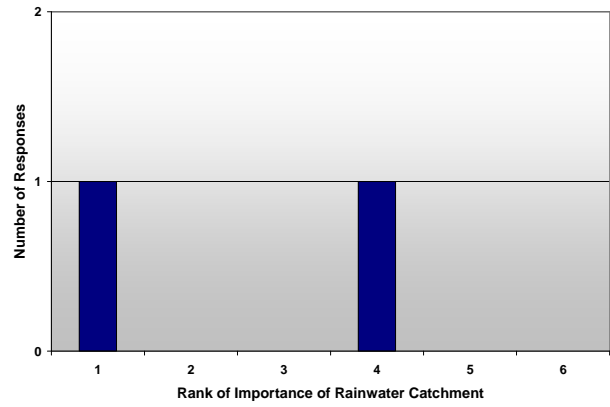
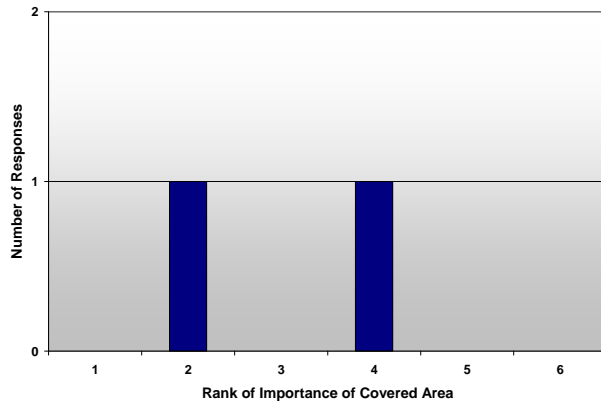
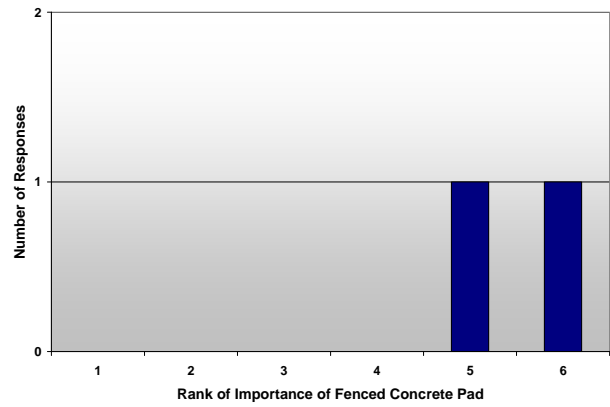
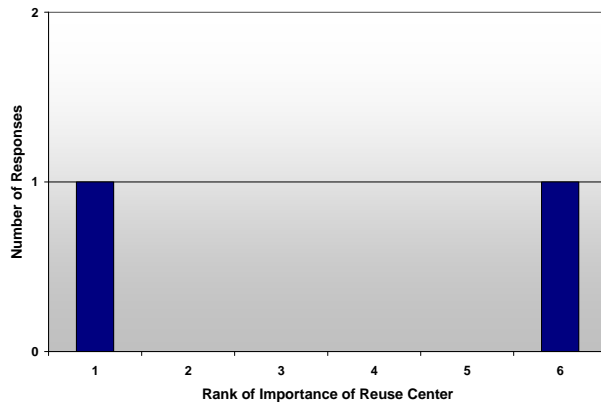
All five respondents indicated they currently dispose of green waste via Home Compost/Mulch Pile.

- On a scale of 1 to 5 (1 being most important) how important is green waste collection at this station?

