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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 8, 2005

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

Dear Ms. Salmonson,

Finding of No Significant Impact (FONSI) for Old Puunui Quarry Rockfall Protection
TMK 1-8-026:006, Oahu, Hawaii

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, has reviewed the comments received during the 30-day public comment period, which began on March 23, 2005. This agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the next available Office of Environmental Quality Control (OEQC) Environmental Notice.

We have enclosed a completed OEQC Publication Form, an updated Project Summary on disk, and four copies of the Final EA. Please call Michelle Mason or Dan Frerich of Earth Tech, Inc. at Ph. 523-8874 should you have any questions.

Sincerely,

ERIC T. HIRANO
Chief Engineer

RECEIVED
05 JUN 17 P1:09
OFC. OF ENVIRONMENTAL QUALITY CONTROL

Enclosures: Final Environmental Assessment for Old Puunui Quarry
OEQC Publication Notice Form for Old Puunui Quarry
OEQC Project Summary for Old Puunui Quarry

cc: Edwin Matsuda, DLNR
Michelle Mason, Earth Task Manager

2005-07-08 OA FEA OLD PUUNUI QUARRY SITE
ROCKFALL PROTECTION

Final Environmental Assessment

Rockfall Protection
Old Puunui Quarry Site
Oahu, Hawaii

Proposing Agency:

State of Hawaii
Department of Land and Natural Resources
Engineering Division
P.O. Box 373
Honolulu, Hawaii 96809

Prepared by:

Earth Tech, Inc.
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813

May 2005

EXECUTIVE SUMMARY

Introduction

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry site on Oahu, Hawaii. The Old Puunui Quarry site is located in the Nuuanu area and identified with Tax Map Key 1-8-026:006. This parcel of land occupies approximately 2.37 acres on a very steep mountain slope bound at the top by residences along Alewa Drive and at the bottom by Rooke Avenue.

The proposed project occurs on State of Hawaii land and would use State of Hawaii funds, and therefore, triggers the environmental review process mandated under Hawaii Revised Statutes (HRS), Chapter 343.

This environmental assessment (EA) analyzes the potential environmental consequences of the proposed action and alternatives to determine if there would be significant short-term, long-term, and/or cumulative impacts on the human, natural, or historic environments.

All activities conducted in support of this EA, including reports, field investigations, technical studies, and public involvement are conducted in accordance with HRS §343, environmental impact statements; the Hawaii Administrative Rules, Title 11, Chapter 200, Hawaii State Department of Health implementing rules for the environmental review process; and Act 50, HRS §343, requiring impacts to Hawaii's culture, traditional cultural properties and practices, and customary rights be addressed in the environmental review process.

The purpose of the proposed action is to reduce the potential for hazardous rockfall originating from the Old Puunui Quarry site by implementation of rockfall protection measures. Adjacent down slope properties include residences and a golf course, creating concerns for public safety and property damage should a rockfall occur. Implementation of rockfall protection is needed to reduce these identified risks to public safety and property.

Proposed Action and Alternative

The proposed action and alternative are described as follows:

- **Proposed Action.** The proposed action provides for installation of 20 linear feet of 10-foot high rockfall protection fence parallel to and upslope of the rockfall protection fence previously installed along the bottom property boundary. An additional rockfall protection fence may also be installed along a portion of the southeastern property boundary following further engineering evaluations. Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would then be removed as necessary to reduce the potential for rockfall.
- **No-Action Alternative.** Under the no-action alternative, conditions at the site would be left *status quo*. DLNR would not implement rockfall protection measures beyond the rockfall protection fence installed with emergency funding in 2004 along the bottom boundary of the quarry. The risk to public safety and property from hazardous rockfall would remain.

Summary of Environmental Impacts

The environmental impacts from the proposed action and alternative are summarized below:

- **Proposed Action.** The proposed action involves the implementation of rockfall protection measures. No impacts are expected for most resources. Long-term positive impacts are expected for geology and soils, natural hazards, and safety and health. Short-term adverse construction related impacts to air quality, noise, and safety and health are expected during the implementation of the proposed action. However, appropriate mitigation measures during construction activities would reduce these impacts. Additionally, all applicable federal and state guidelines and measures would be followed.

- **No-Action Alternative.** The no-action alternative would not implement rockfall protection measures and therefore provide a direct negative impact to safety and health of the adjacent down slope areas by not reducing rockfall hazards.

To determine whether the proposed action would have a significant impact on the human, natural, or historic environments, the project, its anticipated direct and indirect effects, and the short-term, long-term, and cumulative impacts have been evaluated. Based on the studies performed and resources evaluated, a Finding of No Significant Impact has been determined.

CONTENTS

APPENDIXES

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

%	percent
1H:2V	1 Horizontal to 2 Vertical
CFR	Code of Federal Regulations
CCH	City and County of Honolulu
CIP	Capital Improvement Project
CWB	Clean Water Branch
CO	carbon monoxide
CO_2	carbon dioxide
dB	decibel
dBA	decibel (A-weighted scale)
DLNR	Department of Land and Natural Resources, State of Hawaii
DOH	Department of Health, State of Hawaii
EA	environmental assessment
EPA	Environmental Protection Agency, United States
ESA	Endangered Species Act
FIRM	flood insurance rate map
FONSI	Finding of No Significant Impact
HAR	Hawaii Administrative Rules
HIOSH	Hawaii Occupational Safety and Health
HRS	Hawaii Revised Statutes
ICBO	International Conference of Building Officials
LF	linear foot
M	million
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen Dioxide
NPDES	National Pollutant Discharge Elimination Systems
O_3	Ozone
OHA	Office of Hawaiian Affairs
PCSI	Pacific Consulting Services, Inc.
$PM_{2.5}$	Particulate Matter less than 2.5 microns
PM_{10}	Particulate Matter less than 10 microns
ROI	region of influence
ROW	right-of-way
SHPD	State Historic Preservation Division
SO_2	Sulfur Dioxide
TMK	Tax Map Key
U.S.	United States
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USDA-SCS	United States Department of Agriculture – Soil Conservation Service

1.0 INTRODUCTION

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry site on Oahu, Hawaii (Figure 1-1). The proposed project occurs on State of Hawaii land and would use State of Hawaii funds, and therefore triggers the environmental review process mandated under Hawaii Revised Statutes (HRS), Chapter (§) 343.

This environmental assessment (EA) analyzes the potential environmental consequences of the proposed action and alternatives to determine if there would be significant short-term, long-term, and/or cumulative impacts on the human, natural, or historic environments.

All activities conducted in support of this EA, including reports, field investigations, technical studies, and public involvement are conducted in accordance with HRS §343, environmental impact statements; the Hawaii Administrative Rules (HAR), Title 11, §200, Hawaii State Department of Health (DOH) implementing rules for the environmental review process; and Act 50, HRS §343, requiring impacts to Hawaii's culture, traditional cultural properties and practices, and customary rights be addressed in the environmental review process.

1.1 PURPOSE OF AND NEED FOR ACTION

The purpose of the proposed action is to reduce the potential for hazardous rockfall originating from the Old Puunui Quarry site by implementation of rockfall protection measures. The Old Puunui Quarry site, identified by Tax Map Key (TMK) 1-8-026:006, is in a Class A rockfall condition with high potential for rocks reaching adjacent properties during a rockfall event (Earth Tech 2003). Adjacent down slope properties include residences and a golf course, creating concerns for public safety and property damage should a rockfall occur. Implementation of rockfall protection is needed to reduce these identified risks to public safety and property.

1.2 ENVIRONMENTAL PERMITS, CONSULTATIONS, AND APPROVALS

In addition to the environmental disclosure requirements of HRS §343, implementation of the proposed action required coordination and consultation with the following federal and state agencies for permits, clearances, or approvals (see Appendix A for agency correspondence):

- **State Historic Preservation Division (SHPD).** A Section 106 Consultation was coordinated with SHPD. This process is designed to minimize project impacts to significant historical or archaeological sites.
- **Office of Hawaiian Affairs (OHA).** A Native Hawaiian Special Interest Consultation was coordinated with OHA.
- **Act 50.** Statements or information related to traditional cultural uses in the project vicinity were requested from knowledgeable informants including; traditional cultural practitioners, historians, community organizations, and government agencies, per Act 50.
- **Conservation District Use Permit.** Because the project site falls within a State of Hawaii Conservation District (Figure 1-2), a Conservation District Use Permit Application was filed with the DLNR, Office of Conservation and Coastal Lands.
- **DOH Clean Water Branch (CWB).** DOH CWB was consulted regarding requirements for a National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Associated with Construction Activity.
- **Neighborhood Commission No. 14.** In order to inform local residents of the proposed action and solicit comments, a copy of the Draft EA was sent to the chair of the neighborhood commission and a presentation was made at a neighborhood commission meeting on April 12, 2005.

