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OFFICE OF ENVIRONMENTAL QUALITY CONTROL

CDUA: HA-3578
Acceptance Date: December 20, 2010
180-Day Expiration Date: June 18, 2011
SUSPENSE DATE: 21 Days from stamped date

MAR 23 2011

MEMORANDUM

TO: Gary L. Hooser, Director
Office of Environmental Quality Control

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

SUBJECT: Republication of the Draft Environmental Assessment (EA) for Conservation District Use Application (CDUA) HA-3578 for a Single Family Residence & Related Improvements Located at Wailea, South Hilo, County of Hawaii, TMK: (3) 2-9-003:003

Notification of this draft EA was published in the February 8, 2011 issue of the Environmental Notice. Since then, a previous determination by the Historic Preservation Division was found to be insufficient. The draft EA has been amended to include an Archeological and Cultural Impact Assessment. As the public has not been given an opportunity to review the Archeological and Cultural Impact Assessment, we are requesting republication of notification of the draft document.

The Department of Land and Natural Resources has reviewed the draft EA for the subject project, and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the April 8, 2011 issue of the Environmental Notice. We have enclosed one hard copy and one pdf. on CD of the draft EA document and the OEQC publication form.

Should you wish to provide comments regarding this project, please respond by the suspense date noted above. If no response is received by the suspense date, we will assume there are no comments. Please contact Tiger Mills of our Office of Conservation and Coastal Lands staff at 587-0382 should you have any questions.

Enclosures

DRAFT ENVIRONMENTAL ASSESSMENT

Goehring Residence

Proposed Single Family Residence:
Wailea, HI
TMK's: (3) 2-9-03:003 & (3) 2-9-03:039 (Alternative)

March 2011

Prepared by:
Douglas B. Goehring
(Environmental Geologist)
&
Dawn Goehring

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CD – Electronic Report

LIST OF ACRONYMS AND ABBREVIATIONS

CDUA	Conservation District Use Application
DLNR	Department of Land and Natural Resources
EA	Environmental Assessment
EIS	Environmental Impact Statement
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
HAR	Hawaii Administrative Rules
HELCO	Hawaii Electric Light Company
hm	Hamakua Volcanics
HoC	Hilo Silty Clay Loam, zero to 10 present slops
HoD	Hilo Silty Clay Loam, 10 to 20 percent slops
USGS	United States Geological Survey
RB	Rough Broken Land Series
SHPD	State Historic Preservation Division
SMA	Special Management Area
TMK	Tax Map Key

SUMMARY OF PROPOSED ACTION

Project	Single Family Residence, Wailea, HI
Landowner/Applicant	Douglas B. Goehring
Accepting Agency	State of Hawaii, Department of Land and National Resources
Location	Wailea, Hawaii, South Hilo District
Tax Map Key (TMK's)	(3) 2-9-03:003 & (3) 2-9-03:039 (alternative)
Proposed Action	Develop a single-family residence
Land Area	3.587 acres TMK (3) 2-9-03:003 and 1.46 acres TMK (3) 2-9-03:039 (alternative)
Present Use	Vacant
State Land Use District	Conservation: Resource Subzone (on proposed residence location) Limited Subzone (no disturbance / alternative)
Special Management Area	No (on proposed residence location) Yes (near ocean- will not be disturbed)
Anticipated Determination	Findings of No Significant Impact (FONSI)
Floodplain Zone	Zone "X" (500-year flood zone).
Streams on Property's	Yes, Kolekole and Kaahikini streams
Property's Prior Use	Livestock / Vacant (currently)
Additional State/County Funding	None
Archaeological or Historical Sites on Property	None

CHAPTER 1 - INTRODUCTION

1.1 PROJECT OVERVIEW

Douglas B. Goehring is proposing to develop a single-family residence on his vacant Wailea property within the State Conservation District (Appendix B). The construction of single-family residence is an identified land use in the Resource Subzone of the Conservation District. The home will equal approximately 3782 square feet have three bedrooms (1 bedroom is identified as the library) and two baths (including the deck, 2nd story open patio, pool area, gate, fire pit, and tiki columns) with a two story shed. The addition of seven power poles and trenching for a water line along the Mamalahoa Highway right-of-way is being proposed. The design and construction of the residence will conform to standard conditions for single-family residences in the Conservation District and applicable State and County regulations. The owner is proposing to commence construction of the residence in 2011 and finish no letter than 2014. The entire project will be privately funded at this time.

The proposed residence is located in Wailea, Hawaii. Douglas B. Goehring owns 3.587 acres TMK (3) 2-9-03:003 and 1.46 acres TMK (3) 2-9-03:039. TMK: (3) 2-9-03:003 is the proposed lot for single-family residences (Appendix A). A deed restriction will be added to the Goehring's adjacent TMK: (3) 2-9-03:039 by limiting the sell as one with the proposed TMK: (3) 2-9-03-003. The project is located near Highway 19 (Hawaii Belt Road), next to Mamalahoa Highway (Wailea Road), and adjacent to Kolekole Beach Park. The elevations of the properties are approximately zero to 200 feet and some of the property is within the Special Management Area (SMA). The proposed single-family residence location is outside of the SMA and will not require a permit (see appendix F).

1.2 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

This Draft Environmental Assessment has been prepared pursuant to Hawaii Revised Statutes, Section 343-5-12, which states an environmental assessment shall be required for actions which "propose and use within any land classified as conservation district by the land use commission under chapter 205." An associated Conservation District Use Application has been submitted to the Department of Land and Natural Resources pursuant to Hawaii Administrative Rule, Section 13-5-31, "Permit Applications."

1.3 PREVIOUS LAND USE

Previous land use included livestock ranching that is evident by old barbwire surrounding the property, a small livestock feeding shack, and evidence of the property being cleared (Figure 1).

Figure 1 Livestock feeding shack located at SW end of property near Kolekole Stream.

1.4 PURPOSE AND NEED FOR THE PROJECT

The proposed project will be the primary residence for Mr. and Mrs. Goehring.

1.5 ALTERNATIVES TO THE PROPOSED ACTION

Two alternatives are possible for the proposed residence. First, is to build the single-family residence on TMK: (3) 2-9-03:039 instead of TMK: (3) 2-9-03:003. The second alternative is "no action".

1.5.1 Single-Family Residence On TMK: (3) 2-9-03:039

Under the "Single-Family Residence on TMK: (3) 2-9-03:039 Alternative", this will require a SMA permit and possible easements onto Limited Subzone and county land. A different house structure approach will need to be applied, additional earth moving will be required, and the removal of large trees. Little to no land will be available for a yard because the house will consume the usable acreage. This location is also near Highway 19 (Hawaii Belt Road) and traffic noise is present at all hours and will be visible from Kolekole Beach Park and Highway 19. This location is proposed as a second alternative and should be considered if TMK: (3) 2-9-03:003 is not approved for a single-family residence.

Table 1 Alternative Comparisons

Requirements and Descriptions	**TMK: (3) 2-9-03:003 Prime**	**TMK: (3) 2-9-03:039 2nd Alternative**
SMA permit	No	Yes
Residence In Floodplain	No	No
Traffic Noise	Low	High
Usable yard land	Yes	No
Earth moving	Little	Moderate
Subzone	Resource	Resource/ Limited
Utilities	Further	Close
Tree Removal	Moderate	High/Moderate
Visible from Kolekole Beach Park	No	Yes

1.5.2 No Action Alternative

Under the "No Action Alternative", the subject property would remain undeveloped and the potential for environmental, social, and economic impacts disclosed in this Assessment would be precluded. Taking no action does not accomplish the stated purpose of the proposed action, which is to provide a primary residence for Mr. and Mrs. Goehring.

CHAPTER 2 - DESCRIPTION OF THE PROPOSED ACTION

2.1 EXISTING CONDITIONS ON TMK: (3) 2-9-03:003

The Property is presently devoid of structures except a livestock-feeding shack. The shack is located at the Southern end of the subject property and will not be removed during construction. According to the State Historic Preservation Division (SHPD), there are no historic properties on or near the subject property and the livestock shack is not considered historical (see Appendix F). There are no known archaeological or culture resources on the subject property. There are several mature and small trees, and scattered shrubbery. The subject parcel was formerly the site of livestock ranching. Evidence of land clearing is present by the lack of mature trees in flat areas along with an old barbwire fence bordering the property. Two streams border the property, Kolekole on the Eastern side (approximately 50 cubic feet per second discharge) and Kaahikini on the Northeastern side. The property has one small waterfall on the North side that is near the Pacific Ocean (not near the proposed site location). Highway 19 (Hawaii Belt Road) is also on the Northern site and Kolekole Beach Park is across the Kolekole River toward the east. The West and South are bordered by Mamalahoa Highway (Wailea Road). The majority of the property is unusable land for development that consists of very steep slopes and cliffs. Some of the property consists of stream land with no hiking trails or access.

Primary access to the property is from Mamalahoa Highway (Wailea Road) from the North or South. Owned and maintained by the County of Hawaii, Mamalahoa Highway (Wailea Road) is a one to two-lane, asphalt road with little to no shoulder. There is a pull-off area between the two properties toward the Northeast sharp bend. This road provides some access to Kolekole Beach Park, scenic drives, and some residents of Wailea. The Mamalahoa Highway (Wailea Road) off

of Highway 19 (Hawaii Belt Road) is not the primary road access for Wailea residence therefore; there is little traffic.

2.2 DESIGN FEATURES OF THE PROPOSED RESIDENCE

Plans for the proposed residence include a 3782 square foot area with a 3 bedroom, 2-bath, two-story home (1 bedroom is identified as the library), including decks, pool, gate, tiki columns, fire pit, and two story storage shed (see Table 2 for descriptions of square footage). The storage shed will be a secondary two-story building near the residence. The addition of seven power poles and trenching for a water line along the Mamalahoa Highway right-of-way is also being proposed. Fencing that is currently on the border of the subject property will be repaired and the additional inland fencing will be added near Kolekole stream. The repairing of the old fencing will serve two primary purposes. First, the old barbwire and field fencing is a hazard to public safety. Old wire and fence posts occasionally fall over on the road creating a hazard for auto drivers and pedestrians. Second, replaced fencing will help prevent illegal waste dumping that is a common problem in the Wailea Gully.

Architectural plans for the residence incorporate several features of classic Hawaiian architecture, including exterior lava rock walls. The house will consist of cinder block walls with an exterior lava rock. This will give the house structural strength to withstand possible wood rot and hurricanes. The house will be located in a relatively flat area that will require grading. The placement of the house was selected based on the topography of the lot. The remaining areas of the lot are two steep for the proposed residence. The below text is the description of each proposed feature; Appendix C shows detailed scaled drawings.

Underground Swimming Pool with Front Decking
The deck will be made from solid concrete with a swimming pool in the middle. The top surface of the decking will consist of black marble or shale and be at final grade. The decking covers a total of 815 square feet (including the swimming pool) and is 22 feet by 33 feet with an irregular small section (89 square feet) on the eastern side of the residence. The pool will be 10 feet deep on the West end and approximately 4 feet deep on the East end. The pool is oval and is approximately 28 feet by 10 feet. The inside of the pool will be painted blue with night lighting inside the pool and tiki lighting outside of the pool. A small artificial waterfall will deliver some of the water to the pool. The artificial waterfall will be on the North side of the pool connected to the side of the home and be approximately 4 feet high from deck level. The pool will be at final grade level. Please see landscaping and grading plans in Appendix C.

2nd Floor Rear Outside Open Patio
The 2nd floor rear patio will be made from solid concrete and be placed over the lower bath and library room area. The top surface of the patio will consist of black marble or shale. The patio covers 420 square feet (28 feet by 15 feet).

Driveway
A driveway is being proposed for the subject property and will be connected to Mamalahoa Highway (Wailea Road). The driveway location was selected based on the following: Moderate grading will be required and relatively flat topography compared to the surrounding terrain. The driveway will consist of concrete blocks or concrete and be approximately 110 feet long and 12 feet wide with an additional parking area for three cars for a total of 2557 square feet. The

Department of Public Works – Engineering Division has been contacted and provided with pre-draft plans (see Appendix F). The Engineering Division is requiring approximately a 10-foot length right-of way to be paved that is connected to Mamalahoa Highway. During the driveway permit process it may be determined that some minor brush clearing or slight relocation of the driveway will be required due to a nearby blind curve. The DLNR will be contacted if there are any alterations to the final plans. Grading will be required to construct a level driveway (see Grading Plans in Appendix C).

Fencing

The replacing and addition to fencing is being proposed on the border of the subject property. The old barbwire and field fencing along Mamalahoa Highway (Wailea Road) and Kolekole stream will be removed or replaced with new field fencing and wood pole fencing. As stated in the above text, the fencing is being removed and replaced because of safety concerns and illegal waste dumping. The replaced fencing covers approximately 791 linear feet on the Mamalahoa Highway and Kolekole Stream side that will be 5 feet in height. Please see Landscaping Planes in Appendix C.

Storage Shed

A two-story storage shed is being proposed for the subject property. The shed will be constructed from cinder block with exterior lava rock on a concrete pad, and a roof constructed of ceramic tiles. The shed's exterior and basic shape will match the home and will be 349 square feet. The sheds primary use will be for storage.

Gate with Lava Rock Wall and Water Feature

A gate is being proposed for the subject property. The gate will be located at the driveway entrance off of Mamalahoa Highway (Wailea Road). Each gate will be approximately 6 feet high, 6 feet long and made from metal. Two gates will open from the sides having a total length of 12 feet. There will be a lava rock wall approximately 6 feet high on both sides of the gate with tiki torches on top of the walls where the metal gate is connected on both sides. The West end will have a waterfall feature. The water will fall to a secondary level where the water will be collected on the front and backside of the wall. The secondary water holding level will be approximately .75 feet high from ground level and will be 4 feet wide by 7 feet long on each side of the wall. The East side of the lava rock wall will only consist of landscaping with a secondary rock wall .75 feet high. All sides of the lava rock walls will include landscaping. Please see Appendix C for detailed plans. A control keypad will be placed at the entry of the gate. The following underground utilities are required for the proposed gate: electrical, water, and propane gas. The gate will cover 72 square feet.

A total of four tiki torches will be constructed down the side of the driveway (not including the two by the side of the gate). This will require a propane line for each tiki torch. The tiki torches will be placed on top of a 3 by 3 foot cinder block square (or nine square feet each) for a total of 36 square feet with a lava rock exterior that is 7 feet high.

Propane Gas Tank

Two 500-gallon underground propane tanks will be placed approximately 10 feet from the Southwestern side of the house. Propane will be used for stove cooking, water heating, and outdoor tiki lighting. This will help conserve electricity resulting in less strain on the electrical grid system. Please see landscaping plans in Appendix C for placement location.

Fireplace
An outdoor wood-burning fireplace (5 feet by 5 feet) will be constructed on the Eastern side of the house using lava rock and concrete. The fireplace will be for enjoying outdoor campfires and will be 25 square feet. Please see landscaping plans in Appendix C for detail drawings.

An indoor wood-burning fireplace will also be constructed on the second story of the residence. The fireplace will have an access opening in the living room and outside patio. No fireplace is being proposal on the first story. Please see house plans in Appendix C for details drawings.

Sidewalk
A concrete sidewalk will be constructed that connects the parking area to the residence front door. The sidewalk will be 5 feet wide and 26 feet long or 130 square feet.

A gravel sidewalk will be constructed that attaches the house to the shed and is 4 feet wide and 63.8 feet long or 255 square feet.

Retaining Walls
Two retaining walls will be constructed and have a lava rock exterior finish. The Western retaining wall will be 60 feet long with two ninety degree bends (first bend is 3 feet long, second bend is 6.5 feet long), be 1.5 feet wide and a maximum height of 6 feet (104.3 square feet). The Eastern retaining wall will be 72 feet long, 1.5 feet wide, and a maximum height of 6 feet (108 square feet). The total square footage for both retaining walls equal 212.3. Please see Appendix C for detailed drawings.

Table 2 Features Square Footage of Developed Area.

Feature	Square Footage	Developed Area
Home	(Main floor 1329) + (Upper floor 736) = 2065	2065
Shed	(Main floor 174.5) + (Upper floor 174.5) = 349	349
Pool with Front Deck	815	815
2nd Story Outside Patio	420	420
4 Tiki Columns	(9 sq X 4 columns) = 36	36
Outdoor Fireplace	25	25
Gate	72	72
Driveway	*2557*	N/A
Retaining Walls (2)	*(West = 104.3)+ (East = 108) = 212.3*	N/A
Sidewalks	(Paved = 130) + (Gravel = 255) = 385	N/A
Total		***3782 (5000 allowed)***

CHAPTER 3 - AFFECTED ENVIRONMENT – IMPACTS AND MITIGATION MEASURES

3.1 TOPOGRAPHY

Surface elevations range from about zero feet at the Northern side of the parcel to 200 feet to the Western side above sea level (Appendix D). 170 to 180 feet above sea level is the proposed

resident site location. Most of the property consists of steep cliffs that have been eroded by the rivers and ocean. The Southern side (purposed residence location) of the property is relatively flat with approximate 5-degree slope towards Kolekole stream. This is the only suitable building location on the property due to the topography. A grading plan is located in Appendix C showing areas that will require grading.

3.1.1 Impacts and Mitigation Measures

Earth moving will be required for this property and two 6 foot high (or less) retaining walls will be constructed. Retaining walls will be located on the Eastern and Western side of the proposed house location (see Grading Plan in Appendix C). The only soil disturbance will be during foundation construction, driveway installation, propane tank, and septic tank installation. These areas consist of a 5-degree slope. Overgrown brush and trees that are present on flat slopes will be cleared by a bulldozer or brush removal process. Slopes equal or greater than 20 degrees will not be disturbed.

3.2 GEOLOGY

The subject property is located on the Mauna Kea Volcano. Soils at the property are classified *"Hilo" and "Rough Broken Land Series"* according to the Soil Survey of Island of Hawaii, State of Hawaii compiled by the U.S. Department of Agriculture Soil Conservation Service (1973).

Hilo Series – The Hilo Series soils at the site are Hilo Silty clay Loam, zero to 10 present slops (HoC), and Hilo Silty clay loam, 10 to 20 percent slops (HoD). This series consists of well-drained silty clay loams located on gentle to steep slopes. Permeability is rapid, runoff is slow to medium, and the erosion hazard is slight to moderate. This soil is characterized as having low bearing capacity, high compressibility, low shear strength, high shrinkage, and a high organic matter content. These soils are located at and near the building site.

Rough Broken Land Series – The Rough Broken Land Series (RB) soil is a miscellaneous land type that consists of very steep land broken by intermittent drainage channels. It occurs primarily in gulches, where the slope is predominantly 35 to 70 percent. The soil material ranges from very shallow to deep, and stone and rock outcrops are common in some areas. This type of soil is located within the gulch.

According to the USGS Geologic Map of the Island of Hawaii (1996), the rock type is classified as "Hamakua Volcanics (*hm*)". Pleistocene is the approximate age group.

3.2.1 Impacts and Mitigation Measures

The project is not expected to significantly impact existing soil and rock conditions. The only soil disturbance will be during foundation construction, driveway installation, propane tank, and septic tank installation.

3.3 DRAINAGE

Storm water erosion control will be required for the subject property. In general, the proposed residence area is relatively flat and slopes toward Kolekole Stream (East) and receives approximately 150 inches a year. The project site is located inland from coastal waters within an area determined by the Federal Emergency Management Agency to be outside the 500 year flood zone. The subject property location slopes toward Kolekole Stream and has approximately a 5-

degree slope at the proposed residence site. Grading will alter the slopes to zero-degrees for a total of 226.8 cubic yards of cut and 212.4 cubic yards of fill (See Grading Plan in Appendix C). 14.4 cubic yards of disposal soil will be produced from the subject project and used for landscaping on site. Rain gutters will be installed on the roof to capture rainwater that will be transferred to an engineered sump. The driveway will consist of concrete and water will be captured by a sump. The back of the residence will also have a drain to capture water runoff that will be transferred into the sump. Areas where tree removal or ground disturbance has taken place will be planted with grass or proposed plants identified in the landscaping plan (Appendix C).

3.3.1 Impacts and Mitigation Measures

The proposed single-family residence, storage shed, decks, 2nd story open patio, driveway and gate wall will create additional impermeable surfaces. This will generate additional water runoff that will be captured by two grates (front and rear of proposed residence) and absorbed into the surrounding "Hilo Series" soil by using an engineered sump on the subject property (see Grading Plan in Appendix C). Underground drainage pipes will be placed around the concrete foundation to help remove water and prevent damage from saturated soil. Improvements are subject to review by the Hawaii County Department of Public Works to ensure that all relevant standards of Chapter 27 and Chapter 10 are address during the application process. Erosion control methods to be implemented by the contractor before, during and after construction will include:

- Perform excavation at the construction site in phases to limit the number of cubic yards of soil being moved at any one time.
- Construct the driveway first to prevent heavy equipment erosion.
- Inspect driveway, especially during periods of heavy rainfall.
- Install erosion control measures prior to start of the construction phase and maintain until completion of the grading phase.
- Where applicable and feasible, put in place measures to control erosion and other pollutants before and earth-moving phase of the grading is initiated.
- Prevent any grading operation that causes rocks, soil, or debris in any form to fall, slide or flow onto adjoining properties, streets or natural watercourses.
- Flag the limits of the grading area before the commencement of grading work.
- Install silt fences at the boundary off all distributed areas.
- Sod or plant all exposed areas as soon as final grades/digging is completed.
- Plant disturbed areas where work has been interrupted or delayed with temporary or permanent ground cover.
- Inform contractors that work is being performed on sensitive land.
- The overall slope (except house location and driveway) of the land will not be altered allowing heavy rainfall to drain into Kolekole Stream from vegetated ground.
- Slopes greater or equal to 20 degrees will not be disturbed.

3.4 AIR QUALITY

Air quality in the project area is excellent. Prevailing trade winds, low volume of vehicular traffic and the absence of development contribute to the air quality in the Wailea area.

3.4.1 Impacts and Mitigation Measures

Air quality impacts attributed to the proposed action will be temporary and includes exhaust emissions of construction vehicles and dust generated by short-term, construction-related activities. Construction of the house will generate airborne particulates. Dust control measures such as regular watering and sprinkling will be implemented as needed to minimize wind-blown emissions.

Construction-related exhaust emissions will be mitigated by ensuring the project contractors maintain their internal combustion engines in proper working order and immediately repair or replace faulty equipment. The contractor, at his own expense, will keep the project area and surrounding area free from dust nuisance. The work will be in conformance with the air pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapters 59, "Ambient Air Quality Standards," and Chapter 60, "Air Pollution Control." Long-term air quality impacts resulting from occupation of the residence and related vehicle traffic are not expected to cause significant increases in air pollution over existing levels. No long-term mitigation is needed.

3.5 WATER QUALITY

The applicant proposes the use of county water. A new private supply pipe line will be connected from TMK: (3) 2-9-003:047 or approximately 500 feet from TMK: (3) 2-9-003:39 (owned by Goehring). Approximately 2070 feet of pipe line will be constructed (along the Mamalahoa Highway) within the County right-of-way. Please see Appendix F for supporting letter.

3.5.1 Impacts and Mitigation Measures

Drinking water for the proposed single-family residence will have minimal impact on water quantity and quality. For the Wailea area, there currently is not a shortage of County water and no additional funding will be required by the County. Road traffic will have short-term impacts and are not considered significant since Mamalahoa Highway (Wailea Road) should remain open at all times during water line construction.

All soil disturbances shall be performed in conformance with the applicable provisions of the water pollution control and water quality standards contained in Hawaii Administrative Rules, Chapter 11-55, "Water Pollution Control" and Chapter 11-54, "Water Quality Standards." During construction, prevention methods will be applied and can be found in Section 3.3.1 (Drainage) to keep silted rainwater from entering the Kolekole Stream.

3.6 NOISE

Existing noise levels at the subject property is minimal. Traffic from Highway 19 (Hawaii Belt Road) and visitors to Kolekole Beach Park will not be impacted from subject property.

3.6.1 Impacts and Mitigation Measures

Noise will be generated from short-term construction activity. Construction noise from machines and vehicles may impact Kolekole Beach Park, but will be confined to daylight working hours only. There are no nearby residences in the area to be impacted. Construction activities will comply with Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control." No grading work shall be done on Saturdays, Sundays and holidays at any time

without prior notice to the Chief Engineer, provided that such grading work is also in conformance with HAR, Chapter 11-46. Once construction is completed, the proposed residence will not have an adverse impact upon existing noise characteristics. Long-term noise impacts resulting from occupation of the residence and related vehicle traffic are not expected to cause significant increases in noise over existing levels. No long-term mitigation is needed.

3.7 BIOLOGICAL RESOURCES, FLORA AND FAUNA

A botanical survey was conducted by Mr. and Mrs. Goehring. The survey was conducted using the assistance of the University of Hawaii Botanical Department. The following publications were also used: Kolekole Bridge Seismic Retrofit Final EA/FONSI (September 1999), Hawaiian Heritage Plants by Angela Kay Kepler, Wayside Plants of the Islands by Dr. W. Arthur Whistler, A Pocket Guide to Hawaii's Trees and Shrubs by H. Douglas Pratt, A Pocket Guide to Hawaii's Flowers by Leland Miyano, and The Ecotravellers' Wildlife Guide Hawaii by Les Beletsky. The following web pages were also referenced:
http://www.botany.hawaii.edu/faculty/carr/fpfamilies.htm,
http://www.alohafriends.com/photos_plants_and_trees.html,
http://www.hear.org/starr/hiplants/images/index.html,
http://www2.ctahr.hawaii.edu/forestry/Data/trees.html,
http://www2.ctahr.hawaii.edu/forestry/Data/links.html#forestTreeSpecies,
http://ravenel.si.edu/botany/pacificislandbiodiversity/hawaiianflora/index.htm,
http://pdcs.ctahr.hawaii.edu:591/hawnprop/, and
http://ravenel.si.edu/botany/pacificislandbiodiversity/hawaiianflora/thumbgall.cfm?start=625.

The following trees and plants were found on the property: Ironwood (casuarina equisetifolia), candlenut trees (Aleurites moluccan), bamboo (Bambusa vulgaris), Alexandra palm (Archontophoeniz alexandrae), Chinese banyan (Ficus microcarpa), Java plum (Syzgium cumini), rose apple (Syzygium jambos), hau (Hibiscus tiliaceus), impatiens (Impations walleriana), 'ape (Alocasia macrorrhiza), hala (pandanus), guava (psidium guajava), Ti leaf (Cordyline fruticosa), banana (musa x paradisiaca), wood rose (merremia tuberosa), coconut palms (cocos nucifera), gunpowder tree (trema orientalis), hoi (Dioscorea bulbifera), uhi (dioscorea alata), lobster claw heliconia (heliconia sp.), maiden hair fern (Adiantum raddiamum), mango (Mangifera indica), bingabing (Macaranga mappa), sanchezia (Sanchezia speciosa), and African tulip (Spathodea campanulata). The ground cover consists of plants such as Hilo grass, maiden hair fern, palm grass, Spanish clover, California grass, white shrimp plant and wood fern.

None of the plants are a threatened or endangered species; nor is any plant a species of concern. All of the plants can be found in similar environmental habitats throughout the islands. The areas that will be impacted by construction mainly consist of Hilo grass, fallen guava trees, and overgrow veins.

No mammals were observed during numerous site visits to the property, but based on general information about the Wailea area; the resident mammals are limited to dogs, cats and various rodents. While not observed, the probability that the house mouse and all three species of rats (Roof, Norway, Polynesian) are present within the project area. In a field study done during the Kolekole Bridge Seismic Retrofit EA, Hawaiian Hoary Bats (Lasiurus Cinereus Semotus) were observed in the area. The possibility that the small Indian mongoose, cat and feral pig are in the general area. All of the introduced mammalian species present on the island are deleterious to both the native habitats and species.

Most of the birds in the area are introduced species. In a field study done for the Kolekole Bridge Seismic Retrofit EA the following species of bird were observed: White-tailed tropic bird (Phaethon lepturus dorothea), Spotted Sandpiper (Actitus macularis), Spotted Dove (Streptopeia chinensis), Zebra Dove (Geopelia striata), Common Myna (Acridotheres tristis), Japanese White-Eye (Zosterops japonica), Melodius Laughing Thrush (Garulax canorous), Nutmeg Manikin (Lonchura punctulata topela), House Finch (Carpodacus mexicanus mixicanus), and Northern Cardinal (Cardinalis cardinalis). No threatened or endangered species are known to be resident. The endangered Hawaiian Hawk (Buteo solitarius) may occasionally use the habitat within the Kolekole Stream gulch. No hawks were visible during various site visits or during field studies for the Kolekole Bridge Seismic Retrofit EA. This species of hawk is currently under review by the USFWS for down listing from endangered to threatened status. Currently the hawk is on the list of birds scheduled to graduate from endangered to threatened.

3.7.1 Impacts and Mitigation Measures

Outdoor lights will be shielded downward and will not be placed higher then 25 feet in order to prevent any impacts to nocturnal avifauna. No other adverse impacts to terrestrial flora and fauna are anticipated from the construction of the single-family residence and no further mitigative measures are necessary. Special care will be given not to introduce any Coqui Frogs during landscaping because of the major problem these frogs have caused on the island.

Construction activities will not have a significant impact on the native or federally protected avian or mammalian species. The proposed construction will not have a deleterious impact on the Hawaiian Hoary Bat as a species. There is potential for individual bats to be disturbed by the construction activity if conducted at twilight. Before construction activities start, a visual survey will be performed to ensure no bat or hawk nesting is taking place on the subject property. Construction activities will be delayed until nesting is no longer observed on the subject property.

3.8 HISTORICAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

According to the State Historic Preservation Division (SHPD), there are no historic properties on or near the subject site. See “Appendix E and F” for the Historical Survey Report and letter. According to the Final Environmental Assessment – Kolekole Bridge Seismic Retrofit, September 1999; there were also no Archaeological sites found on or near the subject property.

Customary and traditional native Hawaiian rights will not be encroached or violated due to the proposed project. The previous use of the land and the known historic use of the area does not indicate that this area was used by native Hawaiians for cultural or religious purposes.

Though this area is not known to have been used by native Hawaiians for cultural or religious purpose, the proposed use will not interfere with the native Hawaiian rights should some new information to the contrary be found. The proposed use of this parcel will not inhibit or prevent access to the shoreline, water rights, cultural use and/or gathering rights.

3.8.1 Impacts and Mitigation Measures

No impacts to cultural resources or practices are expected to result from the proposed project activities. In the unlikely event that archaeological remnants are unearthed, work will be halted and the State Historic Preservation Division will be notified to assess impacts and implement

mitigative measures deemed necessary. Any and all findings shall be addressed in accordance with Section E-46-6, Hawaiian Revised Statutes and Chapter 13-300, Hawaiian Revised Administrative Rules.

3.9 SCENIC RESOURCES

Some of the subject property is visible from Mamalahoa Highway, Highway 19 (Hawaii Belt Road) Bridge, and Kolekole Beach Park. From those vantage points the property currently appears as a tropical forest and a stream valley.

The Proposed single-family residence location will not be visible from Kolekole Beach Park (Figure 3), Highway 19 (Figure 4), or the shoreline but will be visible on sections of Mamalahoa Highway (Figure 5 & 6). Figure 2 shows the locations referenced on each photo. Below is a description of referenced photos.

Kolekole Beach Park
Figure 3 shows a photo from Kolekole Beach Park camping area looking South. The dense vegetation will entirely obstruct the view of the single-family residence. From Figure 2 the reference point "A" is the location that photo (Figure 3) was taken from. Point "B" is the maximum viewing distance before dense vegetation obstructs the proposed single-family residence.

Kolekole Bridge Highway 19
Figure 4 shows a photo from Kolekole Bridge on Highway 19 looking South. The dense vegetation will obstruct the view of the single-family residence. From Figure 2 the reference point "C" is the location that photo (Figure 4) was taken from. Point "D" is the maximum viewing distance before dense vegetation obstructs the proposed single-family residence.

Mamalahoa Highway

Figure 5 shows a conceptual house view from Mamalahoa Highway looking North East. From Figure 2 the reference point "E" is the location that photo (Figure 5) was taken from. Point "F" is the maximum viewing distance. The single-family residence will be visible from this vantage point (Figure 6). However, the single-family residence will be obstructed by dense vegetation from most viewing sections on Mamalahoa Highway.