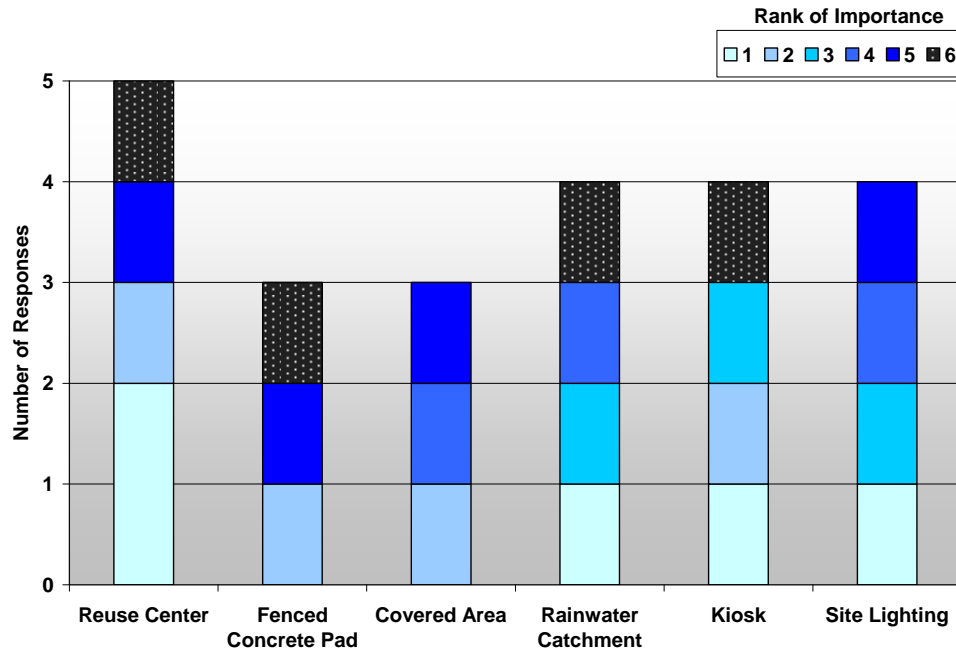


All five respondents answered this question. One respondent added the following note: “it will also (s)low spread of coqui’ by people dumping elsewhere”.

- Rank the Optional Elements on a scale of 1 to 6 (1 being most important)



Two of the five respondents ranked all of the Optional Elements from 1 through 6.



Three of the five respondents ranked the Optional Elements, but gave more than one option the same ranking or did not rank all of the options. The data in the above graph represents all the answers provided to this question.

One respondent added an option of (household) haz(ardous) waste and ranked it as being most important.

- The following comments were provided in response to how we could encourage recycling or make recycling easier:

- Keep open longer hours (till 8 or 9 pm) Tires?
- Raise and expand deposits
- I recycle my recyclables
- Providing brochures w/ information about different usage of waste material.
- Accept carbd milk cartons; separate “clean newspaper” collection point for flower growers & packing; “donations” site for HI5 items.

- The following comments or statements were provided by four respondents:

- Mattresses, box springs, sofas & recliners need a legal disposal site that is convenient. Construction materials re-use.
- Pay more for recyclable materials, esp wood fibre products, paper, and cardboard
- I don’t want to see the incinerator built for environmental & other reasons. The green waste is a very valuable resource for mulch for farmers.
- Will be very pleased to be able to use the Pahoia facility after improvement. Currently we use Kea’au almost exclusively due to much better facilities.

County of Hawai'i
Transfer Station Replacement Project
Volcano Public Input Meeting

Thursday, December 6 at 6:00 pm

Meeting Attendance by Design Team:

Terin Gloor, County of Hawai'i
Linda Peters, County of Hawai'i
Nelson Ho, County of Hawai'i
Karl Hufnagel, RW Beck, Inc.(RWB)
Mary Shanks, RWB

Meeting Sign In Sheet Information:

Copy of sign in sheet is attached.

Questions and/or Comments and Answers

Question: Is the amount of property the same for both stations?

Answer (Terin): Close, however the amount of usable property at the Glenwood site is less because the property amount includes the access road.

Question: Does the Volcano station have enough property?

Answer (Terin): Yes, however the layout uses all available property.

Question: Is the station big enough to handle future population growth?

Answer (Terin): Yes, the station is designed for twenty years of growth. The station should be able to handle about twice the users as it does now.

Question: Will there be green waste processing here?

Answer (Terin): There is not room for green waste processing with the current conceptual layout. The County is working on a RFP for processing green waste by a contractor.

Comment (Bob Jacobson): Since this area expects growth, if additional property is needed, consider acquiring it now.

Comment: The site was used as a dump so if you want to expand, it is a good idea since this department is better able to handle the garbage.

Question: What is the County doing about frogs, ants and other invasive species?

Answer (Terin): The County is considering a program to decontamination of trailers. It is important to the County that it is not responsible for the spread of invasive species.

Comment (Bob Jacobson): The County wants to monitor equipment.

Comment: Washing is not enough, heat and pressure washing are required which can be expensive.

Comment (Kim Tavares): The best piece of land to acquire for expansion is next to the highway.

Answer (Terin): That property will be difficult to use because it is designated as a beautification strip.