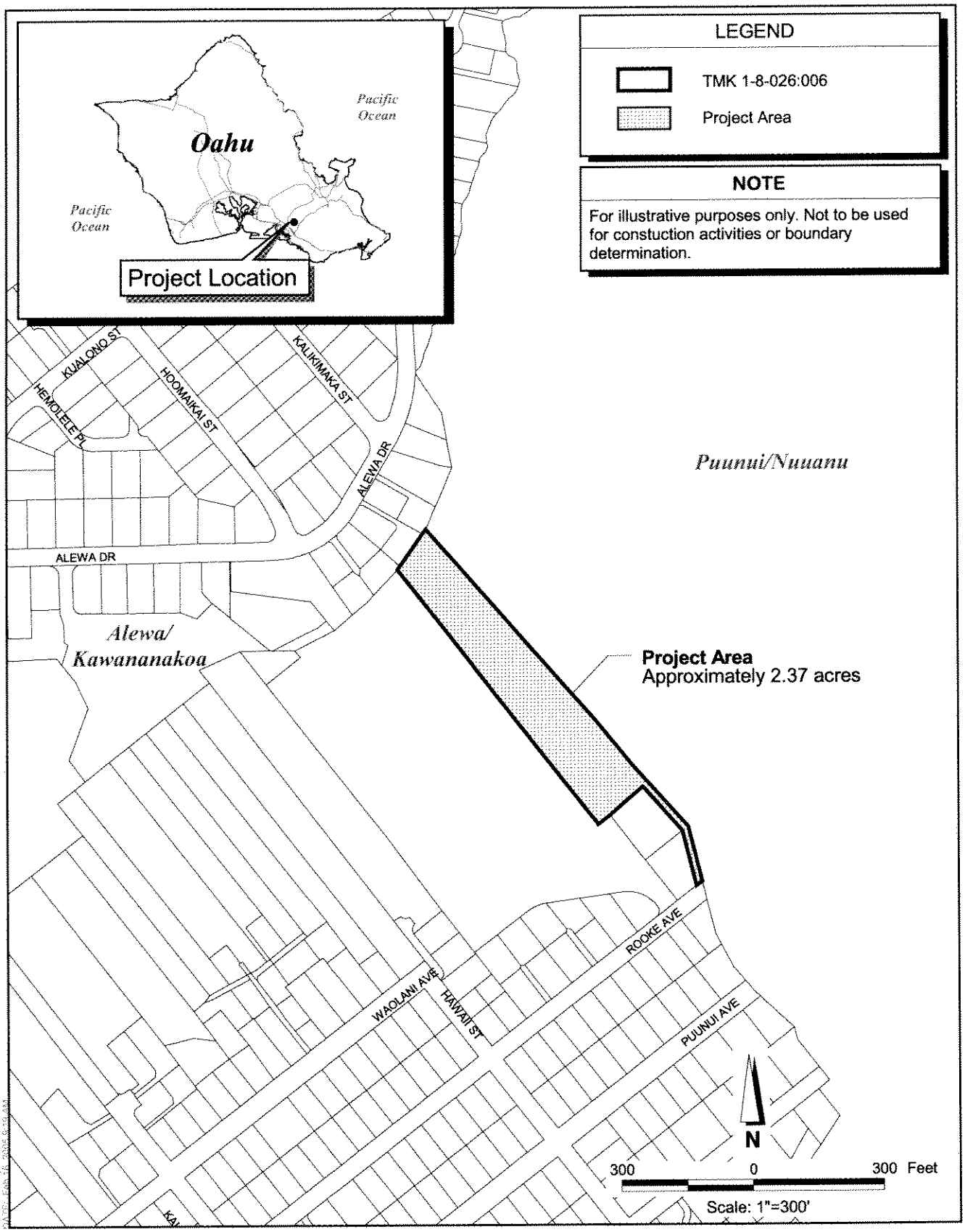

Figure 1-1
Location Map
Old Puunui Quarry Site
Oahu, Hawaii

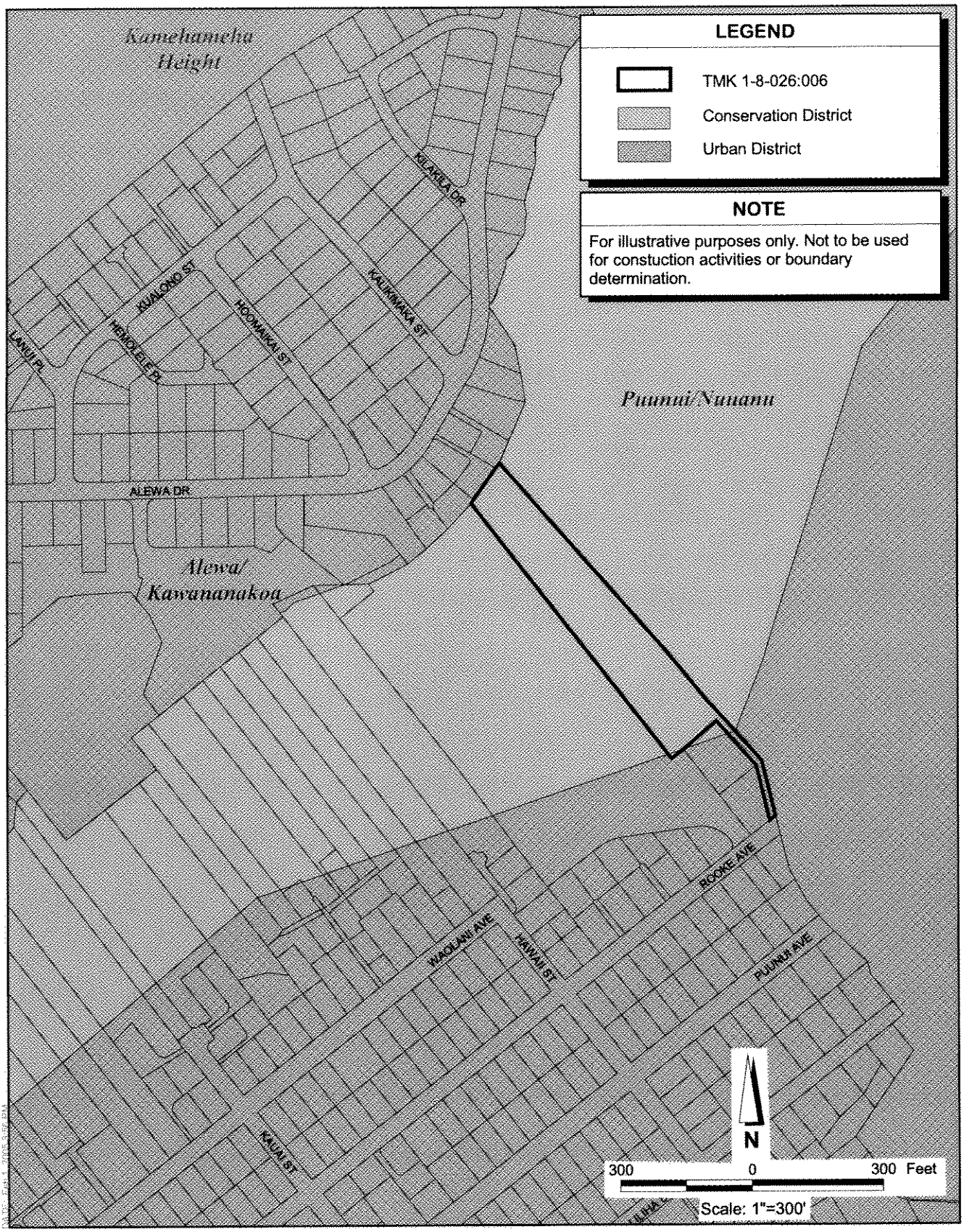

Figure 1-2
Hawaii State Land Use Designation
Old Puunui Quarry Site
Oahu, Hawaii

2.0 PROJECT DESCRIPTION

This section provides background information on the proposed project, and a description of the proposed action and alternatives, including the no-action alternative.

2.1 PROJECT LOCATION AND BACKGROUND

Location. The Old Puunui Quarry site is located in the Nuuanu area and identified with TMK 1-8-026:006. This parcel of land occupies approximately 2.37 acres on a very steep mountain slope bound at the top by residences along Alewa Drive and at the bottom by Rooke Avenue (Figure 1-2). The top of the quarried slope is about 150 feet above the bottom portion. At the top of the quarry, the natural slope extends to the upper property boundary at an elevation of about 900 feet. Adjacent down slope land uses are residential and golf course (Oahu Country Club).

Background. A review of the site condition indicates that volcanic rock slopes at the bottom of the parcel were quarried in the past to produce rocks and rock aggregates. The quarry operation has left the lower areas of the mountain slope with steep cuts having grades of approximately 1 Horizontal to 2 Vertical (1H:2V) and near vertical (see Appendix B for current site condition photos). A multitude of these cut slopes were excavated using blasting methods. Blasting contributed to instability in the rock formation and increased the potential for rockfalls. The natural slope above the quarried area contains steep gullies that divert runoff water through the site, thus causing erosion of the rock formation and further instability of its supporting foundation (Earth Tech 2003).

The hazard potential of a rockfall is greatest when residential communities are built nearby. Based on the results of a field investigation and engineering study, the mountain slope at the Old Puunui Quarry is a hazard area Class A, entailing a high hazard rating (Earth Tech 2003). Due to the high risk of rockfall originating from the Old Puunui Quarry site and the presence of a residence adjacent and down slope to the project area, emergency funding for installation of a rockfall protection fence along the bottom property boundary was granted in 2004. This emergency action is not subject to the environmental review process. For the purposes of this EA, the rockfall protection fence already installed along the bottom boundary of the property will be considered an existing condition.

2.2 PROPOSED ACTION

Recommendations for the proposed action took into consideration various factors including public safety, ease of maintenance, and sound engineering principles.

The proposed action provides for installation of 20 linear feet (LF) of 10-foot high rockfall protection fence parallel to and upslope of the rockfall protection fence previously installed along the bottom property boundary (Figure 2-1). An additional rockfall protection fence (approximately 80 LF) may be installed along a portion of the southeastern property boundary (Figure 2-1). The decision on the installation of this additional fence would be concluded following further engineering evaluations and coordination with adjacent property owners and the DLNR Engineering Division, at which point the exact length, height and orientation would be determined. Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Stabilization would be accomplished with rock dowels, rock bolts, or localized cable net covers to reduce the potential for sliding or movement of rocks. Rock/boulder demolition would be accomplished by either expansive stress demolition or hydraulic rock splitting. Expansive stress demolition involves drilling into the rock/boulder to inject a non-hazardous compound that expands, resulting in the splitting of the rock/boulder. Further reducing of split rocks/boulders can then be done by hydraulic splitters or by hand methods.

Loose rocks would then be stabilized or removed as necessary to reduce the potential for rockfall events. Stabilization of the rock/boulder debris can be achieved by several methods: 1) by spreading the material onsite and making sure it does not have the potential to move or roll down the side of

the hill, 2) by covering the debris with a localized cable net cover, 3) by bolting individual rock debris to the hillside, or 4) by removing the debris from the site to an approved off-site area.

2.3 PROJECT SCHEDULE, COSTS, AND SOURCE OF FUNDING

Construction activities related to the proposed action are expected to take approximately 5 months to complete. Work is scheduled to begin in November 2005 and would be completed in April 2006. The proposed action has a preliminary construction cost estimate of $2.0 million (M). This project would be funded in full with State of Hawaii Capital Improvement Projects (CIP) funds.

2.4 ALTERNATIVES TO THE PROPOSED ACTION

In addition to the proposed action, the no-action alternative will be analyzed in this EA. Three other alternatives were considered in the design phase but were determined to be not feasible from a construction perspective and/or did not meet DLNR objectives, and were dropped from further consideration. The alternatives considered but not carried forward are presented below in Section 2.4.2.

2.4.1 No-Action Alternative

Under the no-action alternative, conditions at the site would be left *status quo*. DLNR would not implement rockfall protection measures beyond the rockfall protection fence installed with emergency funding in 2004 along the bottom boundary of the quarry. The risk to public safety and property from hazardous rockfall would remain.

2.4.2 Alternatives Considered But Not Carried Forward

Three design alternatives for rockfall protection that were considered but not carried forward are presented in Table 2-1.

Table 2-1: Alternatives Considered But Not Carried Forward

Criteria	Design Alternative No. 1	Design Alternative No. 2	Design Alternative No. 3
Rockfall protection fences	Six additional fences (one on the perimeter of the parcel perpendicular to the fence along the bottom property boundary, one running parallel to the fence along the bottom property boundary but further upslope, and four on the upper half of the parcel).	One additional fence (along the perimeter of the parcel perpendicular to the fence along the bottom property boundary).	No additional fences.
Rock catchment ditch	A minimum of 25 feet at the bottom of the old quarry.	A minimum of 25 feet at the bottom of the old quarry.	A minimum of 25 feet at the bottom of the old quarry.
Rock overhangs and outcroppings	No action to be taken.	Those located immediately above the protection fence line would be demolished or stabilized and loose rocks would be removed as necessary.	Those located throughout the property would be demolished or stabilized and loose rocks would be removed as necessary.
Estimated Cost	$3.1M	$2.8M	$2.2M
Time-Frame	Approximately 6 months.	Approximately 5 months.	Approximately 5 months.

Criteria	Design Alternative No. 1	Design Alternative No. 2	Design Alternative No. 3
Reason for dropping from further consideration	Steepness of terrain and presence of heavy vegetation and trees would make transportation of materials and equipment slow and difficult; operation of heavy equipment on steep slopes for ground excavation and fence installation would not be possible.	Objectives could be achieved with a shorter fence (20 LF) installed with a different orientation (the proposed action).	Not considered adequate to meet DLNR objectives for public safety.

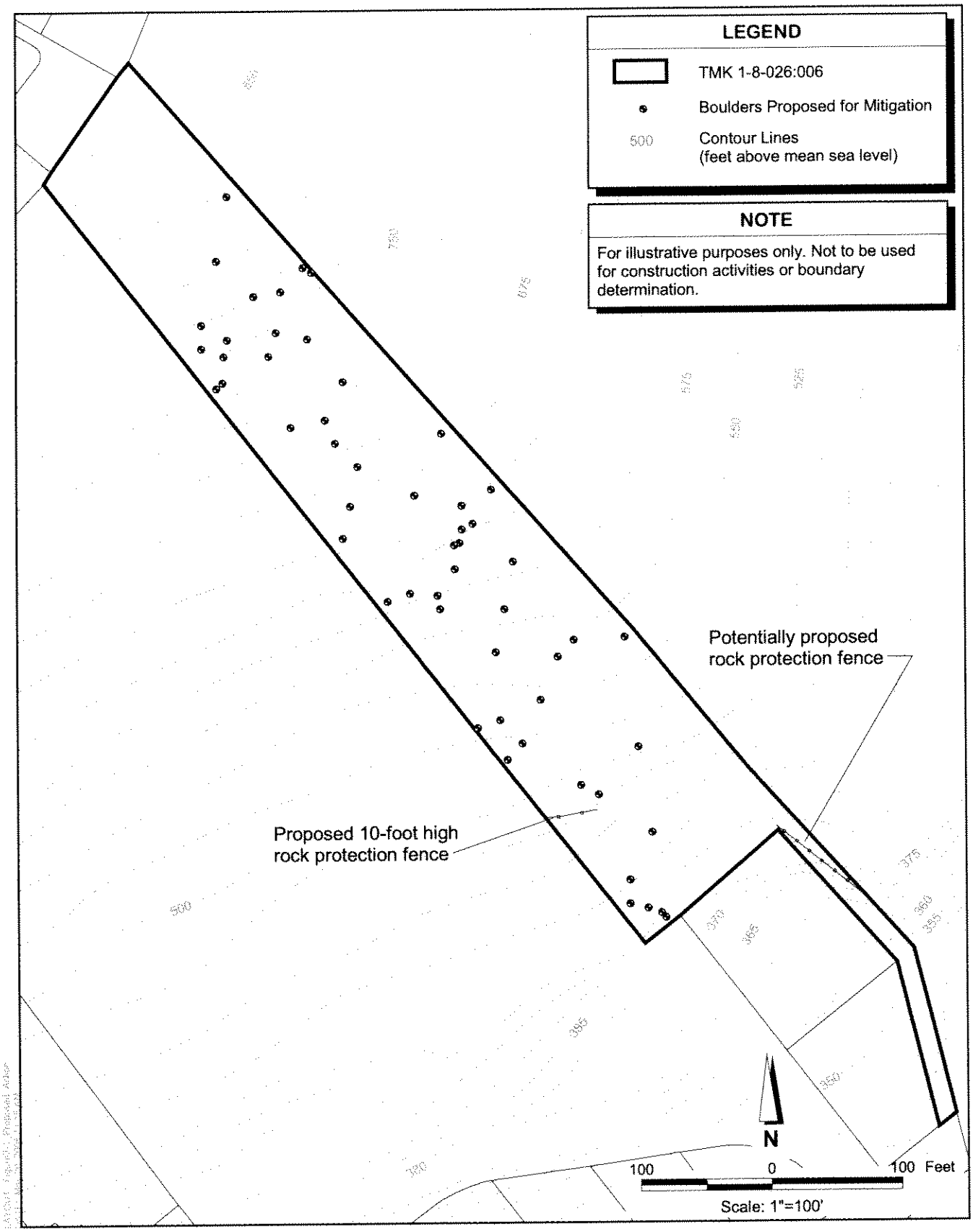

Figure 2-1
Proposed Action
Old Puunui Quarry Site
Oahu, Hawaii

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter describes the affected environment associated with the proposed action and the no-action alternative at the Old Puunui Quarry site. The information provided serves as a baseline from which to identify and evaluate environmental changes resulting from implementation of the proposed action or the no-action alternative.

The affected environment describes the natural and man-made environments, which includes air quality, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste, land use, natural hazards, noise, safety and health, socioeconomics, transportation, utilities and infrastructure, visual resources, and water resources. The region of influence (ROI) is defined for each resource area affected by the proposed action and the no-action alternative. The ROI determines the geographical area to be addressed as the affected environment.

3.1 AIR QUALITY

The ROI for air quality is the proposed project site and downwind areas. Downwind areas vary during the year and air quality is affected by the climate. The climate is characterized by two distinct seasons, primarily defined by the annual variation in persistence of the northeast trade winds. The summer months from May to September are typically drier and warmer, while the winter months from October to April are usually wetter and cooler. The area is subject to prevailing northeast trade winds with average velocities between 14 to 16 miles per hour (mph) a majority of the year. Strong gusts up to 20 or 25 mph do occur intermittently. Trade winds prevail 90 percent (%) of the time during the summer and 50% in the winter. The area also experiences Kona (southerly or westerly) winds and storms, particularly during the winter months.

Modeling of downwind areas was not completed as part of this assessment. However, typical predominant downwind areas of the ROI would normally include places to the south-southwest. During Kona winds, downwind areas would typically be places to the north or east.

Ambient air quality, which refers to the purity of the general outdoor atmosphere, is regulated under the Clean Air Act and the United States (U.S.) Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] Part 50). The DOH also regulates air quality and established ambient air quality standards (HAR §11-59-4) that are as strict or, in some cases, stricter than the NAAQS. The State of Hawaii has also established standards for fugitive dust emissions emanating from construction activities (HAR §11-60.1-33). These standards prohibit any visible release of fugitive dust from construction sources without taking reasonable precautions.