Figure 2 View Plan Analysis

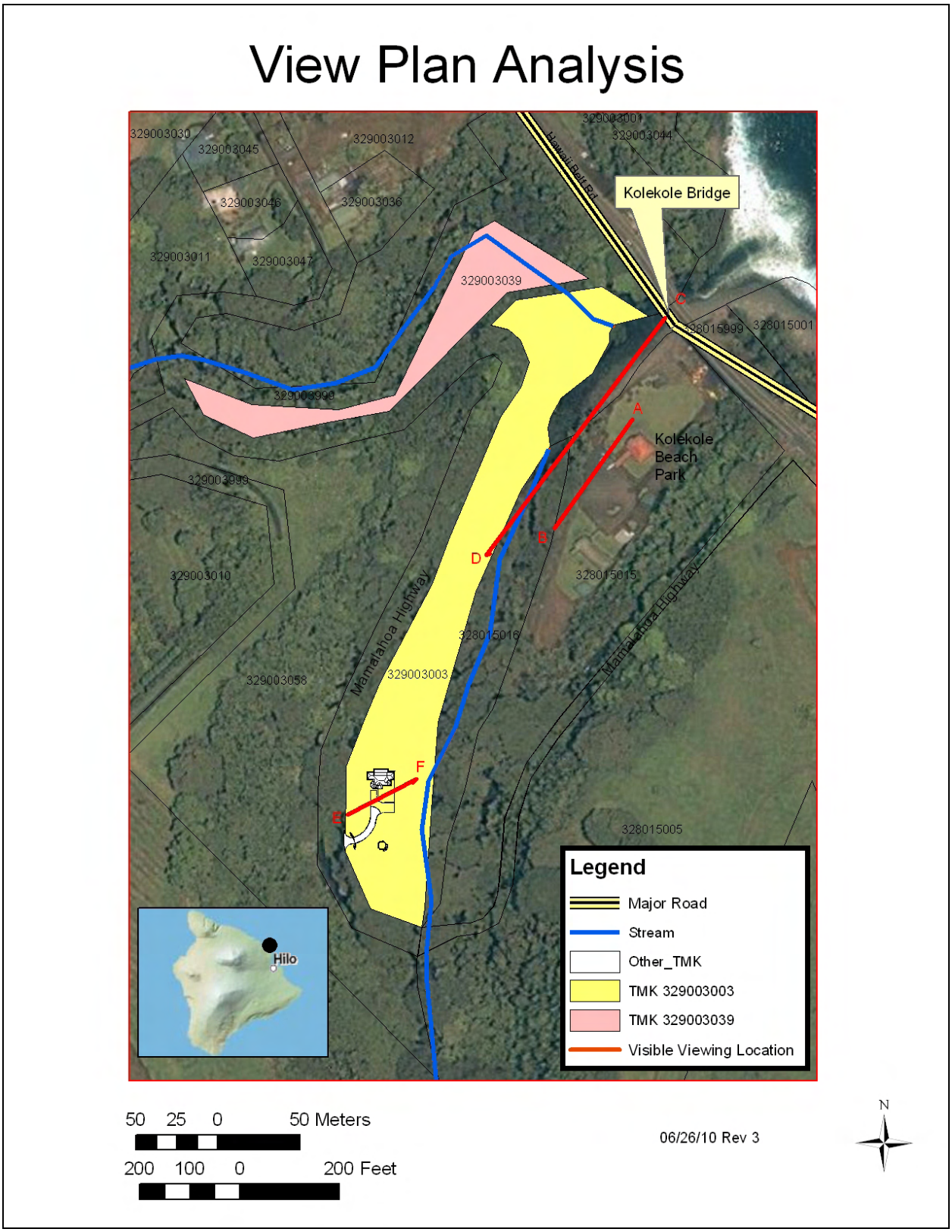


Figure 3 Photo from Kolekole Beach Park camping area (A) looking South showing dense vegetation and a faraway viewing distance will entirely obstruct view of home. The letter "B" is the location referenced on Figure 2.

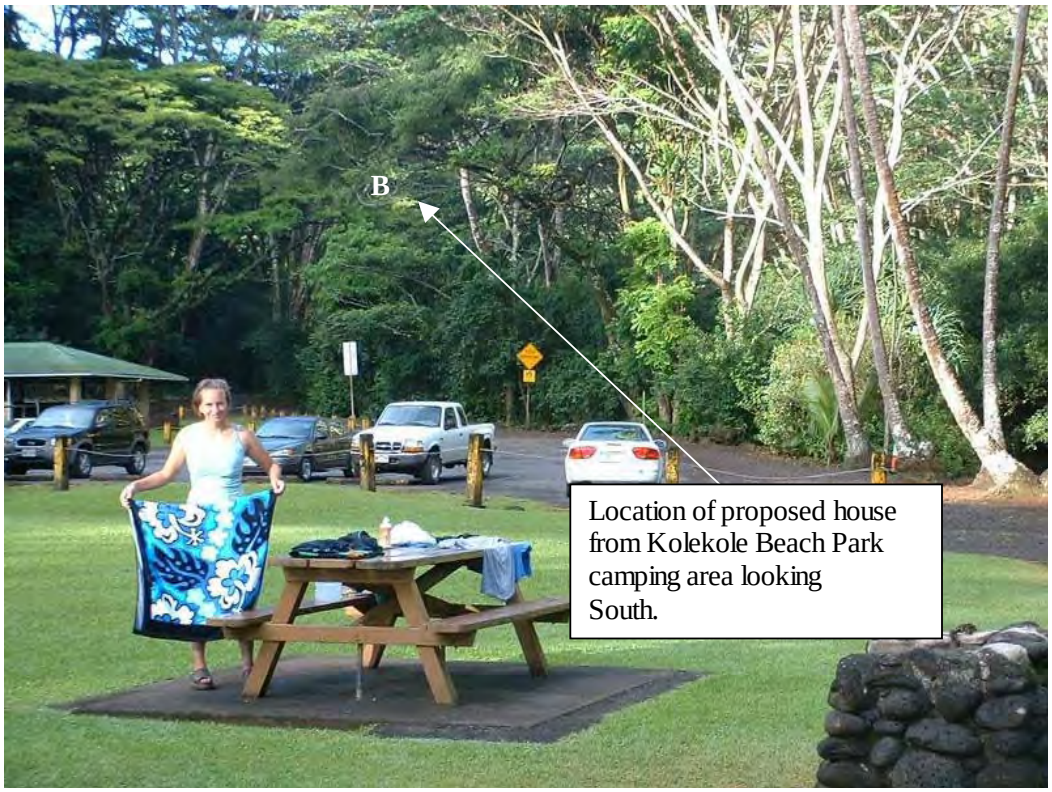


Figure 4 Photo looking South from Kolekole Bridge (C) with Kolekole Beach Park in the forground. Vegetation and a faraway viewing distance will obstruct view of home from Highway 19. The letter "D" is the location referenced on Figure 2.

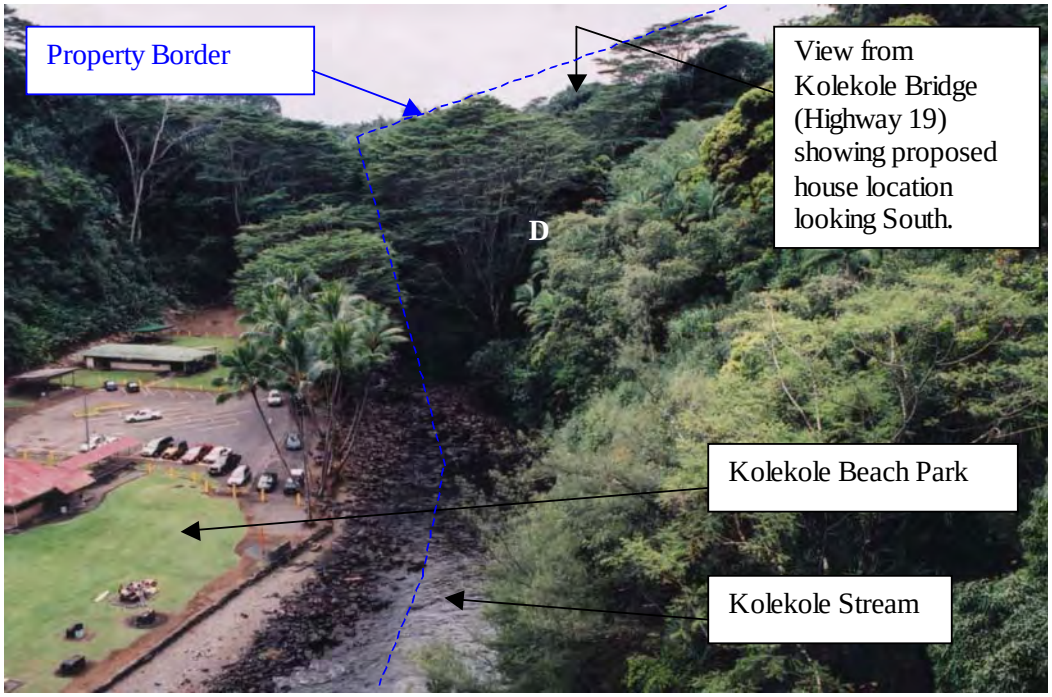


Figure 5 Before photo showing estimated house location from Mamalahoa Highway (Wailea Road -E) looking North. The letter "F" is the location referenced on Figure 2 (not to scale).

Figure 6 After Photo showing estimated house location from Mamalahoa Highway (Wailea Road) looking North (not to scale).

3.9.1 Impacts and Mitigation Measures

Lot Coverage and Visibility. The residence plus impermeable surfaces will result in approximately 5% lot coverage. The West side of the proposed residence will be visible from Mamalahoa Highway (Wailea Road). No other portion of the property will be disturbed. The steep slopes on the property will not be disturbed (slopes greater than 20°) except for utilities. The driveway and entry gates will be visible from the South West corner of Mamalahoa Highway (Wailea Road). The Dark Sky Association Guidelines will be followed to prevent light/sky pollution.

Setbacks. The design features setbacks from the Kolekole Stream and the Mamalahoa Highway (Wailea Road). The setback of the residence from the edge of the lot will meet or exceed the minimum of 25 feet on all sides (HAR, Chapter 13-5, Exhibit 4, "Single Family Residential Standards: September 6, 1994"), as follows:

- North setback: 1069 feet from Stream/Ocean.
- South setback: 222 feet from Mamalahoa Highway (Wailea Road).
- East setback: 41 feet from side of Kolekole Stream.
- West setback: 44 feet from Mamalahoa Highway (Wailea Road).

Landscaping. 13,160 square feet of landscaping will be performed on the proposed site. One large Albizia tree that is approximately 3 feet in diameter will be removed. This tree is located next to Mamalahoa Highway (Wailea Road) and is currently sloping toward the Southeast creating a hazard to the proposed residence. When this tree falls, it will cause major damage to Mamalahoa Highway (Wailea Road) because of the large root system that is under the road and the tree branches/trunk will damage/destroy the proposed residence.

The site will be planted with trees, orchids, native plants, and grass groundcover appropriate for the climatic conditions that includes: Ti-red 'Floozie' (Cordyline Fruiticosa), Giant Green Ti (Cordyline), 'Awikiwiki (Canavalia Gateata), Bromeliad Varieties (Aechmea Blanchetiana), Variegated Pineapple (Ananus Comosus Variegatus), Ko'oloa 'Ila – Red Ilima (Abutilon Menziesii), Croton (Codiaeum Variegatum), Blue Ginger (Dichorisandra Thrysiflora), Money Tree (Dracaena Marginata), Parrot's Beak Heliconia (Heliconia Rostrta), Spider Lily (Crinum Asiaticum), Monstera (Monstera Deliciosa), 'Ohai (Sesbania Tomentosa), Gold Heliconia (Heliconia Caribaea), Kupukupu Lau L'ii (Nephrolepis Cordifolia), Hinahina (Heliotropium Anomalum), Walking Iris (Neomarica Gracilis), White Lily Turf (Ophiopogon Jaburan), Ilie'e – Wild Plumbago (Lipochaeta Inegrifolia), Nehe (Plumbago Zeylanica), Ilima Papa (Sida Fallax), Spathiphyllum (Spathiphllum Spp.), Oyster Plant (Tradescantia Spathacea), Lawn – Bermuda Riviera Seed, Hawaiian Tree Fern (Cibotium Glaucum), Triangle Palm (Dypsis Decoryi), Dwarf Date Palm (Phoenix Roebelenii), Queen Palm (Syagrus Romonofflanum), Ohi'a (Metrosideros Polymorpha), Banyan (Ficus Benghalensis), Pua Kenikeni (Fagraea Berterana), Loulu Lelo Palm 9Pritcharldia Hillebrandii), Sealing Wax Palm (Cytostachys Renda), 'Ulu – Breadfruit (Artocarpus Altillis), Koki'o Ke'oke'o (Hibiscus Arnottianus), Red Plumeria (Plumeria Rubra), Coconut Palm (Cocos Nucifera), Hala (Pandonus Techorius), and Singapore Plumeria (Plumeria Obtusa).

The landscaping will improve upon the beauty of the property by replacing existing weed species and non-native plants and will emphasize a naturally-occurring plant community consisting of native plants. See Appendix C for landscaping plans. Approximately 49 bushes and tress will be removed during construction. Guava tress will be the primary tree removed.

Colors. Lava rock will be used for exterior walls of residence. Earth tones will be used for painting of window and door moldings (Table 3).

Table 3 Goehring Resident Exterior Finish of Structures.

Structure	Exterior Finish
Roofing	Ceramic tiles
Windows and Doors	Aluminum metal or wood frames
Decking/Open Patio	Dark colored tile
Exterior Walls	Lava Rock
Driveway	Concrete or Block
House height from final grade	24’ 11”
Shed height from final grade	23’ 10”

CHAPTER 4 - SOCIO-ECONOMIC CONDITIONS – IMPACTS AND MITIGATION MEASURES

4.1 DEMOGRAPHICS, POPULATION AND ECONOMIC CHARACTERISTICS

The geographic area of Papaikou-Wailea, containing the proposed residence, had a resident population of 1,414 in 2000 compared to 1,607 in 1990. Thus the community is considered a relatively stable residential area. In 2000 the median age for the area is 40 years of age (State of Hawaii, Department of Business, Economic Development and Tourism, 2000).

4.1.1 Impacts and Mitigation Measures

Development of the proposed residence will not materially change the character of the neighborhood in the Wailea area. On a short-term basis, the proposed project will support construction and construction-related employment. In the long term, the proposed single-family residence will not have an impact on employment opportunities, nor will it have a significant impact on population levels. Therefore, no mitigation measurements are necessary or proposed.

CHAPTER 5 - PUBLIC SERVICES - IMPACTS AND MITIGATION MEASURES

5.1 TRAFFIC AND ROADWAYS

Primary access to the property is from Mamalahoa Highway (Wailea Road) from the North or South. Owned and maintained by the County of Hawaii, Mamalahoa Highway (Wailea Road) is a one to two-lane, asphalt road with little to no shoulder. There is a pull-off area between the two property’s toward the Northeast sharp bend. This road provides access to Kolekole Beach Park, scenic drives, and some residents of Wailea. Primary road access to Wailea is not used by Mamalahoa Highway (Wailea Road) on the Kolekole Beach Park entrance off of Highway 19 (Hawaii Belt Road) therefore; there is little traffic.

5.1.1 Impacts and Mitigation Measures

The proposed action is not expected to significantly alter the total volume of traffic on Mamalahoa Highway (Wailea Road). Construction trucks will enter and exit from the Kolekole Beach Park entrance off of Highway 19 (Hawaii Belt Road). On a short-term basis, construction-related work on the proposed project may impact traffic flow on Mamalahoa Highway (Wailea Road). Short-term impacts are not considered significant since Mamalahoa Highway (Wailea Road) will remain open at all times and project related delays expected by motorists, if any, are anticipated to be minor.

Connection of the driveway area with Mamalahoa Highway (Wailea Road) will be approved as part of the building permit for the residence. The Engineering Division is requiring a 10-foot length right-of way to be paved that is connected to Mamalahoa Highway. During the driveway permit process it may be determined that some minor brush clearing or slight relocation of the driveway will be required due to a nearby blind curve. The DLNR will be contacted if there are any alterations to the final plans. Grading will be required to construct a level driveway (see Grading Plans in Appendix C).

The subject property will have a gated driveway with a lava rock wall supporting the metal gate (Appendix C). Design of the driveway entrance will ensure that the gate is place a minimum of 20 feet from Mamalahoa Highway (Wailea Road). In addition, adequate turning radii will be maintained for entering and leaving the driveway and the placement and use of the driveway along Mamalahoa Highway (Wailea Road) will not result in a “blind driveway” condition.

5.2 WASTEWATER

The Wailea area is not served by the municipal sewer system. Therefore all treatment of wastewater must be performed on-site through a wastewater treatment system designed to dispose of approximately 600 gallons of domestic effluent per day (using the standard of 200 gallons per bedroom). The system will consist of an underground septic tank with an approximate capacity of 600-1000 gallons and a ~200-square foot leach field along the property’s South East boundary. The septic tank and leach field will be located greater than 50 feet from any creek or stream (see Grading Plan in Appendix C for location).

5.2.1 Impacts and Mitigation Measures

Based on the elevation of the proposed individual wastewater treatment system and design of the system, the septic system and leaching field are not expected to result in adverse impacts.

5.3 RECREATIONAL RESOURCES

The Wailea area has no known trail systems. Kolekole Beach park is adjacent to the subject property.

5.3.1 Impacts and Mitigation Measures

The subject project will not be visible from any known trails or Kolekole Beach park. Therefore there are no expected effects on recreational resources from the project and no mitigation measures are proposed.

5.4 POTABLE WATER

A county water line per guidelines of the Department of public works will be installed for the Goehring residence. The water line would start at TMK **(3) 2-9-03-003:047** and run down Mamalahoa Highway (Wailea Road) to proposed site location (~2070 ft) within the County road right-of-way. Trenching within the County road right-of-way will be required to cover the pipe.

An alternative to county water is to drill a well on the subject property. Anticipated ground water depth is less than 100 feet deep but because the proximity of the Kolekole Stream and Pacific Ocean, the quality of drinking water may not meet county requirements.

A second alternative would be a rainwater collection system. An underground 10,000-gallon water tank would be located on the North side of the single-family residence. Rainwater would be collected from the roof of the home and piped to the holding tank. The Wailea area receives approximately 150 inches of rain a year. This amount of water is sufficient to provide potable water for the Goehring residence.

Currently, Kolekole Beach Park uses non-potable water for their water supply. The water source comes from a year around natural spring located on an adjacent property [TMK: (3) 2-9-03:058] and flows across the subject property. The water is taken from a drainage water pipe that is located under Mamalahoa Highway (Wailea Road). The water pipeline encroaches on the subject property following the side of Mamalahoa Highway (Wailea Road). Because of the elevation difference between the drainage pipe and the Kolekole Beach Park, there is enough gratify pressure not to require a pump. The above technique that Kolekole Beach Park is using is the third alternative for providing water to the subject property. This alternative requires a difficult permit approval, water right changes, expensive water filtration system, and could possibly cause major delays to the project; therefore this source of water is being proposed as an alternative.

5.4.1 Impacts and Mitigation Measures

No adverse impacts will occur with regard to the county water supply due to the abundance of water in the area. There will be no impacts to the Department of Water Supply, County or State.

5.5 SOLID WASTE

Solid waste from the proposed project will be disposed by the owner at a nearby solid waste transfer station.

5.5.1 Impacts and Mitigation Measures

The impact to solid waste disposal will be one additional family to the nearby solid waste transfer station.

5.6 POLICE AND EMERGENCY SERVICES

The Wailea area is served by the Hilo Police Department and Emergency Services Department. It will take approximately 10-20 minutes for Police or Emergency Services to respond.

5.6.1 Impacts and Mitigation Measures

There will be no significant impact on police or emergency services as a result of the proposed single-family residence. If development in the area continues to grow, this could impact the response times for Police and Emergency Services. Over time, this could require additional government resources for these services.

5.7 FIRE PROTECTION SERVICES

The property is under the jurisdiction of the Hilo Fire Department. However, the residence is not served by municipal water for firefighting purposes.

5.7.1 Impacts and Mitigation Measures

A fire department hookup is located approximately 2400 feet in the town of Wailea. Water can also be pumped from Kolekole Stream if needed. The county water line that supplies fresh water to the subject property will also have a hook-up so the fire department can tap into this source. The impact to Fire Protection Services will be the respond to one additional family in the Wailea area.

5.8 ELECTRICAL AND COMMUNICATION FACILITIES

Electrical power for the Wailea area is provided by; Hawaii Electric Light Co. (HELCO), Telephone service by Verizon Hawaii; and cable service by Oceanic Cable. Approximately 1480 feet of additional overhead distribution lines and seven telephone poles will have to be installed along the Mamalahoa Highway from HELCO's existing P-15X pole in front of parcel 47 and 36, then across Kaahikini Stream Gulch, over parcels 12 and 39 and back onto Mamalahoa Highway to the proposed house. See Appendix F for proposal letter and Appendix B for Existing Utilities. The utility companies have legal easement rights to install the needed utilities on the subject property and adjacent Parcels 58 and 12. HELCO is responsible for obtaining easement rights and the owner (Goehring) is responsible for paying surveying and document processing fees. According to Hawaii Electric Light Co., it will take 48 weeks or more to install poles and lines.

5.8.1 Impacts and Mitigation Measures

For connection of the facilities, the adverse impacts are expected to be minimal. There will be telephone poles added to part of Mamalahoa Highway (Wailea Road) and across Kaahikini Stream Gulch that will have an insignificant impact to the Hawaiian Electric Company. Because Mamalahoa Highway is a hillside road cut, there is little room for utility poles. Vegetation will have to be trimmed to allow safe usage for the public and owner. Vegetation trimming will have a moderate impact on the scenic view of the roadway. Land clearing and endangered flora disturbance is not anticipated. The location and the amount of trimming will be determined by HELCO in accordance to HELCO's Tree Trimming Specifications TT9301-1, March 1993. In general, the trimming will make Mamalahoa Highway (Wailea Road) safer for civilians and auto drives because a reduced hazard of falling vegetation. Little traffic is traveled on Mamalahoa Highway (Wailea Road) and no road closures are expected. Traffic may temporarily have to drive around fallen trimmed vegetation and work vehicles. Vegetation will be disposed of at the local waste station, cut into smaller pieces and used for firewood.

CHAPTER 6 - RELATIONSHIP TO LAND USE POLICIES AND CONTROLS OF THE AFFECTED AREA

6.1 OVERVIEW

State and County policy, land use plans and controls are established to guide development in a manner that enhances the overall living environment of Hawaii, and that ensures the long-term social, economic, environmental, and land use needs of Hawaii are met. The use of the site for a

single-family residential development is in accordance with the State and County land use plans and policies, as discussed below.

6.2 HAWAII STATE PLAN AND FUNCTIONAL PLANS

The Hawaii State Plan, adopted in 1978, consists of three parts:

- An overall theme with broad goals, objectives and policies
- A system designed to coordinate public planning to implement the goals, objectives and policies of the State Plan; and
- Priority guidelines which are statements of Statewide interrelated problems deserving immediate action.

The State Functional Plans are intended to provide more detail for implementing the State Plan. They guide State and County actions under specific functional topics. One functional plan related to the development of the Goehring residence is the State Housing Functional Plan. The goal for housing is to:

Develop greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, livable homes located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals (Housing Functional Plan, 1991)

The project will fulfill the housing needs of Douglas Goehring.

Another State Functional Plan that is relevant to this project is the State Conservation Lands Functional Plan, whose objective is:

"The objective of the State Conservation Functional Plan is provide for a management program allowing for judicious use of the State's natural resources balanced with the need to protect these resources to varying degrees."

"Judicious use" of Conservation District resources and lands includes the provision for single-family residences, as detailed in the Hawaii Administrative Rules, Chapter 13-5 (Section 6.3 following).

6.3 STATE LAND USE AND REGULATION OF THE CONSERVATION DISTRICT

The State Land Use Commission classifies all lands in the State of Hawaii into one of four land use designations: Urban, Rural, Agricultural and Conservation. The proposed residence is the State Conservation District. Land uses in the Conservation District are regulated by the State Department of Land and Natural Resources. Hence, the project must conform to requirements of Hawaii Administrative Rules, Title 13, Subtitle 1 Administrations, Chapter 5, "Conservation District," which regulates all Hawaii lands within the conservation land use designation. Chapter 13-5 divides the Conservation District into subzones and provides for identified land uses in each subzone. The subject property is located in the Resource Subzone, in which the proposed use falls under identified land use "R-8, (D-1) A single family residence that conforms to design standards of this chapter (Chapter 13-5)."

This Environmental Assessment supports a Conservation District Use Application (CDUA) which describes how the proposed residence will conform with the design standards set forth in

Chapter 13-5. The CDUA must be approved by the Board of Land and Natural Resources before any development can occur.

6.4 CITY AND COUNTY OF HILO GENERAL PLAN

Section 3-16, Hawaii County Charter, mandates that the General Plan contain the following:

"A statement of development objectives, standards and principles with respect to the most desirable use of land within the county for residential, recreational, agricultural, commercial, industrial and other purposes which shall be consistent with proper conservation of natural resources and the preservation of our natural beauty and historical sites; the most desirable density of population in the several parts of the county; a system of principal thoroughfare, highways, streets, public access to the shorelines, and other open spaces; the general locations, relocations and improvements of public buildings, the general location and extent of public utilities and terminals, whether publicly or privately owned, for water, sewers, light, power, transit, and other purposes; the extent and location of public housing projects; adequate drainage facilities and control; air pollution; and such other matter as may, in the council's judgment, be beneficial to the social, economic, and governmental conditions and trends and shall be designed to assure the coordinated development of the county and to promote the general welfare and prosperity of its people.

The proposed single-family residence falls under the goal of the County Plan to *"maximize choices of single-family residential lots and/or housing for residents of the County"*.

One of the standards of the county plan states that *"Areas shall be limited to low-density and medium density residential uses."*

The proposed single-family residence will not impact the low-density area. One of the policies of the County General Plan is that *"Rural-style residential-agricultural developments, such as new small scale rural communities or extensions of existing rural communities, shall be encouraged in appropriate locations"*.

The subject property is in a Conservation District, and a single-family residence conforms to the land use designation. Residential-agricultural areas surround the property and the Goehring residence will fit into the character of the surrounding community, while providing for the prosperity and general welfare of the people as set forth in the General Plan.

No additional funding will be required from the city or county for the proposed residence.

6.5 COUNTY ZONING

The Wailea area is zoned as Conservation, Agriculture, and Residential Land. Land uses in the Conservation District are regulated by the State Department of Land and Natural Resources in accordance with the rules governing the State Conservation District (see Section 6.3). As such, the residence meets the development standards of Chapter 13-5, Hawaii Administrative Rules, which governs land use within the State Conservation District.

CHAPTER 7 - NECESSARY PERMITS AND APPROVALS

For the proposed project the applicant is required to obtain from the State of Hawaii, Board of Land and Natural Resources approval for a Conservation District Use Permit that will include: Single Family Residency, Swimming Pool, Storage Shed, Outdoor Fireplace, Septic Tank, Propane Tanks, 7 additional Telephone Poles (utilities), County Potable Water line extension, hook-up and trenching in the county road right-of-way, Replacement of old Fencing and Additional Fencing, Driveway Construction, Gate, Lava Rock Walls, Tiki Columns, Landscaping, Grading, and Tree Removal. From the County of Hawaii, Department of Planning, the applicant will need building permits.

CHAPTER 8 - AGENCIES AND ORGANIZATIONS CONSULTED

State of Hawaii

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

County of Hawaii (see Appendex F)

- Department of Planning
- Department of Water Supply
- Department of Parks and Recreation - Kolekole Beach Park
- Department of Public Works – Building Division

Other (see Appendex F)

- Sierra Club
- The Outdoor Circle
- Nature Conservancy
- Adjacent property owners: Alderson, Henderson, Mattingly, and Shirota.
- University of Hawaii - Botanical Department.
- Hawaii Electric Light Company, INC.

CHAPTER 9 - DETERMINATION OF SIGNIFICANCE

Based on the significant criteria set forth in the Hawaii Administrative Rules, Title 11, Department of Health, Chapter 200, "Environmental Impact Statement Rules", the proposed project is not expected to have significant impact on the environment. As such, the recommended preliminary determination for the proposed project is a Finding of No Significant Impact (FONSI). The findings and reasons supporting this determination are discussed below.

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

The proposed project will not result in a loss of natural or cultural resources. The majority of the vegetation and soil will remain undisturbed. In addition, new trees, shrubs and groundcover will be planted focusing on using native plants. There are no threatened or endangered species of plants or wildlife that inhabit the project site. The majority of the site will remain in its natural state.

There are no known archaeological sites on the project property. Furthermore, given the location and previous ranching on the subject property, historic sites are not expected to be present. In researching the location of Hawaii Historic Features, it has been determined that the proposed project will have "no effect" on any historic or cultural resources (see appendix E and F).

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

Presently, the subject property is vacant. The proposed single-family residence is an identified land use in the Conservation District, Resource Subzone, according to 13-5-24 of the Hawaii Administrative Rules.

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

The proposed project has been planned and designed in conformance with the environmental policies and guidelines established in Chapter 343, HRS. The subject property is not under an Executive Order.

4. Substantially affects the economic and social welfare of the community or state.

The proposed project is minor in the scope and will not impact the economy or social welfare of the community or state.

5. Substantially affects public health.

Factors affecting public health, including air quality, water quality, and noise levels, are expected to be minimally affected, or unaffected by the construction and the use of the Goehring residence. Potential impacts will be mitigated in accordance with Department of Health regulations.

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

Due to the nature of the proposed single-family residence, there are no substantial secondary or indirect impacts such as population changes or effects on public facilities.

7. Involves a substantial degradation of environmental quality.

Impacts to air and water quality, noise levels, natural resources, and land use associated with the construction and occupation of the Goehring residence are anticipated to be minimal. Mitigation measures will be employed as practicable to further minimize potentially detrimental effects to the environment resulting from project activities. The proposed project does not have substantial degradation of environmental quality.

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

The proposed single-family residence is relatively minor in scope and adverse cumulative impacts on the environment are not anticipated, nor does the proposed project involve a commitment for larger actions on the subject property.

9. Substantially affects a rare, threatened, or endangered species.

There are no threatened or endangered plant or animal species on the subject property.

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

On a short-term basis, ambient air and noise conditions will be affected by construction activities related to the proposed single-family residence, but these impacts can be controlled by measures described in the Environmental Assessment. Once the project is completed, air and noise conditions in the project vicinity should return to their present levels.

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

The project site is located inland from coastal waters within an area determined by the Federal Emergency Management Agency to be outside the 500 year flood zone. Based on area topography, the project site may encounter minimum flooding during long periods of heavy rainfall. The design of the house is engineered to withstand moderate flooding by being constructed on cinder block, concrete, and lava rock. All structures proposed for this project will be built according to equivalent standards for seismic zone 4, as established by the Uniform Building Code. As in all coastal or near coastal property, the threat of a tsunami or hurricane is present. According to the "Atlas of Hawaii, 1998" the 1946 tsunami had a maximum magnitude height of 37 feet at Kolekole stream. There is currently a warning siren located above Kolekole Beach Park and evacuation to higher ground will take place if needed for the Goehring residence. Because all structures on the subject property will be constructed with reinforced concrete, little damage should occur with a small tsunami or hurricane. There is currently no volcanic activity in the area.

12. Substantially affects scenic vistas and view planes identified in county or state plans or studies.

From a general perspective, the proposed project will not obstruct views, due to great viewing distance, the property is located in a valley, and the area is heavily vegetated. The proposed property will be constructed below tree heights in the vicinity. Kolekole Beach Park visitors will not see the house from the park location or ocean.

13 Requires substantial energy consumption.

Construction and daily activities associated with the proposed single-family residence are small-scale and will not require substantial amounts of electrical energy. The Goehring residence will use propane for water heating, cooking, and some lighting. A portable back-up generator will be used when energy consumption is high.

FINDINGS

In accordance with the provisions set forth in Chapter 343, Hawaii Revised Statues, and the significance criteria in Section 11-200-12 of Title 11, Chapter 200, the project will have no significant adverse impact to water quality, air quality, existing utilities, noise levels, social welfare, archaeological sites, or wildlife habitat. All anticipated impacts will be temporary and will not adversely impact the environmental quality of the area. An Environmental Impact Statement (EIS) will not be required, and that a Finding of No Significant Impact (FONSI) will be issued for this project.

REFERENCES

- Kolekole Bridge Seismic Retrofit Final EA/FONSI (September 1999).
- Twigg-Smith Residence Draft EA (April 2002).
- Hawaiian Heritage Plants by Angela Kay Kepler
- Wayside Plants of the Islands by Dr. W. Arthur Whistler
- A Pocket Guide to Hawaii's Trees and Shrubs by H. Douglas Pratt
- A Pocket Guide to Hawaii's Flowers by Leland Miyano
- The Ecotravellers' Wildlife Guide Hawaii by Les Beletsky.
- Hawaii Administrative Rules, Chapter 13-5.
- Hawaii Revised Statutes, Section 343-5-12.
- Hawaii Administrative Rules, Chapter 11-55, "Water Pollution Control" and Chapter 11-54, "Water Quality Standards."
- Hawaii Administrative Rules, Title 11, Department of Health, Chapter 200, "Environmental Impact Statement Rules"
- Soil Survey of Island of Hawaii, State of Hawaii compiled by the U.S. Department of Agriculture Soil Conservation Service (1973).
- USGS Geologic Map of the Island of Hawaii (1996).
- U.S Dept. of Agriculture Soil Conservation Service, Soil Survey of the Island of Hawaii, State of Hawaii, December 1973.
- U.S Federal Emergency Management Agency, National Flood Insurance Program, "Flood Insurance Rate Map, Hawaii County, Hawaii", July 16, 1990.
- Hawaii County, County of Hawaii General plan, November 1989.
- Archaeological Assessment for Seismic Retrofitting for the Kolekole Stream Bridge Wailea, South Hilo District, Hawaii Island, December 1998.
- Botanical Resources, Assessment Kolekole Stream Bridge, South Hilo District, Hawaii, December 1998.
- Biological Reconnaissance Survey of the Kolekole Stream at the above Hawaii Belt Road on the Island of Hawaii, August 5, 1999.
- Various County and State GIS files located at: http://www.state.hi.us/dbedt/gis/download.htm

- The following web pages were also referenced: http://www.botany.hawaii.edu/faculty/carr/fpfamilies.htm, http://www.alohafriends.com/photos_plants_and_trees.html, http://www.hear.org/starr/hiplants/images/index.html, http://www2.ctahr.hawaii.edu/forestry/Data/trees.html, http://www2.ctahr.hawaii.edu/forestry/Data/links.html#forestTreeSpecies, http://ravenel.si.edu/botany/pacificislandbiodiversity/hawaiianflora/index.htm,

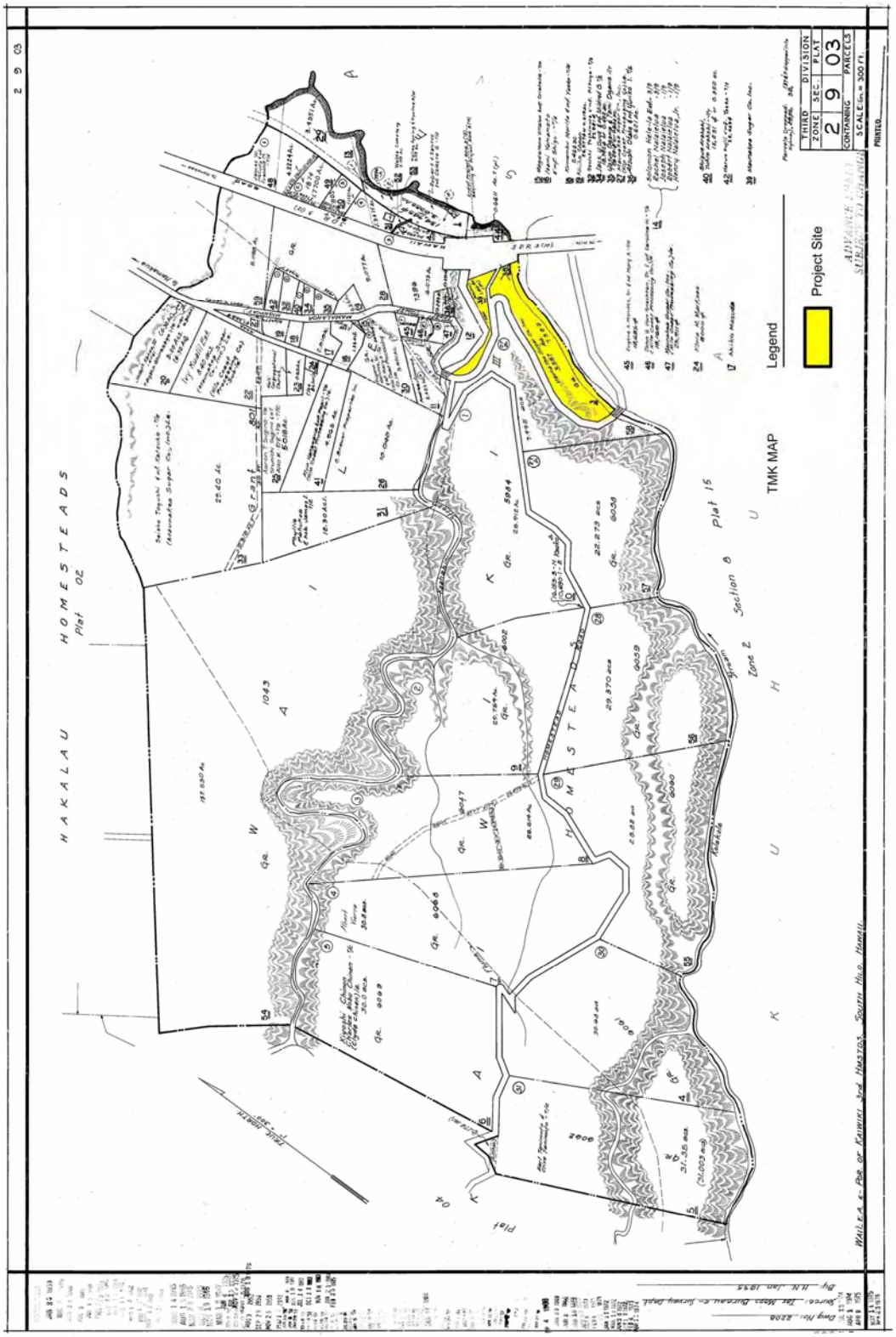
http://pdcs.ctahr.hawaii.edu:591/hawnprop/, and http://ravenel.si.edu/botany/pacificislandbiodiversity/hawaiianflora/thumbgall.cfm?start=625.