Question: Will the changes to the Volcano station have any environmental impacts to the forest area?

Answer (Terin): We are meeting in the morning to discuss the Environmental Assessment. We

anticipate a Determination of Non-Significance and if so, then a full Environmental Impact Statement will not be required. If it is, construction may be delayed.

Question: Will the station accept construction and demolition waste?

Answer (Terin): Construction and demolition waste are currently not allowed at the stations and the County staff are discussing options. The County plans to address the issue under the new solid waste management plan. Construction and demolition waste accounts for almost 20% of the waste stream. Contractors are required to submit a waste handling plan as part of the permit process.

Comment: The community is growing and has a lot of remodeling and new construction. He gets calls from residents that say construction and demolition waste is going into the chute at Volcano.

Answer (Terin): While the County does not want that type of waste in the station trailers, even more so, they do not want it dumped illegally. Attendants at stations may be able to stop that type of waste from going into the chutes.

Question: What about a levy on building permits to pay for construction and demolition waste disposal?

Answer (Terin): Good suggestion. It is a problem for the County that needs to be addressed. It is possible that the County will consider construction and demolition waste disposal at either Glenwood or Volcano and appliance disposal at the other.

Comment: New tires have a disposal fee therefore it would not be unheard of to add a fee to building permits.

Question: Will there be household hazardous waste disposal?

Answer (Terin): The County is discussing it, but there may not be room. There are plans for it to be included at the Pahoa Recycling Station. What exact materials that will be collected is under discussion, but may include batteries, light bulbs, but not any liquids.

Question (Terin): Is that station convenient enough?

Response was generally negative.

Question (Terin): Is Kea'au a better location?

Response was generally that was a better station.

Question: Since household hazardous waste will not be collected here, could there be a mobile truck to pick up those materials?

Comment: That would be difficult because can not haul certain materials together.

Answer (Terin): It is possible that the County could work out a schedule for truck that travels from station to station picking up some materials.

Response was generally positive.

Comment: The events are Ok, but it is hard to make the scheduled day.

Answer (Terin): The County is considering collecting some materials during special events and others such as batteries and bulbs at select stations.

Question about Volcano layout: Could the roadway be changed to that there is a one way circular pattern at the disposal chutes?

Answer (Karl): Good suggestion. Yes, the exit road could be on the other side of the building.

Question about Volcano layout: Is it possible to have one larger loop rather than one for garbage and green waste disposal and a second loop for recyclables?

Answer (Karl): The available property was used to accommodate a compact site.

Question about Volcano layout: Will you look at other layouts provided to County?

Answer (Karl): Yes, we will accept other ideas.

Comment: If you have to shut a station down during construction, “start high” and close Volcano first so that people can still throw out garbage on the way to work.

Question: What happens to the recyclables collected by the County?

Answer (Terin): Glass is crushed. Mixed recyclables are baled and barged to Oregon. The County has got a higher diversion rate with the mixed recyclables but it does cost more to dispose of the mixed.

Question: Will the County consider handling the recyclables on island?

Answer (Terin): The County needs an industry on island to use the collected materials. The County is hopeful that it will happen one day.

Question: What is the recyclables contamination rate?

Answer (Linda): Low.

Question: What about commercial recyclables?

Answer (Linda and Terin): More education is needed. Some businesses want to do more, but have signed contracts that do not allow garbage and recyclables separation. The County is considering allowing commercial businesses to drop recyclables at the stations. The County is also discussing a ban on cardboard in refuse and requiring haulers to have recycling goals. The County also wants to work with other government branches such as schools and parks to increase recycling efforts.

Question: What about signs at the chutes to say no recyclables can be disposed of and point to the recycling area?

Answer (Karl, Linda and Terin): The County can not put up a sign like that unless the materials are banned. However, signs that ask people to recycle are acceptable. The station designs are trying to make it convenient to recycle so that more people participate in recycling.

Question: Because this is a County facility, can a recycling container be placed here?

Answer (Linda): Technically the centers are run by the Parks Department so agreement is needed to put one at the facility.

Question: How are you planning to get people to follow the signs?

Answer (Karl): The signs will include pictures to make them easy to follow.