The State of Hawaii monitors ambient air quality at 10 stations on the island of Oahu for six regulated pollutants including:

- Particulate Matter less than 10 microns (PM_{10})
- Particulate Matter less than 2.5 microns ($PM_{2.5}$)
- Carbon Monoxide (CO)
- Ozone (O_3)
- Sulfur Dioxide (SO_2)
- Nitrogen Dioxide (NO_2)

In 2003, the State of Hawaii met all federal ambient air quality standards. There were no occurrences of criteria pollutant levels exceeding the NAAQS at any air monitoring stations on Oahu (DOH 2003). The project area is located on undeveloped land in a residential community in the Liliha area. The primary source of air pollutants in the vicinity of the project area is emissions from motor vehicles

traveling on nearby residential streets. Criteria pollutant levels at the project area are expected to be less than or comparable to levels reported at air monitoring stations, as air monitoring stations are generally placed near city centers or where there are mixed commercial, industrial, and rural land uses.

3.2 BIOLOGICAL RESOURCES

The ROI for biological resources, including flora and fauna, is the project area. Site visits were made by AECOS, Inc. (AECOS) between November 2004 and February 2005. The biological resource survey is included as Appendix C.

Flora. Flora within the project area is dominated by tree species on the lower slope, thinning to mostly scrub vegetation on the mid to upper slope. The vegetation of more open areas is dominated by Guinea grass (*Panicum maximum*); some native grasses and forbs are also present. The lower slope and quarry area contain substantial numbers of ornamentals. Seven of 71 identified botanical species are recognized as native; four of these are endemic. No plant species listed as threatened or endangered, or proposed for listing under the Endangered Species Act (ESA) of 1973 as amended, were identified on the site.

Fauna. Two alien mammalian species and 12 avian species were detected during site visits. The only indigenous species detected was the Pacific Golden-Plover (*Pluvialis fulva*) – an indigenous migratory shorebird species commonly encountered throughout the Hawaiian Islands between July and April. No avian or mammalian species currently listed as threatened or endangered, or proposed for listing under the ESA were detected on the site.

3.3 CULTURAL RESOURCES

The ROI for cultural resources is the project area. This resource encompasses prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. For the purpose of this EA, archaeological/cultural resources are defined to include prehistoric and historic archaeological sites, historic buildings and structures, and traditional (i.e., native Hawaiian) sites. In December 2004, Pacific Consulting Services, Inc. (PCSI) of Honolulu conducted an archeological reconnaissance survey of the project area (PCSI 2005). A copy of the archeological reconnaissance survey report is presented in Appendix D.

No archaeological features were recorded during the reconnaissance survey of the project area. Previous archaeological studies outside the ROI suggest that the predominate land use within Nuuanu valley included agriculture, residential structures, and possibly habitation within caves and rock overhangs on steeper slopes. Previous studies within Nuuanu valley have also been conducted at the historic Queen Emma's Summer Palace and the Royal Mausoleum (PCSI 2005).

A cultural impact assessment, in accordance with Act 50, included a request for statements or information relating to current cultural practices in the project vicinity from knowledgeable informants, including traditional cultural practitioners, historians, community organizations, and government agencies. Per the *Guidelines for Assessing Cultural Impacts* (DOH 1997), the types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The cultural resources that support such cultural practices and beliefs are also subject to assessment.

A site map encompassing the geographic extent or area of potential affect was included with a brief correspondence soliciting information regarding current cultural practices near the project site. The solicitation for information was distributed to the OHA, the SHPD, the Department of Hawaiian Homelands, the University of Hawaii Center for Hawaiian Studies, KAHEA, the Chair of Neighborhood Commission #14 (Liliha/Puunui), and several local residents identified as potentially knowledgeable of cultural uses or practitioners. Letters sent to agencies are included in Appendix A.

3.4 GEOLOGY AND SOILS

The island of Oahu demonstrates five major geomorphic provinces divided according to geological setting: Koolau Range, Waianae Range, Schofield Plateau, North and South Oahu Coastal Plain, and Honolulu Volcanic Series. The Waianae and Koolau Ranges comprise the largest geomorphic formations of Oahu and provide the base from which the other provinces of the island are formed.

The Koolau Range is a shield volcano that forms the larger eastern part of the island. The range is about 37 miles long and is deeply eroded by streams and demonstrates high sea cliffs along the southern and eastern shores. The range was formed principally by basalt flows. Minor amounts of volcanic ash and tuff are interspersed between the basalt flows. The range is penetrated by numerous volcanic dikes, particularly near the original volcano caldera.

The Waianae Range, forming the western part of the island, is about 22-miles long. The Waianae Range is also a shield volcano composed almost entirely of basaltic rock. The Waianae volcano became extinct before the Koolau volcano, and Koolau lava flows overlap portions of the eroded, soil-covered Waianae Range.

The basaltic flows principally making up both ranges (and therefore comprise most of the island of Oahu) have been described as the three general groups:

- *Pahoehoe.* Flows of this type are characterized by smooth, billowy, hummocky or rolling and locally ropy surfaces and often possess lava tubes. Identified varieties include corded, slab, entril, and pipe-vesicle bearing pahoehoe. Some pahoehoe toes exhibit concentric vesicularity.
- *'A'a.* Flows of this type are characterized by exceedingly rough, jagged, spinose, and generally 'clinkery' surfaces (Macdonald et al. 1983) typically surrounding a massive, dense, coherent flow interior. 'A'a flows are of typically greater thickness than pahoehoe flows, and are more likely to demonstrate massive cores.
- *Clinker.* Rough, jagged fragments of lava rock associated primarily with 'a'a flow emplacement (Macdonald et al. 1983). Clinker is generally comprised of poorly to moderately consolidated, poorly sorted, volcanic fragments commonly termed 'clinker breccia'. Clinker occurs mostly on the top, but also on the bottoms and sides of some lava flows.

The rocks exposed at the Old Puunui Quarry site belong to the Koolau Range formed during the shield stage of the Koolau volcano. Both a'a and pahoehoe flows are exposed at the area. There are a few massive a'a flow units exposed in the Old Puunui Quarry site; massive a'a cores are preferred in quarrying due to their high density and strength (Earth Tech 2003).

The soil association in the vicinity of the project area is classified as the Rock Land-Stony Steep Land association characterized by steep to precipitous, well-drained to excessively drained, rocky and stony land. Specific soil types underlying the ROI include rock land and Kaena very stony clay, 10 to 35% slopes (USDA-SCS 1972). Rockfall potential is addressed under Safety and Health, Section 3.9.

3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

The ROI for hazardous materials and hazardous wastes is the project area. For the purpose of the following analysis, the term hazardous waste or hazardous materials will mean those substances defined by the Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code (U.S.C.) §§9601 et seq., and Resource Conservation and Recovery Act, 42 U.S.C. §§6901–6992. In general, these include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present an unreasonable risk to health, safety, and

the environment when released. Transportation of hazardous materials is regulated by the Department of Transportation regulations within Title 49 CFR.

Current land use within the project area is not associated with the use, transportation, or storage of hazardous materials. Historic land use included quarrying, possibly with blasting materials. Historic use of hazardous materials at the quarry site is possible. There are, however, no outstanding compliance issues related to hazardous materials or hazardous waste within the project area.

3.6 LAND USE AND OWNERSHIP

The land use and ownership ROI is the project area. The project area identified as TMK 1-8-026:006 is undeveloped land owned by the State of Hawaii. Most of the parcel is designated State Conservation District with a resource subzone designation. Per HAR §15-15-26, land uses within the conservation district are governed by the rules of the State DLNR, Title 13, and Chapter 183c, HRS.

Land use within the conservation district is regulated for "the purpose of conserving, protecting, and preserving the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare" (HAR §13-5-1). Conservation lands include forest and water reserve zones, scenic and historic areas, parks, open space, and critical habitat of endemic flora and fauna. The conservation district also includes lands subject to flooding and soil erosion.

Land uses permitted within the resource subzone include those land uses identified in HAR §13-5-24. Identified land uses listed for the protective and limited subzones also apply to the resource subzone. Specifically, HAR §13-5-23 identifies "erosion control, flood control, and other hazard prevention devices or facilities" as a permitted land use. Because the proposed area for rockfall mitigation occurs within a Conservation District, a Conservation District Use Application was submitted in conjunction with this EA.

A small portion of the parcel is a right-of-way (ROW) that historically provided access to Old Puunui Quarry from Rooke Ave, and now provides access to two residences adjacent to the ROW. The ROW is designated state urban district and is zoned R-5 residential. The project area is not within a special district, special management area, or on the historic site register (CCH 2004b).

3.7 NATURAL HAZARDS

Natural hazards that may occur in and affect the proposed project area include floods, tsunamis, hurricanes, earthquakes, and other natural events. The ROI for natural hazards is the project area.

Floods. The Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) flood zone designations are:

- A – Areas of 100-year flood, base flood elevations not determined
- AE – Areas of 100-year flood, base flood elevation determined
- XS – Areas of 500 year flood; areas of 100-year flood with average depths of less than one foot or within the drainage area less than one square mile, and areas protected by levees from 100-year flood
- X – Areas determined to be outside the 100-year flood plain
- D – Areas in which flood hazard is undetermined
- VE – Areas of 100-year coastal flood with velocity (wave action), base flood elevations determined (Coastal High Hazard District)

The project area is in a FIRM Zone X, an area determined to be outside the 100-year flood plain.

Tsunamis. Tsunamis are a series of destructive ocean waves generated by seismic activity that could potentially affect shorelines of Hawaii. Tsunamis affecting Hawaii are typically generated in the waters off South America, the west coast of the U.S., Alaska, and Japan. Local tsunamis have also been generated by seismic activity on the Island of Hawaii.

The Oahu Civil Defense Agency establishes tsunami evacuation zones and maps for all coastal areas in Hawaii. The project area is not within a tsunami evacuation zone.

Hurricanes. The Hawaiian islands are seasonally affected by Pacific hurricanes from June to November. These storms generally travel toward the islands from a southerly or southeasterly direction and can deposit large amounts of rain with high winds on the Hawaiian islands. The storms generally contribute to localized flooding and coastal storm surges. Coastal storm surges would not impact the project area, and the project area is also outside the 100-year flood plain. However, high velocity surface runoff resulting from sustained heavy rainfall may increase instability of the mountain slope by weakening rock supports and roots, and creating erosive conditions. The majority of rockfalls occur after a long period of heavy rainfall; therefore, hurricanes could increase the potential for hazardous rockfall within the project area.

Earthquakes. Because Oahu is an older Hawaiian island with dormant volcanic activity, it is not particularly prone to seismic activity. Seismic activity usually occurs on the Island of Hawaii, and has been felt as far away as Oahu. Oahu is listed in Seismic Zone 2A under the Uniform Building Code of 1997 (ICBO 1997). Zone 2A indicates a location that has low potential for ground motion created by seismic activity.

3.8 NOISE

The ROI for noise effects is the project area and adjacent areas. Noise is defined as sound that is undesirable because it interferes with speech communication and hearing, or is intense enough to damage hearing, or is otherwise annoying. Under certain conditions, noise can interfere with human activities at home or work and affect human health and well-being. The accepted unit of measure for noise levels is the decibel (dB) because it reflects the way humans perceive changes in sound amplitude. Sound levels are easily measured, but human response and perception of the wide variability in sound amplitudes is subjective.

Different sounds have different frequency content. When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term "A-weighted" refers to a filtering of the noise signal to emphasize frequencies in the middle of the audible spectrum and to de-emphasize low and high frequencies in a manner corresponding to the way the human ear perceives sound. This filtering network has been established by the American National Standards Institute. The A-weighted noise level has been found to correlate well with a person's judgment of the noisiness of different sounds and has been used for many years as a measure of community noise.

The State of Hawaii regulates noise exposure in the following statutes and rules: HRS §342F - *Noise Pollution*, HAR §11-42 - *Vehicular Noise Control for Oahu*, HAR §11-46 - *Community Noise Control*, and HAR §12-200.1 *Occupational Noise Exposure.* Maximum permissible sound levels for Class A zoning districts including lands zoned residential, preservation, open space, or similar type, is 55 dBA between the hours of 7:00 AM and 10:00 PM and 45 dBA between 10:00 PM and 7:00 AM (HAR §11-46-4). The project area is located on undeveloped land zoned as preservation and residential. Adjacent land uses include preservation, low-density residential, and golf course. Noise studies have not been performed at the project area for the purpose of this EA. Existing noise levels are likely consistent with open space and residential use and are assumed to be within the State of Hawaii community noise exposure guidelines for a Class A zoning district.

3.9 SAFETY AND HEALTH

Safety and health concerns at Old Puunui Quarry primarily relate to steep topography, geologic instability, and the potential for rockfall originating from the project area. The ROI for safety and health includes the project area and adjacent down gradient properties.

Rockfall rating is a subjective rating that groups the hazard conditions into three classes, as described below:

- *Class A.* High estimated potential for rockfall on adjacent property(ies) with high historical rockfall activity. A Class A rating means that the chances of rock falling in a site is moderate to high, and that when the rockfall occurs, it will certainly reach adjacent property(ies) or roadway. An example of a Class A condition is where rocks on the cut slope overhang the adjacent property(ies) and in areas where little or no rock catchment ditch is available.
- *Class B.* Presence of moderate estimated potential for a rock to fall on adjacent property(ies) or roadway with moderate historical rockfall activity. As the rockfall risk is reduced, a Class B rating indicates that although a rockfall is probable, the chances of it reaching the adjacent properties are low to moderate. A possible scenario for Class B is a condition where a rockfall from the slope is clearly possible, and the catchment ditch is large enough to prevent most of the rocks from reaching the adjacent property(ies).
- *Class C.* Low estimated potential for rockfall on adjacent property(ies) or roadway with low historical rockfall activity. Class C rating pertains to a condition in which there is a low chance for a rockfall event, but should one occur, there is no chance for the rocks to reach other properties.

The factors considered when estimating the potential for rockfall on adjacent properties include the estimated size of material, estimated quantity of material for each event, amount of material available, and the effectiveness of the rock catchment ditch along the property.

Based on field investigation, the Old Puunui Quarry site is in a Class A rockfall condition with high potential for rocks reaching adjacent residential properties and/or a golf course during a rockfall event (Earth Tech 2003). The project area is semi-rectangular in shape with the long sides situated along the steep mountain slopes. The shape and size of the project area combined with the presence of steep slopes make it difficult to predict the exact path of a potential rockfall. If the rock is airborne, its direction would be influenced by the manner it impacts the ground and the path of least resistance. The following criteria relate specifically to the condition of the rockfall and related hazards at the project area:

Slope Height. The upper portion of the property is nearly 500 feet high with steep slopes in between. Any loose rock dislodged from this site would have the potential to continue rolling down the mountain slope gaining substantial potential energy by the time it reaches the bottom elevations.