APPENDIX A

TMK Map

TMK Map 1

Exhibit Map – Boundary Survey 2


HAKALAU HOMESTEADS
Plat 02
Plat 15
Section 8
Zone 2
TMK MAP
Legend
Project Site
THIRD DIVISION
ZONE SEC. PLAT
2 9 03
CONTAINING PARCELS
SCALE 1in. = 300 ft.
PRINTED
WAILEA c- POR. OF KAIWIKI 3rd HMSTDS. SOUTH HILO HAWAII

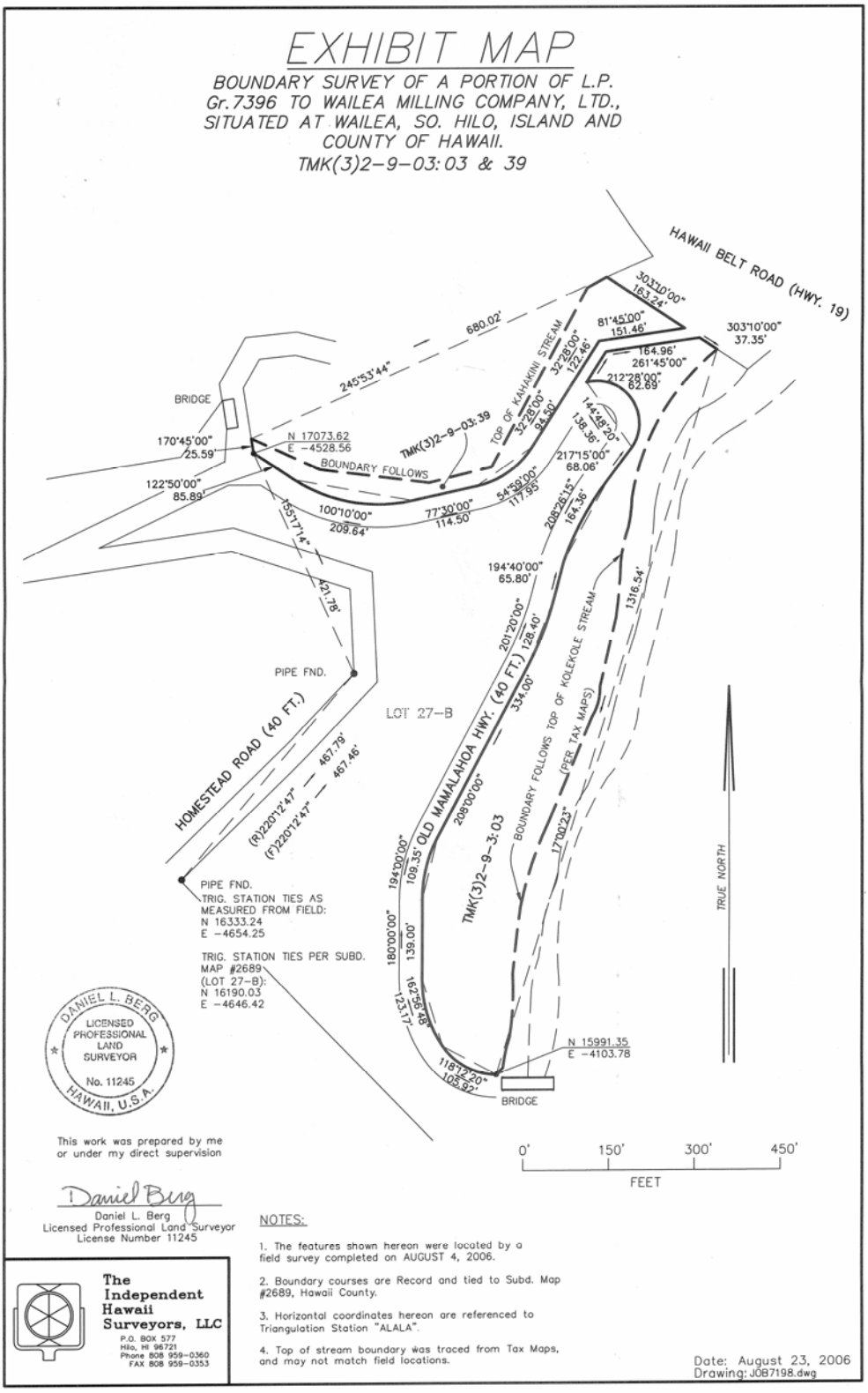


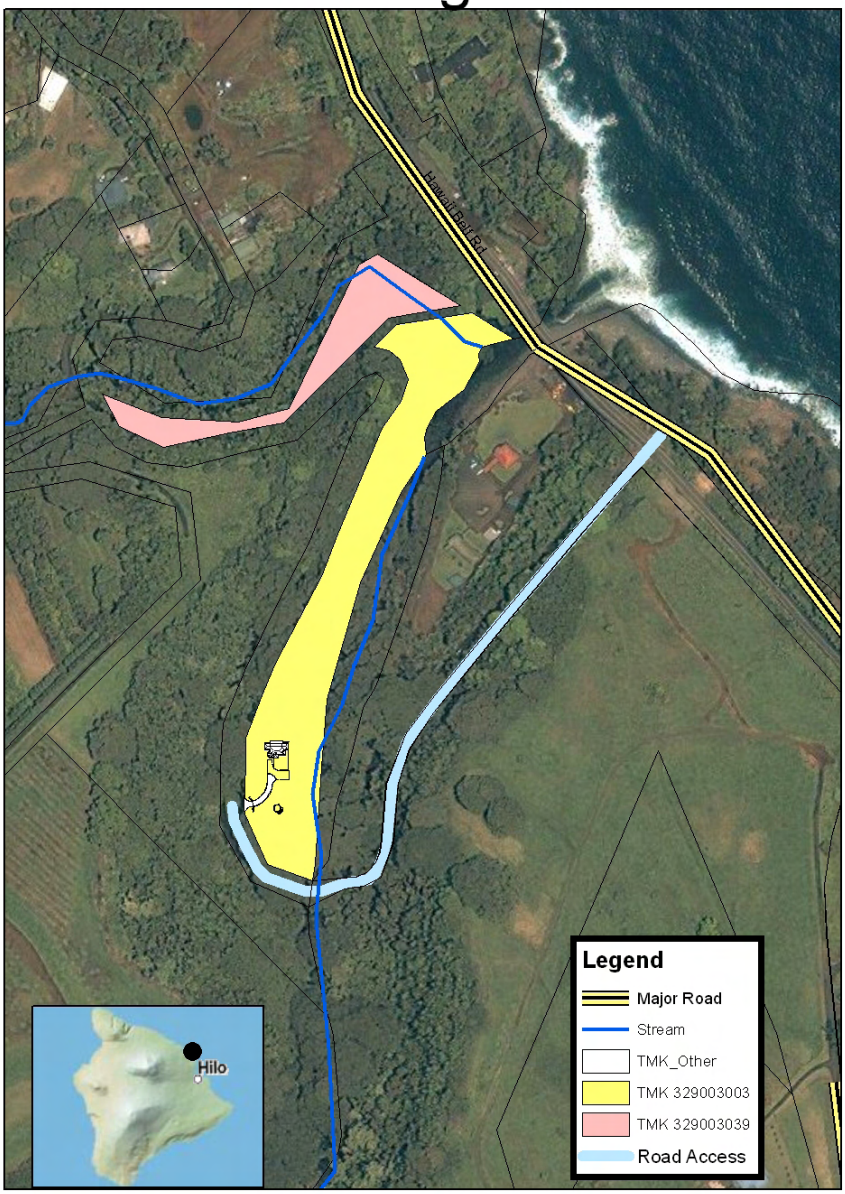
EXHIBIT MAP
BOUNDARY SURVEY OF A PORTION OF L.P. Gr. 7396 TO WAILEA MILLING COMPANY, LTD., SITUATED AT WAILEA, SO. HILO, ISLAND AND COUNTY OF HAWAII.
TMK(3)2-9-03:03 & 39
HAWAII BELT ROAD (HWY. 19)
BRIDGE
N 17073.62
E -4528.56
TMK(3)2-9-03:39
BOUNDARY FOLLOWS
TOP OF KAHAKINI STREAM
PIPE FND.
LOT 27-B
HOMESTEAD ROAD (40 FT.)
OLD MAMALAHOA HWY. (40 FT.)
TMK(3)2-9-3:03
BOUNDARY FOLLOWS TOP OF KOLEKOLE STREAM (PER TAX MAPS)
PIPE FND.
TRIG. STATION TIES AS MEASURED FROM FIELD:
N 16333.24
E -4654.25
TRIG. STATION TIES PER SUBD. MAP #2689 (LOT 27-B):
N 16190.03
E -4646.42
N 15991.35
E -4103.78
BRIDGE
TRUE NORTH
0' 150' 300' 450'
FEET
DANIEL L. BERG
LICENSED PROFESSIONAL LAND SURVEYOR
No. 11245
HAWAII, U.S.A.
This work was prepared by me or under my direct supervision
Daniel L. Berg
Licensed Professional Land Surveyor
License Number 11245
NOTES:
1. The features shown hereon were located by a field survey completed on AUGUST 4, 2006.
2. Boundary courses are Record and tied to Subd. Map #2689, Hawaii County.
3. Horizontal coordinates hereon are referenced to Triangulation Station "ALALA".
4. Top of stream boundary was traced from Tax Maps, and may not match field locations.
The Independent Hawaii Surveyors, LLC
P.O. BOX 577
Hilo, HI 96721
Phone 808 959-0360
FAX 808 959-0353
Date: August 23, 2006
Drawing: J0B7198.dwg

APPENDIX B

Maps

Existing Access Map	1
Adjacent Property Owners Map	2
Conservation Classification Map	3
Existing Utilities Map (Power Lines)	4
Special Management Area (SMA) Map	5
Water Line Extension Map	6

Existing Access



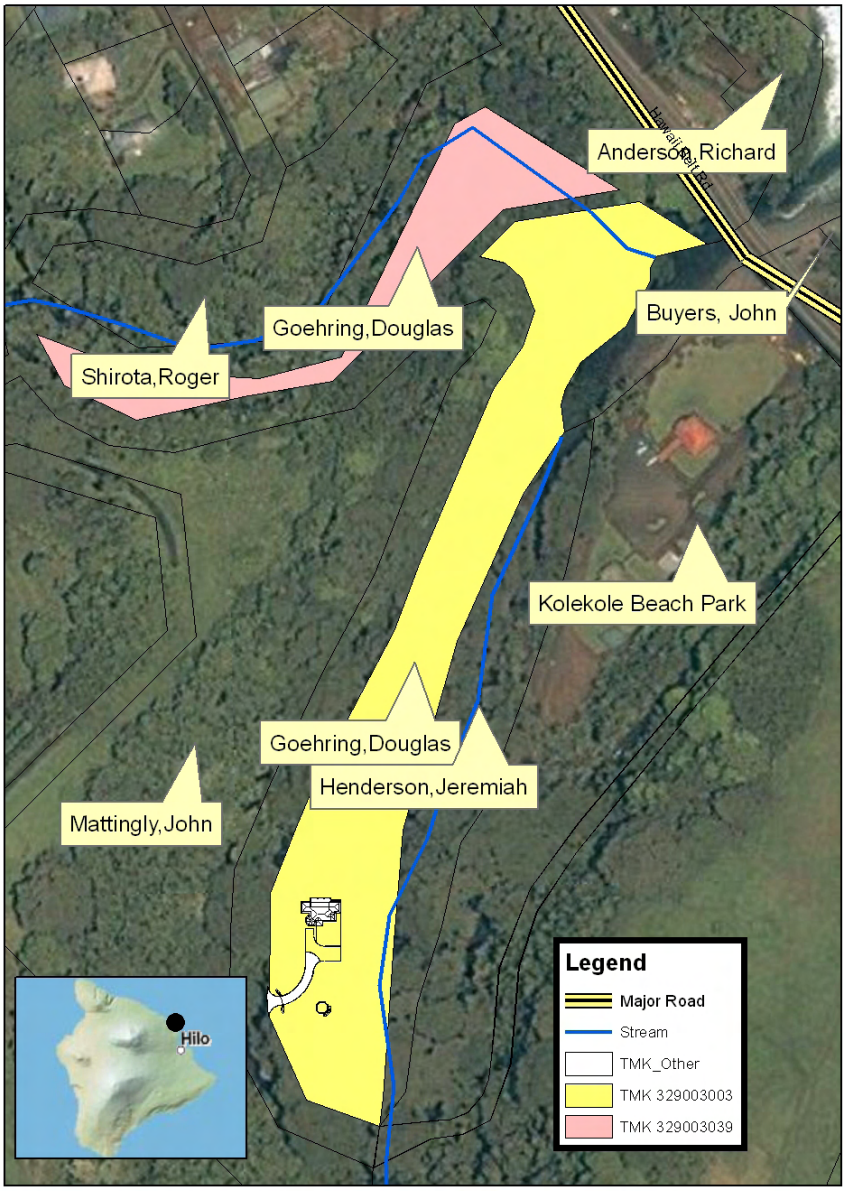
100 50 0 100 Meters

200 100 0 200 Feet

6/24/10 Rev 3

N

Adjacent Property Owners



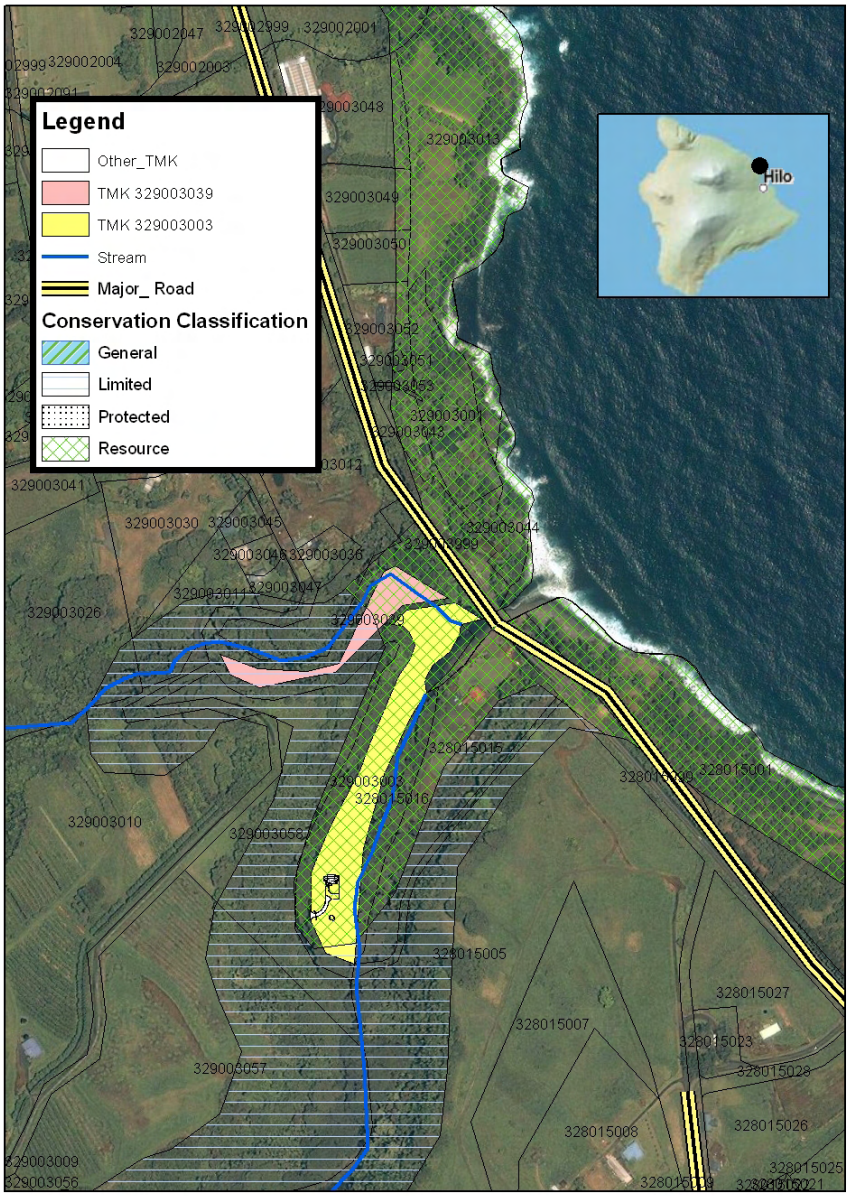
50 25 0 50 Meters

200 100 0 200 Feet

6/24/10 Rev 3

N

Concervation Classification Map



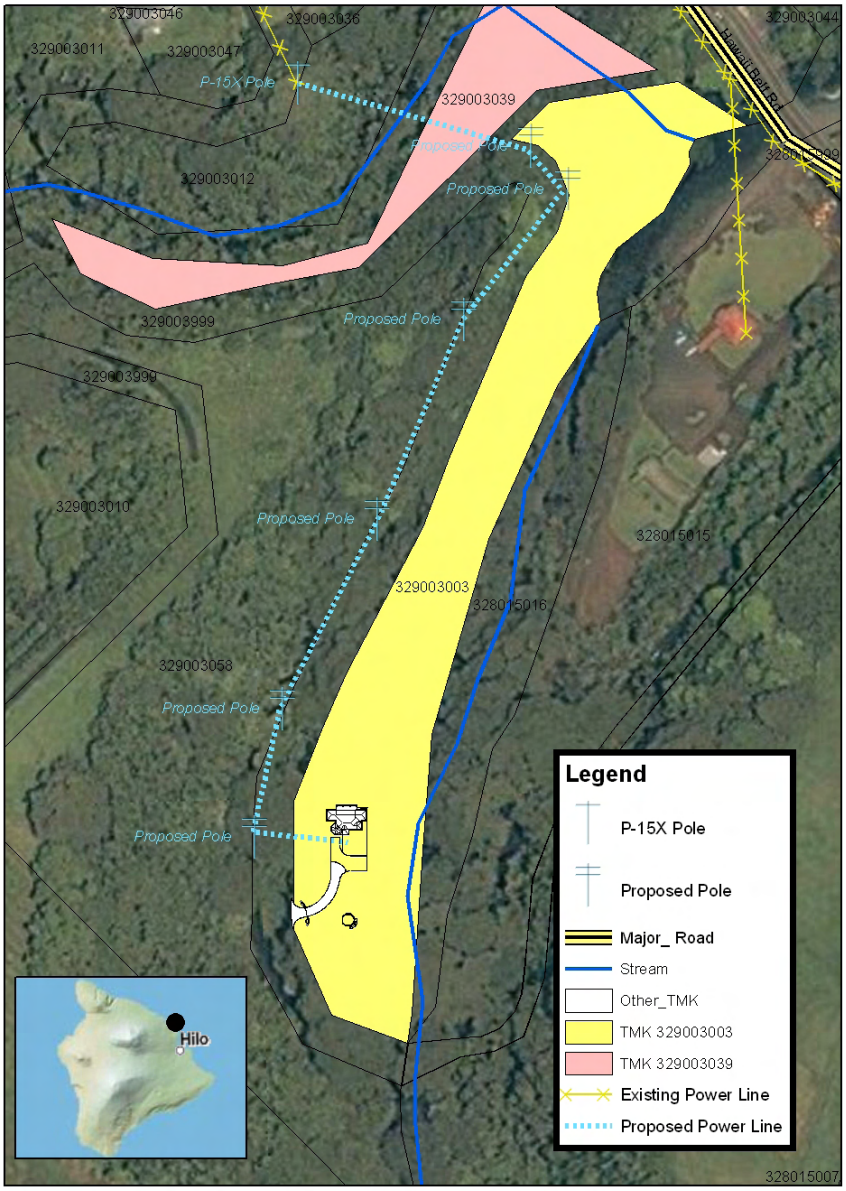
100 50 0 100 Meters

500 250 0 500 Feet

6/25/10 Rev 3

N

Existing Utilities (Power Lines)



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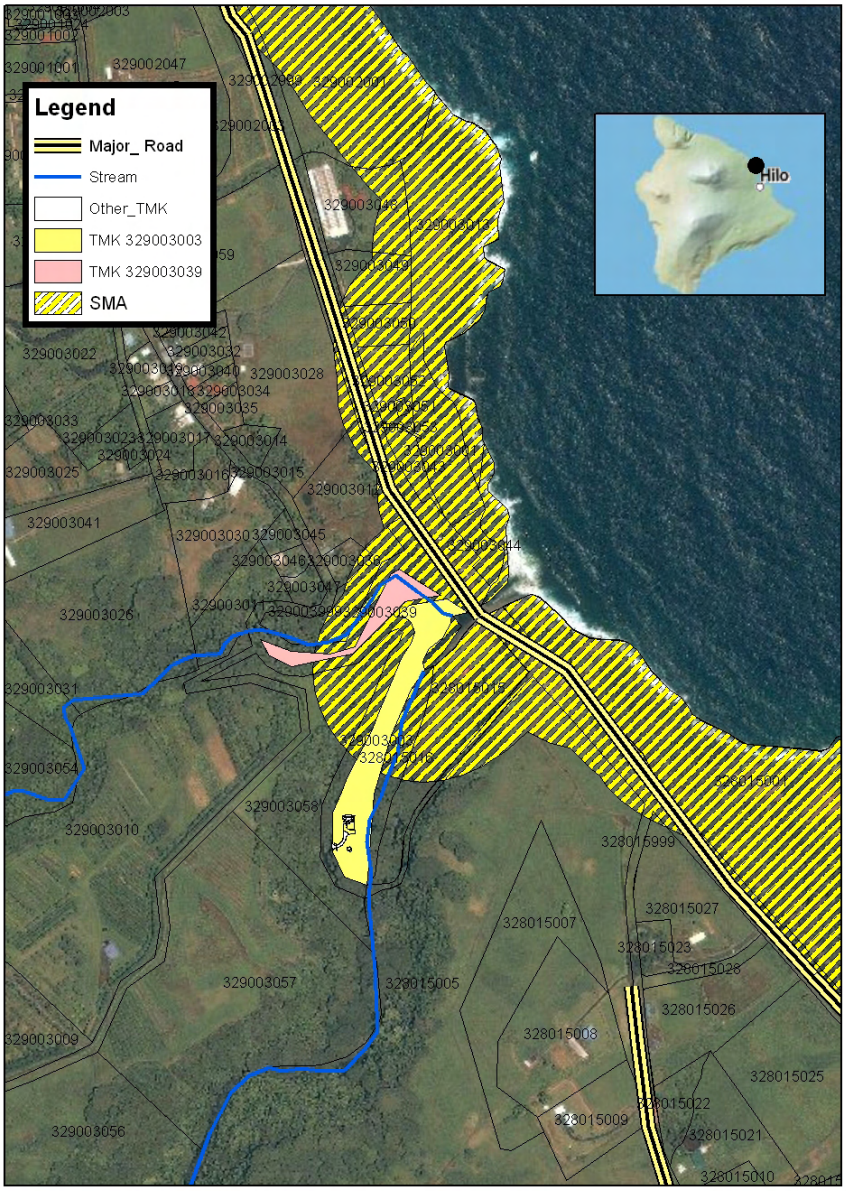
200 100 0 200 Feet

06/26/10 Rev 3

N

Special Management Area (SMA)



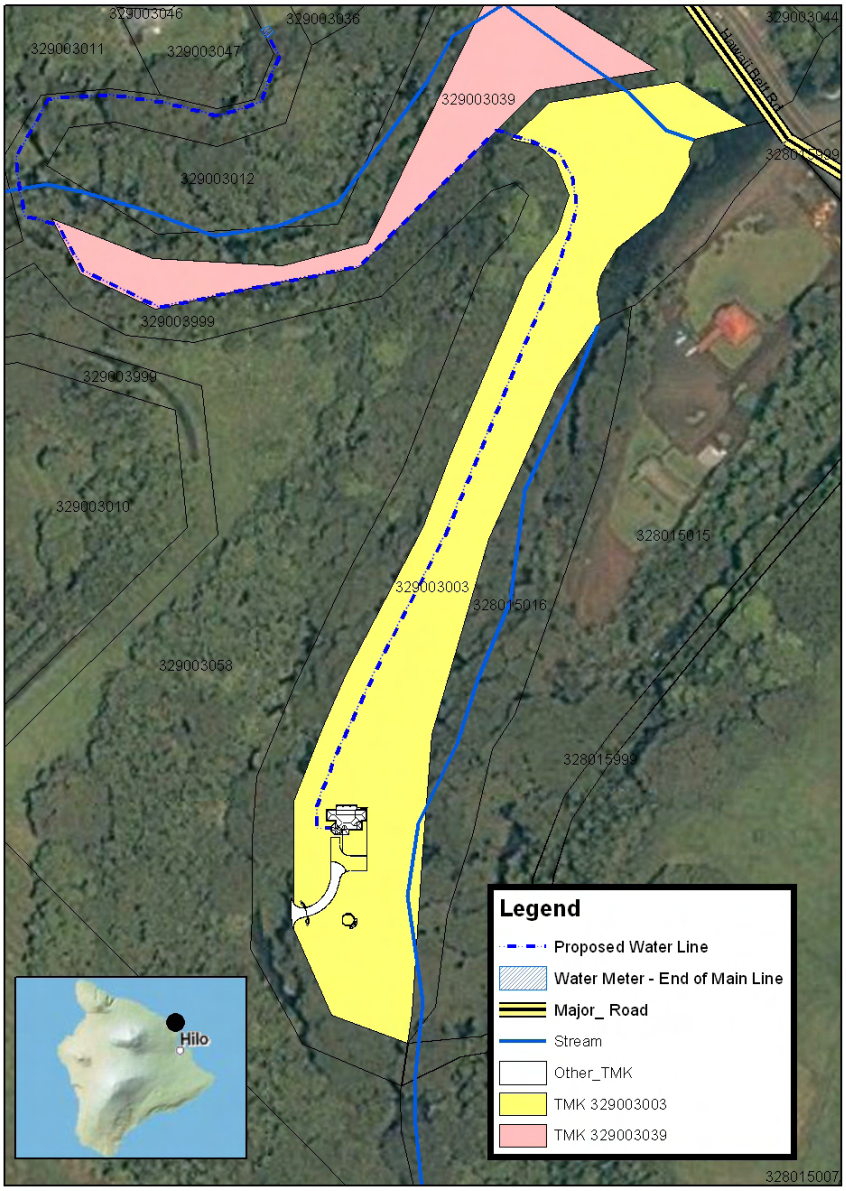
200 100 0 200 Meters

500 250 0 500 Feet

06/27/10 Rev 3

N

Water Line Extension Map



50 25 0 50 Meters

200 100 0 200 Feet

06/27/10 Rev 3

N

APPENDIX C

House Plans – Landscaping Plans – Grading Plans

Front Elevation	1
Rear Side Elevation	2
Left and Right Side Elevation	3
Shed Front Elevation	4
Gate	5
Main Floor Plan	6
Upper Floor Plan	7
Foundation Plan	8
Main Floor Plan (Shed)	9
Upper Floor Plan (Shed)	10
Front 3D View	11
Side/Front 3D View	12
Rear 3D View	13
Landscaping & Site Plan	14
Grading Plan	18

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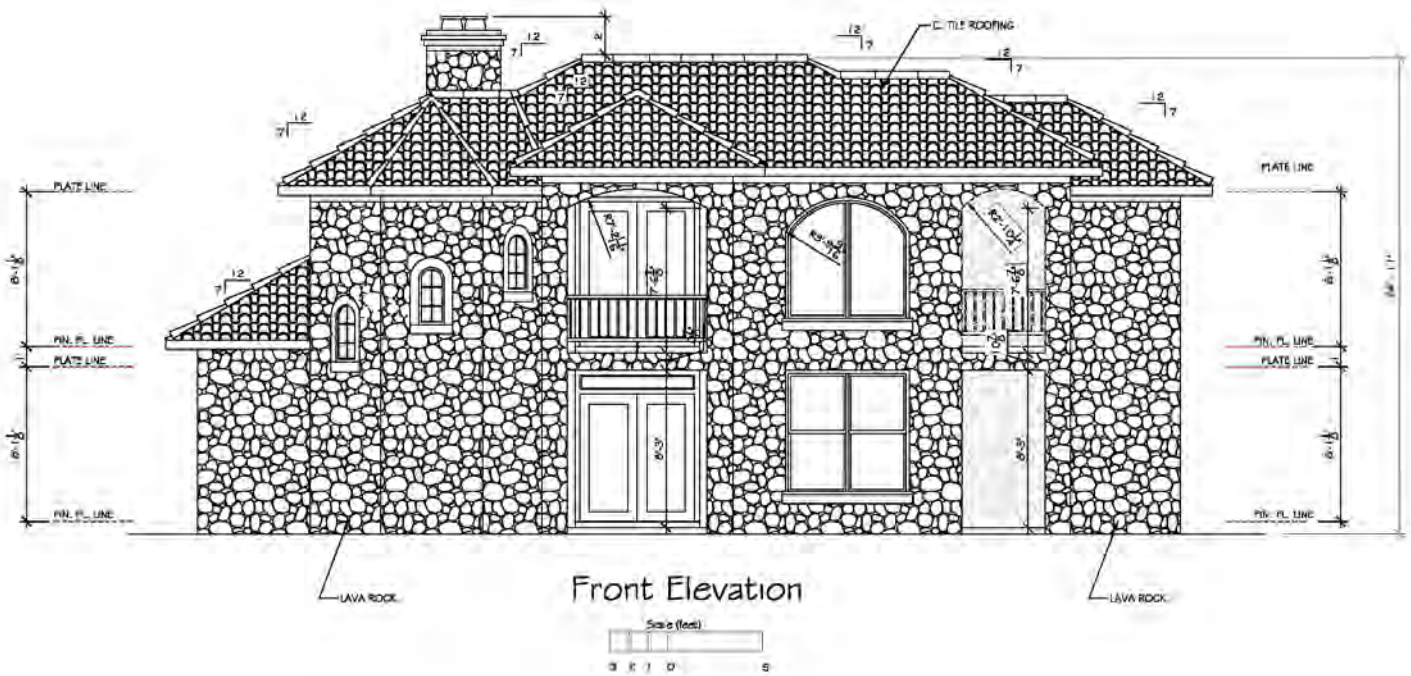

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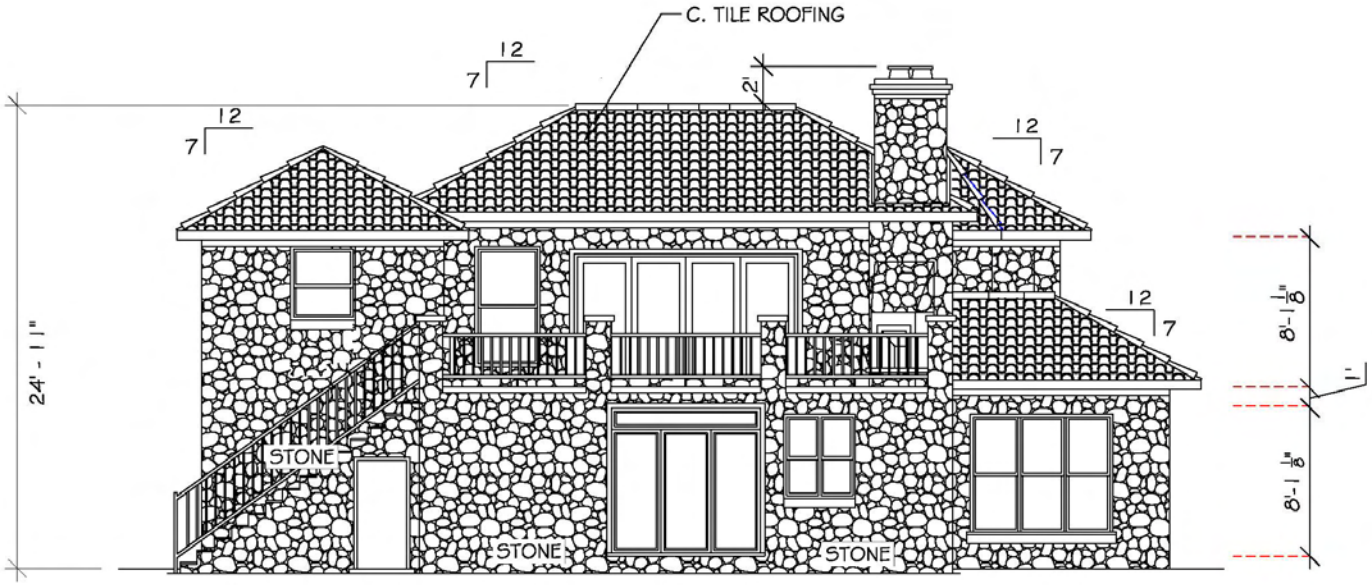