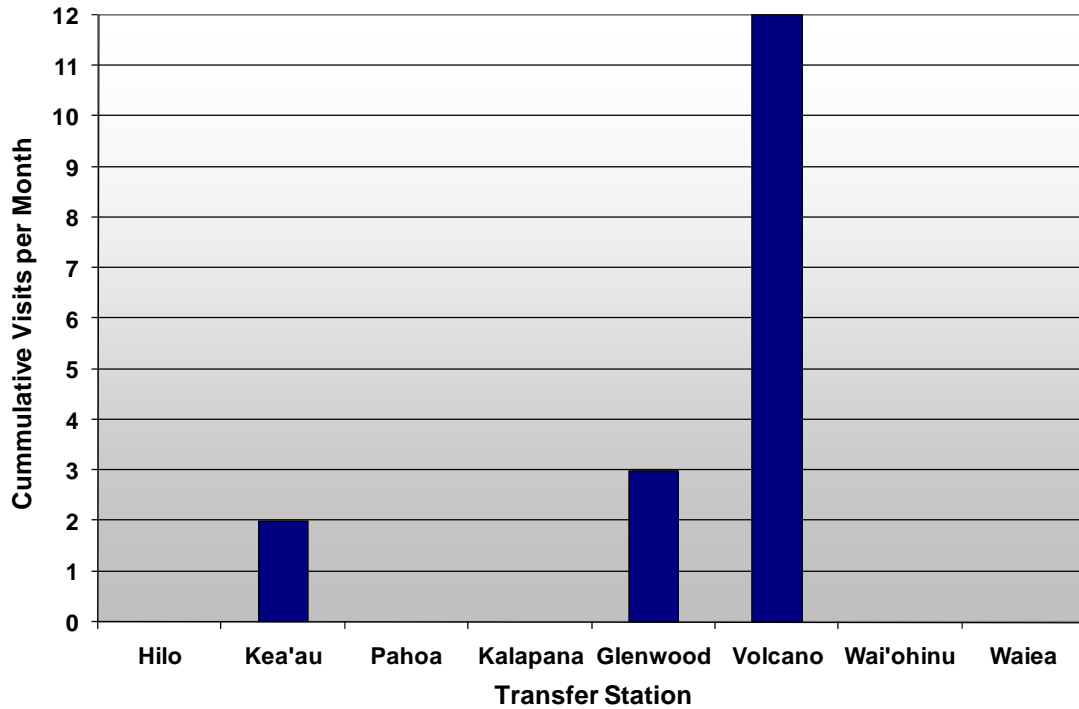
Question: Are you planning to use local, recycled materials?

Answer (Karl): We have designed other transfer stations for LEED certification. As much as possible a green building approach will be used. A local designer may be used for a bamboo information kiosk.

Comment (Nelson Ho): Want to stress that green waste is a concern and the County is working on solutions to the issue.

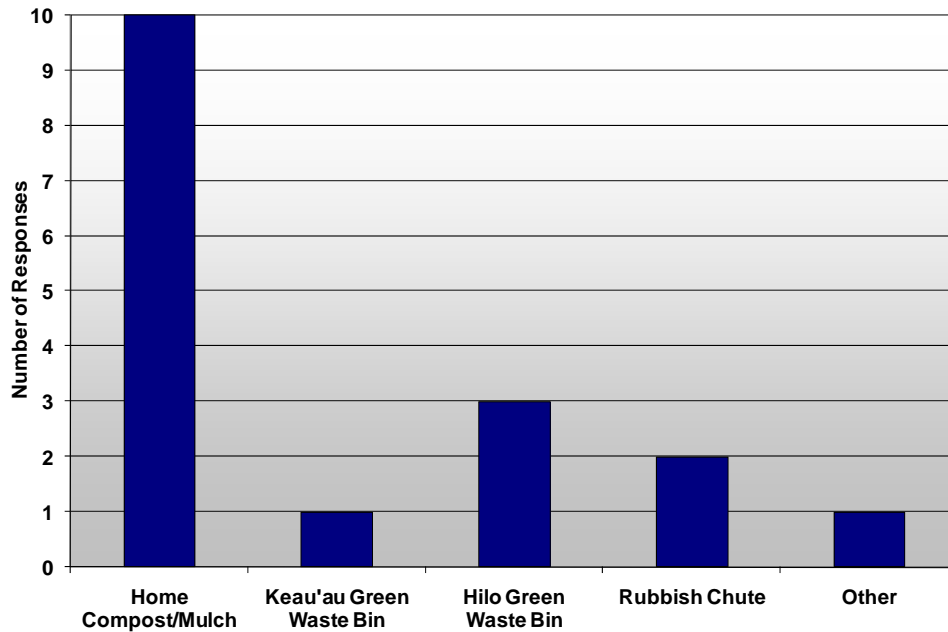
Comment Cards

- Twelve comment cards were returned at the end of the meeting. Copies are attached.
- The respondents all live in Volcano Village.
- Which Transfer Station do you use? Approximate number of times per month you use the transfer station?