Ditch Effectiveness. A narrow rockfall catchment ditch is present at the site of the old quarry. The catchment is sloping down from the mountain making it inadequate in reducing the energy of a falling rock.

Structural Condition of the Rocks. The present rock formation of the site exhibits all aspects of structural deficiencies from long and continuous joints and cracks in the massive 'A'a flows to weakening of the rock outcroppings from excessive erosion of the less dense Pahoehoe and the clinker layers supporting the massive 'a'a flows. Any of these conditions could result in an eventual rockfall event.

Volume of Rockfall Event. Rocks of varying sizes and shapes were encountered during the geological field investigation. The rock sizes range from just a few inches to a number of feet in diameter having flat or semi-spherical shapes. It is a common understanding that the larger the size of a falling rock, the greater the potential energy and effects of the impact would be.

Rockfall History. There is little known about the history of rockfalls on this site. A survey of the property indicates presence of sporadic rockfalls. There are rocks of various sizes and shapes at the bottom of the old quarry and along the mountain slopes of the property. As a general rule, sites with a history of frequent rockfall are more likely to experience future rockfall events.

Slope Topography. The site topography varies from sloping ridges to gullies capable of directing a rolling rock down the slope in a path influenced by each of these topographic features. It should be noted that direction of rockfalls are influenced not only by the ground topography, but other elements as well. Rock velocity and potential energy, steepness of the slopes, presence of obstacles that could act as diversion elements, and shape of the rolling rock also influence the path that a rock may travel.

3.10 SOCIOECONOMICS

This section summarizes the demographic and income characteristics of residents in the vicinity of the project area. Data summarized in Table 3-1 are taken from the 2000 U.S. Census. Census data are used to describe the existing social and economic characteristics of the ROI and to determine whether any minority or low-income population may experience disproportionately high adverse impact from the proposed action or alternatives. The ROI for socioeconomics is Census Tract 46, the City and County of Honolulu (CCH), Hawaii, in which the project area is located. Data for is presented for the purpose of comparison.

In 2000, the CCH reported 876,156 residents, which accounts for approximately three-fourths of Hawaii's total population. Census Tract 46 reported 3,640 residents. The population within the census tract is 37.6% Japanese, 13.2% Caucasian, 4.7% Filipino, 5.0% Pacific Islander, and 16.7% Chinese, compared to 18.4% Japanese, 21.3% Caucasian, 14.2% Filipino, 8.9% Pacific Islander, and 6.1% Chinese.

Median family income and per capita income are $86,954 and $33,170 respectively within the census tract, which is higher than that reported for the CCH. Both the % of families below the poverty level (3.1%) and the % of individuals below the poverty level (5.2%) are lower within the census tract when compared to the CCH.

Table 3-1: Demographic and Income Characteristics

Characteristic	CCH	Census Tract 46
Population	876,156	3,640
Ethnicity		
Chinese	6.1%	16.7%
Filipino	14.2%	4.7%
Japanese	18.4%	37.6%
Caucasian	21.3%	13.2%
Pacific Islander	8.9%	5.0%
Other single race	11.2%	9.1%
More than one race	19.9%	13.7%
Income		
Median family income	$60,118	$86,954
Per capita income	$21,998	$33,170
Poverty Status in 1999		
Families below poverty level	7.0%	3.1%
Individuals below poverty level	9.9%	5.2%

Source: U.S. Census Bureau, *2000 Census of Population and Housing* (U.S. Census Bureau 2004)

3.11 TRANSPORTATION

The ROI for transportation is the project area and adjacent roadways. The project area is bordered by open space and residences. The only road that intersects with the project area is a small ROW that historically provided access to Old Puunui Quarry from Rooke Ave, and now provides access to two residences adjacent to the ROW.

3.12 UTILITIES AND INFRASTRUCTURE

This section includes information on infrastructure related to electrical power, telecommunications, drinking water distribution and sanitary sewer systems, storm water discharges, and solid waste disposal. The ROI for utilities and infrastructure is the project area. There are no known utilities or infrastructure within the project area.

3.13 VISUAL RESOURCES

Visual resources are the aggregate of characteristic features imparting visually aesthetic qualities to a natural, rural, or urban environment. The ROI for visual resources is the project area. This resource is assessed to determine whether the proposed action and alternative would be compatible with the existing landscape and development plans for the area.

The development plan for the Primary Urban Center sets forth policies and guidelines for the protection and enhancement of natural and scenic resources. The Koolau Mountain Range with its undeveloped foothills and slopes is one of the elements considered in formulating guidelines to preserve scenic resources. Development of steep slopes is restricted for safety reasons and to avoid aesthetic/visual impacts resulting from interruption of the natural ridgeline when viewed from below. Land use guidelines for preservation areas include recommendations to "avoid disturbance to native species and prevent the visual intrusion of structures... when seen from below" (CCH 2004a).

The visual setting in the vicinity of the project area is low-density residential community, interspersed with open space. The visual quality of the project area is that of undeveloped rocky slope vegetated by Guinea grass, Chinese banyan, and koa-haole (AECOS 2005). A former quarry occurs at the base of the parcel. The only existing structure visible within the project area is a rockfall protection fence installed with emergency funding in 2004 at the base of the slope.

3.14 WATER RESOURCES

This section describes the availability and quality of water resources, including surface water and groundwater. Surface water includes lakes, perennial/intermittent streams, and drainage ways. Groundwater includes water present in aquifers (perched, unconfined, confined, or artesian). The ROI for water resources includes the surface water bodies, streams and drainage features identified within, or downgradient of, the project area and the underlying aquifer.

Surface Water. Generation of surface water typically begins in the mountains as rainfall. As surface water proceeds downgradient it collects in streams and gulches. A portion infiltrates through streambeds, recharging the underlying aquifer. Potential issues arise if the course or carrying capacity of gulches and streams are changed, as this can cause flooding or scour damage and degradation of downstream water quality.

No perennial sources of surface water were observed during the field investigation; however, various gullies and surface runoff paths suitable for draining surface water generated by storm events were identified (Earth Tech 2003). Surface water from the project site appears to ultimately drain into Waolani Stream, which is classified as Class 2, Inland Water, per HAR §11-54-3(b)(2).

Groundwater. Two general types of groundwater occur on Oahu; basal and high level dike water. The predominant source of groundwater on Oahu is fresh water in the basal aquifer that floats on

and displaces salt water that saturates the base of the island. The second source of groundwater is fresh water that is contained in vertical dikes that are present in rift zones. Rainwater is the ultimate source of groundwater; it percolates downward through porous and permeable materials, like basalt. Movement of groundwater is generally downgradient towards the ocean, and it typically discharges in seeps, springs, and streams. Coastal sediments can act to confine groundwater movement within underlying basalt, causing artesian conditions during discharge.

Groundwater quality is naturally the end product of geochemical processes; however, it can easily be affected by human activities. This includes industrial, agricultural, and commercial activities as well as drainage patterns and groundwater removal.

The groundwater aquifer that lies under the project area is identified with the aquifer code 3010311. This aquifer code is defined as the Honolulu sector, Waiawa system with a basal aquifer that is unconfined (water table is upper surface of saturated aquifer) and a flank geological description (horizontally extensive lavas) The status code for this aquifer is identified as 11111, which indicates a currently used aquifer that contains drinking water, classified as fresh water, that is irreplaceable and has a high vulnerability to contamination (Mink & Lau, 1990).

4.0 ENVIRONMENTAL CONSEQUENCES

Project-related effects, both adverse and beneficial, include, primary, secondary, and cumulative effects. Primary effects or direct impacts are caused by the action and occur at the same time and place. Secondary effects or indirect impacts are caused by the action and occur later in time or are farther removed in distance, but are still reasonably foreseeable. Cumulative effects refer to impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor yet collectively significant actions taking place over a period of time.

Effects of the proposed project are divided into short-term and long-term effects. Short-term effects are related to construction activities. Long-term effects refer to the effects caused from the operation of the proposed action, and are longer in duration. Anticipated environmental effects of the proposed action and no-action alternative, cumulative impacts, and proposed mitigation measures, where applicable, are summarized below.

4.1 AIR QUALITY

The Proposed Action. Only short-term construction related impacts to air quality are anticipated with implementation of the proposed action. During construction, potential emission sources that may affect air quality at the project site include the following:

- Helicopter usage for transportation of construction materials to and from the site
- Diesel- and/or gasoline-powered construction equipment and motor vehicles (additional sources of CO and carbon dioxide [CO_2])
- Fugitive dust emissions resulting from rock demolition and scaling operations, and installation of rockfall protection fence

Construction vehicles traveling to and from the proposed project area, helicopter use to transport materials, and on-site construction equipment consisting of primarily diesel engines, would contribute to local air pollution. Construction activities may also generate short-term fugitive dust particulate emissions.

Because levels of criteria pollutants in the CCH are consistently well below federal and state air quality standards (DOH 2003), and because the prevailing trade winds rapidly carry pollutants offshore limiting the effect on receptors, increases in levels of criteria pollutants at the project area from construction activities are not expected to be significant.

No-Action Alternative. Under the no-action alternative, no demolition or construction activities would occur at the project area. No additional emission sources would be added; hence there would be no change to air quality. No impact to air quality is anticipated from the no-action alternative.

Mitigation Measures. Construction activities would be conducted in accordance with State of Hawaii air pollution control regulations (HAR §11-60.1) and would employ the proper administrative and engineered controls to reduce air emissions. Dust control measures including a dust control (watering) program, covering of soil stockpiles during transport or storage, and revegetation of graded or cleared areas would be implemented. Construction vehicles would either remain on site or be scheduled to arrive and depart the project site during non-peak traffic hours, to reduce vehicle emissions. It is anticipated that EPA and DOH ambient air quality standards would not be exceeded during construction activities.

4.2 BIOLOGICAL RESOURCES

The Proposed Action. No special status species have been identified within the project area. No impact to biological resources is anticipated with implementation of the proposed action.

No-Action Alternative. Under the no-action alternative, no rockfall protection measures would be implemented and there would be no change to the biological resources of the project area. Therefore, no biological impacts are anticipated with implementation of the no-action alternative.

4.3 CULTURAL RESOURCES

The Proposed Action. The archaeological reconnaissance survey (PCSI 2005) identified no archaeological features within the project area. Because implementation of the proposed action involves a minimal amount of excavation, and the results of the archaeological reconnaissance survey recorded no archaeological features, no impacts to cultural resources are anticipated with the implementation of the proposed action. The cultural impact assessment did not identify any current cultural practices within the project area therefore; no adverse impacts to current cultural practices are anticipated with implementation of the proposed action.

No-Action Alternative. Under the no-action alternative, no rockfall protection measures would be implemented and there would be no change to the cultural resources of the project area. Therefore, no cultural impacts are anticipated with implementation of the no-action alternative.

Mitigation Measures. Although no archaeological features were observed during the reconnaissance survey, there is a possibility that historic properties could be present below the ground surface. If archaeological or human remains are inadvertently discovered during construction activities, the construction contractor shall immediately notify the SHPD prior to the continuation of activities.

4.4 GEOLOGY AND SOILS

The Proposed Action. The proposed action is expected to have positive impacts to geology and soils, through stabilization of loose boulders and rock outcroppings weakened from long continuous joints and cracks and from excessive erosion.

No-Action Alternative. Under the no-action alternative, no demolition or construction activities would occur at the project area. Structural deficiencies in the rock formations would not be addressed and erosion would continue to undermine the stability of rock formations. Therefore, the no-action alternative is anticipated to have long-term adverse impacts on geology and soils.

4.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

The Proposed Action. Short-term construction related impacts from hazardous materials and hazardous waste are possible, but not expected, with implementation of the proposed action. Construction equipment and vehicles contain hazardous materials such as gasoline, diesel, oil, hydraulic and brake fluid. Accidental release of these materials into the environment is possible, but not anticipated. Preparation of a hazardous materials spill response plan prior to commencement of construction activities would greatly reduce the likelihood of significant impacts resulting from any spill. No significant long-term impacts are anticipated.

No-Action Alternative. Under the no-action alternative, no demolition or construction activities would occur at the project area. No hazardous materials would be brought to the project area. Therefore, no short-term or long-term impacts from hazardous materials are anticipated with implementation of the no-action alternative.

4.6 LAND USE AND OWNERSHIP

The Proposed Action. No impacts to land use and ownership are anticipated with implementation of the proposed action. Proposed rockfall protection measures are consistent with identified land uses within the resource subzone of the conservation district. Specifically, HAR §13-5-23 identifies "erosion control, flood control, and other hazard prevention devices or facilities" as a permitted land use. The proposed action would stabilize native soils and geology and reduce hazardous rockfall conditions, and is therefore consistent with the objective of managing conservation district land to promote the long-term sustainability of natural resources and the public health, safety, and welfare (HAR §13-5-1).

No-Action Alternative. Under the no-action alternative, no rockfall protection measures would be undertaken. The no-action alternative is consistent with land use regulations and guidelines prioritizing the conservation, protection, and preservation of natural resources in conservation districts and/or preservation areas. However, the no-action alternative is not consistent with regulations mandating that conservation district lands be managed to promote public health, safety, and welfare, as a hazardous rockfall condition would remain at the Old Puunui Quarry site and for down slope residences and a golf course.

4.7 NATURAL HAZARDS

The Proposed Action. The proposed action would result in a positive impact for natural hazards by reducing exposure to damage from rockfall and storm events. Potential damage from rockfall is increased during storm events, as rapid runoff of surface water increases erosion and instability of the rock formation, and may trigger landslides. Stabilization of the rock formation would have a direct positive impact on the rockfall hazard and would also have indirect positive impacts because stabilizing the rock formation may also reduce the damage caused by hurricanes and storm events.

No-Action Alternative. Under the no-action alternative, no rockfall protection measures would be implemented and the existing hazardous rockfall condition would continue. Structural deficiencies in the rock formations would not be addressed and erosion would continue to undermine the stability of rock formations. The no-action alternative is anticipated to have no impact, or a direct negative impact on the rockfall hazard, depending on whether the condition worsens as a result of taking no action. Indirect negative impacts are also possible if taking no action to reduce the rockfall hazard, results in increased damage from storm events and hurricanes.