Rear Side Elevation

Scale (feet)
3 2 1 0 5

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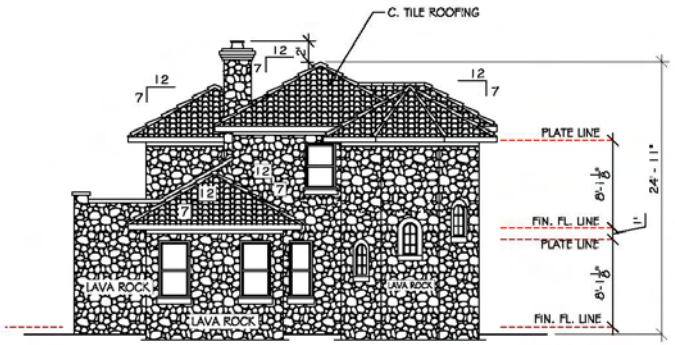
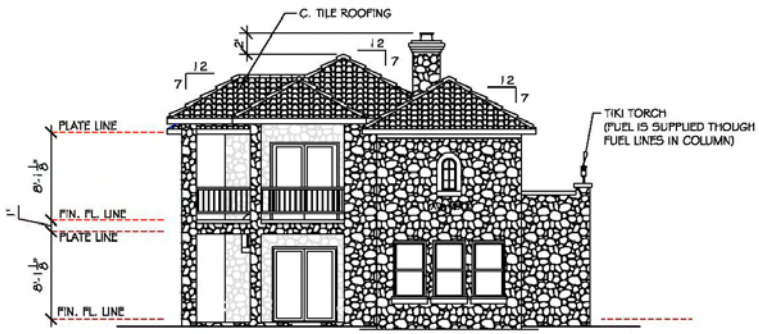


Left Side Elevation



Right Side Elevation

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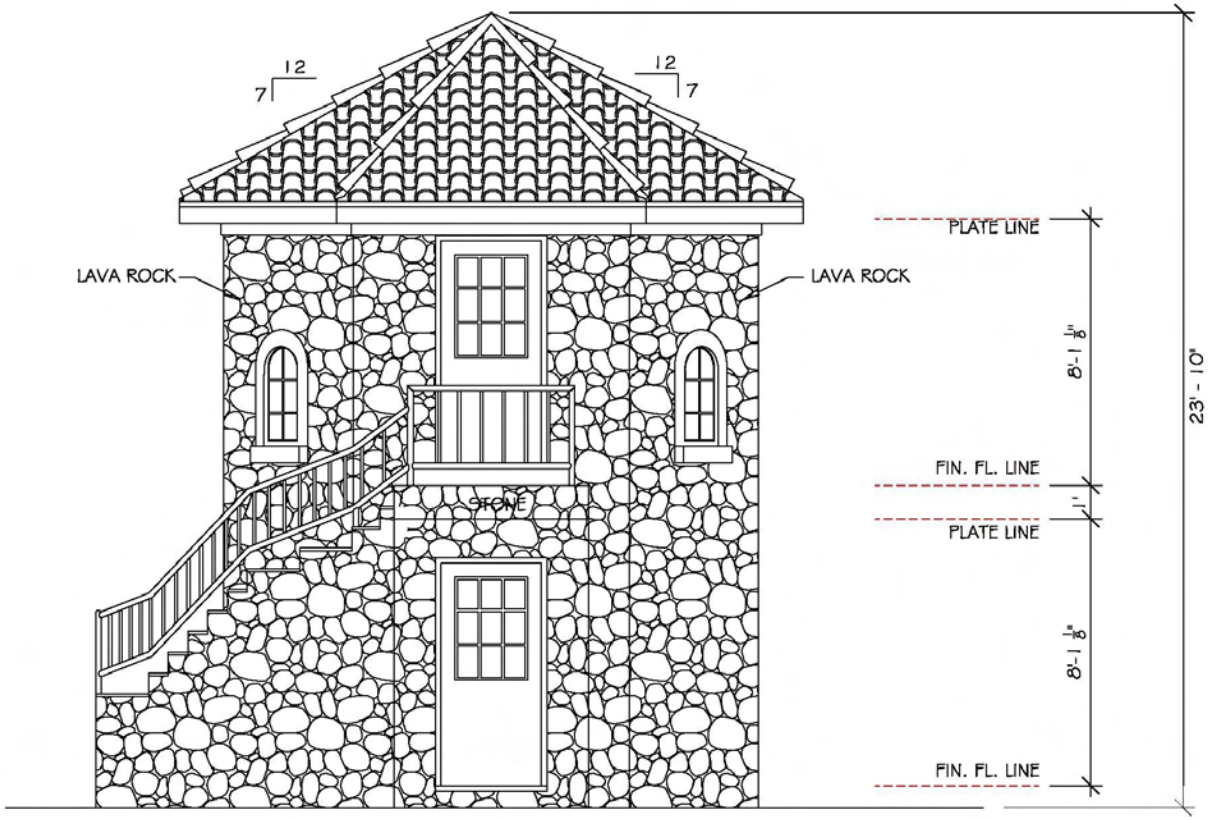

Shed Front Elevation

Scale (feet)

3 2 1 0 5

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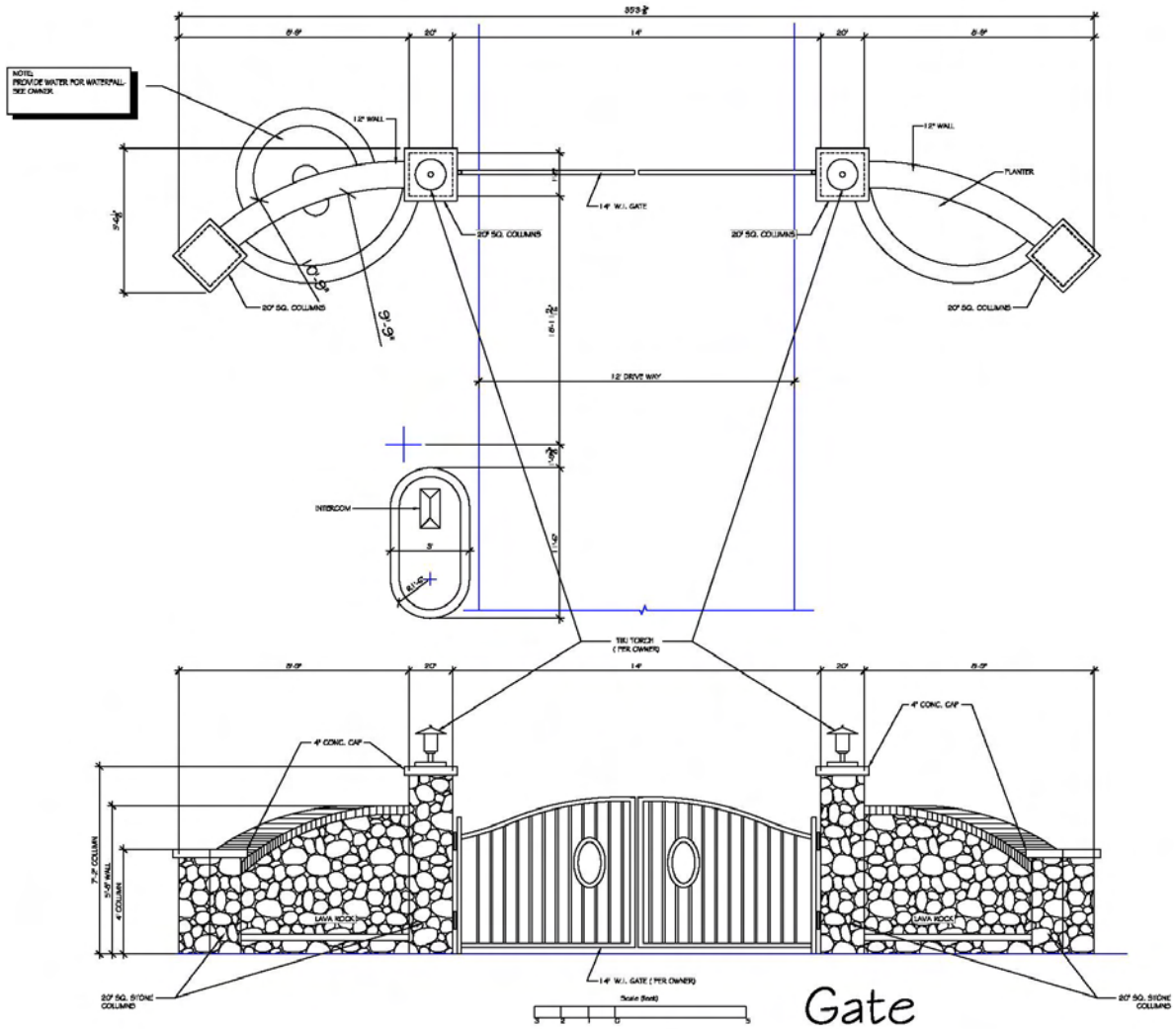

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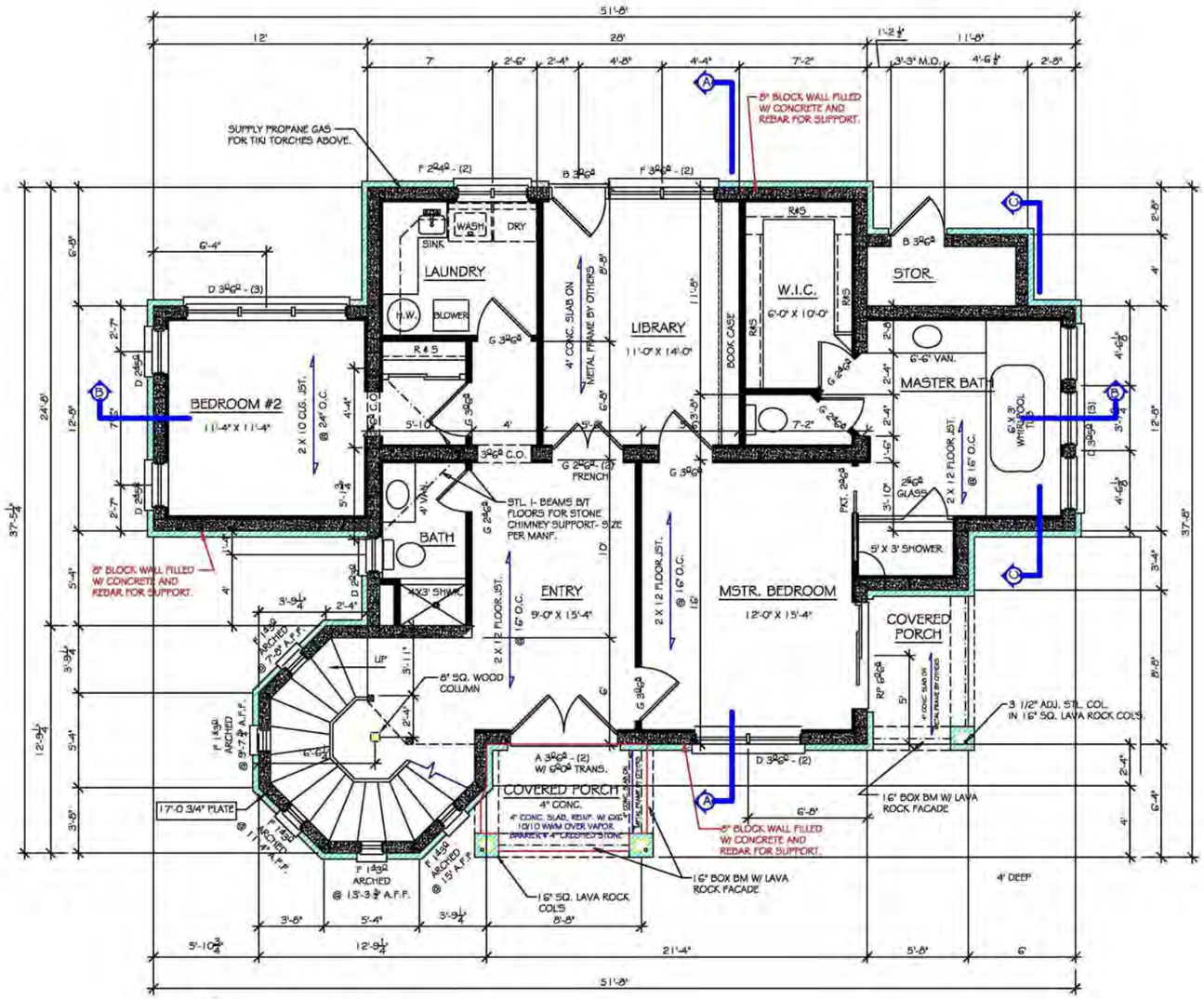

Main Floor Plan

Scale (feet)

3 2 1 0 5

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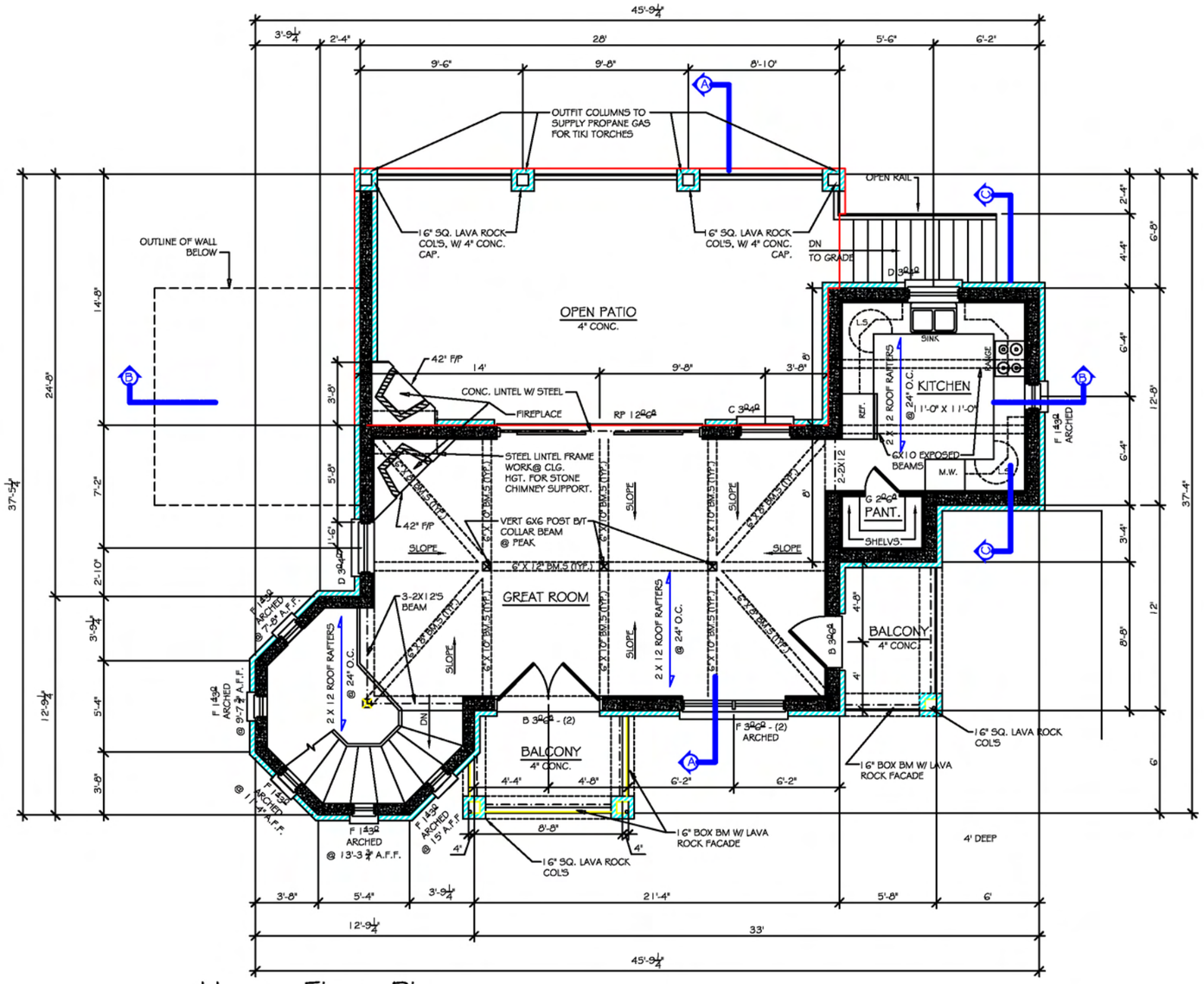

Upper Floor Plan

Scale (feet)
3 2 1 0 5

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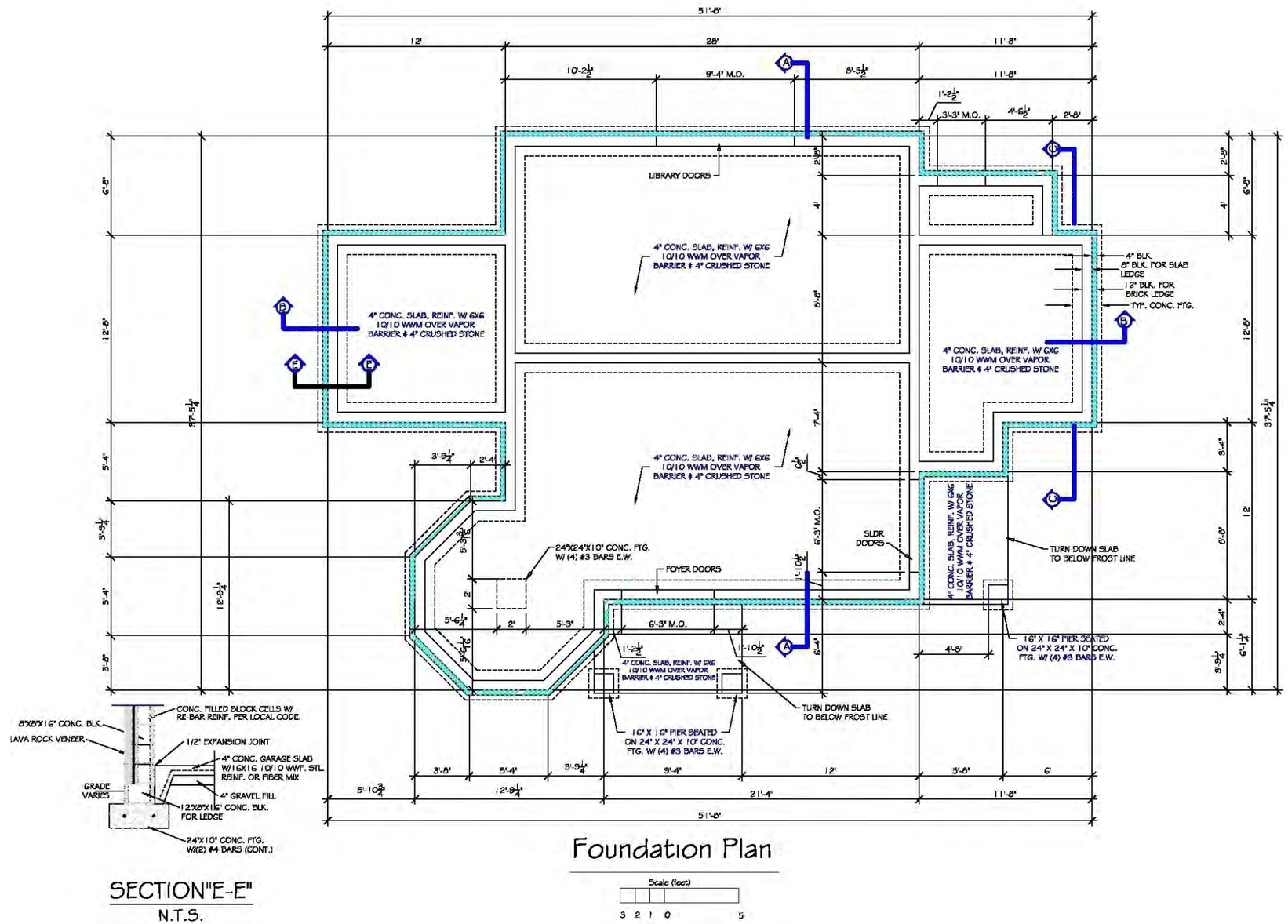

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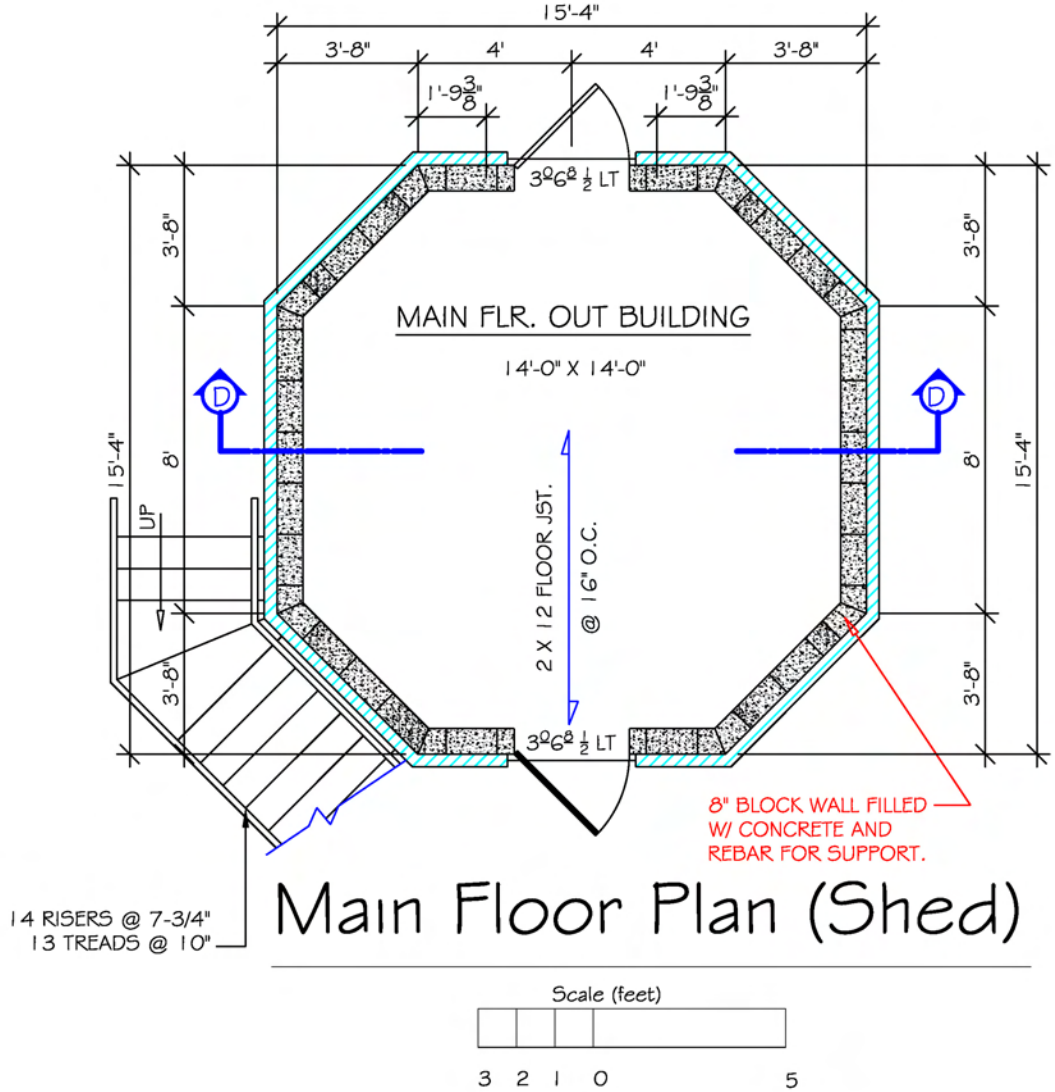

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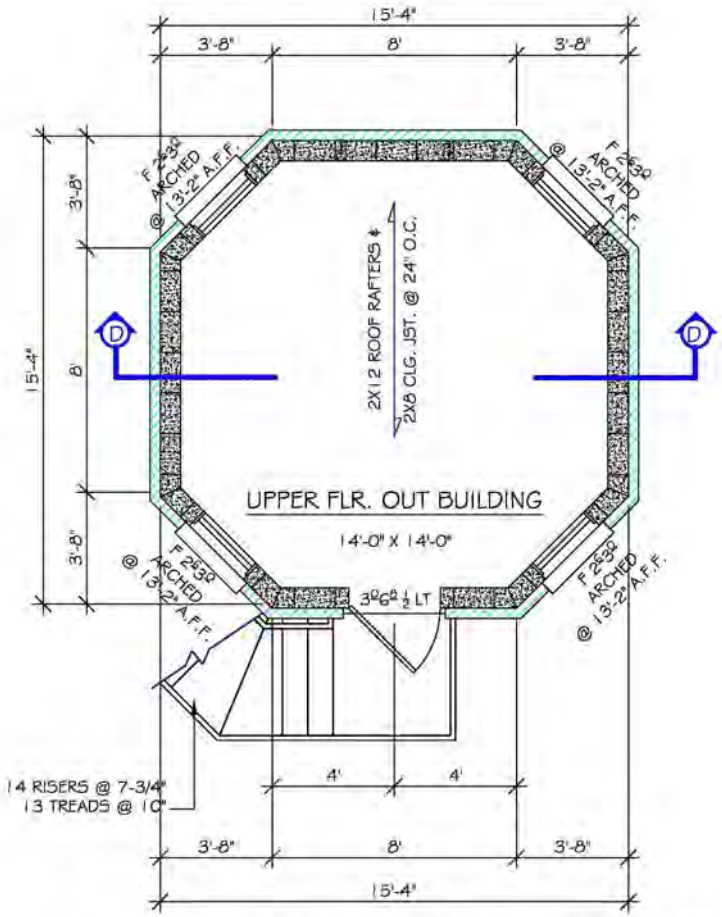

Upper Floor Plan (Shed)

Scale (feet)

3 2 1 0 5

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Front 3D View (not to scale)

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Side/Front 3D View (not to scale)

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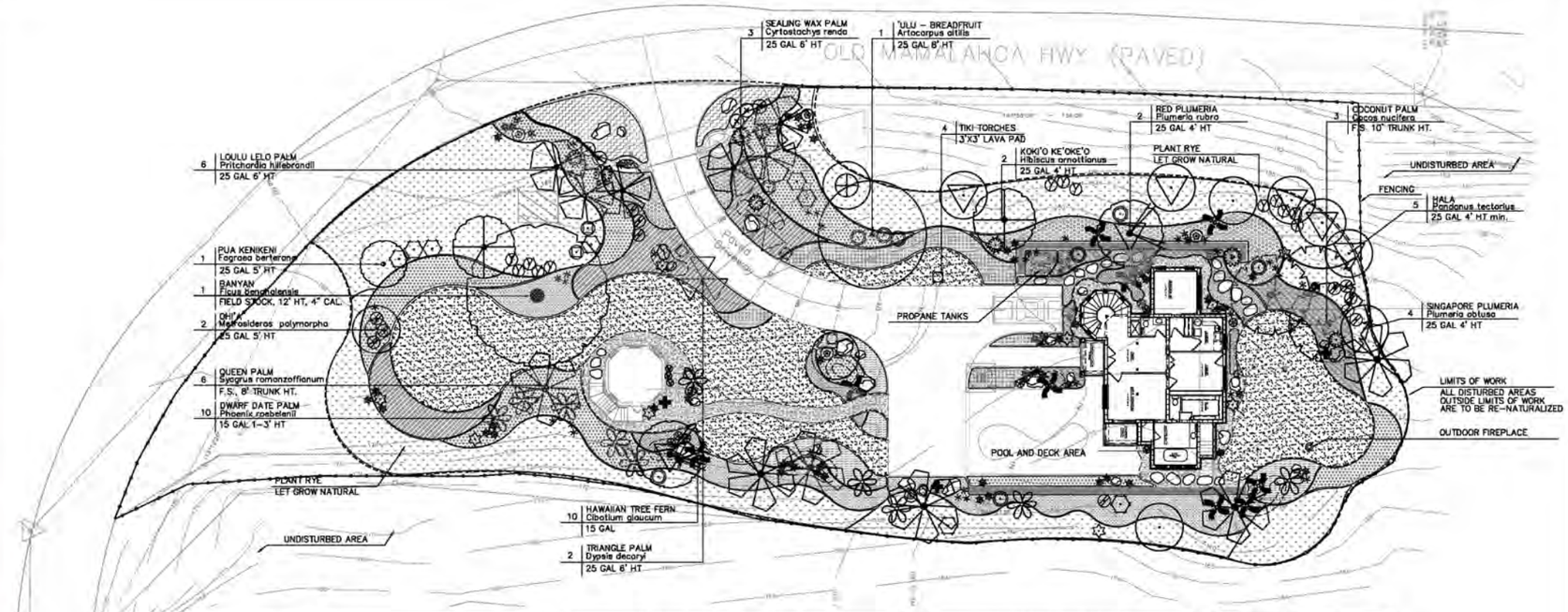
Rear 3D View (not to scale)



SHRUB LEGEND

SYM.	COMMON/ BOTANICAL	SIZE	QTY.	NOTES
	TI–RED "FLOOZIE" Cordyline fruticosa	3 GAL	52	PLANT 12" O.C.
	GIANT GREEN TI Cordyline	3 GAL	32	PLANT 12" O.C.
	'AWIKIWIKI Canavalia galeata	1 GAL	5	PLANT 12" O.C.
	BROMELIAD VARIETIES Aechmea blanchetiana	1 GAL	8	PLANT 12" O.C.
	VARIEGATED PINEAPPLE Ananus comosus variegatus	3 GAL	10	PLANT 12" O.C.
	KO'OLOA 'ULA – RED ILIMA Abutilon menziesii	3 GAL	13	PLANT 12" O.C.
	CROTON codiaeum variegatum	5 GAL	5	PLANT 12" O.C.
	BLUE GINGER Dichorisandra thrysiflora	5 GAL	12	PLANT 12" O.C.
	MONEY TREE Dracaena marginata	5 GAL	9	PLANT 12" O.C.
	PARROT'S BEAK HELICONIA Heliconia rostrta	7 GAL	3	PLANT 12" O.C.
	SPIDER LILY Crinum asiaticum	7 GAL	6	PLANT 12" O.C.
	MONSTERA Monstera deliciosa	7 GAL	8	PLANT 12" O.C.
	'OHAI Sesbania tomentosa	7 GAL	5	PLANT 12" O.C.
	GOLD HELICONIA Heliconia caribaea	7 GAL	8	PLANT 12" O.C.

GROUND COVER LEGEND

SYM.	COMMON/ BOTANICAL	SIZE	SF.	NOTES
	KUPUKUPU LAU LI'I Nephrolepis cordifolia	1 GAL	2,050	PLANT 12" O.C.
	HINAHINA Heliotropium anomalum	4" POT	100	PLANT 6" O.C.
	WALKING IRIS Neomarica gracilis	1 GAL	450	PLANT 12" O.C.
	WHITE LILY TURF Ophiopogon jaburan	1 GAL	900	PLANT 12" O.C.
	ILIE'E – WLD PLUMBAGO Lipochaeta integrifolia	1 GAL	750	PLANT 12" O.C.
	NEHE Plumbago zeylanica	4" POT	650	PLANT 8" O.C.
	ILIMA PAPA Sida fallax	cuttings	1,050	PLANT 12" O.C.
	SPATHIPHYLLUM Spathiphyllum spp.	1 GAL	500	PLANT 12" O.C.
	OYSTER PLANT Tradescantia spathacea	1 GAL	500	PLANT 12" O.C.
	LAWN– BERMUDA RIVIERA SEED	1 GAL	3,200	

HARDSCAPE LEGEND

SYM.	TYPE	SIZE	QTY.
	BLACK CINDER 2" OVER FILTER FABRIC	1/2"	900 S.F.
	SCULPTURE SELECTED BY OWNER	3/4"	3 E.A.
	ACCENT BOULDERS	1'–3' DIA.	25 E.A.
	TREX PLASTIC HEADER		745 L.F.
	LANDSCAPE MOUNDING 2' INERVALS	1' HT.	20 C.Y.
	STEPPING STONES SELECTED BY OWNER	18" DIA	22 E.A.

SQUARE FOOTAGE CALCULATIONS

ITEM	S.F. SHOWN
DISTURBED AREA	25,475
BUILDING FOOTPRINT	1,500
PAVED/LANAI AREAS	135
POOL AND DECK	865
DRIVEWAY	2,640
RETAINING WALLS	210
ENTRY FEATURE	65
SHED	300
TIKI PADS	25
TOTAL HARDSCAPE	5,740
RYE–NATURALIZED AREA	6,575
LANDSCAPE AREA	13,160

MAXWELL DESIGN GROUP
LANDSCAPE ARCHITECTURE
PLANNING
2670 Wai Wai Place
Kihei, Maui, HI 96753
Office: 808-891-0629
Fax: 808-891-1869
Email: mdghawaii@hawaii.rr.com
www.landscapearchitect.net

BRYAN P. MAXWELL LICENSED PROFESSIONAL LANDSCAPE ARCHITECT No. LA 9601 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE OVERSEE BY OBSERVATION. OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2, OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, STATE OF HAWAII, RELATING TO CHAPTER 464, ARCHITECTS, LAND SURVEYORS, AND LANDSCAPE ARCHITECTS.