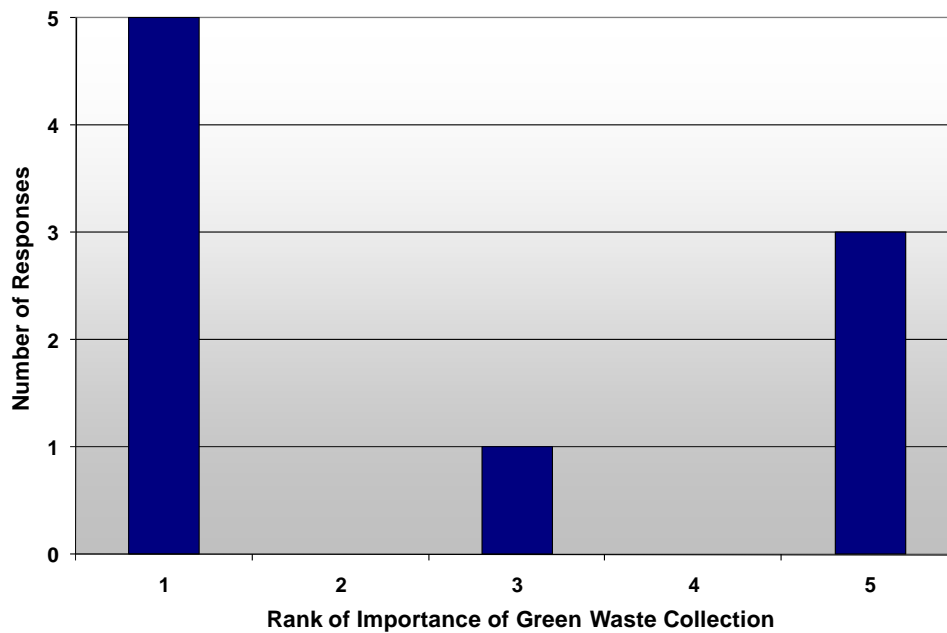
Three respondents indicated the number of times per month they visited the transfer stations, and each visits more than one transfer station as represented in the graph above. Seven respondents indicated that they use the Volcano Transfer Station, but did not indicate the number of visits per month.

- What do you currently do with your green waste?