4.8 NOISE

The Proposed Action. Only short-term construction related noise impacts are anticipated with implementation of the proposed action. Construction equipment employed to implement the proposed action may include trucks, a crane, a grout mixing machine, sledge hammers, jack hammers, chain saws, and air compressors. Helicopter use to transport materials may also be required.

Noise generated by construction equipment could produce localized noise events of 100 dBA or higher at the construction site, with noise levels decreasing with distance from the site. Typical noise levels generated by construction tools range from 65 dBA to 110 dBA. Heavy construction equipment noise levels at 50 feet typically range between 75 and 89 dBA for equipment such as concrete or flat-bed trucks, cranes, bulldozers, scrapers, and trenching machines (USACE 1978). Noise from construction activities would decrease with distance from the project area through divergence, atmospheric absorption, shielding by intervening structures, and absorption and shielding by ground cover.

Noise generated from proposed demolition and construction activities would be intermittent and short-term, and would primarily occur at the construction site. While noise levels may be a temporary source of annoyance for nearby residents, it would not be at a level that would require hearing

protection measures. No long-term noise impacts are anticipated from implementation of the proposed action.

No-Action Alternative. Under the no-action alternative, no demolition or construction activities would occur at the project area, and there would be no change to the noise environment. Therefore, no impacts from noise are anticipated under the no-action alternative.

Mitigation Measures. To minimize noise impacts, construction activities would be conducted in accordance with State of Hawaii requirements set forth in: HRS §342F - *Noise Pollution*; HAR §11-42 – *Vehicular Noise Control for Oahu*, establishing noise level limits for light and heavy vehicles; and HAR §11-46 – *Community Noise Control*, establishing maximum permissible sound levels from excessive noise sources, noise prevention, control and abatement guidelines, and permit criteria.

The Hawaii Occupational Safety and Health (HIOSH) Division has set the permissible occupational noise exposure at 90 dBA for a continuous 8-hour exposure. Permissible noise exposures for shorter periods are higher, with a maximum exposure of 115 dBA permissible for a duration of 15 minutes or less (HAR §12-200.1 *Occupational Noise Exposure*). Enforcement of HIOSH occupational noise exposure regulations would be the responsibility of the construction contractor. If workers experience noise exceeding HIOSH standards, administrative or engineering controls shall be implemented. Use of personal protective equipment such as earplugs or muffs may also be required.

To reduce nearby residential noise exposure, construction activities would be conducted on weekdays and in daytime hours in accordance with HRS §342-F-1. In the event that work occurs after normal working hours (i.e., at night or on weekends), or if permissible noise levels are exceeded, appropriate permitting and monitoring as well as development and implementation of administrative and engineering controls shall be employed.

4.9 SAFETY AND HEALTH

The Proposed Action. The proposed action would have long-term positive impacts on public safety and health by eliminating hazardous rockfall conditions upslope of adjacent residences and a golf course. Boulders and outcroppings exhibiting structural deficiencies would be stabilized or demolished, and a rockfall protection fence would be constructed on the slope above the residential area.

Short-term construction related impacts to safety and health relate to worker safety during construction. Health and safety issues concerning workers include, exposure to hazardous rockfall within the project area, operation of construction equipment, traffic, occupational noise, fugitive dust, heavy lifting, slips, trips, and falls while working on uneven terrain, exposure to heat, and biological exposure (bites, stings, and allergens).

No-Action Alternative. Under the no-action alternative, no rockfall protection measures would be implemented and the existing hazardous rockfall condition would continue. Therefore, adverse impacts to public safety and health are anticipated from implementation of the no-action alternative.

Mitigation Measures. The safety and health of workers during construction would be the responsibility of the construction contractor. Mitigation measures addressing air quality at the construction site and occupational noise exposure are presented in Sections 4.2 and 4.7, respectively.

4.10 SOCIOECONOMICS

The Proposed Action. No socioeconomic impacts are expected with implementation of the proposed action. The proposed action should not impact employment, income, or demographics within the ROI. The population within the ROI reports higher median and per capita incomes, and lower poverty rates compared to the CCH. And there are no significant long-term adverse impacts

anticipated from the proposed action. Therefore, it is unlikely that adverse impacts from the proposed action would disproportionately affect a minority or low-income population.

No-Action Alternative. No socioeconomic impacts are expected with implementation of the no-action alternative. The no-action alternative should not impact employment, income, or demographics within the ROI. The population within the ROI reports higher median and per capita incomes, and lower poverty rates compared to the CCH. And like the CCH, the ROI is ethnically diverse. Therefore, it is unlikely that adverse impacts from the no-action alternative would disproportionately affect a minority or low-income population.

4.11 TRANSPORTATION

The Proposed Action. There are no transportation facilities or infrastructure within the project area except for a ROW providing access to two adjacent residences. Added construction traffic may have a short-term adverse impact to road transportation on nearby residential streets. No long-term impacts to the transportation resource are anticipated.

No-Action Alternative. Under the no-action alternative, no construction activities would take place and there would be no change to the transportation resource. No impacts to the transportation resource are anticipated from implementation of the no-action alternative.

4.12 UTILITIES AND INFRASTRUCTURE

The Proposed Action. There are no known utilities or infrastructure (electrical power lines, telecommunications, drinking water distribution, sanitary sewer or storm water systems) within the project area, and the proposed action would not add any utilities or infrastructure to the project area. Therefore no impact to the utility and infrastructure resource is anticipated from implementation of the proposed action.

No-Action Alternative. There are no known utilities or infrastructure (electrical power lines, telecommunications, drinking water distribution, sanitary sewer or storm water systems) within the project area, and the no-action alternative would not add any utilities or infrastructure to the project area. Therefore no impact to the utility and infrastructure resource is anticipated from implementation of the no-action alternative.

4.13 VISUAL RESOURCES

The Proposed Action. No significant adverse visual impacts are anticipated from the proposed demolition/stabilization of boulders or the installation of rockfall protection fence. The anchoring mechanism for stabilizing boulders would not be noticeable once completed. Visual impacts associated with localized application of cable net cover to stabilize boulders would be minimal. Localized cable net cover conforms to the slope and is available in a range of colors that could be matched to the surrounding soil and rock formation. New vegetation would grow through the mesh openings, so that once installed, this system would result in little or no disturbance to the natural setting of the property.

Demolition of boulders would be localized and would not change the overall aesthetic quality of the project area. Approximately 20 LF of 10-foot high rockfall protection fence would be installed on the slope above the quarry. Vegetation in the project area is very thick with large trees that should shield the view of the proposed rockfall protection fence when seen from below or from adjacent properties.

No-Action Alternative. Under the no-action alternative, no demolition or construction activities would occur and there would be no change to the visual quality of the project area. Therefore, no impacts to visual resources are anticipated under the no-action alternative.

4.14 WATER RESOURCES

The Proposed Action. Proposed construction activities (stabilization/demolition of boulders and installation of a rockfall protection fence) would not affect the quantity or quality of surface or groundwater, and would not change the location or course of drainage features. Therefore, no long-term impacts to surface or groundwater resources are anticipated with implementation of the proposed action.

No-Action Alternative. Under the no-action alternative, no rockfall protection measures would be implemented and there would be no change to the water resources within the project area. Therefore, no impacts to water resources are anticipated with implementation of the no-action alternative.

4.15 CUMULATIVE IMPACTS

No concurrent or future actions that would contribute to cumulative impacts have been identified in the vicinity of the project area. Therefore, neither the proposed action nor the no-action alternative is anticipated to result in significant cumulative impacts.

5.0 FINDINGS AND DETERMINATION

To determine whether the proposed action would have a significant impact on the human, natural, or historic environments, the project, its anticipated direct and indirect effects, and the short-term, long-term, and cumulative impacts have been evaluated. Based on the studies performed and resources evaluated, a Finding of No Significant Impact (FONSI) is based on the significance criteria summarized below.

5.1 SIGNIFICANCE CRITERIA

According to HAR §11-200-12, an applicant or agency must determine whether an action may have a significant impact on the environment. This includes all phases of the project, its expected consequences, both direct and indirect, its short- and long-term effects, and its cumulative impact with other projects. In making the determination, "Significance Criteria" are used as a basis for identifying whether significant environmental impacts would occur. According to HAR §11-200-12, an action shall be determined to have a significant impact on the environment if it meets one of the following criteria:

- **Involves an irrevocable commitment to, loss or destruction of any natural or cultural resources.** No archaeological features were identified within the project area; therefore, no irrevocable commitment to, loss or destruction of cultural resources are anticipated with implementation of the proposed action. Positive impacts to geology and soils, and no impacts to air, water, or biological resources are anticipated with implementation of the proposed action. Therefore, implementation of the proposed action is not anticipated to result in the irrevocable commitment to, loss or destruction of any natural resource.
- **Curtails the range of beneficial uses of the environment.** There would be no change to the current or potential land use within the project area as a result of the proposed action. Management and use of the land would remain consistent with a conservation district land use and a resource subzone designation.
- **Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.** The proposed construction is consistent with the State Environmental Policies established in HRS §344.
- **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.** No socioeconomic impacts to the community are anticipated with implementation of the proposed action. This project is fully funded by State of Hawaii CIP funds that have already been allocated for this project. Therefore, no adverse economic impacts to the State are anticipated. The cultural impact assessment, conducted in compliance with Act 50, did not identify any current cultural practices within the project area therefore; no adverse impacts to current cultural practices are anticipated with implementation of the proposed action.
- **Substantially affects public health.** The proposed action is anticipated to have long-term positive impacts on public health, safety, and welfare by eliminating a hazardous rockfall condition upslope of residences and a golf course adjacent to the project area.
- **Involves substantial secondary impacts, such as population changes or effects on public facilities.** No adverse secondary impacts are anticipated with implementation of the proposed action.
- **Involves a substantial degradation of environmental quality.** No long-term adverse impacts to any resource evaluated in this EA are anticipated with implementation of the proposed action.
- **Is individually limited, but cumulatively has considerable effect on the environment, or involves a commitment for larger actions.** No concurrent or future actions have been identified in the vicinity of the project area that would contribute to cumulative impacts for the

proposed action. The activities recommended in the proposed action represent all planned or foreseeable actions deemed necessary for rockfall protection within the project area. No additional actions are planned or anticipated.

- **Substantially affects a rare, threatened, or endangered species or its habitat.** No special status species have been identified within the project area. Therefore, no impacts are anticipated to rare, threatened, or endangered species or its habitat with implementation of the proposed action.
- **Detrimentally affects air or water quality or ambient noise levels.** The proposed action is anticipated to have no long-term adverse impacts to air or water quality, or ambient noise levels. Short-term construction related noise impacts might occur.
- **Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.** The project area is not located in a 100-year flood plain, tsunami zone, or coastal area. The topography at the project area does make the area susceptible to erosion and presents geologic hazards such as rockfall and landslides. The purpose of the proposed action is to reduce the hazardous rockfall condition that exists at the project area.
- **Substantially affects scenic vistas and view planes identified in county or state plans or studies.** The project area does not occur in any scenic vistas or view planes identified in the *Primary Urban Center Development Plan* for the CCH.
- **Requires substantial energy consumption.** Implementation of the proposed action is not anticipated to require substantial energy consumption.

5.2 DETERMINATION

Based on the above evaluation of the significance criteria and the discussion of impacts and mitigation measures contained in this document, it is anticipated that the proposed project would not have a significant adverse impact on the environment. Based on the studies performed and resources evaluated, a FONSI has been determined.

6.0 LIST OF PREPARERS

Ms. Michelle Mason, Senior Environmental Professional
BS, Urban Studies, Stanford University, 1987
Years of Experience: 16

Ms. Tanya Copeland, Project Environmental Professional
MS, Ecology and Evolution, University of Illinois, Chicago, 1999
BA, Chemistry, University of Illinois, Chicago, 1991
Years of Experience: 12

Mr. Dan Frerich, Staff Environmental Scientist
BS, Environmental Science, Oregon State University, Corvallis, 2000
Years of Experience: 4

7.0 REFERENCES

AECOS, Inc. 2005. *Biological surveys in support of an Environmental Assessment for slope stabilization at the Old Puunui Quarry site, Nuuanu Valley, Oahu. Hawaii.* Prepared for Earth Tech, Inc. Kaneohe, HI. March.

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———. 2004b. Honolulu Internet Permit System –Tax Map Key Information. Website: http://dppweb.co.honolulu.hi.us. 20 October.

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8.0 COMMENTS AND RESPONSES

Table 8-1 presents the comments received on the Draft EA during the public comment period. Responses are provided where applicable.

Table 8-1: Comments and Responses on the Draft EA.

Comment No.	Name	Comment	Response
1	Nancy Heinrich, OEQC (fax dated March 16, 2005)	The distribution list for the EA looks good, except for the public library copy of the DEA for Puunui, you have Pearl City Library listed, should be Liliha Library. Also, please ensure that the appropriate Neighborhood Commission also receives a copy.	The Liliha Public Library was sent a copy of the Draft EA on March 14, 2005. Also, Sesnita Moepono, the chair of the Puunui (Liliha/Kapalama) Neighborhood Commission No. 14, was sent a copy of the Draft EA on March 17, 2005.
2	Denis Lau, DOH, Clean Water Branch (letter dated March 23, 2005)	The surface water near the Old Puunui Quarry Site appears to be a tributary to Waolani Stream, which is classified a Class 2, Inland Water (Hawaii Administrative Rules (HAR), Section 11-54-3(b)(2)).	Additional text has been added to Section 3.14 of the EA describing the classification of nearby surface water.
		A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. A NPDES permit is required before the commencement of the construction activities.	Following additional coordination with our project engineer, we have determined that less than one (1) acre of total land area will be disturbed during construction activities at the project site. This land area includes "areas used for the construction staging, areas used for the storage of materials, and the areas disturbed by construction equipment (i.e. bulldozers, cranes, etc.)". Therefore a NPDES general permit is not required. This determination was documented in a letter sent to the CWB on April 18, 2005 (see Appendix A).
		The CWB requires that a Notice of Intent (NOI) to be covered by an NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities.	With the determination that a NPDES permit is not required for this project, an NOI is not required.
		The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State water and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e., NPDES general permits do not cover discharges into Class 1 or Class AA State waters).	No wastewater discharge from the project site is anticipated during construction activities. With no discharges anticipated, it is our understanding that an individual NPDES permit is not required.
		The HAR, Section 11-55-38, also requires that applicant to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. The CWB acknowledges that Earth Tech received a letter from SHPD,	With the determination that a NPDES permit is not required for this project, an NOI is not required. However, additional coordination has been conducted with SHPD. See Sections 1-2, 3.3, and correspondence in Appendix A.