SIGNATURE

PREPARED FOR:

GOEHRING RESIDENCE

OLD MAMALAHOA HYW.
WAILEA, HILO, HAWAII
T.M.K. (3) 2-9-03:003

SHEET TITLE

LANDSCAPE PLANTING AREA 'A'

REVISIONS

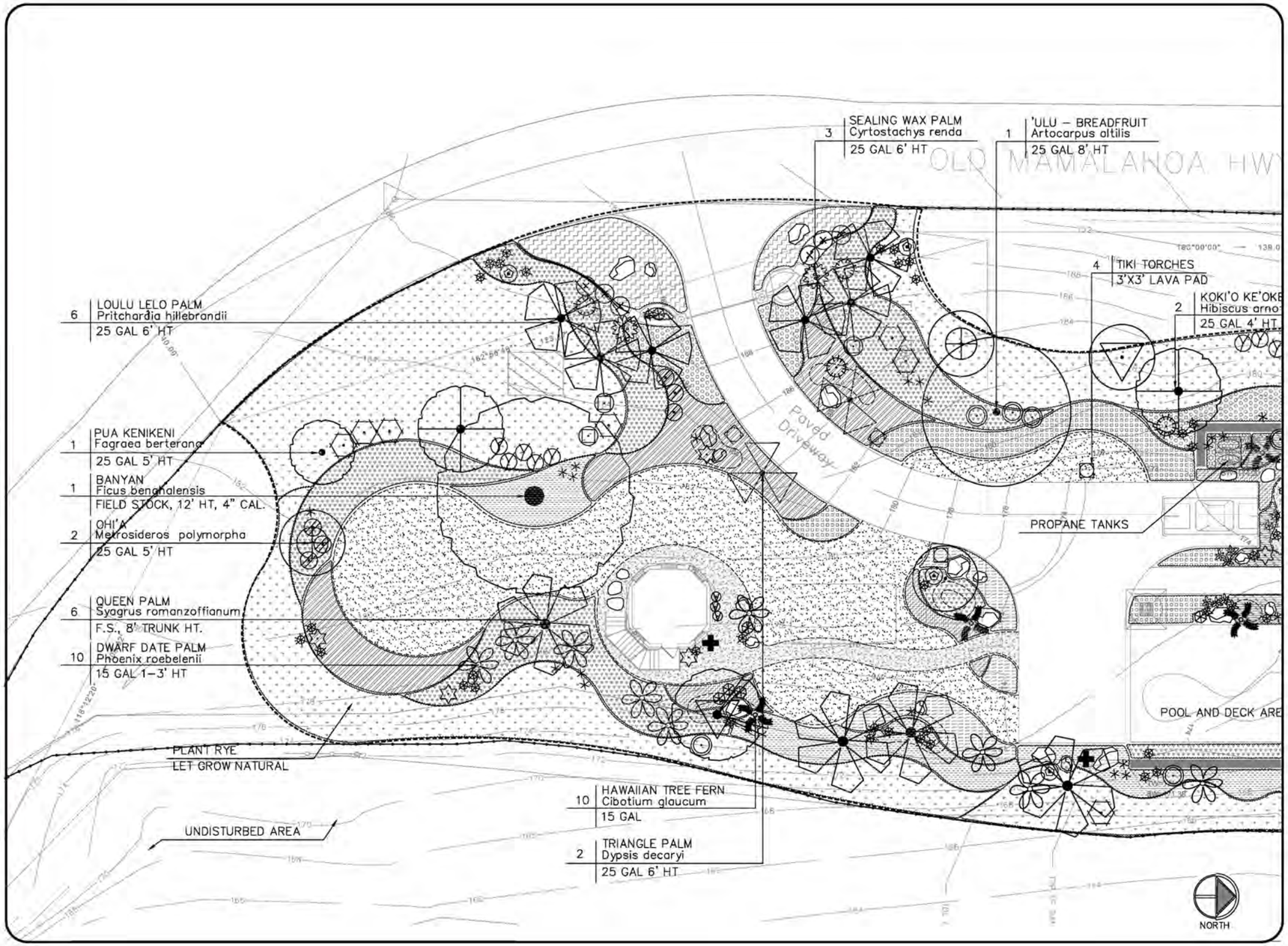
NO	DESCRIPTION	DATE	BY

JOB NUMBER	DATE
3830	AUGUST 21, 2007
DESIGNED BY NOA	CHECKED BY BPM

SHEET SCALE 1/8"=1'-0"

LP-1

1 of 4



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BRIAN P. MAXWELL
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. LA 8001
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSIDERATION OF THIS PROJECT WILL BE LIMITED UP ORIGINATION, OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 13-115-2, OF THE HAWAII ADMINISTRATIVE RULES, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, RELATING TO ENGINEERS, ARCHITECTS, LAND SURVEYORS, AND LANDSCAPE ARCHITECTS.

SIGNATURE

PREPARED FOR:

GOEHRING RESIDENCE

OLD MAMALAHOA HYW.
WAILEA, HILO, HAWAII
T.M.K. (3) 2-9-03:003

SHEET TITLE

LANDSCAPE PLANTING AREA 'A'

REVISIONS

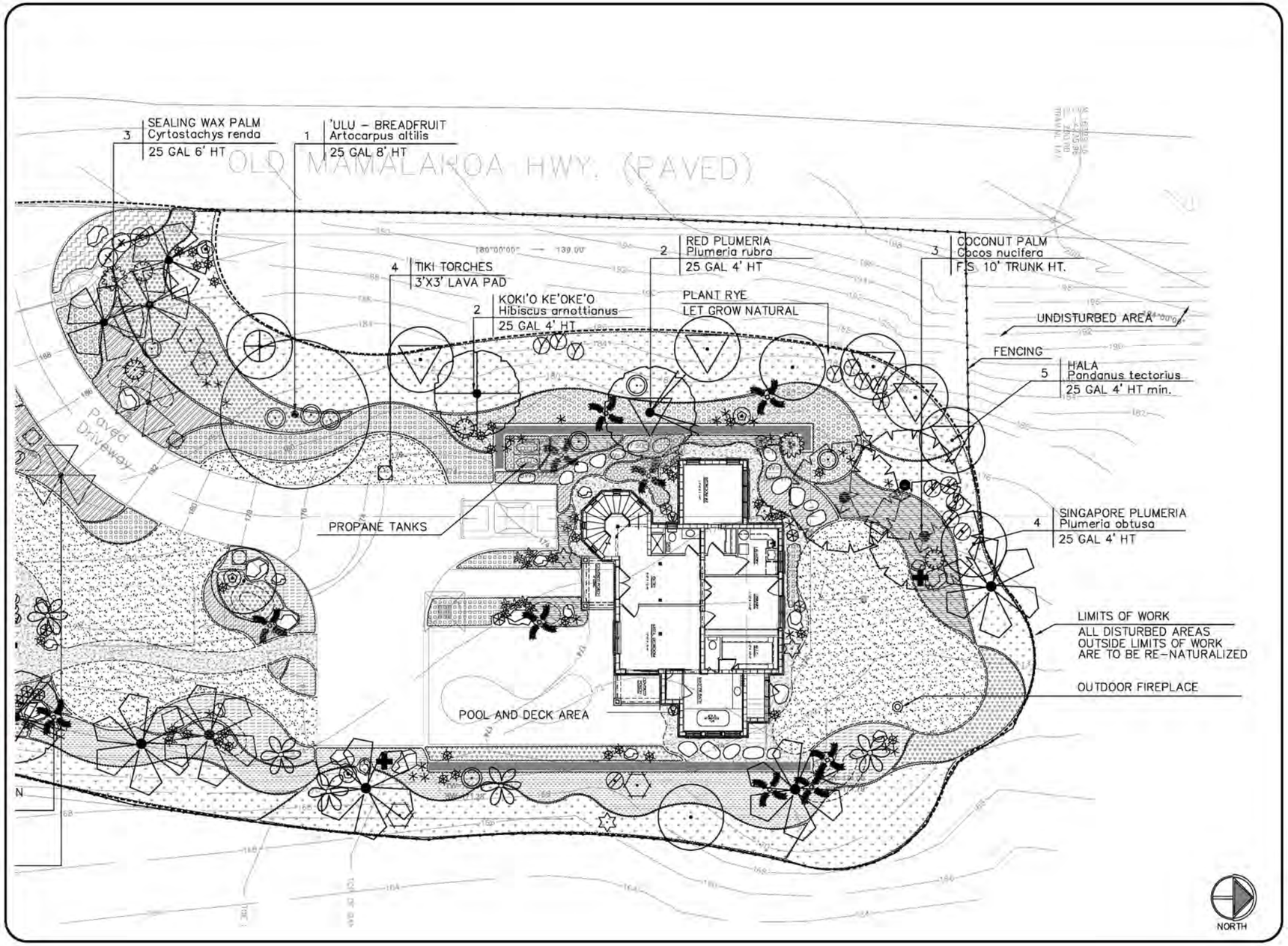
NO	DESCRIPTION	DATE	BY

JOB NUMBER	DATE
3830	AUGUST 21, 2007
DESIGNED BY	CHECKED BY
NOA	BPM

SHEET SCALE
1/8"=1'-0"

LP-2

2 of 4



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BRYAN P. MAXWELL
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No. LA 0501
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY ORGANIZATION, OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-1, OF THE HAWAII ADMINISTRATIVE RULES, PROFESSIONAL AND TECHNICAL CONTRACT AFFAIRS, STATE OF HAWAII, RELATING TO ENGINEERS, ARCHITECTS, LAND SURVEYORS, AND LANDSCAPE ARCHITECTS.

SIGNATURE

PREPARED FOR:

GOEHRING
RESIDENCE

OLD MAMALAHOA HYW.
WAILEA, HILO, HAWAII
T.M.K. (3) 2-9-03:003

SHEET TITLE

LANDSCAPE
PLANTING
AREA 'B'

REVISIONS

NO	DESCRIPTION	DATE	BY

JOB NUMBER	DATE
3830	AUGUST 21, 2007
DESIGNED BY	CHECKED BY
NGA	BPM

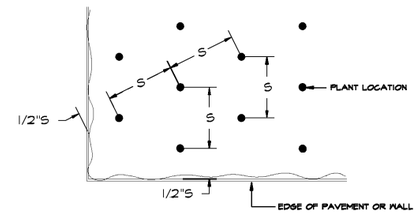
SHEET SCALE
1/8"=1'-0"

LP-3

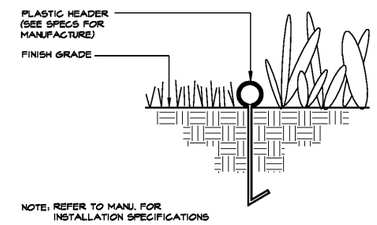
3 of 4

WWW.LANDSCAPEARCHITECT.NET

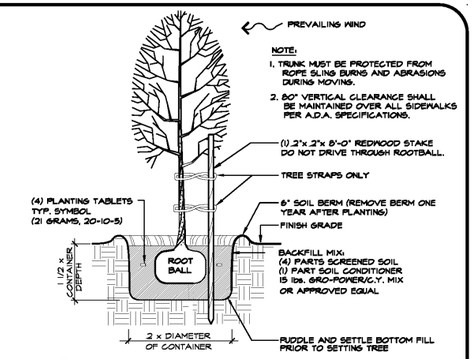
NOTE:
1. S = SPACING. (REFER PLANT LIST FOR AMOUNT OF SPACING.)
2. USE SPACING LAYOUT FOR SHRUBS, GROUNDCOVERS AND ANNUALS.



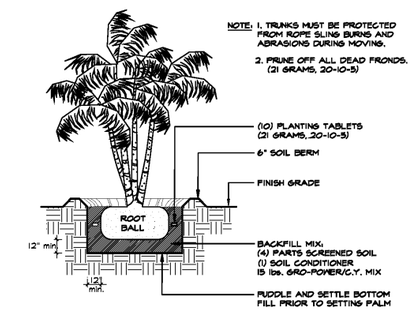
D TRIANGULAR PLANT SPACING DIAGRAM
NOT TO SCALE



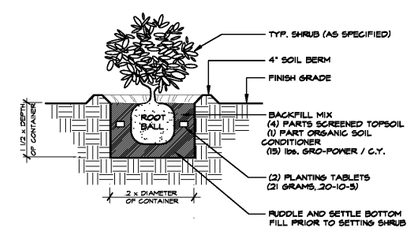
E PLASTIC HEADER
NOT TO SCALE



A TREE STAKING DETAIL
NOT TO SCALE



B MULTI-TRUNK PALM DETAIL
NOT TO SCALE



C SHRUB PLANTING DETAIL
NOT TO SCALE

1. Contractor shall verify all plant quanities and dimension prior to construction.
2. Contractor shall be responsible for locating and protecting all existing utilities.
3. Notify and meet with the Landscape Architect prior to plant installation for verification and interpretation of plans.
4. Landscape contractor shall clear and grub planting areas prior to commencing with work.
5. All trees and Palms to be field placed by landscape architect. Call 1 week prior to planting for coordination.
6. All planting areas to have 6" of new top soil.

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BRYAN P. MAXWELL
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. LA 5801
HAWAII, USA

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND REPRESENTS MY OPINION. PROJECT WILL BE SUBJECT TO INSPECTIONS, OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-3, OF THE HAWAII ADMINISTRATIVE RULES, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, STATE OF HAWAII. THIS WORK WAS PREPARED BY A LICENSED LAND SURVEYOR, AND LANDSCAPE ARCHITECTS.

SIGNATURE

PREPARED FOR:

GOEHRING RESIDENCE

OLD MAMALAHOA HYW.
WAILEA, HILO, HAWAII
T.M.K. (3) 2-9-03:003

SHEET TITLE

LANDSCAPE PLANTING DETAILS

REVISIONS

NO	DESCRIPTION	DATE	BY

JOB NUMBER	DATE
3850	AUGUST 21, 2007
DESIGNED BY NOA	CHECKED BY BPM

SHEET SCALE
AS SHOWN

LP-4

4 of 4

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE COUNTY OF HAWAII DEPT. OF PUBLIC WORKS "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION" DATED SEPT. 1984 AND "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTIONS" DATED SEPT. 1986 AND SUPPLEMENT AND AMENDMENT MADE THERETO.
2. ELEVATIONS SHOWN ON THE PLANS ARE BASED ON MEAN SEA LEVEL.
3. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR UTILITIES SUCH AS ELECTRICITY, WATER, ETC. REQUIRED FOR HIS OPERATIONS AND ALL COSTS SHALL BE BORNE BY PAID DIRECTLY BY THE OWNER.
4. THE CONTRACTOR SHALL CONDUCT ALL TESTS AS REQUESTED BY THE ENGINEER. THE OWNER SHALL BE RESPONSIBLE FOR EXPENSES INCURRED IN CONDUCTING THESE TESTS.
5. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER "AS BUILT" DRAWINGS OF ALL NEW UTILITIES AND STRUCTURES UPON COMPLETION OF WORK. DIMENSIONS TAKE PRECEDENCE OVER SCALE.
6. IF DIMENSIONAL ERRORS OR CONFLICTS OCCUR, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AND THE CONSTRUCTION ENGINEER AND SHALL WAIT FOR CLARIFICATION BEFORE RESUMING OR COMMENCING WORK ON THE DISCREPANCY ITEM.
7. THE CONTRACTOR SHALL OBTAIN AND PAY FOR REQUIRED PERMITS FROM APPROPRIATE GOVERNMENT AGENCIES.
8. THE CONTRACTOR SHALL COORDINATE THE STORAGE OF HIS MATERIAL AND EQUIPMENT WITH THE OWNER'S REPRESENTATIVE.
9. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES. BEFORE DISRUPTING SERVICE OF ANY UTILITY, THE CONTRACTOR SHALL CONTACT AND COORDINATE HIS WORK WITH THE RESPONSIBLE UTILITY AUTHORITY.
10. THE ENGINEER RESERVES THE RIGHT TO MAKE CHANGES TO THE DRAINAGE SYSTEM AS SUCH CHANGES ARE FOUND TO BE NECESSARY AS THE LAND IS CLEARED AND EROSION CONTROL CONSTRUCTION PROGRESSES.
11. EXISTING UTILITY LOCATIONS ARE FROM THE PROVIDED TOPO. CONTRACTOR SHALL VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
12. CONTRACT LIMITS ARE TO THE SETBACK LIMITS SHOWN ON SITEPLAN. CHANGES TO COVENANT SETBACKS TO BE APPROVED (SEE CC&R'S).
13. THE CONTRACTOR SHALL RESTRICT HIS WORK ACTIVITIES, EQUIPMENT AND MATERIALS TO WITHIN THE CONTRACT LIMITS, UNLESS PERMITTED BY OWNER'S REPRESENTATIVE.
14. SHOULD ANY UNANTICIPATED ARCHAEOLOGICAL SITES OR FEATURES BE UNCOVERED DURING LAND PREPARATION ACTIVITIES, WORK WITHIN THE AFFECTED AREA SHALL IMMEDIATELY CEASE AND THE PLANNING DEPARTMENT AND THE OWNER'S DESIGNATED REPRESENTATIVE NOTIFIED. NO WORK WITHIN THE AFFECTED AREA SHALL RESUME UNTIL CLEARANCE IS OBTAINED FROM THE PLANNING DEPARTMENT, THROUGH THE OWNER'S DESIGNATED REPRESENTATIVE.

COMPACTION

1. IN ALL AREAS UNDER SLABS, WALKWAYS, PAVING OR AREAS SUBJECT TO VEHICULAR TRAFFIC COMPACT ALL FILL MATERIALS TO 95% OF MAXIMUM DENSITY. FILL TO BE PLACED IN 6 INCH MAXIMUM LIFTS.
2. IN ALL OTHER AREAS COMPACT ALL FILL MATERIAL TO 90% OF MAXIMUM DENSITY. FILL TO BE PLACED IN 6 INCH MAXIMUM LIFTS.
3. EXCAVATION AND SUBGRADE PREPARATION PER SEC.12 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986.

GRADING NOTES:

1. ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK WILL COMMENCE UNTIL THE DPW APPROVES A GRADING PERMIT.
2. THE CONTRCTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW SHALL BE PAYABLE BY THE CONTRACTOR.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1- FUGITIVE DUST.
4. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS , AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
5. THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
6. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
7. THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITES(S) MUST ALSO FULLFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
8. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE CHIEF ENGINEER. GRADING WORK ON NORMAL DAYS SHALL BE BETWEEN THE HOURS OF 8:00 A.M. TO 4:30P.M. AND SHALL COMPLY WITH KOHALA RANCH CC&R'S.
9. FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
10. THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE THE PLACING OF FILLS ON A NATURAL GROUND SURFACE.
11. THE CONTRACTOR SHALL OBTAIN A GRADING PERMIT TWO WEEKS PRIOR TO BEGINNING OF GRADING WORK FROM THE DEPARTMENT OF PUBLIC WORKS. PERMIT SECTION. GRADING FEES SHALL BE PAID BY THE CONTRACTOR.
12. THE LIMITS OF GRADED AREA SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF GRADING WORK.
13. THE CONTRACTOR SHALL CONFINE ALL HIS GRADING OPERATIONS WITHIN CONTRACT LIMITS AND SHALL PROTECT EXISTING FEATURES CLOSE TO THE LIMITS.

EROSION/TEMPORARY DUST CONTROL

1. DURING CONSTRUCTION, PREVENTIVE MEASURES SHALL BE USED TO CONTROL FORESEEABLE DUST, EROSION OR SEDIMENTATION PROBLEMS WHICH MAY ARISE AS THE JOB PROGRESSES.
2. DRAINAGE SYSTEMS AS SHOWN ON THE CONSTRUCTION PLANS SHALL BE CONSTRUCTED AS EARLY AS PRACTICALLY POSSIBLE.
3. THE CONTRACTOR SHALL CONDUCT HIS GRADING OPERATIONS SO THAT EXCAVATION, EMBANKMENT AND IMPORTED MATERIAL SHALL BE DAMPENED WITH WATER DURING GRADING OPERATIONS AT ALL TIMES.
4. WATER TRUCK AND/OR TEMPORARY SPRINKLERS SHALL BE AVAILABLE ON THE JOB SITE AT ALL TIMES TO ENSURE BARE EARTH DOES NOT CREATE A DUST PROBLEM.
5. TEMPORARY VEGETATIVE COVER SHALL BE PLANTED WITHIN A PERIOD OF 30 CALENDAR DAYS AFTER THE SITE HAS BEEN GRADED OR BARED OF VEGETATION OR IF FINAL GRADING OR LANDSCAPING OF THE SITE WILL BE DELAYED FOR MORE THAN 30 CALENDAR DAYS. TEMPORARY VEGETATIVE COVER SHALL CONSIST OF 40 LBS. COMMON RYE GRASS SEED PER ACRE, 400 LBS. PER ACRE 10-10-10- OR EQUIVALENT FERTILIZER WORKED INTO SEED BED BEFORE PLANTING. TEMPORARY SPRINKLER SYSTEM TO BE INSTALLED CONCURRENTLY WITH ALL PLANTINGS. PLANTING AND MAINTENANCE OF GRASS SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", SEPTEMBER 1986. SEE LANDSCAPE PLANS FOR SPECIFICS.
6. FUGITIVE DUST AND SOLID WASTE DISPOSAL DURING GRUBBING AND GRADING ACTIVITIES SHALL MEET REQUIREMENTS OF ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60, AIR POLLUTION CONTROL AND CHAPTER 58, SOLID WASTE MANAGEMENT CONTROL.

COUNTY RIGHT-OF-WAY NOTES:

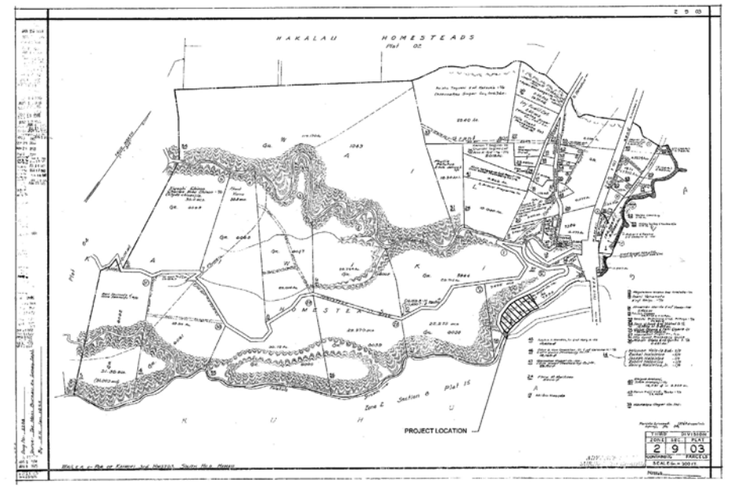
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE COUNTY OF HAWAII DEPARTMENT OF PUBLIC WORKS "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER, 1984 AND "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER, 1986.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF THE SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
3. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM CONTROL DEVICES FOR STREETS AND HIGHWAYS", AND AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS.
4. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS FORTY-EIGHT (48) HOURS BEFORE THE COMMENCEMENT OF ANY UTILITY LINE WORK TO SCHEDULE A FIELD REVIEW AND SECURE APPROVAL OF THE PROPOSED UTILITY LINE LOCATION WITHIN THE COUNTY RIGHT-OF-WAY.
5. THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE DEPARTMENT OF PUBLIC WORKS.
6. FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
7. THE REQUIRED PERMIT, UNDER CHAPTER 22, ARTICLE 3, SECTION 22-44 OF THE HAWAII COUNTY CODE SHALL BE OBTAINED FROM THE DEPARTMENT OF PUBLIC WORKS BY THE CONTRACTOR FOR WORK WITHIN THE COUNTY RIGHT-OF-WAY.
8. THE CONTRACTOR SHALL PROVIDE AT LEAST ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:30 P.M. TO 8:00 A.M.
9. THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
10. ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE DPW.
11. A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF BACKFILLING OPERATION AND SHALL BE MAINTAINED UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE DEPARTMENT OF PUBLIC WORKS.
12. NO MATERIAL, EXCEPT FOR THE TRENCH EXCAVATION MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
13. NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
14. EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAYED DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
15. ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES DAMAGED BY THE CONSTRUCTION SHALL BE REPAINTED OR RECONSTRUCTED SATISFACTORY TO THE DEPARTMENT OF PUBLIC WORKS.
16. NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
17. SHOULD ANY TRENCHING OCCUR THROUGH AN EXISTING SIDEWALK OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF TRENCHING, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:

   A. ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH IF DEEMED NECESSARY THE COUNTY, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.

   B. IF ANY BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS MINOR VARIATION IS AUTHORIZED BY THE DPW OR ITS REPRESENTATIVE.

   C. ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE TRENCH CONSTRUCTION SHALL BE PROPERLY REPAIRED AND CORRECTED.

   D. ALL OTHER INCIDENTAL WORK SHALL BE SATISFACTORILY PERFORMED TO EFFECT THE PROPER RESTORATION OF THE SIDEWALK AREA.
18. THE PERMITTEE SHALL MAINTAIN, TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS, THE AREA WORKED WITHIN THE GOVERNMENT RIGHT-OF-WAY INCLUDING ANY REPAIRS TO PAVEMENT AND SHOULDER DAMAGED AS A RESULT OF THE INSTALLATION WORK, FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL INSPECTION. THE PERMITTEE SHALL UNDERTAKE REPAIRS EXPEDITIOUSLY, WHENEVER DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS DURING THE MAINTENANCE PERIOD.

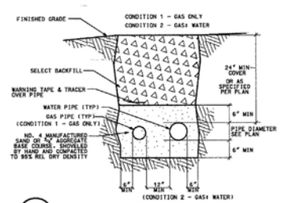


LOCATION MAP

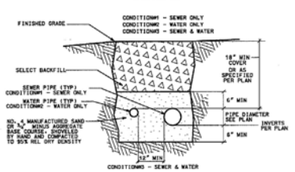
VICINITY MAP

GOEHRING RESIDENCE GRADING PLAN

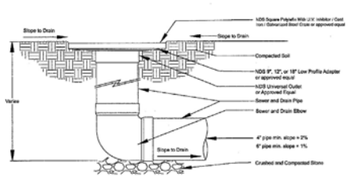
A Portion of Gr.7396 TO WAILEA MILLING COMPANY, LTD., SITUATED AT WAILEA, SOUTH HILO ISLAND AND COUNTY OF HAWAII.
TMK(3)2-9-03:03



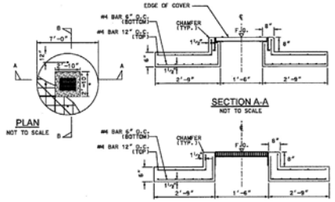
1 C-1 TYPICAL GAS TRENCH
SCALE: NTS



2 C-1 TYPICAL SEWER - WATER TRENCH
SCALE: NTS

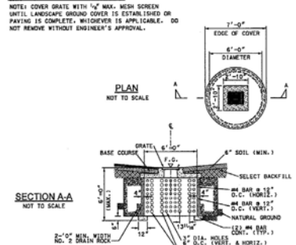


3 C-1 12" NDS SQUARE GRATE WITH ADAPTER
SCALED AS SHOWN

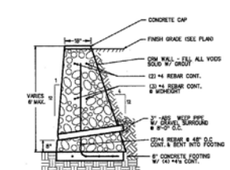


COVER W/ RAISED GRATE

NOTE: COVER GRATE WITH 1/4" MAX. MESH SCREEN UNTIL LANDSCAPE GROUND COVER IS ESTABLISHED OR PAVING IS COMPLETE, WHICHEVER IS APPLICABLE. DO NOT REMOVE WITHOUT ENGINEER'S APPROVAL.



4 C-1 6' DIA. DRAINAGE SUMP
SCALE: NTS



5 C-1 RETAINING ROCKWALL DETAIL
SCALED AS SHOWN

REVISION	BY	DATE

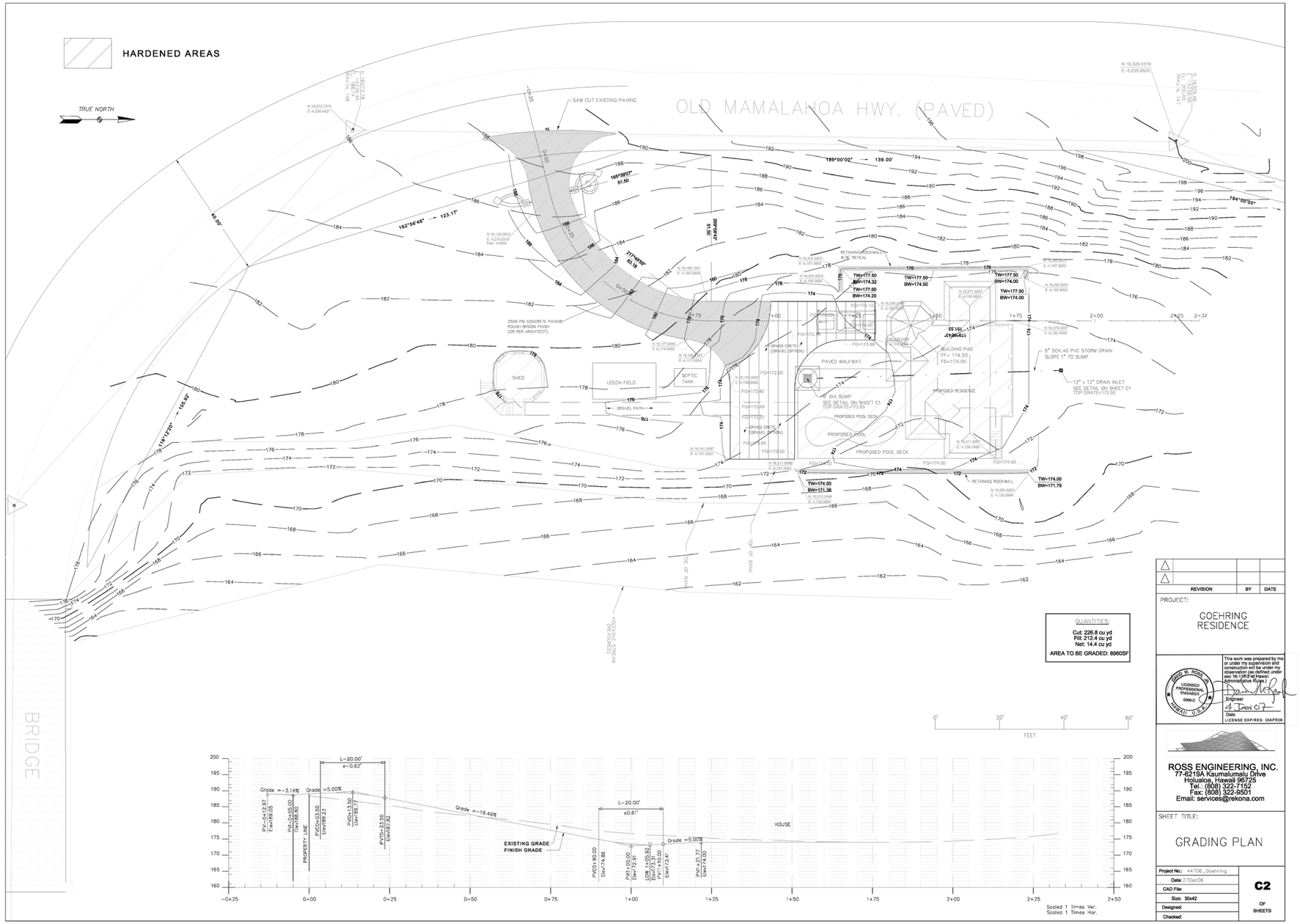
PROJECT:
GOEHRING RESIDENCE

This work was prepared by me or under my supervision and construction will be under my observation (as defined under sec 16-115-2 of Hawaii Administrative Rules.)
Engineer
Date
LICENSE EXPIRES: 30APR08

ROSS ENGINEERING, INC.
77-6219A Kaumalumalu Drive
Holualoa, Hawaii 96725
Tel.: (808) 322-7152
Fax: (808) 322-9501
Email: services@rekona.com

SHEET TITLE:
CIVIL NOTES & DETAILS

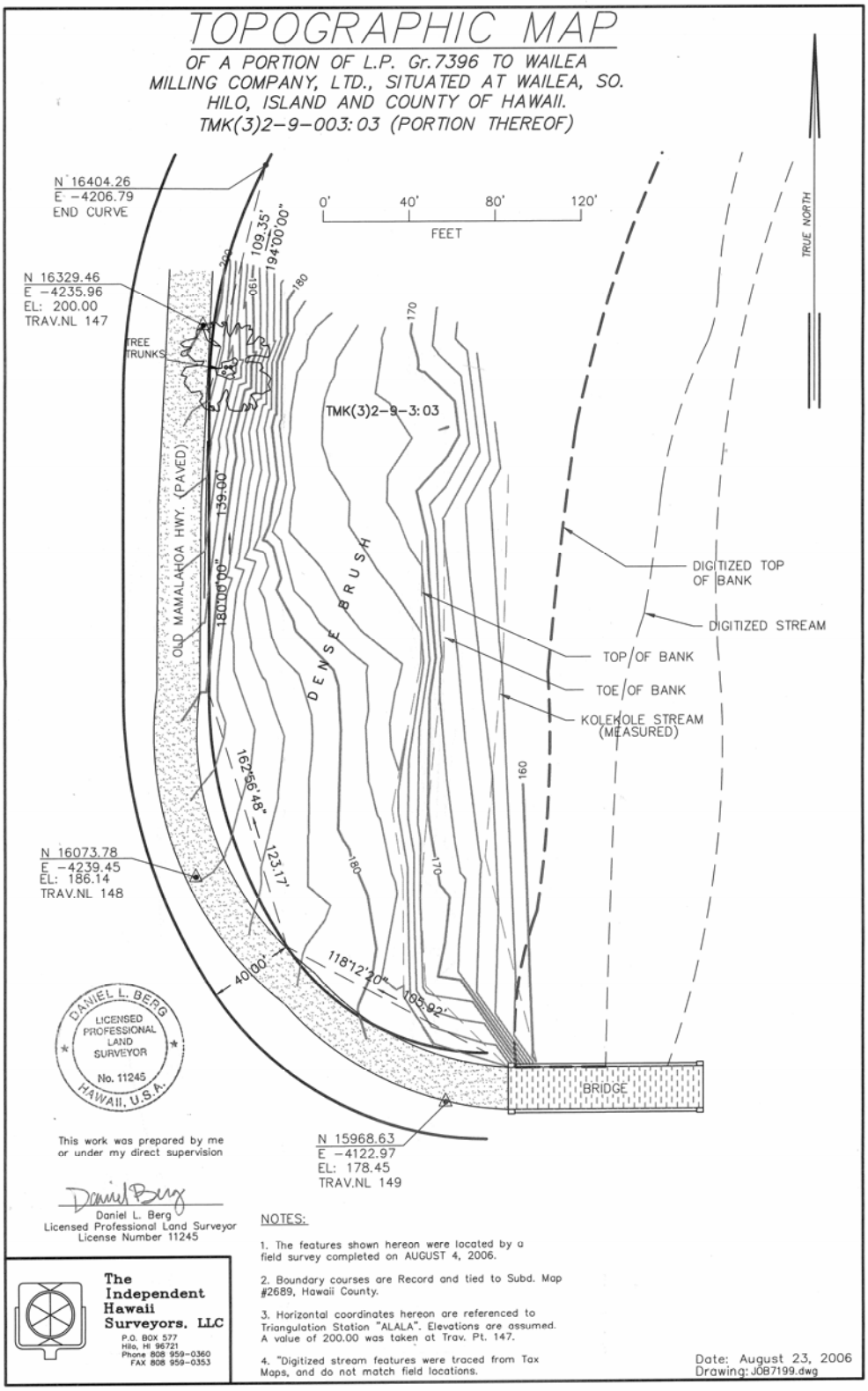
Project No.: 44706_Goehring
Date: 27Dec06
CAD File:
Size: 30x42
Designed:
Checked:
NTS
C-1
OF SHEETS