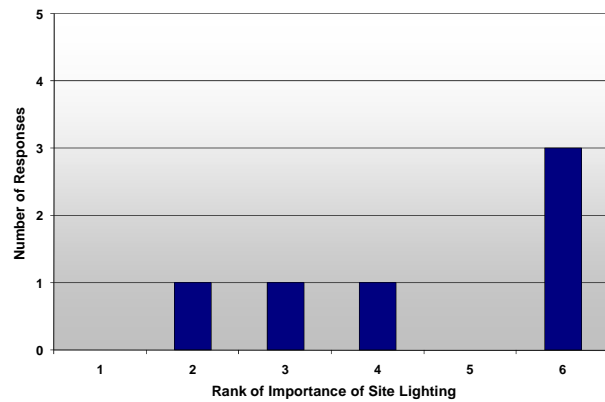
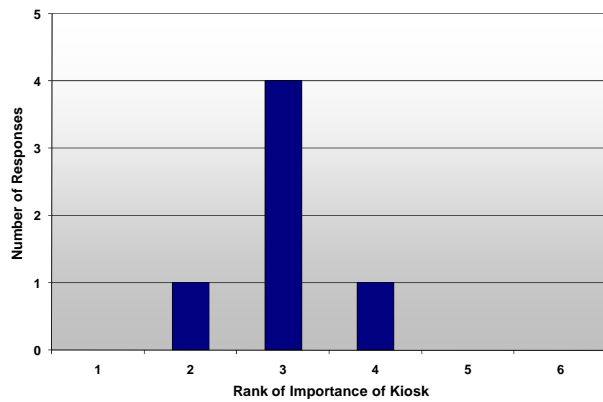
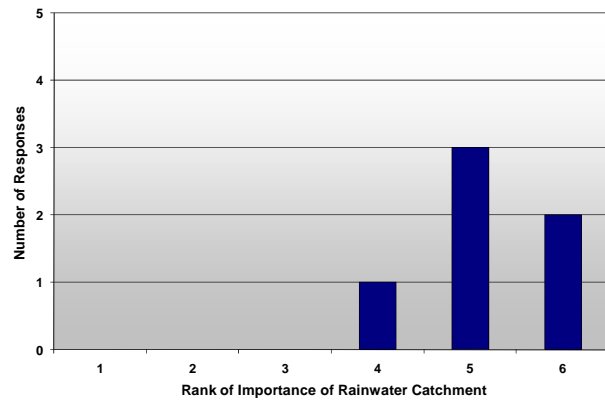
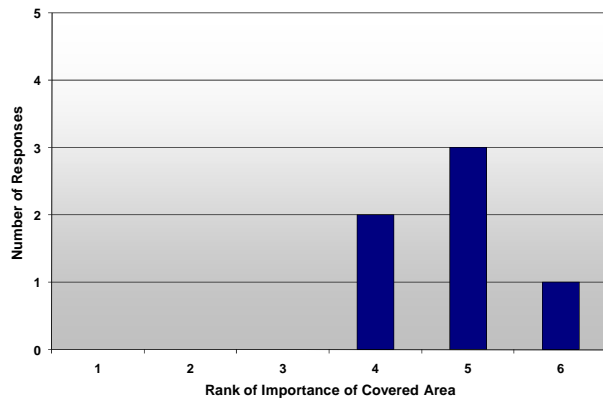
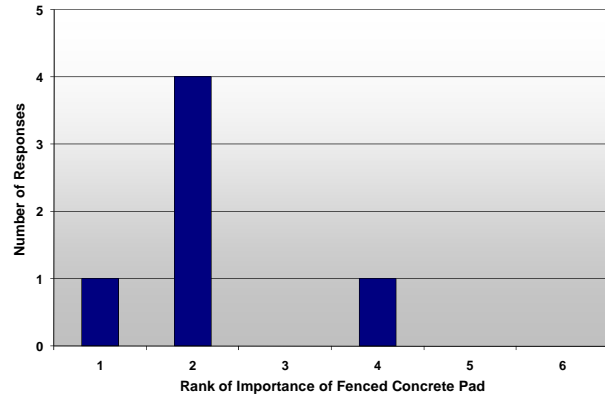
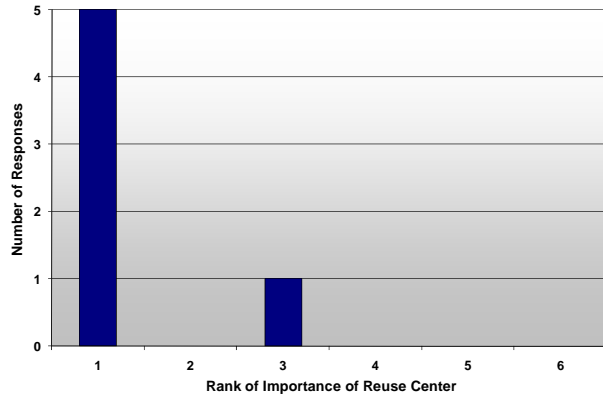
All respondents indicated how they currently dispose of green waste. Two respondents indicated that they dispose of green waste by more than one of the methods listed. One respondent wrote in that in addition to the options listed, s/he drops off his green waste at a friend who mulches it. One respondent indicated that s/he utilizes Hilo green waste for noxious weeds.

- On a scale of 1 to 5 (1 most important) how important is green waste collection at this station?