Comment No.	Name	Comment	Response
		dated November 8, 2002 regarding the subject projects. Please include a copy of the most recent SHPD determinations with the CWB-NOI Form C.	
3	Genevieve Salmonson, OEQC (letter dated March 31, 2005)	Cultural impacts assessment: The discussion in the EA deals only with historic and archeological resources. Act 50 mandates an assessment of impacts to current cultural practices by the proposed action. Include the assessment in your final EA.	Additional coordination and consultation was made to identify any current cultural practices in the project area in accordance with Act 50. See Sections 3.3, 4.3, and 5.1, and correspondence in Appendix A.
		Significance criteria: The forth criterion was updated in 2000 by Act 50 to read: "Substantially affects the economic welfare, social welfare, *and cultural practices* of the community or State." In sections 5.1 of your EA modify your analysis of project for this criterion.	Text has been revised accordingly.
4	Peter Young, DLNR, Land Division (Notice of Acceptance and Preliminary Environmental Determination, CUDA, File No. OA-3228, letter dated April 5, 2005)	The proposed use is an identified land use in the Resource subzone of the Conservation District, pursuant to § 13-5-23, Hawaii Administrative Rules (HAR), L-3, EROSION CONTROL, D-1, "Erosion control, flood control, and other hazard prevention devices or facilities." Please be advised, however, that this finding does not constitute approval of the proposal.	Comment noted.
		Pursuant to § 13-5-40 of the HAR, a Public Hearing will not be required.	Comment noted.
		In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, a finding of no significant impact to the environment (FONSI) is anticipated for the proposed project.	Comment noted.
		Staff believes the proposed project is outside of the Special Management Area.	Comment noted.
		Please provide additional information regarding how rocks will be demolished or stabilized and how loose rocks would be removed.	A supplement to the CUDA was submitted to DLNR on April 15, 2005 that provided the requested information. Pertinent information has also been added to Section 2.2.
		The Department notes the applicant should consult with the adjacent landowners to the proposed project.	Notification of the proposed action was conducted with adjacent landowners. See Appendix A for correspondence.

Appendix A
Agency Correspondence

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

S

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT

DEPUTIES
ERIC T. HIRANO
LINNEL NISHIOKA

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

November 8, 2002

Yucheng Pan
EarthTech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813

LOG NO: 31041 ✓
DOC NO: 0210EJ29

Dear Mr. Pan:

SUBJECT: **Chapter 6E-8 Historic Preservation Review – Request for Information Regarding Two Parcels Located in Nu`uanu Valley and Pearl City, O`ahu**
Nu`uanu, Kona, O`ahu
TMK: (1) 1-8-026:006
Waimano, `Ewa, O`ahu
TMK: (1) 9-7-025:010

A review of our records shows that there are no known historic sites at either of the parcels listed above. The Nu`uanu parcel is an undeveloped rocky slope that runs down slope from Alewa heights to the Pu`unui area. The Waimano parcel is located along the rocky slopes between Pacific Palisades subdivision and Waimano Valley. Although there are no known sites at these locations, no archaeological inventory surveys have been conducted at either parcel. Two historic sites have been recorded within Waimano Valley (-State site 4105, -4106) but are outside of the project area. These sites consist of a railroad trestle and agricultural features related to the historic use of the area during the sugar industry in the area. Although no other historic sites have been reported for either the Nu`uanu or Waimano locations these types of lands have been known to contain shallow rock shelters which may contain historic sites, such as human burials.

Before our office can make a determination on the effect of this project on significant historic sites, an archaeological inventory survey of the project areas needs to be performed to determine if any historic sites are present, and if so, to gather sufficient information to evaluate their significance. A report of the finds must be submitted to our Division for review. If significant historic sites are found during the survey, a mitigation plan may need to be developed and executed prior to beginning any ground disturbance.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

c: Randall Fujiki, Director, Dept of Planning and Permitting, City and County of Honolulu, 650 S. Beretania Street, Honolulu, HI 96813 (ATTN: Ardis Shaw-Kim)

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

15 December 2004

State of Hawaii, Department of Health
Clean Water Branch
919 Ala Moana, Room 301
Honolulu, HI 96814-4920

Subject: **NPDES General Permit for Storm Water Associated with Construction Activities at Two Rockfall Protection Sites: Old Puunui Quarry and Komo Mai Drive, Oahu.**

Dear Sir/Madame:

Early coordination is requested from the State of Hawaii Department of Health (DOH), Clean Water Branch (CWB) regarding the need for a NPDES General Permit for two construction projects proposed by the State of Hawaii Department of Land and Natural Resources (DLNR). Construction activities are related to implementation of rockfall protection measures on two DLNR properties: Old Puunui Quarry and Komo Mai Drive, Oahu. The proposed actions are as follows:

Old Puunui Quarry is a 2.36-acre site identified with TMK 1-8-026:006 and located in Nuuanu Valley. Proposed rockfall mitigation measures include installation of 50 linear feet (LF) of rockfall protection fence, demolition or stabilization of rock outcroppings and boulders, and removal of loose rocks from discrete locations throughout the project site. Localized demolition of boulders and removal of loose rock will occur over a total area of less than 1 acre.

Komo Mai Drive is a 33.9-acre parcel identified with TMK 9-7-025:010 and located in the Waimano area of Oahu. Rockfall protection measures are proposed on approximately 8 acres of the 33.9-acre parcel adjacent to Komo Mai Drive. Proposed activities include installation of a mesh and cable net system over approximately 2.3 acres of hillside, installation of 820 LF of chain link fence, and 220 LF of rockfall protection fence. Activities will include some grass and weed cutting that will leave the soil intact. Localized demolition of boulders and removal of loose rock will occur over a total area of less than 1 acre.

Per HAR Chapter 11-55, Appendix C, NPDES General Permits cover "discharges composed entirely of storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of one acre or more of total land area". Disturbance of land "refers to the penetration, turning, or moving of soil... or the exposure of bare soil or ground surface".

It is our judgment that a permit is not required for Old Puunui Quarry, as the total land area to be disturbed is less than one acre, or for Komo Mai Drive, as laying of a cable net and mesh system does not constitute ground disturbance as defined in HAR 11-55, Appendix C. We would like your concurrence that a NPDES General Permit is not required for either proposed action before proceeding with construction activities.

Earth Tech, Inc. is performing this consultation on behalf of DLNR. If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Tanya Copeland at (808) 523-8874.

EARTH TECH
A TYCO INTERNATIONAL LTD. COMPANY

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

Sincerely,

Ben Realica, P.E.
Project Engineer
EARTH TECH, INC.

Enclosure:

Location Map: Old Puunui Quarry
Proposed Action: Old Puunui Quarry
Location Map: Komo Mai Drive
Proposed Action: Komo Mai Drive

cc: Michelle Mason, Task Manager
Project File

EARTH TECH

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
EMD / CWB

01010PKP.05

January 5, 2005

Mr. Ben Realica
Project Engineer
Earth Tech, Inc.
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Realica:

Subject: Early Coordination for Old Puunui Quarry and Komo Mai Drive Rockfall Protection Sites

The Department of Health (DOH), Clean Water Branch (CWB), has reviewed the subject document and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Control Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters..."

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:

   a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

   b. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. **An NPDES permit is required before the commencement of the construction activities.**

   c. Discharges of treated effluent from leaking underground storage tank remedial activities.

   d. Discharges of once through cooling water less than one (1) million gallons per day.

   e. Discharges of hydrotesting water.

   f. Discharges of construction dewatering effluent.

   g. Discharges of treated effluent from petroleum bulk stations and terminals.

   h. Discharges of treated effluent from well drilling activities.

   i. Discharges of treated effluent from recycled water distribution systems.

   j. Discharges of storm water from a small municipal separate storm sewer system.

   k. Discharges of circulation water from decorative ponds or tanks.

   The CWB requires that a Notice of Intent (NOI) to be covered by an NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at:
   http://www.hawaii.gov/health/environmental/water/cleanwater/index.html

3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. NPDES general permits do not cover discharges into Class 1 or Class AA State waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at:
   http://www.hawaii.gov/health/environmental/water/cleanwater/index.html

4. Hawaii Administrative Rules, Section 11-55-38, also requires the applicant to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD.

If you have any questions, please contact Ms. Kris Poentis of the Engineering Section, CWB, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF
Clean Water Branch

KP:np

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

07 February 2005

Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 1250
Honolulu, Hawaii 96813

SUBJECT: Native Hawaiian Special Interest Consultation for the State of Hawaii, Department of Land and Natural Resources, Engineering Division Rockfall Protection Studies for Komo Mai Drive (TMK 9-7-025:010) and Old Puunui Quarry (TMK 1-8-026:006)

Earth Tech, Inc. (Earth Tech), on behalf of the State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, is requesting early coordination from the Office of Hawaiian Affairs (OHA) regarding two Environmental Assessments (EAs) being prepared by DLNR, Engineering Division and Earth Tech for rockfall protection measures along Komo Mai Drive in Pearl City and the Old Puunui Quarry in Nuuanu.

Telephone
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The proposed action at the Komo Mai Drive site involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. An existing chain link fence along Komo Mai Drive would be left in-place and 820 linear feet (LF) of 3-foot high chain link fence, with a tie-back system, would be installed along the upslope edge of the mesh and cable net drape system. Approximately 220 LF of 10-foot high rockfall protection fence would be constructed below a rock cliff. The mesh and cable net system will blanket the hillside, preventing erosion of weathered basalt soil and smaller rock particles. It conforms to the slope allowing growth of vegetation with little or no disturbance to the natural setting of the property and providing erosion protection of the soft soil areas.

The proposed action at the Old Puunui Quarry site provides for installation of 20 LF of 10-foot high rockfall protection fence parallel to and upslope of the rockfall protection fence previously installed along the bottom property boundary. Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would then be removed as necessary to reduce the potential for rockfall.

EarthTech
A Tyco International Ltd. Company

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Actions relevant to OHA, among others, for this project include historic preservation clearance. As part of the EA, Pacific Consulting Services, Inc. of Honolulu conducted an archeological reconnaissance survey of the project areas in January 2005. Copies of the archeological reconnaissance survey reports are attached. The results of the survey indicate that no archaeological features were observed within the project areas. The proposed action, impacts, and proposed mitigation measures will be described in the Draft EA. A finding of no significant impact (FONSI) is anticipated for this project.

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Tanya Copeland at (808) 523-8874.

Sincerely,

Very truly yours,

EARTH TECH, INC.

Ben Realida, P.E.
Project Engineer

Enclosures:
Komo Mai Drive Archeological Reconnaissance Survey Report, PCSI February 2005
Old Puunui Quarry Archeological Reconnaissance Survey Report, PCSI February 2005

cc: Michelle Mason, Task Manager
Project File

EarthTech
A Tyco International Ltd. Company

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

07 February 2005

State Historic Preservation Division
Kakuhihewa Building
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

SUBJECT: Section 106 National Historic Preservation Act Consultation for the State of Hawaii, Department of Land and Natural Resources, Engineering Division Rockfall Protection Studies for Komo Mai Drive (TMK 9-7-025:010) and Old Puunui Quarry (TMK 1-8-026:006)

Earth Tech, Inc. (Earth Tech), on behalf of the State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, is requesting early coordination from the State Historic Preservation Division (SHPD) regarding two Environmental Assessments (EAs) being prepared by DLNR, Engineering Division and Earth Tech for rockfall protection measures along Komo Mai Drive in Pearl City and the Old Puunui Quarry in Nuuanu.

The proposed action at the Komo Mai Drive site involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. An existing chain link fence along Komo Mai Drive would be left in-place and 820 linear feet (LF) of 3-foot high chain link fence, with a tie-back system, would be installed along the upslope edge of the mesh and cable net drape system. Approximately 220 LF of 10-foot high rockfall protection fence would be constructed below a rock cliff. The mesh and cable net system will blanket the hillside, preventing erosion of weathered basalt soil and smaller rock particles. It conforms to the slope allowing growth of vegetation with little or no disturbance to the natural setting of the property and providing erosion protection of the soft soil areas.

The proposed action at the Old Puunui Quarry site provides for installation of 20 LF of 10-foot high rockfall protection fence parallel to and upslope of the rockfall protection fence previously installed along the bottom property boundary. Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would then be removed as necessary to reduce the potential for rockfall.

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Actions relevant to SHPD, among others, for this project include historic preservation clearance. As part of the EA, Pacific Consulting Services, Inc. (PCSI) of Honolulu conducted an archeological reconnaissance survey of the project areas in January 2005. Copies of the archeological reconnaissance survey reports are attached. The results of the survey indicate that no archaeological features were observed within the project areas. The proposed action, impacts, and proposed mitigation measures will be described in the Draft EA. A finding of no significant impact (FONSI) is anticipated for this project.

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Tanya Copeland at (808) 523-8874.

Sincerely,

Very truly yours,

EARTH TECH, INC.

Ben Realica, P.E.
Project Engineer

Enclosures:
Komo Mai Drive Archeological Reconnaissance Survey Report, PCSI February 2005
Old Puunui Quarry Archeological Reconnaissance Survey Report, PCSI February 2005

cc: Michelle Mason, Task Manager
Project File

EarthTech
A Tyco International Ltd. Company

[illegible] Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

March 9, 2005

Mr. Paul Henson, Field Supervisor
U.S. Fish and Wildlife Service
Pacific Islands Eco-Region
300 Ala Moana Boulevard, Room 5-122
Honolulu, Hawaii 96850

SUBJECT: Section 7 Informal Consultation for Old Puunui Quarry and Komo Mai Drive, Environmental Assessments for Rockfall Protection Measures

Dear Mr. Henson:

Earth Tech, Inc. (Earth Tech), on behalf of the State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division is preparing two Environmental Assessments (EAs) to analyze environmental impacts from proposed rockfall protection measures at two sites on Oahu, Hawaii. The sites are identified as the Old Puunui Quarry in Nuuanu and Komo Mai Drive in Pearl City.

The Old Puunui Quarry site is identified with Tax Map Key (TMK): (1) 1-8-26:6 having an area of approximately 2.37 acres. This parcel of land is located on a very steep mountain slope bound at the top by Alewa Height and at the bottom by Rooke Avenue in the Nuuanu area. The proposed action at the Old Puunui Quarry site provides for installation of 20 linear feet (LF) of 10-foot high rockfall protection fence parallel to and upslope of the rockfall protection fence previously installed along the bottom property boundary. Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would then be removed as necessary to reduce the potential for rockfall.