HARDENED AREAS
TRUE NORTH
OLD MAMALAHOA HWY. (PAVED)
SAW CUT EXISTING PAVING
2500 PSI CONCRETE PAVING
ROUGH BROOM FINISH
(OR PER ARCHITECT)
SHED
LEECH FIELD
SEPTIC TANK
GRAVEL PATH
GRASS CRETE (GRAVEL OPTION)
PAVED WALKWAY
5' DIA. SUMP
SEE DETAIL ON SHEET C1
TOP GRATE=172.85
PROPOSED POOL DECK
PROPOSED POOL
BUILDING PAD
FF= 174.50
FG=174.00
PROPOSED RESIDENCE
6" SCH.40 PVC STORM DRAIN
SLOPE 1% TO SUMP
12" x 12" DRAIN INLET
SEE DETAIL ON SHEET C1
TOP GRATE=172.50
RETAINING ROCKWALL
BRIDGE
HOUSE
EXISTING GRADE
FINISH GRADE
PROPERTY LINE
QUANTITIES:
Cut: 226.8 cu yd
Fill: 212.4 cu yd
Net: 14.4 cu yd
AREA TO BE GRADED: 8960SF
FEET
Scaled 1 Times Ver.
Scaled 1 Times Hor.
REVISION
BY
DATE
PROJECT:
GOEHRING RESIDENCE
This work was prepared by me or under my supervision and construction will be under my observation (as defined under sec 16-115-2 of Hawaii Administrative Rules.)
Engineer
Date
LICENSE EXPIRES: 30APR08
ROSS ENGINEERING, INC.
77-6219A Kaumalumalu Drive
Holualoa, Hawaii 96725
Tel.: (808) 322-7152
Fax: (808) 322-9501
Email: services@rekona.com
SHEET TITLE:
GRADING PLAN
Project No.: 44706_Goehring
Date: 27Dec06
CAD File:
Size: 30x42
Designed:
Checked:
C2
OF
SHEETS

APPENDIX D

Topographic Map

Topographic Map 1


TOPOGRAPHIC MAP
OF A PORTION OF L.P. Gr.7396 TO WAILEA MILLING COMPANY, LTD., SITUATED AT WAILEA, SO. HILO, ISLAND AND COUNTY OF HAWAII.
TMK(3)2-9-003:03 (PORTION THEREOF)
N 16404.26
E -4206.79
END CURVE
N 16329.46
E -4235.96
EL: 200.00
TRAV.NL 147
N 16073.78
E -4239.45
EL: 186.14
TRAV.NL 148
N 15968.63
E -4122.97
EL: 178.45
TRAV.NL 149
0' 40' 80' 120'
FEET
TRUE NORTH
109.35'
194°00'00"
139.00'
180°00'00"
162°56'48"
123.17'
118°12'20"
195.92'
40.00'
200
190
180
170
160
TREE TRUNKS
TMK(3)2-9-3:03
OLD MAMALAHOA HWY. (PAVED)
DENSE BRUSH
DIGITIZED TOP OF BANK
DIGITIZED STREAM
TOP OF BANK
TOE OF BANK
KOLEKOLE STREAM (MEASURED)
BRIDGE
DANIEL L. BERG
LICENSED PROFESSIONAL LAND SURVEYOR
No. 11245
HAWAII, U.S.A.
This work was prepared by me or under my direct supervision
Daniel L. Berg
Licensed Professional Land Surveyor
License Number 11245
The Independent Hawaii Surveyors, LLC
P.O. BOX 577
Hilo, HI 96721
Phone 808 959-0360
FAX 808 959-0353
NOTES:
1. The features shown hereon were located by a field survey completed on AUGUST 4, 2006.
2. Boundary courses are Record and tied to Subd. Map #2689, Hawaii County.
3. Horizontal coordinates hereon are referenced to Triangulation Station "ALALA". Elevations are assumed. A value of 200.00 was taken at Trav. Pt. 147.
4. "Digitized stream features were traced from Tax Maps, and do not match field locations.
Date: August 23, 2006
Drawing: J087199.dwg

APPENDIX E

Archaeological / Cultural Assessment

Archaeological Assessment – Kolekole Stream Bridge (ES-1998) 1

Archaeological Assessment – 3.5 Acres along the Kolekole Stream (SCS-2010) 7

Cultural Impact Assessment - 3.5 Acres along the Kolekole Stream (SCS-2010) 20

Archaeological Assessment For Seismic Retrofitting for the Kolekole Stream Bridge Wailea, South Hilo District, Hawaii Island

by

Hallett H. Hammatt, Ph.D

and

Brian L. Colin, B.A.

Prepared for

ENGINEERING CONCEPTS, INC.

Cultural Surveys Hawaii, Inc.
December 1998

ABSTRACT

At the request of Engineering Concepts, Inc., Cultural Surveys Hawaii Inc. conducted an archaeologic assessment of the proposed seismic retrofitting of the Kolekole Bridge site in the vicinity of Pepeekeo South Hilo District, Hawaii. The assessment consisted of a ground survey of all accessible areas and compilation of historical documentation and previous archaeological research.

The project area consisted of the slopes of Kolekole Gulch under and surrounding the Kolekole Bridg and approximately 100.0 feet of the slopes *mauka* and *makai* of the bridge. The bridge is located along the Mamalahoa Highway (Hawaii Belt Road) approximately 11 miles northwest of Hilo and just south the town of Wailea. The project area lies almost entirely within the Kolekole Stream Gulch and traver the Kolekole Beach Park. The present bridge is an iron and concrete structure that is planned to be reinforced to meet seismic standards.

No archaeological sites were found within the project area.

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INTRODUCTION

Project Area Description

The project area is located underneath and adjacent to the Kolekole Stream Bridge on Route 19. It lies approximately 11 miles northwest of Hilo (See Figure 1). The project area is located in the South Hilo District of east Hawaii within the *ahupua`a* of Wailea and Kuhua. The bridge is located along the Hawaii Belt ~~Hawaii~~ Road between the towns of Hakalau and Honomu.

The terrain of the *ahupua`a* is characterized by sea cliffs bordering a narrow marine bench on the coast, with gradually ascending uplands above (average 13% grade above the 300 ft. interval). The uplands are broken by the steep and relatively narrow Kolekole Stream Gulch which lies along the western boundary of *Kuhua ahupua`a*. The upland slopes are *`ohi`a* forests.

Kolekole gulch slopes steeply, descending approximately 120 feet to a relatively wide stream bed at the bottom. The stream bed is boulder and cobble lined with level alluvial deposits along the sides. Annual rainfall is between 100 and 125 inches per year and it is expected that this gulch is prone to frequent flooding. Average temperatures are between 62 and 82 degrees Fahrenheit (Armstrong 1973:57).

Scope of Work

The following scope of work was utilized during the project. The scope is based on a September 2, 1997 letter from Don Hibbard stating that the proposed modifications will have no effect on the bridges historic character. Based on this information the assessment focused on the areas around and under the bridge.

1. A brief historical background search including examinations of historic maps, previous archaeological reports and other historic documents to determine if there are actual or potential archaeological sites in the area.

2. A one-day field survey of the bridge and its surroundings, including the bottom and sides of the gulch and any access route to the gulch or other areas which would be used during construction of the bridge improvements. This survey will identify and briefly describe any archaeological sites which may be present.

3. Preparation of a report on the results of the historic background research and the field survey. This report will contain recommendations for protection and avoidance of archaeological or any further studies that are appropriate, if any archaeological sites are encountered. If no sites are encountered within the vicinity of the bridge, which would be impacted by the proposed bridge improvements, no further action will be recommended.

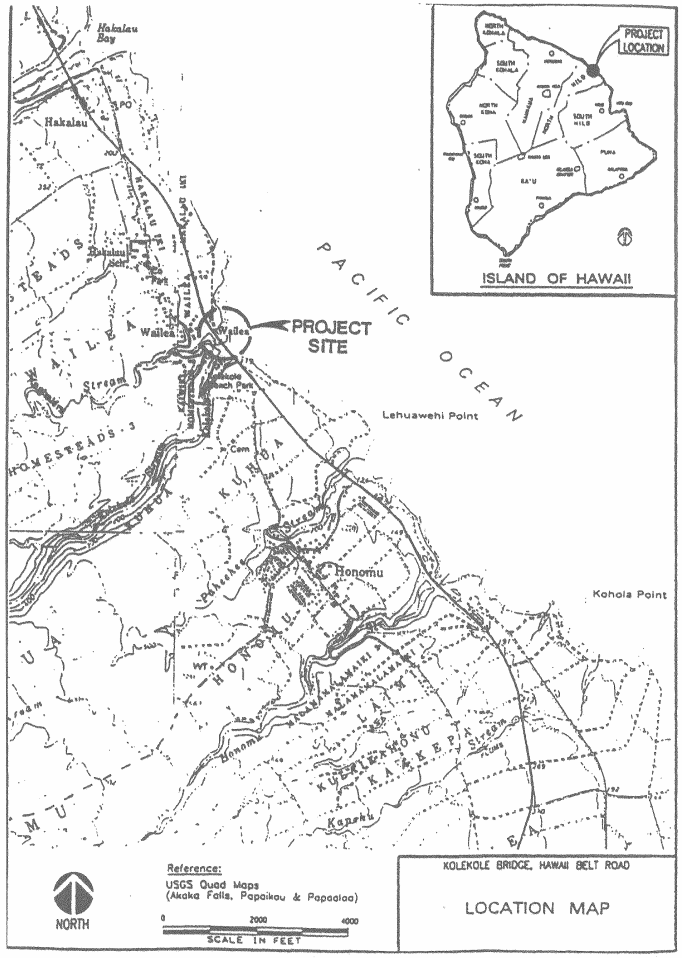

Figure 1 Portion of USGS 7.5 Minute Series Topographic Map Portions of the Papaikou and the Papaaloa Quads received from Engineering Concepts, Inc. Showing the Project Area Location

Methods

Field work was conducted on October 23, 1998 by Brian Colin and Anthony Bush and on November 11, 1998 by Tracy Tam Sing and Tyler Campbell. Field work consisted of a 100% ground survey, on foot, of all accessible areas underneath and surrounding the bridge up to 30.0 m. (98.4 ft.) along all sides of the bridge. Portions of the slopes on both sides of the sides of the bridge were unaccessible to pedestrian traffic due to being very steep. Photographic documentation of the bridge and surrounding area was also conducted. The first day of the survey consisted of an evaluation of bridge and accessibility to the structure and surrounding area. The second day consisted of actual ground survey. The survey was conducted to determine the presence or absence of cultural remains that could possibly be impacted by the modifications to the bridge.

HISTORIC BACKGROUND

The Kolekole Bridge was constructed in the 1950s. "William R. Bartels, longtime bridge engineer for the Territorial Highway Department, made imaginative use of two trusses from the Wailuku Railroad Bridge . . . which he designed in the 1950s" (Alvarez 1987:88-89). Therefore based on the above information it appears that the Kolekole Bridge was constructed with materials from the former Wailuku Railroad Bridge during the 1950s.

PREVIOUS ARCHAEOLOGICAL RESEARCH

Previous archaeology within the entire Mauna Kea Windward Slopes subregion is limited to three reconnaissance surveys conducted between 1908 and 1932, two inventory surveys by Paul H. Rosendahl, Inc. (PHRI), conducted in 1990 and 1992 and a regional synthesis of Hamakua by Ross Cordy (1992).

The three early surveys include Stokes (1919), Hudson (1932), and Handy and Handy (1930s). These surveys area characterized by Ross Cordy as, "extremely limited reconnaissances" which took place, "before the advent of modern archaeology and after the major development of the sugar cane industry in this region" (1992:150). "In sum," Cordy continues, "only three archaeological sites appear to have been identified in this subregion. One [the Ka Loa *helau* identified by Stokes] was destroyed by 1930-1932, and one [a cliff cave at Kukuihaele in which a wooden religious image was found] is unlocated" (1991:150-151). The other site is an irrigated agricultural site located by Handy and Handy in Waiko`eko`e *ahupua`a*.

The more recent inventory surveys within the Mauna Kea Windward Slopes subregion were both within sugar cane lands, one on the western end of the Hamakua coast, near Waipi`o Valley, and one near the town of Paauilo, located approximately five miles to the northwest of the present project area. In the latter survey (Head and Rosendahl 1992), three sites were identified and all were historic, transportation-related and "probably associated with Hamakua Sugar Company agricultural activities" (1992:6). The remainder of the project area was either cane fields which had been extensively plowed, or gulches which contained no evidence of agriculture or habitation-related use. Although there were no LCA's within this PHRI project area, the authors concluded that it was probable there were houses scattered along the *alanui aupuni*, with other trails running *mauka* to the *`ohi`a-koa* forest zone, similar to the land-use

pattern of this subregion discussed by Cordy (1992).

FINDINGS AND ARCHAEOLOGICAL INTERPRETATIONS

The project area terrain consisted of three distinct parts, the relatively level area on both sides of the bridge on the top of the gulch; the steep sides of the gulch beneath the bridge; and the floor of the gulch beneath the bridge which consisted of the gently sloping stream bed and adjacent meander bars.

The areas surveyed on the top of the gulch have been completely altered either by the construction of the current bridge or from the cultivation of sugar cane.

The sides of the gulch within the project area also seem to have been impacted in the construction of the current bridge, and were prohibitively steep and largely inaccessible. No archaeological sites were found.

On the floor of the gully within the project area (beneath the bridge) the stream bed covers approximately 10% of the flood plain surface. The stream bed was exposed bedrock with scattered soil and gravel pockets. The meander bars consisted of undulating soil and scattered cobbles and boulders overlying bedrock. No archaeological sites were found.

On the floor of the gully outside of the project area, the footings of the old railroad bridge were observed. A total of four square footings were observed, two on either side of the streambed. A cylindrical cement footing was also observed in the center of the ~~center of~~ Kolekole Stream. No other remnants of the old railway bridge were observed.

Based on the negative findings the proposed seismic retrofitting will have no effect on historic sites.

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SCS Project Number 1170-1

ARCHAEOLOGICAL ASSESSMENT OF 3.5 ACRES ALONG THE KOLEKOLE STREAM IN KAIWIKI 3 AHUPUA`A, SOUTH HILO DISTRICT, HAWAI`I ISLAND, HAWAI`I [TMK: (3) 2-9-03:003]

Prepared By:
Glenn G. Escott, M.A.
December 2010

Prepared for:
Douglas B. Goehring
&
Dawn Goehring

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ABSTRACT

At the request of Douglas and Dawn Goehring, Scientific Consultant Services, Inc. (SCS) conducted an archaeological assessment of a 3.5-acre parcel [TMK: (3)-2-9-03:003] located along the Kolekole Stream in Wailea, Kaiwiki 3 *ahupua'a* , South Hilo District, Island of Hawai_i. The project area is situated between one hundred to 500 meters from the mouth of the Kolekole Stream. The Kolekole Stream borders the south edge of the parcel, the Ka_ahakini Stream borders the east, and the old Mamalahoa Highway (Wailea Road) forms the north west boundaries. The construction of a single-family residence is planned within the western portion of the property parcel.

Prior to fieldwork, a search of geological maps, aerial photos, historical maps, historical documents, and archaeological reports was conducted. Extensive archival research was also carried out as part of the inventory survey work. The project area was found to exist within a portion of former Mauna Kea Sugar Company land.

A series of east/west traverses spaced ten meters apart were walked across the entire project area. The majority of the parcel consists of steep cliffs and slopes with sparse palm, *hau*, Chinese banyan, and rose apple. Ground visibility was limited by dense vegetation along a small portion of the stream bank. Intervals were reduced to as much as five meters in areas of thick ground cover. No archaeological sites or features were located on the current project area parcel.

This report contains background information outlining the project area environmental and cultural contexts, a presentation of previous archaeological work within the study area and in the immediate vicinity, an assessment of expected archaeological patterns, an explanation of project methods, and a finding of no historic properties, cultural resources, or artifacts within the project area.

INTRODUCTION

PROJECT AREA DESCRIPTION

At the request of Douglas and Dawn Goehring, Scientific Consultant Services, Inc. (SCS) conducted an archaeological assessment of a 3.5-acre parcel [TMK: (3)-2-9-03:003] located along the Kolekole Stream in Wailea, Kaiwiki 3 *ahupua'a* , South Hilo District, Island of Hawai_i (Figure 1). The project area is situated between one hundred to 500 meters from the mouth of the Kolekole Stream (Figure 2 and Figure 3). The Kolekole Stream borders the south edge of the parcel, the Ka_ahakini Stream borders the east, and the old Mamalahoa Highway (Wailea Road) forms the north west boundaries. The construction of a single-family residence is planned within the western portion of the property parcel.

SCOPE OF WORK

The archaeological assessment was undertaken in accordance with draft Hawai_i Administrative Rules §13-275-5(5)(A) and §13-284-5(5)(A) and was performed in compliance with the Rules Governing Minimal Standards for Archaeological Inventory Surveys and Reports contained in draft Hawai_i Administrative Rules 13§13-276. The investigation included the following procedures:

1. SCS conducted extensive historical and archaeological archival research including a search of historic maps, aerial photos, written records, Land Commission Award documents, and State and County Planning Division documents.

2. SCS carried out a 100% pedestrian survey of the project area.

3. SCS contacted community members regarding their recollections of land-use and activities known to have occurred within the study area.

METHODS

Prior to fieldwork, a search of geological maps, aerial photos, historical maps, historical documents, and archaeological reports was conducted. Extensive archival research was also carried out as part of the inventory survey work. The project area was found to exist within a portion of former Mauna Kea Sugar Company land.

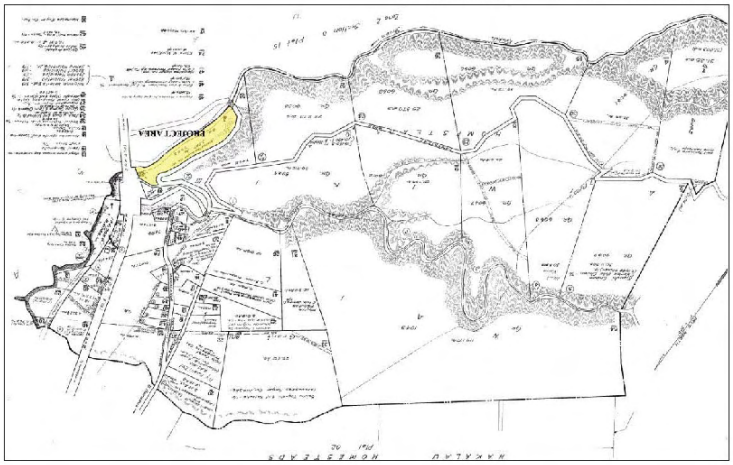

Figure 1: Location of Project area on TMK (3) 2-9-03 Map.

1

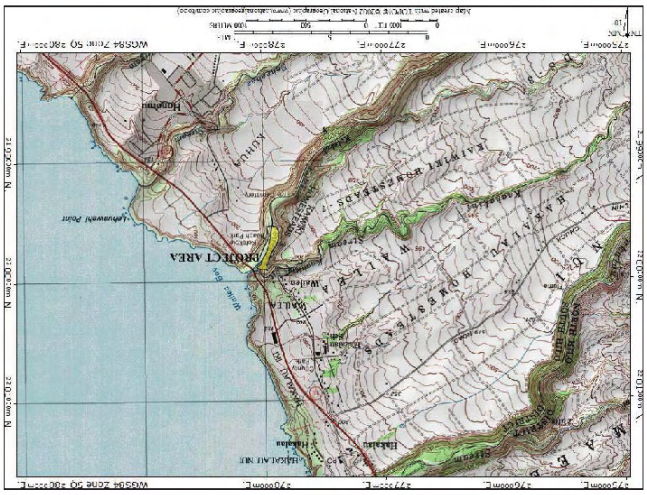

Figure 2: Location of Project area on Hilo USGS Quad, 2002.

2

Figure 3: Aerial Photograph of Project Area.

A pedestrian survey was conducted October 7th by Glenn Escott M.A. (Project Director). A series of east/west traverses spaced ten meters apart were walked across the entire project area. The majority of the parcel consists of steep cliffs and slopes with sparse palm, *hau*, Chinese banyan, and rose apple. Ground visibility was limited by dense vegetation along a small portion of the stream bank. Intervals were reduced to as much as five meters in areas of thick ground cover. No archaeological sites or features were located on the current project area parcel. Fieldwork and the inventory survey report production were completed under the overall direction of Robert L. Spear, PhD. (Principal Investigator).

This report contains background information outlining the project area environmental and cultural contexts, a presentation of previous archaeological work within the study area and in the immediate vicinity, and current survey expectations based on that previous work, as well as an explanation of project methods.

ENVIRONMENTAL SETTING

LAVA FLOWS

The project area consists of a single, undeveloped 3.5-acre parcel situated on primarily 35 to 70% slopes and cliffs, and small section of gently sloping to level land within the western section of the property. Elevations within the property range from zero to 200 feet (61 m) above mean sea level (amsl). The project area is on Mauna Kea lava dated to more than 10, 000 years before present (ybp) (Wolfe and Morris 1996). The lava flow is overlain by a thick layer of organic duff and soil.

SOILS

Soil immediately surrounding the project area is Hilo silty clay loam (HoC series) and is characterized continuously wet (Sato 1973:17). Soil within the project area is Rough Broken Land (RB series) occurs primarily in gulches and is characterized as steep slopes broken by intermediate drainages(Sato 1973:51).

RAINFALL AND DRAINAGE

Rainfall in the project area is high, averaging 150 inches per annually (Kelly *et al.* 1981). The Kolekole Stream drainage runs from southwest to northeast and natural runoff on the parcel is from north to south eventually entering the Kolekole Stream along the southern boundary of the property.

VEGETATION

A botanical survey conducted by Douglas and Dawn Goehring with the assistance of the University of Hawai_i Botanical Department documented the plant communities within the project area. Vegetation included: Ironwood (*Casuarina equisetifolia*), candlenut trees (*Aleurites moluccan*), bamboo (*Bambusa vulgaris*), Alexandra palm (*Archontophoenix alexandrae*), Chinese banyan (*Ficus microcarpa*), Java plum (*Syzgium cumini*), rose apple (*Syzygium jambos*), *hau* (*Hibiscus tiliaceus*), impatiens (*Impations walleriana*), *'ape* (*Alocasia macrorrhiza*), *hala* (*Pandanus tectorius*), guava (*Psidium guajava*), *Ti* (*Cordyline fruticosa*), banana (*Musa x paradisiaca*), wood rose (*Merremia tuberosa*), coconut palms (*Cocos nucifera*), gunpowder tree (*Trema orientalis*), *hoi* (*Dioscorea bulbifera*), _uhi (*Dioscorea alata*), lobster claw heliconia (*Heliconia sp.*), maiden hair fern (*Adiantum raddianum*), mango (*Mangifera indica*), *bingabing* (*Macaranga mappa*), sanchezia (*Sanchezia speciosa*), and African tulip (*Spathodea campanulata*) (Figure 4).

Figure 4: Project Area Vegetation.

The ground cover consists of plants such as Hilo grass (*Paspalum conjugatum*), maiden hair fern (*Adiantum raddianum*), Spanish clover (*Desmodium incanum*), California grass (*Urochloa mutica*), white shrimp plant (*Justicia betonica*), and downy wood fern (*Christella dentata*). None of the plants are a threatened or endangered species; nor is any plant a species of concern. All of the plants can be found in similar environmental habitats throughout the islands. The areas that will be impacted by construction mainly consist of Hilo grass, fallen guava trees, and overgrow veins.

HISTORICAL AND CULTURAL CONTEXTS

HAWAIIAN LAND DIVISIONS AND SETTLEMENT

Initial settlement of the high Hawaiian Islands is believed to have occurred along the wetter and more fertile windward coasts where –conditions were optimal for marine and terrestrial exploitation along lines followed previously in Eastern Polynesia" (Green 1980:1). This exploitation involved inshore and pelagic fishing, gathering shellfish from the shore and strand, plant and animal husbandry, and the utilization of natural terrestrial flora and fauna (Kirch and Kelly 1975; Pearson *et al.* 1971; Kirch 1985). The pattern of this early settlement is thought to have consisted of widely spaced, permanent home bases that gradually expanded to form a nearly continuous zone of permanent settlement along the windward coasts as local populations grew.

There is a paucity of prehistoric information pertaining to the lands of the project area and surrounding lands (Cordy 2000:216-217). Kaiwiki 3 Ahupua_a is located in an area known as Hilo-Pali-Kū (Hilo of the upright cliffs), a traditionally sparsely populated area along the high cliffs of the Hāmākua coast. The mouth of the Kaiwiki Stream provides the only access to ocean resources and is far from the sociopolitical population centers of Hilo to the south, and the Waipi_o Valley and Waimea to the west. Though a coastal trail was used to travel along the Hāmākua, much of the travel between Hilo and Waipi_o was done by sailing canoe due to the rough condition of the trail as it crossed into numerous steep gulches. Kaiwiki 3 is not at the nexus of a trail system, and much of the cross-island travel was conducted on trails that crossed the saddle between Mauna Kea, Maun Loa, and Huālalai (Figure 5).

Figure 5: Hawai_iIsland Trail Systems.

***WAHI PANA* (LEGENDARY PLACES)**

Kaiwiki 3 Ahupua_a is a traditional Hawaiian land division in Hilo *Moku* situated along the 200 foot high cliffs of the Hāmākua coast up to 1500 feet amsl (W.E. Wall Map 1928). Kaiwiki is translated as quick sea (Pukui *et al.*1974:71). Traditional settlement patterns in Kaiwiki are more characteristic of those along the Hāmākua coast than of lowland Hilo (Cordy 2000:44). There are no legendary places mentioned in *mo 'olelo* concerning Kaiwiki and its immediate environs.

PREHISTORIC AND HISTORIC ACCOUNTS OF KOHOLĀLELE

No published prehistoric accounts of Kaiwiki are recorded by Kamakau (1992), I_i(1993), Kalakaua (1990), or Fornander (1996). As for early historic accounts, William Ellis traveled by canoe from Hilo to Laupāhoehoe (Figure 6) where he disembarked and continued on foot to Humu_ula along the tree line at the northern foot of Mauna Kea (Ellis 2004:341-344). He travelled by canoe because the road along the cliffs was told to be too rough and passed through many deep gulches. Ellis states that the cliffs between Hilo and Laupāhoehoe were dotted with plantations. Their canoe passed more than fifty ravines in the several hours it took them to travel the twenty-five or so miles between Hilo and Laupāhoehoe . He noted that none of ravines had a place for their canoe to land without being swamped in the surf. No mention is made of Kaiwiki Ahupua_a though he passed it by canoe on the way to Laupāhoehoe.

In 1872, Isabella Bird traveled by horseback along the Hāmākua from Onomea to the Waipi_o Valley and described the landscape she travelled through (see Figure 6). The journey was over very rough and steep trails, crossed over the Kolekole Stream near the project area, and took five days. Bird noted -this is the most severe road on horses on Hawaii, and it takes a really good animal to come to Waipio and go back to Hilo (Bird 2007:85). The description that follows underscores the sparsely populated Hāmākua area:

> From Onomea to the place where we expected to find the guide, we kept going up and down the steep sides of ravines, and scrambling through torrents till we reached a deep and most picturesque gulch [Kawainui], with a primitive school-house at the bottom, and some grass-houses clustering under palms and papayas, a valley scene of endless ease and perpetual afternoon. Here we found that D_s uncle, who was to have been our guide, could not go, because his horse was not strong enough, but her cousin volunteered his escort, and went away to catch his horse, while we tethered ours and went into the school-house.
>
> This reminded me somewhat of the very poorest schools connected with the Edinburgh Ladies' Highland School Association, but the teacher had a remarkable paucity of clothing, and he seemed to have the charge of his baby, which, much clothed, and indeed much muffled, lay on the bench beside him. For there were benches, and a desk, and even a blackboard and primers down in the deep wild gulch, where the music of living waters, and the thunderous roll of the Pacific, accompanied the children's tuneless voices as they sang an Hawaiian hymn. I shall remember nothing of the scholars but rows of gleaming white teeth, and splendid brown eyes.

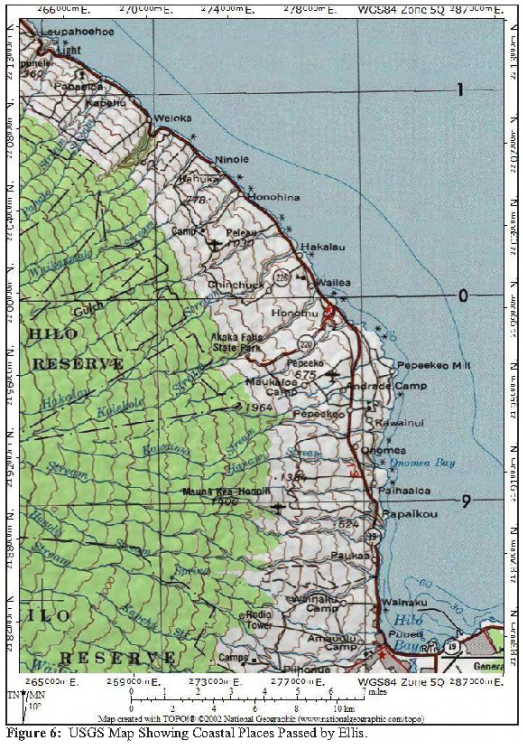

Figure 6: USGS Map Showing Coastal Places Passed by Ellis.

I thought both teacher and children very apathetic. There were lamentably few, though the pretty rigidly enforced law, which compels all children between the ages of six and fifteen to attend school for forty weeks of the year, had probably gathered together all the children of the district. They all wore coloured chemises and leis of flowers (Bird 2007:85).

We had a perfect day until the middle of the afternoon. The dimpling Pacific was never more than a mile from us as we kept the narrow track in the long green grass; and on our left the blunt snow-patched peaks of Mauna Kea rose from the girdle of forest, looking so delusively near that I fancied a two-hours' climb would take us to his lofty summit. The track for twenty-six miles is just in and out of gulches, from 100 to 800 feet in depth, all opening on the sea, which sweeps into them in three booming rollers. The candle-nut or kukui (aleurites triloba) tree, which on the whole predominates, has leaves of a rich deep green when mature, which contrast beautifully with the flaky silvery look of the younger foliage. Some of the shallower gulches are filled exclusively with this tree, which in growing up to the light to within 100 feet of the top, presents a mass and density of leafage quite unique, giving the gulch the appearance as if billows of green had rolled in and solidified there. Each gulch has some specialty of ferns and trees, and in such a distance as sixty miles they vary considerably with the variations of soil, climate, and temperature. But everywhere the rocks, trees, and soil are covered and crowded with the most exquisite ferns and mosses, from the great tree-fern, whose bright fronds light up the darker foliage, to the lovely maiden-hair and graceful selaginellas which are mirrored in pools of sparkling water. Everywhere, too, the great blue morning glory opened to a heaven not bluer than itself.

The descent into the gulches is always solemn. You canter along a bright breezy upland, and are suddenly arrested by a precipice, and from the depths of a forest abyss a low plash or murmur rises, or a deep bass sound, significant of water which must be crossed, and one reluctantly leaves the upper air to plunge into heavy shadow, and each experience increases one's apprehensions concerning the next. Though in some gulches the kukui preponderates, in others the lauhala whose aerial roots support it in otherwise impossible positions, and in others the sombre ohia, yet there were some grand clefts in which nature has mingled her treasures impartially, and out of cool depths of ferns rose the feathery coco-palm, the glorious breadfruit, with its green melon-like fruit, the large ohia, ideal in its beauty,—the most gorgeous flowering tree I have ever seen, with spikes of rose-crimson blossoms borne on the old wood, blazing among its shining many-tinted leafage,—the tall papaya with its fantastic crown, the profuse gigantic plantain, and innumerable other trees, shrubs, and lianas, in the beauty and bountecusness of an endless spring. Imagine my surprise on seeing at the bottom of one gulch, a grove of good-sized, dark-leaved,

very handsome trees, with an abundance of smooth round green fruit upon them, and on reaching them finding that they were orange trees, their great size, far exceeding that of the largest at Valencia, having prevented me from recognizing them earlier! In another, some large shrubs with oval, shining, dark leaves, much crimped at the edges, bright green berries along the stalks, and masses of pure white flowers lying flat, like snow on evergreens, turned out to be coffee! The guava with its obtuse smooth leaves, sweet white blossoms on solitary axillary stalks, and yellow fruit was universal. The novelty of the fruit, foliage, and vegetation is an intense delight to me. I should like to see how the rigid aspect of a coniferous tree, of which there is not one indigenous to the islands, would look by contrast. We passed through a long thicket of sumach, an exotic from North America, which still retains its old habit of shedding its leaves, and its grey, wintry, desolate-looking branches reminded me that there are less-favoured parts of the world, and that you are among mist, cold, murk, slush, gales, leaflessness, and all the dismal concomitants of an English winter.