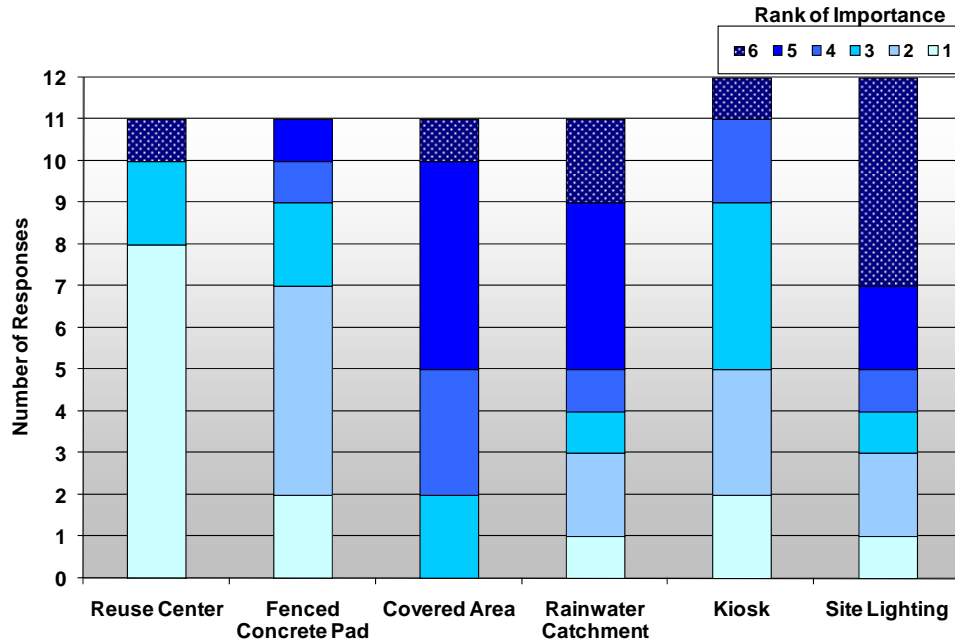


Nine respondents answered this question. One respondent indicated that his response was in relation to others as he has a chipper. One respondent commented that if there is no mulching, then it is probably better not to have green recycling bins.

- Rank the Optional Elements on a scale of 1 to 6 (1 being most important)



Six of the twelve respondents ranked all of the Optional Elements from 1 through 6.



Six of the twelve respondents ranked the Optional Elements, but gave more than one option the same ranking or did not rank all of the options. The data in the above graph represents all the answers provided to this question.

One respondent commented that none of the options except for the refuse center similar to the one located Kea`au and the fenced concrete pad seemed a priority. The respondent indicated that a coqui fence was top priority and that s/he objected strongly to site lighting.

Another respondent crossed out “con”crete and wrote in “glass”crete pad used as an appliance collection area.

- The following comments were provided in response to how we could encourage recycling or make recycling easier:

- Issue or buy color coded bags
- More meetings like this
- Greenwaste sections/Redemption area
- Provide bins (for crying out loud) at each transfer station, mixed/glass/greenwaste. Shouldn't have to drive > 20 miles to recycle.
- More public education and examples of how simple recycling efforts can be.
- Have the different repositories located in a matter that enables ease of drop-off (respondent included a sketch with comments).

- The following comments or statements were provided by seven respondents:

- 1) Colqui control. 2) Stop/prosecute people who litter the area. 3) Have green waste processes at site and ability to take back processes; green waste/mulch.
- Were any designs considered that would allow one to park your vehicle in one place and ‘dump’ recyclables, glass and refuse (maybe not green waste) without getting in and out of your car, driving around – stop, etc. A ‘keyhole’ arrangement?

- Excellent presentation – Thank You.
- Need to mitigate introduction of alien species with downslope greenwaste/recyclables. Compost should not be made available; too great a risk of alien spp. in it! – Ok. I see plan expands sorted recyclable bins.
- Promote bulletin board for posting lost and found notices for animals. Sign not to dump animals, take to HIHS site attendance. Video/Surveillance camera.
- Needs: Better/more HI5 redemption. Vendors should rebate HI5
Green waste bins need to be at each transfer station to reduce spread of coqui frogs
Need to contact business/agencies to help them set-up recycling programs (outreach person that would server as consultant for free)
Why does appliance area need to be fenced? If people want stuff, they should take it.
Concern of vandals?
Need liaison person to work with agencies/business to clarify what and how to recycle
Battery disposal site needed in centralized locations: Hilo, Keaau, Hamakua, Kau, etc..
I think it is important to provide some temporary disposal site near transfer station during construction but I understand the problem with this.
- Coqui infestations are a concern. Coqui will move to vegetated forest areas outside fence, unless a barrier is made and interior vegetation attracts them. Other invasive species issues will also be....
- A problem will be that people will come from far away to dump green waste, if its still closer than Kea‘au to where they are.
- I would highly recommend building the reuse/recycling center out of local materials (e.g., sustainably harvested ‘ohi‘a trees, glasscrete) in a matter that is demonstrative of reusing materials in a ‘green’ manner