The Komo Mai Drive site is identified with TMK: (1) 9-7-025:010 having an area of approximately 33.9 acres. This parcel of land is located on a steep mountain slope bound at the top by a housing community and at the boom by Komo Mai Drive located in the Waimano area. Rockfall protection measures are proposed only in those areas adjacent to and upslope of Komo Mai Drive (approximately 8.87 acres of 33.9 acres of the total TMK). The proposed action at the Komo Mai Drive site involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. An existing chain link fence along Komo Mai Drive would be left in-place and 820 LF of 3-foot high chain link fence, with a tie-back system, would be installed along the upslope edge of the mesh and cable net drape system. Approximately 220 LF of 10-foot high rockfall protection fence would be constructed below a rock cliff. The mesh and cable net system will blanket the hillside, preventing erosion of weathered basalt soil and

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Telephone 808.523.8874 Facsimile 808.523.8950

smaller rock particles. It conforms to the slope allowing growth of vegetation with little or no disturbance to the natural setting of the property and providing erosion protection of the soft soil areas.

On behalf of DLNR, we would like to initiate a Section 7 Informal Consultation under the Endangered Species Act of 1972 as amended 16 U.S.C. 1531 *et. seq.*, the Marine Mammal Protection Act of 1972 as amended 16 U.S.C. 1361 *et. seq.*, and the Migratory Bird Treaty Act, 16 U.S.C. Part 703 *et. seq*. Actions relevant to the USFWS, among others, include a review of threatened and endangered species which may be impacted by the proposed actions.

As part of the EA, AECOS, Inc. of Kaneohe conducted biological surveys at both project areas during January and February 2005. Copies of the biological survey reports are attached. The results of the survey indicate that no threatened or endangered species were observed within both project areas. The proposed action, impacts, and proposed mitigation measures will be described in the Draft EA. A finding of no significant impact (FONSI) is anticipated for this project.

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Tanya Copeland at (808) 523-8874.

Sincerely,

Very truly yours,

EARTH TECH, INC.

Ben Realica, P.E.
Project Engineer

Enclosures:
Komo Mai Drive Biological Survey Report, AECOS, Inc. February 2005
Old Puunui Quarry Biological Survey Report, AECOS, Inc. February 2005

cc: Michelle Mason, Task Manager
Project File

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

MAR 10 2005

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

Dear Ms. Salmonson,

Draft Environmental Assessment (DEA) for Old Puunui Quarry
TMK 1-8-026:006, Honolulu, Oahu, Hawaii

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, has reviewed the DEA for the subject project, and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the March 23, 2005 Office of Environmental Quality Control (OEQC) Environmental Notice.

We have enclosed a completed OEQC Publication Form, four copies of the DEA, and the project summary on disk. Please call Ben Realica or Michelle Mason of Earth Tech, Inc. at Ph. 523-8874 should you have any questions.

Sincerely,

ERIC T. HIRANO
Chief Engineer

Enclosures:
Draft Environmental Assessment (DEA) for Old Puunui Quarry (4 copies)
OEQC Publication Notice Form for Old Puunui Quarry
OEQC Project Summary_Old Puunui.pdf (on disk)

C: Edwin Matsuda, DLNR
Michelle Mason, Earth Tech Task Manager

Suite 600 Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

11 March 2005

State of Hawaii
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street, Room 220
Honolulu, Hawaii 96813

Subject: **Submittal of Conservation District Use Application for the Rockfall Protection Measures, Old Puunui Quarry Site on Oahu, Hawaii**

Dear DLNR OCCL:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry Site on Oahu, Hawaii. Since the site lies within the State of Hawaii Conservation District, a Conservation District Use Application (CDUA) is required. Enclosed please find twenty (20) copies of the CDUA. Also find the required twenty (20) copies of the associated Draft Environmental Assessment. A check in the amount of $100.00 for the CDUA processing fee is also enclosed.

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason at (808) 523-8874.

Very truly yours,

Benjamin Realica, P.E.
Project Engineer
Earth Tech, Inc.

Enclosures:
CDUA for Old Puunui Quarry Site – 20 copies
Draft Environmental Assessment, Rockfall Protection, Old Puunui Quarry Site, Oahu, Hawaii – 20 copies
CDUA Processing Fee – Check #4168 for $100.00

cc: Edwin Matsuda, DLNR Engineering Division – Project Engineer
Michelle Mason, Earth Tech – Task Manager
Project File

Telephone
808.523.8874
Facsimile
808.523.8950

EarthTech
A Tyco International Ltd. Company

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

March 14, 2005

Liliha Public Library
1515 Liliha
Honolulu, HI 96817

Subject: **Submittal of Draft Environmental Assessment (EA) for Rockfall Protection at the Old Puunui Quarry Site on Oahu, Hawaii**

Dear Liliha Public Library:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry Site on Oahu, Hawaii. Enclosed please find the associated draft EA for rockfall protection measures at this site.

The public comment review period officially starts on March 23, 2005 when the notice of the EA is published in the State of Hawaii, Office of Environmental Quality Control *Environmental Notice*. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Comments should be sent to:

Ms. Michelle Mason, Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813
Fax: (808) 523-8950
Email: Michelle.Mason@earthtech.com

Please maintain this document in your library Hawaiian/Pacific collections for public review. If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

Michelle Mason

Michelle Mason
Task Manager

Enclosure:
Draft EA for Rockfall Protection for the Komo Mai Drive Site, Oahu, Hawaii

cc: Edwin Matsuda, DNLR, Engineering Division – Project Engineer
Ben Realica, Earth Tech – Project Engineer
Project File

Telephone 808.523.8874
Facsimile 808.523.8950

EarthTech
A Tyco International Ltd. Company

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

March 14, 2005

Hawaii State Library
Hawaii Documents Center
478 South King Street
Honolulu, HI 96813

Subject: **Submittal of Draft Environmental Assessment (EA) for Rockfall Protection at the Old Puunui Quarry Site on Oahu, Hawaii**

Dear Hawaii State Library:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry Site on Oahu, Hawaii. Enclosed please find the associated draft EA for rockfall protection measures at these sites.

The public comment review period officially starts on March 23, 2005 when the notice of the EA is published in the State of Hawaii, Office of Environmental Quality Control *Environmental Notice*. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Comments should be sent to:

Ms. Michelle Mason, Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813
Fax: (808) 523-8950
Email: Michelle.Mason@earthtech.com

Please maintain this document in your library Hawaiian/Pacific collections for public review. If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

Michelle Mason

Michelle Mason
Task Manager

Enclosure:
Draft EA for Rockfall Protection for the Old Puunui Quarry Site, Oahu, Hawaii

cc: Edwin Matsuda, DNLR, Engineering Division – Project Engineer
Ben Realica, Earth Tech – Project Engineer
Project File

Telephone 808.523.8874
Facsimile 808.523.8950

EarthTech
A Tyco International Ltd. Company

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone: 808.523.8874 Facsimile: 808.523.8950

March 14, 2005

Subject: **Submittal of Draft Environmental Assessments (EAs) for Rockfall Protection at the Old Puunui Quarry Site and the Komo Mai Drive Site on Oahu, Hawaii**

Dear EA Recipient:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry Site and the Komo Mai Drive Site on Oahu, Hawaii. Enclosed please find the associated draft EAs for rockfall protection measures at these sites.

The public comment review period officially starts on March 23, 2005 when the notice of the EA is published in the State of Hawaii, Office of Environmental Quality Control *Environmental Notice*. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Comments should be sent to:

Ms. Michelle Mason
Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813
Fax: (808) 523-8950
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

Michelle Mason

Michelle Mason
Task Manager

Enclosures:

Draft Environmental Assessment for Rockfall Protection for the Old Puunui Quarry Site, Oahu, Hawaii
Draft Environmental Assessment for Rockfall Protection at the Komo Mai Drive Site, Oahu, Hawaii

cc: Edwin Matsuda, DNLR, Engineering Division – Project Engineer
Ben Realica, Earth Tech – Project Engineer
Project File

Telephone
808.523.8874
Facsimile
808.523.8950

EarthTech
A Tyco International Ltd. Company

March 16, 2005

TO: **Michelle Mason**
FROM: **Nancy Heinrich, OEQC (ph: 586-4185)**

Hi Michelle, Your distribution lists look good, except for the public library copy of the DEA for Puunui – you have Pearl City Library listed, should be Liliha Library.

For future ref, here is the Neighborhood Commission website, where you can find all kinds of useful information about the neighborhood boards, including mailing addresses of chairs and their meeting schedules. **http://www.honolulu.gov/nco/** the site's v. well organized.

If you send the DEA copy c/o the Commission office, it will be delivered at the next regularly scheduled meeting, which may not give the board enough time to review and comment by the deadline. Therefore, I recommend sending the EA directly to the chair. I went ahead and looked up the chairs and their addresses for you.

Puunui (Liliha/Kapalama NB #14):

Sesnita Moepono *(Chair)*
1703 Skyline Drive 96817
(R) 595-2959 (B) 595-3137
email: **naloio2000@yahoo.com**

Pacific Palisades (PC NB #21):

Albert K. Fukushima *(Chair)*
1841 Palamoi Street 96782
(R) 455-7753 (B) 531-4252x18
(F) 526-2476
email: **fukushima005@hawaii.rr.com**

Call or email **nheinri@mail.health.state.hi.us** if you have any questions.

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

March 17, 2005

Sesnita Moepono – Chair
Puunui/Liliha NB #14
1703 Skyline Drive
Honolulu, Hawaii 96817

Subject: **Submittal of Draft Environmental Assessments (EA) for Rockfall Protection at the Old Puunui Quarry Site on Oahu, Hawaii**

Dear Ms. Moepono:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry Site on Oahu, Hawaii. Enclosed please find the associated draft EA for rockfall protection measures at this site, which is located within your neighborhood board.

The public comment review period officially starts on March 23, 2005 when the notice of the EA is published in the State of Hawaii, Office of Environmental Quality Control *Environmental Notice*. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Comments should be sent to:

Ms. Michelle Mason
Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813
Fax: (808) 523-8950
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

Michelle Mason

Michelle Mason
Task Manager

Enclosures:
Draft Environmental Assessment for Rockfall Protection for the Old Puunui Quarry Site, Oahu, Hawaii

cc: Edwin Matsuda, DNLR, Engineering Division – Project Engineer
Ben Realica, Earth Tech – Project Engineer
Project File

Telephone 808.523.8874
Facsimile 808.523.8950

EarthTech
A Tyco International Ltd. Company

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
EMD / CWB

03098PJS.05

March 23, 2005

Ms. Michelle Mason
Task Manager
Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813

Dear Ms. Mason:

Subject: **Draft Environmental Assessments (EAs) for Rockfall Protection at the Old Puunui Quarry Site and the Komo Mai Drive Site on Oahu, Hawaii**

The Department of Health, Clean Water Branch (CWB), has reviewed the two (2) subject EAs, dated March 2005, regarding the proposed construction of rockfall mitigation measures and localized demolition of boulders and removal of loose rock at the Old Puunui Quarry Site and the Komo Mai Drive Site. Please note that the calculation of the disturbed areas of the construction activities should also include the areas used for the construction staging, areas used for the storage of materials, and the areas disturbed by construction equipment (i.e., bulldozers, cranes, etc.).

The surface water near the Old Puunui Quarry Site appears to be a tributary to Waolani Stream, which is classified a Class 2, Inland Water (Hawaii Administrative Rules (HAR), Section 11-54-3(b)(2)). The surface water near the Komo Mai Drive Site appears to be Waimano Stream, which is also classified as a Class 2, Inland Water.

The CWB has the following comments:

1. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. **An NPDES permit is required before the commencement of the construction activities.**

   The CWB requires that a Notice of Intent (NOI) to be covered by an NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at
   http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

2. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e., NPDES general permits do not cover discharges into Class 1 or Class AA State waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html.

3. The HAR, Section 11-55-38, also requires the applicant to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. The CWB acknowledges that EarthTech received a letter from SHPD, dated November 8, 2002, regarding the subject projects. Please include a copy of the most recent SHPD determination with the CWB-NOI Form C (Section 10.f. - Existing or Pending Permits, Licenses, or Approvals).

If you have any questions, please contact Ms. Joanna L. Seto of the Engineering Section, CWB, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF
Clean Water Branch

JLS:cu

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

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

March 31, 2005

Eric Hirano
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Hirano:

Subject: Draft Environmental Assessment (EA), **Rockfall Protection, Komo Mai Drive** and draft EA, **Rockfall Protection, Old Puunui Quarry**

We have the following comments:

Cultural impacts assessment:

The discussion in these EAs deals only with historic and archeological resources. Act 50 mandates an assessment of impacts to current cultural practices by the proposed project. Include the assessment in your final EAs.

For assistance in the preparation refer to our *Guidelines for Assessing Cultural Impacts.* Go to our website at *http://www.state.hi.us/health.oeqc/guidance/index.html* or contact our office for a paper copy. You will also find the text of Act 50 linked to this section of our homepage.

Significance criteria: The fourth criterion was updated in 2000 by Act 50 to read: "Substantially affects the economic welfare, social welfare, *and cultural practices* of the community or State;" In sections 5.1 of your two final EAs modify your analysis of the project for this criterion.

If you have any questions, call Nancy Heinrich at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

c: Michelle Mason, Earth Tech

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF:OCCL:TM

FILE NO. OA-3228

Acceptance Date: March 30, 2005
180-day Exp. Date: September 26, 2005

APR - 5 2005

Mr. Benjamin Realica, Project Engineer
Earth Tech, Inc.
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Realica:

NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL DETERMINATION
Conservation District Use Application (CDUA) File No.OA-3228
(BOARD Permit)

This acknowledges the receipt and acceptance for the processing of your CDUA OA-3228 for rock fall mitigation located at the Old Pu'unui Quarry, Nuuanu, Honolulu, island of Oahu, TMK: (1) 1-8-026:006. According to the applicant, the project area occupies approximately 2.37 acres on a very steep mountain slope bound at the top by residences along Alewa Drive and at the bottom by Rooke Avenue and adjacent to the Oahu Country Club. The subject parcel is owned by the State of Hawaii, and within the State Land Use Conservation District, Resource subzone.