It is wonderful that people should have thought of crossing these gulches on anything with four legs. Formerly, that is, within the last thirty years, the precipices could only be ascended by climbing with the utmost care, and descended by being lowered with ropes from crag to crag, and from tree to tree, when hanging on by the hands became impracticable to even the most experienced mountaineer. In this last fashion Mr. Coan and Mr. Lyons were let down to preach the gospel to the people of the then populous valleys. But within recent years, narrow tracks, allowing one horse to pass another, have been cut along the sides of these precipices, without any windings to make them easier, and only deviating enough from the perpendicular to allow of their descent by the sure-footed native-born animals. Most of them are worn by water and animals' feet, broken, rugged, jagged, with steps of rock sometimes three feet high, produced by breakage here and there. Up and down these the animals slip, jump, and scramble, some of them standing still until severely spurred, or driven by some one from behind. Then there are softer descents, slippery with damp, and perilous in heavy rains, down which they slide dexterously, gathering all their legs under them. On a few of these tracks a false step means death, but the vegetation which clothes the pali below, blinds one to the risk. I don't think anything would induce me to go up a swinging zigzag—up a terrible pali opposite to me as I write, the sides of which are quite undraped.

All the gulches for the first twenty-four miles contain running water. The great Hakalau gulch we crossed early yesterday, has a river with a smooth bed as wide as the Thames at Eton. Some have only small quiet streams, which pass gently through ferny grottoes. Others have fierce strong torrents dashing between abrupt walls of rock, among immense boulders

into deep abysses, and cast themselves over precipice after precipice into the ocean. Probably, many of these are the courses of fire torrents, whose jagged masses of a-a have since been worn smooth, and channelled into holes by the action of water. A few are crossed on narrow bridges, but the majority are forded, if that quiet conventional term can be applied to the violent flounderings by which the horses bring one through. The transparency deceives them, and however deep the water is, they always try to lift their fore feet out of it, which gives them a disagreeable rolling motion. (Mr. Brigham in his valuable monograph on the Hawaiian volcanoes quoted below, appears as much impressed with these gulches as I am.)

We lunched in one glorious valley, and Kaluna made drinking cups which held fully a pint, out of the beautiful leaves of the Arum esculentum. Towards afternoon turbid-looking clouds lowered over the sea, and by the time we reached the worst pali of all, the south side of Laupahoehoe, they burst on us in torrents of rain accompanied by strong wind. This terrible precipice takes one entirely by surprise. Kaluna, who rode first, disappeared so suddenly that I thought he had gone over. It is merely a dangerous broken ledge, and besides that it looks as if there were only foothold for a goat, one is dizzied by the sight of the foaming ocean immediately below, and, when we actually reached the bottom, there was only a narrow strip of shingle between the stupendous cliff and the resounding surges, which came up as if bent on destruction. The path by which we descended looked a mere thread on the side of the precipice. I don't know what the word beetling means, but if it means anything bad, I will certainly apply it to that pali.

A number of disastrous-looking native houses are clustered under some very tall palms in the open part of the gulch, but it is a most wretched situation; the roar of the surf is deafening, the scanty supply of water is brackish, there are rumours that leprosy is rife, and the people are said to be the poorest on Hawaii (Bird 2007:87-91).

We moved on in single file at a jog-trot wherever the road admitted of it, meeting mounted natives now and then, which led to a delay for the exchange of nuhou; and twice we had to turn into the thicket to avoid what here seems to be considered a danger. There are many large herds of semi-wild bullocks on the mountains, branded cattle, as distinguished from the wild or unbranded, and when they are wanted for food, a number of experienced vaccheros on strong shod horses go up, and drive forty or fifty of them down. We met such a drove bound for Hilo, with one or two men in front and others at the sides and behind, uttering loud shouts. The bullocks are nearly mad with being hunted and driven, and at times rush like a living tornado, tearing up the earth with their horns. As soon as the galloping riders are seen and the crooked-horned beasts, you retire behind

a screen. There must be some tradition of some one having been knocked down and hurt, for reckless as the natives are said to be, they are careful about this, and we were warned several times by travellers whom we met, that there were "bullocks ahead." The law provides that the vaccheros shall station one of their number at the head of a gulch to give notice when cattle are to pass through.

We jogged on again till we met a native who told us that we were quite close to our destination; but there were no signs of it, for we were still on the lofty uplands, and the only prominent objects were huge headlands confronting the sea. I got off to walk, as my mule seemed footsore, but had not gone many yards when we came suddenly to the verge of a pali, about 1,000 feet deep [Waipio], with a narrow fertile valley below, with a yet higher pali on the other side, both abutting perpendicularly on the sea. I should think the valley is not more than three miles long, and it is walled in by high inaccessible mountains. It is in fact, a gulch on a vastly enlarged scale. The prospect below us was very charming, a fertile region perfectly level, protected from the sea by sandhills, watered by a winding stream, and bright with fishponds, meadow lands, kalo patches, orange and coffee groves, figs, breadfruit, and palms. There were a number of grass-houses, and a native church with a spire, and another up the valley testified to the energy and aggressiveness of Rome (Bird 2007:94-95).

Bird was staying at the Onomea Plantation in Onomea as a guest at the time. The Onomea Plantation was owned by her host Judge S.L. Austin who started the plantation in 1863 (Campbell and Ogburn 2008). It was one of the first sugar mills established on the Island of Hawai_i. The Onomea Sugar Plantation, the Papaikou Sugar Company, and the Paukaa Sugar Company were consolidated into the Onomea Sugar Company in 1888 (Figure 7). The Onomea Sugar Company was merged with the Hilo Sugar Company in 1965 to form the Mauna Kea Sugar Company. A description of the Onomea Plantation works by Campbell and Ogburn (2008) is quoted below.

During the early days, Onomea's crushing plant was water driven. A metal water wheel and boiler had been shipped from Glasgow, Scotland in 1862. Water from the flumes provided the power to turn the wheel, which in turn moved the sugar cane crusher. The water-driven crushing plant was much larger and heavier than those of other mills. The mill was situated just below Papaikou at the foot of a gulch, which opened out to the ocean. It was the first nine-roller mill erected on the island. The mill was connected by rail to one of the best landings and loading devices on the coast. The sugar cars were hauled to the landing by a cable and sugar could be sent over the main cable to the hold of a ship without rehandling. By means of this device about 1,600 bags of sugar could be loaded in an hour.

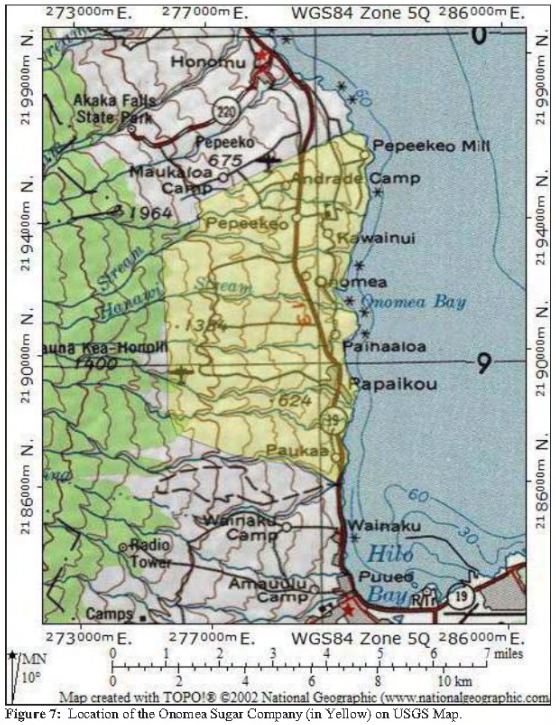

Figure 7: Location of the Onomea Sugar Company (in Yellow) on USGS Map.

A distinctive feature of Onomea was its system of flumes, which spanned gorges and carried cane down the slopes to the mill. Fifty-five miles of stationary and portable flumes were constructed. The trestle, which carried the main flume across Hanawainui Gulch, was the largest wooden bridge in the territory and the one spanning Kawainui Gulch was the highest, 176 feet. Onomea's location in a heavy rainfall belt made it difficult to mechanize cane harvesting and transportation easily. Onomea was one of the last plantations to stop hand cutting cane. However, progress was made and the extensive road building program begun in 1903 was finally completed in 1956.

The heavy rainfall also tended to wash topsoil away and leach it out. Onomea was the first Hawaiian sugar plantation to use commercial fertilizer on its fields. In 1879 (1897?), bone meal fertilizer was used to improve the soil. Later on Manager John T. Moir's protective efforts towards Onomea's topsoils resulted in the invention of a plow which was adapted to the peculiar topography of the county and the nature of the soil. The shallow, clay-like soils were subject to washing unless properly cultivated. It is to Moir's credit that no field was washed out to sea during his 20 years of management. He was also considered one of the leaders in the conservation of waste products and the use of them to build up the land.

The descriptions of the Onomea plantation is a good period descriptions of sugar plantations and operations in the area of the Hāmākua. The project area parcel was previously owned by the Mauna Kea Sugar Company, and might have been part of the Onomea Sugar company prior to its merger with the Hilo Sugar Company in 1965.

NATIVE TESTIMONY BEFORE THE COMMISSION TO QUIET LAND TITLES

With the Mahele of 1848 and the two Acts of 1850, authorizing the sale of land in fee simple to resident aliens and the award of *kuleana* lands to native tenants, land tenure in Hawaii arrived at a significant turning point (Chinen 1961:13). No Land Commission awards were mine within or near the project area parcel. The project area parcel and the surrounding lands were all grants given primarily to the sugar companies.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Early archaeological studies conducted in the area by Thrum and Stokes (Thrum 1907 and 1908, and Stokes and Dye 1991), and by A.E. Hudson (Hudson 1932) did not locate any heiau or significant cultural resources in the area within or around the current project area.

A single archaeological inventory survey (AIS) was conducted by Hammatt and Colin (1998) within the Ahupua_a of Kaiwiki 3 (Figure 8). The survey was conducted on the slopes of Kolekole Gulch, under and surrounding the Kolekole bridge, including the 100 feet of slopes *mauka* and *makai* of the bridge. Cement footings from the previous bridge were recorded in their report. No other cultural resources were identified during the study.

In May of 2004, Rechtman Consulting, LLC conducted an AIS on 4.5 acres [(3) 2-9-03:13, 29, and 60] in coastal Wailea Ahupua_a, just north of the current project area (Desilets *et* al. 2004) (see Figure 8). A single site (SIHP 50-10-26-24212 consisting of a section of railroad grade and a trestle abutment were recorded. Both features were recorded as significant under Criterion D and no further work was recommended at the site (Desilets *et* al. 2004:20).

EXPECTED ARCHAEOLOGICAL PATTERNS

Based on previous archaeological studies, geological studies, historical research, interviews, and County Planning Department records it is expected that any archaeological sites located on the current project area will be related to historic period sugarcane agricultural activities or transportation routes. The present project area is located on a parcel previously owned by the Mauna Kea Sugar Company and is bounded by a road to the north. While the vast majority of the property is steep slopes and cliffs, it is possible that there are agricultural features located on the level bank of the Kolekole Stream within the west portion of the property. Sugarcane agricultural features expected are rock clearing mounds and possible terraces. Historic-era trails leading into the sugarcane filed might be present. It is unlikely that the small level bank of the parcel will contain habitation features, as the area is small and close to the river, and known habitation areas were traditionally not located in steep gulches in the area.

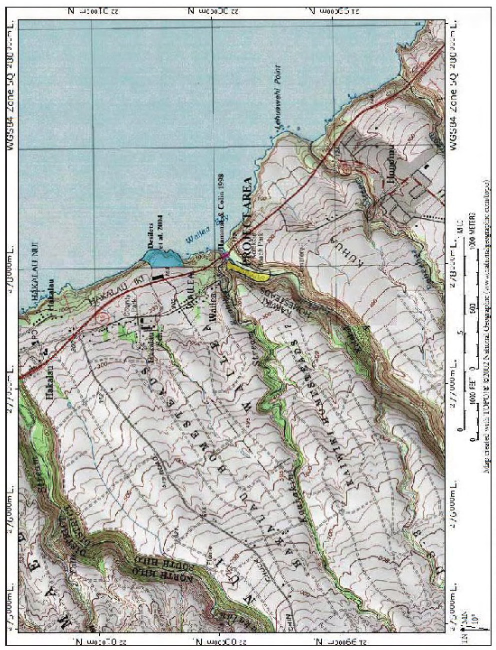

Figure 8: Map of Previous Archaeological Studies on USGS Quad.

RESULTS OF FIELDWORK

No archaeological sites or features were located on the current project area parcel. The entire 3.5-acre parcel is completely devoid of cultural resources. A single livestock pen (Figure 9) dating to the 1980s was identified on the level area in the western portion of the parcel. It appears to be a pig pen that has not been in use for the last ten years. The wood and corrugated sheet metal structure is beginning to fall apart. The pen is not an historic property. There are no historic properties on the project area and, it is likely that any possible traditional cultural resources constructed prior to sugarcane cultivation in the area are no longer present.

Figure 9: Livestock Pen Located at the SW End of the Project Area, Looking NW.

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SCS Project Number 1171-CIA-1

A CULTURAL IMPACT ASSESSMENT OF 3.5 ACRES ALONG THE KOLEKOLE STREAM IN KAIWIKI 3 AHUPUA'A, SOUTH HILO DISTRICT, ISLAND OF HAWAI'I

[TMK: (3) 2-9-03:003]

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February 2011

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&
Dawn Goehring

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INTRODUCTION

At the request of Douglas and Dawn Goehring, Scientific Consultant Services, Inc. (SCS) conducted a Cultural Impact Assessment (CIA) of a 3.5-acre parcel [TMK: (3)-2-9-03:003] located along the Kolekole Stream in Wailea, Kaiwiki 3 *ahupua'a* , South Hilo District, Island of Hawai_i(Figure 1). The project area is situated between one hundred to 500 meters from the mouth of the Kolekole Stream (Figure 2 and Figure 3). The Kolekole Stream borders the south edge of the parcel, the Ka_shakini Stream borders the east, and the old Mamalahoa Highway (Wailea Road) forms the north west boundaries. The construction of a single-family residence is planned within the western portion of the property parcel.

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to –protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua'a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778" (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua*'a tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, –native Hawaiian rights…may extend beyond the *ahupua'a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner" (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawaii (2000) with House Bill 2895, relating to Environmental Impact Statements, proposes that "there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's culture, and traditional and customary rights" (H.B. NO. 2895).

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the –eultural practices of the community and State" as part of the HRS Chapter 343 environmental review process (2001).

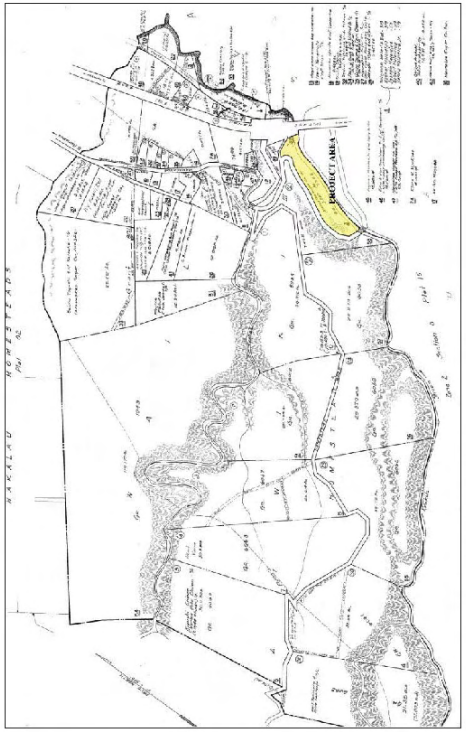

Figure 1: Location of Project area on TMK (3) 2-9-03 Map.

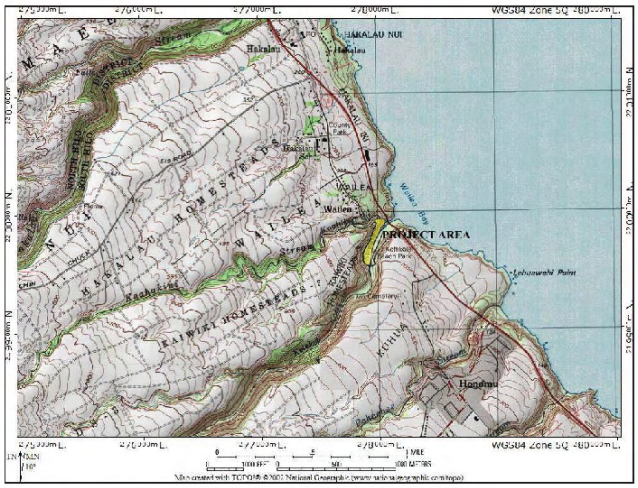

Figure 2: Location of Project area on Hilo USGS Quad, 2002.

Figure 3: Aerial Photograph of Project Area.

Its purpose has broadened, –to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other ethnic groups, and it also amends the definition of „significant effect‘ to be re-defined as —thesum of effects on the quality of the environment including actions that are…contrary to the State‘s environmental policies…or adversely affect the economic welfare, social welfare, or cultural practices of the community and State” (H.B. 2895, Act 50, 2000).

Thus, Act 50 requires an assessment of cultural practices to be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, –the broad geographical area, e.g. district or *ahupua'a*” (OEQC 1997). It was decided that the process should identify „anthropological‘ cultural practices, rather than „social‘ cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

> According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997): The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the project area and its vicinity cultural values and rights within the project area and its vicinity (H.B. 2895, Act 50, 2000).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the –Cultural Impact Assessment Methodology”, the OEQC state: …information may be obtained through scoping, community meetings, ethnographic interviews and oral histories… (1997).

The report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The assessment concerning cultural impacts should address, but not be limited to, the following matters:

(1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations with might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews, which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with a project area or who know of historical properties within a project area are sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs, historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. When telephone interviews occur, a summary of the information is often sent for correction and approval, or dictated by the

informant and then incorporated into the document. Key topics discussed with the interviewees vary from project to project, but usually include: personal association to the *ahupua'a*, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; evidence of previous activities identified while in the project vicinity.

In this case, letters briefly outlining the development plans along with maps of the project area were sent to individuals and organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. Consultation was sought from Kai Markell, the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs on O_ahu; Ruby McDonald, Coordinator of the Hawai_i branch of the Office of Hawaiian Affairs; Akiko Masuda, Wailea Village Historic Preservation Community; the Waimea Hawaiian Civic Club; the Kohala Hawaiian Civic Club; the Hawaiian Civic Club of Hilo; the Kona Hawaiian Civic Club; the Kuakini Hawaiian Civic Club; the South Kohala Hawaiian Civic Club; the Kona Historical Society; Ku Kahakalau (Hawai_iIsland Burial Council); Rick Gmerkin with the Ala Kahakai National Historic Trail Association; and Dr. Billy Bergin, President, Pani_olo Preservation Society. If cultural resources are identified based on the information received from these organizations and/or additional informants, an assessment of the potential effects on the identified cultural resources in the project area and recommendations for mitigation of these effects can be proposed. Public Notices were placed in the Ka Wai Ola OHA Newspaper.

PROJECT AREA AND VICINITY

The project area is a 3.5-acre parcel [TMK: (3) 2-9-03:03] located near the coast, in the *ahupua'a* of Kaiwiki 3 in Wailea, South Hilo District, Hawai_iIsland (see Figures 1, 2, 3, and 4). The area is sparsely wooded and there is ground cover in the western portion of the parcel. More recently, the area was owned by the Mauna Kea Sugar Company. There is a 1980s era animal pen in the level area along in the western portion of the parcel. The pen is constructed of milled lumber and galvanized, corrugated sheet metal, and is dilapidated and partially collapsed. The pen is not an historic property, cultural resource, or significant archaeological site.

CULTURAL HISTORICAL CONTEXT

HAWAIIAN LAND DIVISIONS AND SETTLEMENT

Initial settlement of the high Hawaiian Islands is believed to have occurred along the wetter and more fertile windward coasts where conditions were optimal for marine and terrestrial exploitation along lines followed previously in Eastern Polynesia. This exploitation involved inshore and pelagic fishing, gathering shellfish from the shore and strand, plant and animal husbandry, and the utilization of natural terrestrial flora and fauna (Kirch and Kelly 1975; Pearson *et al*. 1971; Kirch 1985). The pattern of this early settlement is thought to have consisted of widely spaced, permanent home bases that gradually expanded to form a nearly continuous zone of permanent settlement along the windward coasts as local populations grew.

There is a paucity of prehistoric information pertaining to the lands of the project area and surrounding lands (Cordy 2000:216-217). Kaiwiki 3 Ahupua_ais located in an area known as Hilo-Pali-Kū (Hilo of the upright cliffs), a traditionally sparsely populated area along the high cliffs of the Hāmākua coast. The mouth of the Kaiwiki Stream provides the only access to ocean resources and is far from the sociopolitical population centers of Hilo to the south, and the Waipi_o Valley and Waimea to the west. Though a coastal trail was used to travel along the Hāmākua, much of the travel between Hilo and Waipi_o was done by sailing canoe due to the rough condition of the trail as it crossed into numerous steep gulches. Kaiwiki 3 is not at the nexus of a trail system, and much of the cross-island travel was conducted on trails that crossed the saddle between Mauna Kea, Maun Loa, and Huālalai (Figure 5).

WAHI PANA (LEGENDARY PLACES)

Kaiwiki 3 Ahupua_a is a traditional Hawaiian land division in Hilo *Moku* situated along the 200 foot high cliffs of the Hāmākua coast up to 1500 feet amsl (W.E. Wall Map 1928). Kaiwiki is translated as quick sea (Pukui *et al*.1974:71). Traditional settlement patterns in Kaiwiki are more characteristic of those along the Hāmākua coast than of lowland Hilo (Cordy 2000:44). There are no legendary places mentioned in *mo'olelo* concerning Kaiwiki and its immediate environs.

Figure 4: Hawai_iIsland Trail Systems.

PREHISTORIC AND HISTORIC ACCOUNTS OF KOHOLĀLELE

No published prehistoric accounts of Kaiwiki are recorded by Kamakau (1992), L_i(1993), Kalakaua (1990), or Fornander (1996). As for early historic accounts, William Ellis traveled by canoe from Hilo to Laupāhoehoe (Figure 6) where he disembarked and continued on foot to Humu_ula along the tree line at the northern foot of Mauna Kea (Ellis 2004:341-344). Ellis travelled by canoe because the road along the cliffs was told to be too rough and passed through many deep gulches. Ellis states that the cliffs between Hilo and Laupāhoehoe were dotted with plantations. Their canoe passed more than fifty ravines in the several hours it took them to travel the twenty-five or so miles between Hilo and Laupāhoehoe . He noted that none of ravines had a place for their canoe to land without being swamped in the surf. No mention is made of Kaiwiki Ahupua_a, though he passed it by canoe on the way to Laupāhoehoe.

In 1872, Isabella Bird traveled by horseback along the Hāmākua from Onomea to the Waipi_o Valley and described the landscape she travelled through (see Figure 6). The journey was over very rough and steep trails, crossed over the Kolekole Stream near the project area, and took five days. Bird noted –this is the most severe road on horses on Hawaii, and it takes a really good animal to come to Waipio and go back to Hilo (Bird 2007:85). The description that follows underscores the sparsely populated Hāmākua area:

> From Onomea to the place where we expected to find the guide, we kept going up and down the steep sides of ravines, and scrambling through torrents till we reached a deep and most picturesque gulch [Kawainui], with a primitive school-house at the bottom, and some grass-houses clustering under palms and papayas, a valley scene of endless ease and perpetual afternoon. Here we found that D._s uncle, who was to have been our guide, could not go, because his horse was not strong enough, but her cousin volunteered his escort, and went away to catch his horse, while we tethered ours and went into the school-house.
>
> This reminded me somewhat of the very poorest schools connected with the Edinburgh Ladies' Highland School Association, but the teacher had a remarkable paucity of clothing, and he seemed to have the charge of his baby, which, much clothed, and indeed much muffled, lay on the bench beside him. For there were benches, and a desk, and even a blackboard and primers down in the deep wild gulch, where the music of living waters, and the thunderous roll of the Pacific, accompanied the children's tuneless voices as they sang an Hawaiian hymn. I shall remember nothing of the scholars but rows of gleaming white teeth, and splendid brown eyes.

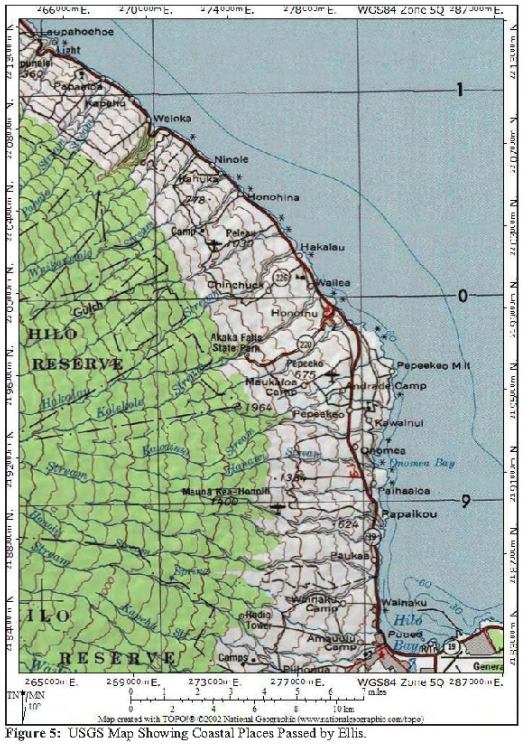

Figure 5: USGS Map Showing Coastal Places Passed by Ellis.

I thought both teacher and children very apathetic. There were lamentably few, though the pretty rigidly enforced law, which compels all children between the ages of six and fifteen to attend school for forty weeks of the year, had probably gathered together all the children of the district. They all wore coloured chemises and leis of flowers (Bird 2007:85).

We had a perfect day until the middle of the afternoon. The dimpling Pacific was never more than a mile from us as we kept the narrow track in the long green grass; and on our left the blunt snow-patched peaks of Mauna Kea rose from the girdle of forest, looking so delusively near that I fancied a two-hours' climb would take us to his lofty summit. The track for twenty-six miles is just in and out of gulches, from 100 to 800 feet in depth, all opening on the sea, which sweeps into them in three booming rollers. The candle-nut or kukui (aleurites triloba) tree, which on the whole predominates, has leaves of a rich deep green when mature, which contrast beautifully with the flaky silvery look of the younger foliage. Some of the shallower gulches are filled exclusively with this tree, which in growing up to the light to within 100 feet of the top, presents a mass and density of leafage quite unique, giving the gulch the appearance as if billows of green had rolled in and solidified there. Each gulch has some specialty of ferns and trees, and in such a distance as sixty miles they vary considerably with the variations of soil, climate, and temperature. But everywhere the rocks, trees, and soil are covered and crowded with the most exquisite ferns and mosses, from the great tree-fern, whose bright fronds light up the darker foliage, to the lovely maiden-hair and graceful selaginellas which are mirrored in pools of sparkling water. Everywhere, too, the great blue morning glory opened to a heaven not bluer than itself.

The descent into the gulches is always solemn. You canter along a bright breezy upland, and are suddenly arrested by a precipice, and from the depths of a forest abyss a low plash or murmur rises, or a deep bass sound, significant of water which must be crossed, and one reluctantly leaves the upper air to plunge into heavy shadow, and each experience increases one's apprehensions concerning the next. Though in some gulches the kukui preponderates, in others the lauhala whose aerial roots support it in otherwise impossible positions, and in others the sombre ohia, yet there were some grand clefts in which nature has mingled her treasures impartially, and out of cool depths of ferns rose the feathery coco-palm, the glorious breadfruit, with its green melon-like fruit, the large ohia, ideal in its beauty,—the most gorgeous flowering tree I have ever seen, with spikes of rose-crimson blossoms borne on the old wood, blazing among its shining many-tinted leafage,—the tall papaya with its fantastic crown, the profuse gigantic plantain, and innumerable other trees, shrubs, and lianas, in the beauty and bounteousness of an endless spring. Imagine my surprise on seeing at the bottom of one gulch, a grove of good-sized, dark-leaved, very handsome trees, with an

abundance of smooth round green fruit upon them, and on reaching them finding that they were orange trees, their great size, far exceeding that of the largest at Valencia, having prevented me from recognizing them earlier! In another, some large shrubs with oval, shining, dark leaves, much crimped at the edges, bright green berries along the stalks, and masses of pure white flowers lying flat, like snow on evergreens, turned out to be coffee! The guava with its obtuse smooth leaves, sweet white blossoms on solitary axillary stalks, and yellow fruit was universal. The novelty of the fruit, foliage, and vegetation is an intense delight to me. I should like to see how the rigid aspect of a coniferous tree, of which there is not one indigenous to the islands, would look by contrast. We passed through a long thicket of sumach, an exotic from North America, which still retains its old habit of shedding its leaves, and its grey, wintry, desolate-looking branches reminded me that there are less-favoured parts of the world, and that you are among mist, cold, murk, slush, gales, leaflessness, and all the dismal concomitants of an English winter.

It is wonderful that people should have thought of crossing these gulches on anything with four legs. Formerly, that is, within the last thirty years, the precipices could only be ascended by climbing with the utmost care, and descended by being lowered with ropes from crag to crag, and from tree to tree, when hanging on by the hands became impracticable to even the most experienced mountaineer. In this last fashion Mr. Coan and Mr. Lyons were let down to preach the gospel to the people of the then populous valleys. But within recent years, narrow tracks, allowing one horse to pass another, have been cut along the sides of these precipices, without any windings to make them easier, and only deviating enough from the perpendicular to allow of their descent by the sure-footed native-born animals. Most of them are worn by water and animals' feet, broken, rugged, jagged, with steps of rock sometimes three feet high, produced by breakage here and there. Up and down these the animals slip, jump, and scramble, some of them standing still until severely spurred, or driven by some one from behind. Then there are softer descents, slippery with damp, and perilous in heavy rains, down which they slide dexterously, gathering all their legs under them. On a few of these tracks a false step means death, but the vegetation which clothes the pali below, blinds one to the risk. I don't think anything would induce me to go up a swinging zigzag—up a terrible pali opposite to me as I write, the sides of which are quite undraped.

All the gulches for the first twenty-four miles contain running water. The great Hakalau gulch we crossed early yesterday, has a river with a smooth bed as wide as the Thames at Eton. Some have only small quiet streams, which pass gently through ferny grottoes. Others have fierce strong torrents dashing between abrupt walls of rock, among immense boulders into deep abysses, and cast themselves over precipice after precipice into the ocean. Probably, many of these are the courses of fire torrents, whose jagged masses of a-a have since been worn smooth, and channelled into holes by the action of

water. A few are crossed on narrow bridges, but the majority are forded, if that quiet conventional term can be applied to the violent flounderings by which the horses bring one through. The transparency deceives them, and however deep the water is, they always try to lift their fore feet out of it, which gives them a disagreeable rolling motion. (Mr. Brigham in his valuable monograph on the Hawaiian volcanoes quoted below, appears as much impressed with these gulches as I am.)

We lunched in one glorious valley, and Kaluna made drinking cups which held fully a pint, out of the beautiful leaves of the Arum esculentum. Towards afternoon turbid-looking clouds lowered over the sea, and by the time we reached the worst pali of all, the south side of Laupahoehoe, they burst on us in torrents of rain accompanied by strong wind. This terrible precipice takes one entirely by surprise. Kaluna, who rode first, disappeared so suddenly that I thought he had gone over. It is merely a dangerous broken ledge, and besides that it looks as if there were only foothold for a goat, one is dizzied by the sight of the foaming ocean immediately below, and, when we actually reached the bottom, there was only a narrow strip of shingle between the stupendous cliff and the resounding surges, which came up as if bent on destruction. The path by which we descended looked a mere thread on the side of the precipice. I don't know what the word beetling means, but if it means anything bad, I will certainly apply it to that pali.

A number of disastrous-looking native houses are clustered under some very tall palms in the open part of the gulch, but it is a most wretched situation; the roar of the surf is deafening, the scanty supply of water is brackish, there are rumours that leprosy is rife, and the people are said to be the poorest on Hawaii (Bird 2007:87-91).

We moved on in single file at a jog-trot wherever the road admitted of it, meeting mounted natives now and then, which led to a delay for the exchange of nuhou; and twice we had to turn into the thicket to avoid what here seems to be considered a danger. There are many large herds of semi-wild bullocks on the mountains, branded cattle, as distinguished from the wild or unbranded, and when they are wanted for food, a number of experienced vaccheros on strong shod horses go up, and drive forty or fifty of them down. We met such a drove bound for Hilo, with one or two men in front and others at the sides and behind, uttering loud shouts. The bullocks are nearly mad with being hunted and driven, and at times rush like a living tornado, tearing up the earth with their horns. As soon as the galloping riders are seen and the crooked-horned beasts, you retire behind a screen. There must be some tradition of some one having been knocked down and hurt, for reckless as the natives are said to be, they are careful about this, and we were warned several times by travellers whom we met, that there were –bullocks ahead." The law provides that the vaccheros shall station one of their number at the head of a gulch to give notice when cattle are to pass through.

We jogged on again till we met a native who told us that we were quite close to our destination; but there were no signs of it, for we were still on the lofty uplands, and the only prominent objects were huge headlands confronting the sea. I got off to walk, as my mule seemed footsore, but had not gone many yards when we came suddenly to the verge of a pali, about 1,000 feet deep [Waipio], with a narrow fertile valley below, with a yet higher pali on the other side, both abutting perpendicularly on the sea. I should think the valley is not more than three miles long, and it is walled in by high inaccessible mountains. It is in fact, a gulch on a vastly enlarged scale. The prospect below us was very charming, a fertile region perfectly level, protected from the sea by sandhills, watered by a winding stream, and bright with fishponds, meadow lands, kalo patches, orange and coffee groves, figs, breadfruit, and palms. There were a number of grass-houses, and a native church with a spire, and another up the valley testified to the energy and aggressiveness of Rome (Bird 2007:94-95).

Bird was staying at the Onomea Plantation in Onomea as a guest at the time. The Onomea Plantation was owned by her host Judge S.L. Austin who started the plantation in 1863 (Campbell and Ogburn 2008). It was one of the first sugar mills established on the Island of Hawai_i. TheOnomea Sugar Plantation, the Papaikou Sugar Company, and the Paukaa Sugar Company were consolidated into the Onomea Sugar Company in 1888 (Figure 7). The Onomea Sugar Company was merged with the Hilo Sugar Company in 1965 to form the Mauna Kea Sugar Company. A description of the Onomea Plantation works by Campbell and Ogburn (2008) is quoted below.

During the early days, Onomea's crushing plant was water driven. A metal water wheel and boiler had been shipped from Glasgow, Scotland in 1862. Water from the flumes provided the power to turn the wheel, which in turn moved the sugar cane crusher. The water-driven crushing plant was much larger and heavier than those of other mills. The mill was situated just below Papaikou at the foot of a gulch, which opened out to the ocean. It was the first nine-roller mill erected on the island. The mill was connected by rail to one of the best landings and loading devices on the coast. The sugar cars were hauled to the landing by a cable and sugar could be sent over the main cable to the hold of a ship without rehandling. By means of this device about 1,600 bags of sugar could be loaded in an hour.

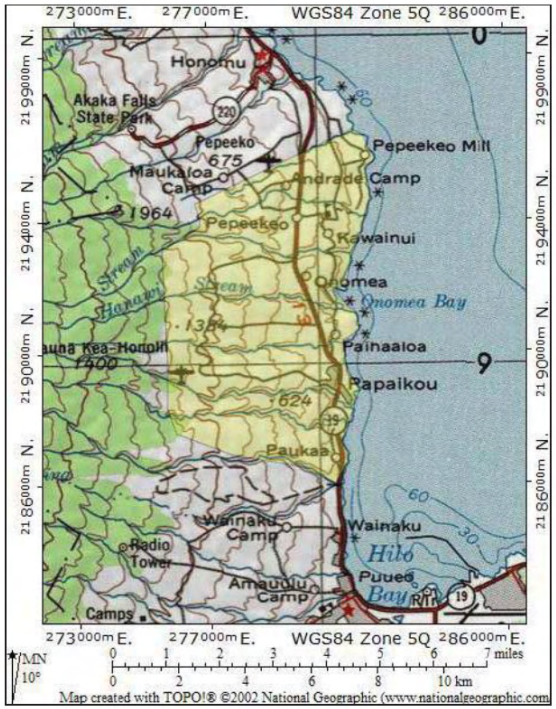

Figure 6: Location of the Onomea Sugar Company (in Yellow) on USGS Map.

A distinctive feature of Onomea was its system of flumes, which spanned gorges and carried cane down the slopes to the mill. Fifty-five miles of stationary and portable flumes were constructed. The trestle, which carried the main flume across Hanawainui Gulch, was the largest wooden bridge in the territory and the one spanning Kawainui Gulch was the highest, 176 feet. Onomea's location in a heavy rainfall belt made it difficult to mechanize cane harvesting and transportation easily. Onomea was one of the last plantations to stop hand cutting cane. However, progress was made and the extensive road building program begun in 1903 was finally completed in 1956.

The heavy rainfall also tended to wash topsoil away and leach it out. Onomea was the first Hawaiian sugar plantation to use commercial fertilizer on its fields. In 1879 (1897?), bone meal fertilizer was used to improve the soil. Later on Manager John T. Moir's protective efforts towards Onomea's topsoils resulted in the invention of a plow which was adapted to the peculiar topography of the county and the nature of the soil. The shallow, clay-like soils were subject to washing unless properly cultivated. It is to Moir's credit that no field was washed out to sea during his 20 years of management. He was also considered one of the leaders in the conservation of waste products and the use of them to build up the land.

The descriptions of the Onomea plantation is a good period descriptions of sugar plantations and operations in the area of the Hāmākua. The project area parcel was previously owned by the Mauna Kea Sugar Company, and might have been part of the Onomea Sugar company prior to its merger with the Hilo Sugar Company in 1965.

NATIVE TESTIMONY BEFORE THE COMMISSION TO QUIET LAND TITLES

With the Mahele of 1848 and the two Acts of 1850, authorizing the sale of land in fee simple to resident aliens and the award of *kuleana* lands to native tenants, land tenure in Hawaii arrived at a significant turning point (Chinen 1961:13). No Land Commission awards were mine within or near the project area parcel. The project area parcel and the surrounding lands were all grants given primarily to the sugar companies.

THE HISTORY OF SUGAR IN HAWAI'I

Captain Cook found sugarcane (*Saccharum officinarum*) growing in Hawai_i at the time of his arrival in 1778 (Beaglehole 1967:479). He noted that the cane was of large size and good quality. According to Hawaiians, sugarcane (*kō*) grew wild and quite well in the valleys and lowlands. It was not refined but was eaten as a food crop and was used as an offering, especially to the shark god *Mano* (Rolph 1917:166). Captain James King also noted that upon his arrival at Maui in 1778, Hawaiians came along ship carrying sugarcane as well as fruits and vegetables (Beaglehole 1967:497). Several sugarcane varieties, either indigenous or brought by early

Polynesians, were known to the Hawaiians, including *Ualalehu*, *Ualalehu maoli* (native), *Honuaula*, *Laukena* (*Laukona*), *Kea* (*Kokea*), *Papa*, and *Ohua* (Wilfong 1883).

The earliest instances of sugar and molasses production in Hawai_i remain uncertain, but were likely small-scale sugar extraction operations. A number of important chiefs set aside land for several of these early endeavors (Kelly *et al*. 1981:81). Rolph (1917:166-167) documents the inception of organized sugar production as follows:

> L. L. Torbert, one the early planters, in a paper read before the Royal Agricultural Society in January, 1852, claims the earliest sugar factory was put up on the island of Lanai in 1802 by a Chinaman who came to the islands in one of the vessels trading for sandalwood. He brought with him a stone mill and boilers, and after grinding one small crop and making it into sugar, went away the next year taking his apparatus with him.
>
> Anderson [Anderson, Rufus, *The Hawaiian Islands*, Boston, 1864] makes a statement that 257 tons of sugar were exported from the islands in 1814, but cites no authority upon which to base his assertion.
>
> According to Jarves [Jarves, James Jackson, *History of the Sandwich Islands*, Honolulu, 1872] the first instance of the manufacture of sugar goes back to beyond 1820, but the name of the pioneer planter is unknown. It is certain that at first molasses was manufactured and then sugar some time before 1820.
>
> Don Francisco de Paula made sugar in Honolulu in 1819, the year before the arrival of the first missionaries. Lavinia, an Italian, did the same thing in 1823. His method was to pound the cane with stone pestles on huge wooden trays (poi boards) by native labor, collecting the juice and boiling it in a small copper kettle.
>
> Accounts from various sources agree that the making of sugar and molasses was general in 1823-24. This undoubtedly had direct connection with the manufacture of rum, which was extensively carried on at the time.
>
> In 1828 a considerable amount of cane was raised in the Nuuanu valley and Waikapu, Maui. A pioneer cane grower, Antonio Silva by name, lived at the latter place, and some Chinamen had a sugar mill near Hilo. In those days mills were made of wood, very crudely put together and worked by oxen.

Ladd & Company established the first large-scale sugar production in Hawai_i on Kuai, while David Malo operated a mill on Maui between 1840 and 1850, and Governor Kuakini directed the planting of one hundred acres of sugar cane in 1839 in Kohala, on the Island of Hawai_i (Rolph 1917:169). Missionaries at Hilo in the early 1800s produced sugar and molasses

for their own use (Kelly *et al*. 1981:81). In 1841, a mill on the Wailuku River in Hilo on Governor Kuakini's land, and likely operated by Chinese, produced about 30 tons of sugar.

Sugarcane growing and milling operations were still simple. Cane fields were neither irrigated nor fertilized and sugar yields were roughly one ton per acre. Planting, by *'o'ō* (digging stick), and harvesting was done by Hawaiian contract workers (Thrum 1874:36). Laborers were paid in kind, often in cloth. Once at the milling facilities, cane was fed one stalk at a time into iron band reinforced wooden rollers powered by water, oxen, mule, and horse. The juice extracted by the rollers was collected in a trough and was boiled in whaling ship iron trypots (Figure 6). Less than 50% of the sugar was extracted from the cane using these methods. Additionally, production was low because indigenous sugarcanes were susceptible to introduced disease and were soft and therefore unsuitable for milling (Mangelsdorf 1956).

Lahaina sugarcane, a variety indigenous to the Marquesas, was introduced to Hawai_i in 1854, and by 1870 had displaced all indigenous varieties for sugar production (Wilfong 1883). Hawaiian sugar production remained low despite the introduction of steam power in 1858-1859 to the milling process. The Island of Hawai_i had a single mill operating at Hilo until the outbreak of the American Civil War (1861-1865). The disruption of sugar production in the American south caused a price increase and a concomitant rise in Hawaiian sugar production and export, from 2,600 tons in 1863 to 8,869 tons in 1866 (Rolph 1917:171). The rapid growth of the sugar industry created a labor shortage that necessitated hiring contract laborers from other Polynesian islands.

Hawaiian sugar production was still somewhat hindered by U.S. import duties, until a reciprocity treaty negotiated between the Kingdom of Hawai_i and the U.S. in 1876 reduced import duties levied on Hawaiian sugar, increasing the profitability of sugar production and further spurring the growth of the sugar industry. From 1877 to 1888, sugar production increased almost 500% and doubled in the following ten years (Kelly *et al*. 1981:81). American consumers purchased nearly 99% of all Hawaiian export products, much of it sugar.

Figure 7: A Whaling Trypot Typical of Those Used For Making Raw Sugar.

In 1880 Rose Bamboo sugar cane was introduced from Australia and was grown at higher elevations on Hawai_i. Rose Bamboo cane did especially well on the relatively high table lands along the Hāmākua coast. Lahaina and Rose Bamboo varieties were susceptible to insects and disease and subsequently yields decreased annually until both varieties were completely replaced around the turn of the century by Yellow Caledonia cane (also called White Tanna cane), a variety named for New Caledonia and Tanna, an island of present day Vanuatu (Rolph 1917:170). Yellow Caledonia had been imported to Hawai_i in 1881 and was first grown with great success in Ka_u (Tew 1987). The variety was resistant to disease and grew well in cooler climates with moderately high rainfall, and consequently was cultivated with great success along the Hāmākua until its replacement in 1925 with hybrid varieties of sugarcane (James 2004:5).

The Hawaiian sugar industry continued to grow and additional contract laborers were hired from as far away as China and Japan (after 1890), and later from Korea, the Philippines, Puerto Rico, and Portugal. Sugar plantations began offering free medical care and rent-free housing to attract laborers. The annexation of Hawai_i by the U.S. in 1898 ensured the continued American consumer demand for Hawaiian sugar. Additionally, incorporation provided new funding for needed public works to improve the transportation and shipping facilities that made the sugar trade more profitable. The development of port facilities and the extensive railroad system that ran from Kalapana in South Puna to Pa_auilo along the Hāmāku coast were a direct result of the sugar industry.

The project area parcel was awarded to the Wailea Milling Company as Land Grant 7396. The Wailea Milling Company was established by two Wailea residents, Tatsuji Kawachi and Augusto Souza Costa, and was partially funded by Wailea area residents.

Tatsuji Kawachi, originally from Hiroshima Japan, leased sugarcane land from A.M. Cabrinha in Wailea and grew sugarcane there (Oda 2007). Because the sugar mills were owned by the large sugar plantations, the independent growers had to wait until all of the plantation cane was milled before they could have theirs milled. In August of 1919, Tatsuji partnered with Augusto Souza Costa to create the Wailea Milling Company, Hawaii's first independent sugar mill (Sugar Publishing 1919 V.21:363). Costa was the president, and manager and Kawachi was the vice-president. The mill was built with $500,000 divided into 25,000 shares worth $20.00 each. Kawachi was the majority private shareholder with 7,500 shares, and was second only to the 16,500 shares held in trust by the Security Trust Company that financed the operation (*ibid*).

The Hakalau Plantation Company bought out the Wailea Sugar Mill operations in 1943. The Hakalau Plantation Company merged into the Pepeekeo Sugar Company in 1963, and those operations were merged into the Mauna Kea Sugar Company in 1973. The Mauna Kea Sugar Company closed operations in the mid 1990s. The Wailea mill, once located in Wailea town, no longer stands.

CULTURAL INFORMANT INTERVIEWS

SCS, Inc contacted sixteen agencies and individuals who might have knowledge of the lands of Kaiwiki 3 (Table 1). Of the sixteen, one person, Akiko Masuda, had knowledge of the project area and provided information. None of the informants had knowledge of past or ongoing cultural practices on the project area property.

Table 1: Organizations and Individuals Consulted for CIA.

Name	Affiliation	Responded	Has Knowledge	Cultural Practices
Hawaiian Civic Club of Hilo	Cultural & Historical	No	Unknown	Unknown
Kohala Hawaiian Civic Club	Cultural & Historical	No	Unknown	Unknown
Kona Hawaiian Civic Club	Cultural & Historical	No	Unknown	Unknown
Kualkini Hawaiian Civic Club of Kona	Cultural & Historical	No	Unknown	Unknown
South Kohala Hawaiian Civic Club	Cultural & Historical	No	Unknown	Unknown
Waimea Hawaiian Civic Club	Cultural & Historical	No	Unknown	Unknown
Kona Historical Society	Cultural & Historical	No	Unknown	Unknown
OHA-O_ahu Office	Cultural & Historical	No	Unknown	Unknown
OHA- Hawai_i Office	Cultural & Historical	Yes	No	Unknown
Ku Kahakalau	Hawai_i Island Burial Council, Hāmākua District	Yes	No	Unknown
Dr. Billy Bergin	Pani_olo Preservation Society, President	Yes	No	Unknown
Rick Gmerkin	Ala Kahakai National Historic Trail, NPS	Yes	No	Unknown
Akiko Masuda	Wailea Village Historic Preservation	Yes	Yes	No
Leon J. No_eau Peralto	Hāmākua _Chana	Yes	No	Unknown
Gilbert Bailado	Hāmākua _Chana	Yes	No	Unknown
Jim Medeiros Sr.	Cultural	No	Unknown	Unknown
Keawe Vredenburg	Waimea Resident	Yes	No	Unknown

INTERVIEWS

Akiko Masuda, member of the Wailea Village Historic Preservation Community was contacted by phone. She, in turn contacted *kupuna* in the Wailea area to ask if they had knowledge of cultural practices associated with the project area parcel. She related that none of the people she spoke to knew of any past or ongoing cultural practices in the area of the project parcel.

SUMMARY

The –level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be a –good faith effort". However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the present parcel, letters of inquiry were sent to organizations whose expertise would include the project area. Consultation was sought from numerous Hawaii Island civic clubs, the Office of Hawaiian Affairs, the Kona Historical Society, the Pani_olo Preservation Society, the Hawai_iIsland Burial Council, the Ala Kahakai National Historic Trail Association, and the Wailea Village Historic Preservation Community. Public notices were published in Ka Wai Ola, the OHA newspaper.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I`i, Kamakau, Chinen, Kame`eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku`i and Elbert, Thrum, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai`i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina 2007 Data Base.

CIA INQUIRY RESPONSE

As suggested in the –Guidelines for Accessing Cultural Impacts" (OEQC 1997), CIAs incorporating personal interviews should include ethnographic and oral history interview procedures, circumstances attending the interviews, as well as the results of this consultation. It is also permissible to include organizations with individuals familiar with cultural practices and features associated with the project area.

As stated above, consultation was sought from Kai Markell, the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs on O_ahu; Ruby McDonald, Coordinator of the Hawai_i branch of the Office of Hawaiian Affairs; Akiko Masuda, Wailea Village Historic Preservation Community; the Waimea Hawaiian Civic Club; the Kohala Hawaiian Civic Club; the Hawaiian Civic Club of Hilo; the Kona Hawaiian Civic Club; the Kuakini Hawaiian Civic Club; the South Kohala Hawaiian Civic Club; the Kona Historical Society; Ku Kahakalau (Hawai_iIsland Burial Council); Rick Gmerkin with the Ala Kahakai National Historic Trail Association; and Dr. Billy Bergin, President, Pani_olo Preservation Society. Akiko Masuda of the Wailea Village Historic Preservation Community had knowledge of the project area and assisted. Except for OHA and the Kona Historical Society acknowledging the receipt of our letter, none of the other organizations responded with information concerning the potential for cultural resources or cultural practices associated with the project area lands, or with additional suggestions for further contacts.

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project area has not been used for traditional cultural purposes within recent times. Based on historical research and the response of no known ongoing cultural practices from the above listed contacts, it is reasonable to conclude that Hawaiian rights related to gathering, access or other customary activities within the project area will not be affected and there will be no direct adverse effect upon cultural practices or beliefs. The visual impact of the project from surrounding vantage points, e.g. the highway, mountains, and coast would appear to be minimal.

CULTURAL ASSESSMEMNT

Based on organizational response as well as archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on this parcel. Because there were no cultural activities identified within the project area, there are no adverse effects.

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Oda, Margaret

APPENDIX F

Various Letters

Planning Department Letter	1
Hawaii Electric Light Company, INC. Letter	3
Department of Water Supply Letter	9
Department of Public Works Letter	10
DLNR – Historic Preservation Division Letter	11
E-mail from Mattingly	12
Phone Record from Alderson	13

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

April 12, 2004

Mr. Douglas B. Goehring
1413 Zurich Road
Gatlinburg, TN 37738

Dear Mr. Goehring:

Subject:	**Pre-Draft Environmental Assessment Comments**
Project:	**Construction of Single-Family Dwelling and Related Improvements**
Land Owner:	**Douglas B. Goehring**
Location:	**Wailea, South Hilo, Island and County of Hawaii**
Tax Map Key:	**(3) 2-9-003:003**

This is in response to your letter, dated March 23, 2004, in which you requested our comments in connection with your preparation of a Draft Environmental Assessment (DEA) pursuant to §343-5(a)(2), Hawaii Revised Statutes (HRS).

We understand that you intend to construct a new single-family dwelling of approximately 2,000 square feet on the subject 3.587-acre lot, which does not abut the shoreline. We further understand that you intend to submit a Conservation District Use Application (CDUA) upon acceptance of your EA by DLNR.

The subject property is situated in the State Land Use (SLU) Conservation district and is, therefore, not subject to any County of Hawaii land use regulations. Although a portion of the subject parcel is in the County of Hawaii's Special Management Area (SMA), the area indicated for the proposed improvements is outside the SMA. Therefore, the proposed construction of the single-family dwelling and related improvements described in your submittals are not subject to any review under the SMA guidelines.

Should you have questions, please feel welcome to contact Larry Brown or Esther Imamura of my staff at 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

LMB:pak
P:\WPWIN60\Larry\EA-EIS Comments\Goehring2-9-3-3preDEAcmnts.doc

xc: DLNR, Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawaii 96809

Hawaii Electric Light Company, Inc. • PO Box 1027 • Hilo, HI 96721-1027

CUST 3-3-1
H-W/G

October 20, 2004

Mr. Douglas B. Goehring
1413 Zurich Road
Gatlinburg, TN 37738

Dear Mr. Goehring:

Subject: Overhead Line Extension

This is in reply to your request concerning the installation of an overhead line extension to serve your property located at Wailea, Kaiwiki Homesteads, South Hilo, Hawaii (Tax Map Key: 2-9-003:003).

The proposed installation will be made in accordance with Rule 13 of our Company's tariff, copy enclosed for your review.

Based on our preliminary design of 7 poles and 7 anchors / 1,480 feet of overhead distribution system, we estimate that the cost to you for the extension of our facilities is approximately $41,200.00. However, a field survey will be required to determine if there are any extraordinary conditions that may raise the cost estimate such as clearing of the site, rough uneven terrain, no property pins, etc.

The proposed overhead pole line will follow along the Old Mamalahoa Highway from HELCO's existing P-15X in front of parcel 47 and 36, then across Kaahakini Stream gulch, over parcels 12 and 39 and back onto Old Mamalahoa Highway to your proposed house site. Refer to the attached TMK sheet for pole line route. This preliminary estimate does not include cost for the telephone company's requirements. You are required to contact the phone company for their cost of this line extension.

The cutting / trimming of trees along the pole line route is the customer's responsibility and must be done in accordance to HELCO's Tree Trimming Specifications a copy of which is enclosed.

This project is subject to our Company obtaining a satisfactory easement. Occasionally, parties granting easements to us will require survey descriptions and/or document processing fees. If applicable, this cost will be added to the cost of this project.

Please inform us if you are interested in pursuing this project further so that we may proceed with the field survey and prepare a firm cost proposal. Also, indicate in the space provided below a tentative date that service is required. After receiving your notification, we may require three month/s to do the engineering, which includes field checks, design, drafting, and cost estimating to provide you with a firm cost proposal.

Mr. Douglas B. Goehring
Page 2
October 20, 2004

If no reply is received from you within thirty (30) days from the date of this letter, your request will be canceled.

Should you have any questions relating to this project, please feel free to write or call me at (808) 969-0335 between the hours of 7:00 a.m. and 3:30 p.m. Monday through Friday.

Sincerely,

Wilfred Sibayton
Customer Planner
Customer Engineering Division

WS:fc
Enclosure
Request No. H0021125

Tentative date that service is required: _____

HAWAII ELECTRIC LIGHT COMPANY, INC.

SPECIFICATION NO. TT9301-0

FOR

TREE TRIMMING NEAR

OVERHEAD ELECTRIC POWER LINES

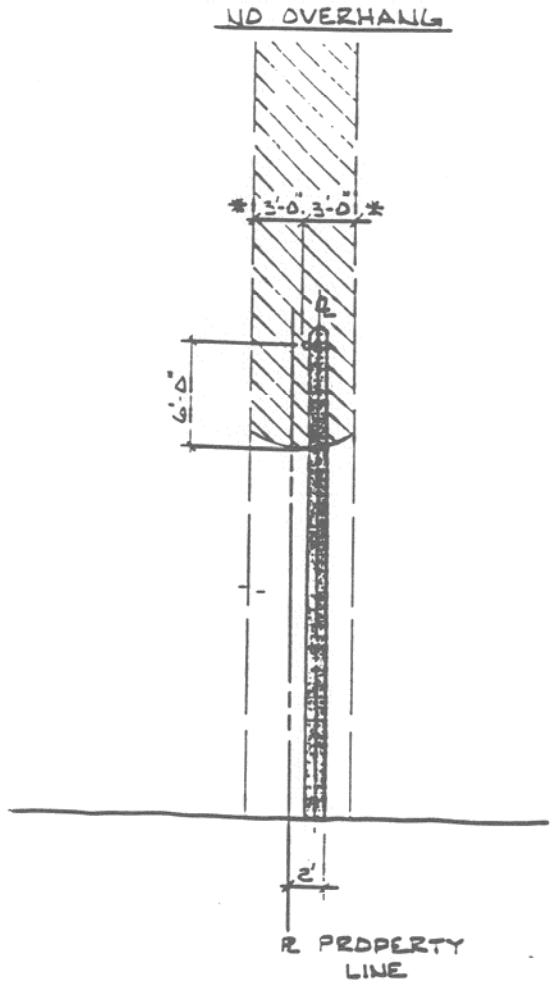
PREPARED BY DISTRIBUTION DEPARTMENT

Warren K. Egusa
Operations Superintendent

Rankin A. Curtis, P.E.
General Superintendent

John P. Pauole, Jr.
Manager, Distribution Department

Original Edition: March, 1993



HELCO TT 9301
EXHIBIT I

SECONDARY TRIMMING
(LESS THAN 600 VOLTS)
TYPICAL ELEVATION
SCALE: 1/8" = 1'-0"

* WRITTEN PERMISSION MAY BE REQUIRED TO TRIM WITHIN THIS AREA

HAWAII ELECTRIC LIGHT COMPANY, INC.

REVISED SHEET NO. 30
Effective: October 9, 1985

REISSUED
June 1, 1988

RULE NO. 13

Line Extensions

Extensions of lines necessary to furnish service to applicants for permanent service will be made by the Company in accordance with the following provisions:

A. GENERAL

The Company will construct, own, operate and maintain electric lines and equipment only under, along, upon and over public streets, roads and highways when it has the legal right to do so, and on public lands and private property across which it has otherwise obtained rights of way or other necessary rights satisfactory to the Company.

B. OVERHEAD EXTENSIONS TO SERVE INDIVIDUAL APPLICANTS

1. Extension Allowance

a. Overhead line extensions will be made by the Company at its expense provided the cost of the line required does not exceed thirty-six months' estimated revenue of the applicant. The Company will install, own, operate and maintain the necessary line transformers, meters and service drop in accordance with Rule No. 14 at its expense, except where the customer requests special facilities.

b. Special Facilities: The Company will install only those facilities which it deems necessary to render service in accordance with the tariff. Where the applicant requests facilities which are acceptable to the Company but are in addition to, or in substitution for, the standard facilities which the Company normally would install, the applicant shall make a contribution of the extra cost thereof.

2. Extensions Beyond Allowance

For overhead line extensions whose estimated cost exceeds the thirty-six months' estimated revenue, the applicant shall make an advance equal to the difference between the estimated line cost and the thirty-six months' estimated revenue. The estimated line cost will be exclusive of line transformers, service drops and meters, and will be based on the route determined by the Company.

3. Refunds

a. Revenue received from the customer will be reviewed annually for 5 years and annual revenue in excess of one-fifth of the amount advanced by the customer for construction of the line extension will be refunded to the customer. The total amount refunded over 5 years shall not exceed the amount advanced.

b. If, within five years from the date service is first rendered, new permanent customers or additional permanent loads are added to the line for which an advance was made, a refund will be made to the customers who made the original advance equal to the line extension allowance for the new permanent customers or loads applicable to the line constructed with the advance, in the amount of the residual from the extension allowance over the cost of the line extension for the new permanent customer or additional permanent load. Such refund shall be credited sequentially from the new permanent customer's or load's point of service toward the source of supply and shall be applicable only to that section of line used for the new customer or load. In no case shall the refund exceed the advance for that section of line. No interest will be paid on these advances.

P.U.C. Order No. 8474

SUPERSEDES REVISED SHEET NO. 30
Effective: October 31, 1966

HAWAII ELECTRIC LIGHT COMPANY, INC.

REVISED SHEET NO. 32
Effective: October 9, 1985

REISSUED
June 1, 1988

RULE NO. 13 (Continued)

Line Extensions

3. Extensions to and/or within Subdivisions or Developments in Advance of Applications for Service by the Ultimate User

Underground lines will be installed by the Company in a subdivision or development prior to applications for service from the ultimate customer when the subdivider or developer makes a contribution equal to the difference between the estimated cost of the underground system and the estimated cost of an equivalent overhead system. The allowance for the overhead costs are subject to the limitations and conditions of paragraph C of this rule. When feasible the subdivider or developer will furnish the trenching, duct work, backfill and miscellaneous construction to meet engineering construction standards of the Company.

4. Replacement of Overhead with Underground Facilities

When mutually agreed upon by the customer or applicant and the Company, overhead facilities will be replaced with underground facilities, provided the customer or applicant requesting the change makes a contribution of the estimated cost installed of the underground facilities less the estimated net salvage of the overhead facilities removed.

5. Special Facilities

Where the applicant requests facilities which are acceptable to the Company but are in addition to, or in substitution for, the standard facilities which the Company would normally install, the applicant shall make a contribution of the estimated extra cost thereof.

P.U.C. Order No. 8474

SUPERSEDES REVISED SHEET NO. 32
Effective: October 31, 1966

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
345 KEKUANAOA STREET, SUITE 20 • HILO, HAWAII 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

August 30, 2002

Mr. Douglas B. Goehring
1413 Zurich Road
Gatlinburg, TN 37738

WATER AVAILABILITY
TAX MAP KEY 2-9-003:003 AND 039

This is a follow-up on your telephone conversation on August 26, 2002, with Ms. Shari Komata of our department and your letter dated July 25, 2002.

As mentioned, water is currently available for the two aforementioned parcels from the end of the 6-inch waterline in Mamalahoa Highway located approximately 500 feet (along the roadway) away from Parcel 39. The meters will be located at the end of the waterline with a signed "Policy & Conditions for Water Service (Premises Not Within Service Limits of the Department)" for each meter. A copy is attached for your reference. Please be informed that water availability is subject to change depending on the water situation.

For more information regarding installation of the consumer's supply pipe within the County road right-of-way, please contact the Department of Public Works at (808) 961-8321.

The following prevailing charges, which are subject to change, are due when applying for water service:

1. Facilities Charge (One 1st service at $940.00)	$940.00
2. Service Lateral Installation Charge (Install one meter on Mamalahoa Highway, a County road)	2,250.00
3. Temporary Deposit (If applicant currently has no credit history with the Department.)	50.00
Total **(Subject to Change)**	$3,240.00

Should there be any questions, please contact our Water Resources and Planning Branch at 961-8070.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

SHK:sco

Enc.

... Water brings progress...

Harry Kim
Mayor

Bruce C. McClure
Director

Ronald K.Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawaii 96720-4224
(808) 961-8321 · Fax (808) 961-8630

November 22, 2004

Douglas B. Goehring
1413 Zurich Road
Gatlinburg, TN 37738

SUBJECT: PROPOSED DRIVEWAY LOCATION
TMK: 2-9-03: 003

In response to your fax (dated October 21, 2004) requesting our opinions about the proposed driveway location, we provide the following.

This section of Mamalahoa Highway is County road and a Permit to Work Within County Right-Of-Way shall apply. The property line needs to be shown on the plan. The part of driveway that lies in the County Right-Of-Way needs to be paved through a licensed contractor, and proper drainage to be provided if necessary. The access seems to be in the middle of a tight horizontal curve. Sight distances may need to be checked to ensure safety.

Enclosed for your use is an application for a Permit to Work Within the County Right-Of-Way.

Should you have any questions or concerns, please contact Ms. Yingwei Ni in the Engineering Division at 961-8327.

for GALEN M. KUBA, Division Chief
Engineering Division

YN
Enclosure

County of Hawai'i is an Equal Opportunity Provider and Employer

LINDA LINGLE
GOVERNOR OF HAWAII

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

November 9, 2004

HAWAI'I HISTORIC PRESERVATION DIVISION REVIEW

Log: 2004.3276
Doc: 0411MM14

Applicant/Agency: Mr. Douglas B. Goehring
Address: 1413 Zurick Road, Gatlinburg, TN 37738
Project: Chapter 6E-8 Historic Preservation Review, Request for Determination of "No Historic Properties Affected" to accompany Conservation District Use Permit Application
Location: Wailea, South Hilo, Hawaii Island
Tax Map Key: **(3) 2-9-003:003, 039**

1. We believe there are no historic properties present:

_____a. intensive cultivation has altered the land
_____b. residential development/urbanization has altered the land
_____c. previous grubbing/grading has altered the land
__x__d. an acceptable archaeological assessment or inventory survey found no historic properties **per SHPD review of Final EA dated 11/30/99, Log No. 24497, Doc. No. 9911PM13*
____e. other

2. This project has already gone through the historic preservation review process.
_____a. mitigation has been completed
_____b. other:

__x__ Thus, we believe that "no historic properties will be affected" by this undertaking.

Signed Mary Anne B. Maigret Date 11/9/04

MaryAnne B. Maigret, Assistant Archaeologist
Historic Preservation Division, Hawai`i Island

Subj: **Fw: urgent- response to Mr. Goehring**
Date: 4/22/2004 11:31:54 PM Eastern Daylight Time
From: jonmat@insightbb.com
To: lavadg@cs.com
Received from Internet: click here for more information

----- Original Message -----
From: "superbv" <superbv@yahoo.com>
To: "Mom & Dad" <jonmat@insightbb.com>
Sent: Thursday, April 22, 2004 4:08 PM
Subject: urgent- response to Mr. Goehring

> Howdy Folks,
>
> Please send along our comments to Mr. Goehring ASAP
> (sorry for the delay on our end). His email address is
> lavadg@cs.com. Thanks!
>
> Dear Mr. Goehring,
>
> We have your letter regarding the property at Kolekole
> and appreciate having received this information. We
> have no objections to your outlined building plans,
> but would like to address a few concerns.
>
> 1) We are concerned about potential sound and light
> pollution and encourage you to use outdoor lighting
> that is in accordance with the Dark Sky Association's
> guidelines. More info here: http://www.darksky.org/
>
> 2) In case you're unaware of the coqui frog
> infestation in Hawai`i, we ask that when landscaping,
> you be very cautious not to bring any coqui frogs into
> the valley. More info here:
> http://www.ctahr.hawaii.edu/coqui/background.asp
>
> Mahalo and best wishes!
> Mr. and Ms. Mattingly
> Mr. and Ms. Smith
>
>
>
>
>
>
> _____
> Do you Yahoo!?
> Yahoo! Photos: High-quality 4x6 digital prints for 25¢
> http://photos.yahoo.com/ph/print_splash
>

Phone Record

Date of Phone Call: 3/29/04

Phone record by: Douglas B. Goehring

Alderson called about proposed house on the conservation land. **TMK: (3) 2-9-03:044.**

Alderson is the property owner across the bridge. Phone number is #808-963-5030. They had no concerns about the subject property and are also looking into preparing an EA on their land. Will meet with neighbors next visit to Hawaii.

APPENDIX G

Photos

Figure 1 General vegetation onsite that consists of weeds and grass. 1

Figure 2 General location for storage shed. 1

Figure 3 Proposed driveway entrance. 2

Figure 4 Proposed house location looking north. 2

Figure 5 Water pipeline easement what supplies Kolekole Beach Park. 3

Figure 6 Proposed house location looking south. 4

Figure 7 Photo showing basic vegetation on site that consists of vines and weeds. 5

Figure 8 General vegetation onsite that consists of weeds and grass.

Figure 9 General location for storage shed.

Figure 10 Proposed driveway entrance.

Figure 11 Proposed house location looking north.

Figure 12 Water pipeline easement what supplies Kolekole Beach Park.

Figure 13 Proposed house location looking south.

Figure 14 Photo showing basic vegetation on site that consists of vines and weeds.