According to the information provided by the applicant, the proposed use is to mitigate rock fall events by installing 20 Linear Feet (LF) of a 10 foot high rockfall protection fence. This protection fence shall be parallel to and upslope of a previously installed emergency rockfall protection fence in 2004, which is located at the property line boundary. Rock overhangs and outcroppings located above the former quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would be removed as necessary to reduce the potential for rockfall events. The purpose of the proposed rockfall mitigation is to reduce risks to public safety and property.

The applicant notes 71 different species of flora were recorded of which four were endemic species, ulei, ilima, *carex wahuensis*, and the potentially at risk ko'oko'olau. Two alien mammals were detected, the dog and mongoose and there were twelve different species of birds observed including the Pacific Golden-Plover, an indigenous migratory shorebird. No threatened or endangered species are known to inhabit the project site. No archaeological remains were observed during a reconnaissance survey of the area.

After reviewing the application, we find that:

1. The proposed use is an identified land use in the Resource subzone of the Conservation District, pursuant to § 13-5-23, Hawaii Administrative Rules (HAR), L-3, EROSION CONTROL, D-1, "Erosion control, flood control, and other hazard prevention devices or facilities. Please be advised, however, that this finding does not constitute approval of the proposal;

2. Pursuant to § 13-5-40 of the Hawaii Administrative Rules, a Public Hearing will not be required;

3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, a finding of no significant impact to the environment (FONSI) is anticipated for the proposed project.

4. Staff believes the proposed project is outside of the Special Management Area (SMA).

The proposed action states, "Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would then be removed as necessary to reduce the potential for rockfall." Please provide additional information regarding how rocks will be demolished or stabilized and how loose rocks would be removed.

In addition, the Department notes the applicant should consult with the adjacent landowners with regards to the proposed project.

Your cooperation and early response to these matters will be appreciated, and will help facilitate the processing of your application. Your CDUA will be placed on the agenda of the BLNR for their consideration after all reviews and evaluations of the proposal have been made.

Mr. Benjamin Realica, Project Engineer
Earth Tech, Inc.

File No: OA-3228

Should you have any questions, please contact Tiger Mills of our Office of Conservation and Coastal Land Division at 587-0382.

Aloha,

PETER T. YOUNG, Chairperson
Board of Land and Natural Resources

cc: Oahu Board Member
DOH/OHA
ODLO/DOFAW/HPD
OEQC
City and County of Honolulu. Department of Planning & Permitting
Liliha Public Library
Kalihi-Palama Public Library
Liliha/Puunui/Aewa/Kamehameha Heights Neighborhood Board

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

April 11, 2005

Subject: **Draft Environmental Assessment (EA) for Rockfall Protection at the Old Puunui Quarry Site on Oahu, Hawaii**

Dear Land Owner:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry Site located in the Nuuanu area (see attached figure).

An EA has been prepared which analyzes the potential environmental consequences of the proposed action and alternatives to determine if there would be significant short-term, long-term, and/or cumulative impacts on the human, natural, or historic environments.

The public comment review period on the EA began on March 23, 2005 when the notice of the EA was published in the State of Hawaii, Office of Environmental Quality Control *Environmental Notice*. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Copies of the EA are available for review at the Liliha Public Library (1515 Liliha Street) and the Hawaii State Library (478 South King Street). Comments and requests for copies of the EA should be sent to:

Ms. Michelle Mason
Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813
Fax: (808) 523-8950
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

Michelle Mason

Michelle Mason
Task Manager

Enclosures:
Figure 1: Location Map

cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer
Tiger Mills, DLNR, Office of Conservation and Costal Lands
Ben Realica, Earth Tech – Project Engineer

Telephone 808.523.8874
Facsimile 808.523.8950

EarthTech
A Tyco International Ltd. Company

Frerich, Dan

From: Mason, Michelle
Sent: Tuesday, April 12, 2005 12:37 PM
To: 'info@oha.org'
Cc: Frerich, Dan
Subject: Current Traditional Cultural Uses and Practitioners

Dear OHA-

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech., Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uanu and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to, hunting, fishing, gathering and religious services.

We are hoping you can assist us with identifying local cultural practitioners in these two project areas. Any information would be greatly appreciated.

Mahalo,

Michelle Mason
Earth Tech - Honolulu
Task Manager


Puunui-Fig1-1.pdf

KomoMai-Fig1-1.pdf

Frerich, Dan

From: Frerich, Dan
Sent: Tuesday, April 12, 2005 12:42 PM
To: 'kahea-alliance@hawaii.rr.com'
Cc: Mason, Michelle
Subject: Current Traditional Cultural Uses and Practitioners

Dear KAHEA-

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech., Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uanu and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to, hunting, fishing, gathering and religious services.

We are hoping you can assist us with identifying local cultural practitioners in these two project areas. Any information would be greatly appreciated.

Mahalo,

Dan Frerich
Earth Tech - Honolulu
Environmental Scientist


KomoMai-Fig1-1.pdf

Puunui-Fig1-1.pdf

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

April 18, 2005

Denis Lau, P.E. – Chief
Clean Water Branch
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Subject: **Draft Environmental Assessments (EA) for Rockfall Protection at the Old Puunui Quarry Site Komo Mai Drive Site on Oahu, Hawaii**

Dear Mr. Lau:

Earth Tech, Inc. has reviewed your letter dated March 23, 2005 regarding the Clean Water Branch (CWB) review of the two (2) subject EAs. Following additional coordination with our project engineer, we have determined that **less than** one (1) acre of total land area will be disturbed during construction activities at each of the project sites. This land area includes "areas used for the construction staging, areas used for the storage of materials, and the areas disturbed by construction equipment (i.e. bulldozers, cranes, etc.)".

It is our understanding that if less than one (1) acre of total land area is disturbed during construction activities, a National Pollutant Discharge Elimination System (NPDES) general permit is not required.

Additionally, we concur with your determination that the surface waters near the project sites are classified as Class 2, Inland Waters. However, no wastewater discharges from the project sites are anticipated during construction activities. With no discharges anticipated, it is our understanding that an individual NPDES permit is not required.

Following review of your comments, we have determined that no NPDES permits are required for the subject projects. If however, it is determined that more than one (1) acre of land will be disturbed, or that wastewater will be discharged for the project sites, appropriate coordination with the CWB and permit acquisition will be conducted.

We appreciate the CWB review of the subject EAs and look forward to coordinating with your department on future projects. If you should have any questions or require additional information, please contact Michelle Mason at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

Michelle Mason

Michelle Mason
Task Manager

Enclosures:

cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer
Ben Realica, Earth Tech – Project Engineer
Project File

EarthTech
A Tyco International Ltd. Company

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

April 19, 2005

Sesnita Moepono – Chair
Puunui/Liliha NB #14
1703 Skyline Drive
Honolulu, Hawaii 96817

Subject: **Current Traditional Cultural Uses in the Nu'uanu Ahupua'a, Oahu, Hawaii**

Dear Ms. Moepono:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry Site on Oahu, Hawaii (see attached figure). The Old Puunui Quarry Site lies within the Nu'uanu Ahupua'a, Honolulu District.

In compliance with Act 50 of HRS 343, Earth Tech., Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uanu Ahupua'a with regards to cultural uses in the project area. Cultural uses include but are not limited to; hunting, fishing, gathering and religious services. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uanu Ahupua'a or provide statements with regards to cultural uses in the project area, please contact:

Ms. Michelle Mason, Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813
Fax: (808) 523-8950
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

Michelle Mason

Michelle Mason
Task Manager

Enclosures:

Figure 1: Location Map, Old Puunui Quarry Site

cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer

EarthTech
A Tyco International Ltd. Company

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

April 19, 2005

University of Hawaii at Manoa
Center for Hawaiian Studies
Hawaiian Studies Building Room 209A
2645 Dole St
Honolulu HI 96822

Subject: **Current Traditional Cultural Uses in the Nu'uanu and Waimano Ahupua'a, Oahu, Hawaii**

Dear UH Center for Hawaiian Studies:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech., Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uanu and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to; hunting, fishing, gathering and religious services. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uanu and Waimano Ahupua'a or provide statements, please contact:

Ms. Michelle Mason, Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813
Fax: (808) 523-8950
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

Michelle Mason

Michelle Mason
Task Manager

Enclosures:
Figure 1: Location Map, Old Puunui Quarry Site
Figure 2: Location Map, Komo Mai Drive Site

cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer

Telephone
808.523.8874
Facsimile
808.523.8950

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

April 19, 2005

Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 1250
Honolulu, Hawaii 96813

Subject: **Current Traditional Cultural Uses in the Nu'uanu and Waimano Ahupua'a, Oahu, Hawaii**

Dear Office of Hawaiian Affairs:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

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EarthTech
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841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

April 19, 2005

KAHEA
P.O. Box 27112
Honolulu, Hawai'i 96827-0112

Subject: **Current Traditional Cultural Uses in the Nu'uanu and Waimano Ahupua'a, Oahu, Hawaii**

Dear KAHEA:

Telephone
808.523.8874
Facsimile
808.523.8950

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

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841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
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April 19, 2005

Department of Hawaiian Homelands
P.O. Box 1879
Honolulu, Hawaii 96805

Subject: **Current Traditional Cultural Uses in the Nu'uanu and Waimano Ahupua'a, Oahu, Hawaii**

Dear Department of Hawaiian Homelands:

Telephone
808.523.8874
Facsimile
808.523.8950

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

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Task Manager

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cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer

EarthTech
A Tyco International Ltd. Company

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

April 19, 2005

Mary Carney
State Historic Preservation Division
Kakuhihewa Building
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Subject: **Current Traditional Cultural Uses in the Nu'uanu and Waimano Ahupua'a, Oahu, Hawaii**

Dear Ms. Carney:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

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EARTH TECH, INC.

Michelle Mason

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Task Manager

Enclosures:
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Figure 2: Location Map, Komo Mai Drive Site

cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer

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841 Bishop Street, Suite 500, Honolulu, Hawaii 96813
Telephone 808.523.8874 Facsimile 808.523.8950

April 20, 2005

Haunani Bernardino
University of Hawaii, Hilo
Hawaiian Studies Division, Office K 233
200 W. Kawili St.
Hilo, HI 96720-4091

Subject: **Current Traditional Cultural Uses in the Nu'uanu and Waimano Ahupua'a, Oahu, Hawaii**

Dear Haunani Bernardino:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech., Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uanu and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to; hunting, fishing, gathering and religious services. We received your name from Puakea Nogelmeier who indicated you were a long-time resident of Liliha, and could be knowledgeable about neighborhood practitioners. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uanu and Waimano Ahupua'a or provide statements with regards to cultural uses in the project areas, please contact:

Ms. Michelle Mason, Earth Tech
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813
Fax: (808) 523-8950
Email: Michelle.Mason@earthtech.com

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EARTH TECH, INC.

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Figure 1: Location Map, Old Puunui Quarry Site
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Appendix B
Photo Log

planted ornamentals. These include various succulents and cacti that appear to have been purposely planted around the quarry. One area upslope from the quarry includes a curious assemblage on a rocky surface within a grove of strawberry guava of asparagus "fern" (*Asparagus sprengeri*) and Moses-in-the-boat (*Tradescantia spathacea*), plants mostly seen in landscaped gardens, not persisting in this fashion well above present yards. It would certainly seem that this lower area was in fact planted at one time with these plants that are now persisting or sparingly naturalized. An unidentified scrambling vine is also very abundant at (mostly just off) the bottom part of the property. This species is characterized by three-part compound leaves and small, white flowers with four sepals and four petals all identical.

Table 1. Listing of plants (flora) at the Old Puunui Quarry property in Nuuanu Valley, O`ahu, Hawai`i

Species	Common name	Status	Abundance AREA	Abundance CODE	Notes
	FERNS and FERN ALLIES				
BLECHNACEAE					
Blechnum appendiculatum Willd.	---	Nat.	Su	R	
NEPHROLEPIDACEAE					
Nephrolepis multiflora (Roxburgh) Jarrett ex Morton	common sword fern	Nat.	Su	U	
POLYPODIACEAE					
Phlebodium aureum (L.) J. Sm.	hare's foot fern	Nat.	Sl	U	
Phymatosorus grossus (Langsd. & Fisch)	*laua`e*	Nat.	Sl	O	
PSILOTACEAE					
Psilotum nudum (L.) P. Beauv.	*moa*	**Ind.**	Su	U	
	FLOWERING PLANTS				
	DICOTYLEDONE				
ACANTHACEAE					
Asystasia gangetica (L.) T. Anderson	Chinese violet	Nat.	Sl	AA	
Justicia betonica L.	white shrimp plant	Nat.	Sl	C	
ANACARDIACEAE					
Schinus terebinthifolius Raddi	Christmasberry	Nat.	Sl	R	
ARALIACEAE					
Schefflera actinophylla (Endl.) Harms.	octopus tree	Nat.	Sl	R	
ASCLEPIADACEAE					
Stapelia gigantea N.E. Brown	giant toad plant	Nat.	Su	U	(2)
ASTERACEAE					
Bidens asymmetrica (H. Lev.) Sherff	---	**End.**	Su	O	
Conyza bonariensis (L.) Cronq.	hairy horseweed	Nat.	Su	R	(2)
Pluchea carolinensis Jacq.) G Don	sourbush	Nat.	Su	R	

Table 1 (continued).

Species	Common name	Status	Abundance AREA	Abundance CODE	Notes
PHYTOLACCACEAE					
Rivina humilis L.	coral berry	Nat.	Sl	U	
PASSIFLORACEAE					
Passiflora edulis Sims	passion fruit vine	Nat.	Su	R	(1)
Passiflora suberosa L.	*huehue haole*	Nat.	Sl,u	U	
PORTULACAEAE					
Portulaca oleracea L.	pigweed	Nat.	Su	R	(1)
PROTEACEAE					
Grevillea robusta A. Cunn. Ex R. Br.	silk oak	Nat.	Su	R	
ROSACEAE					
Osteomeles anthyllidifolia (Sm.) Lindl.	*`ulei*	**Ind.**	Su	C	
RUTACEAE					
Murraya paniculata (L.) Jack	mock orange	Orn.	Sl	R	
SOLANACEAE					
Solanum seaforthianum Andr.	---	Nat.	Sl	U	
STERCULIACEAE					
Waltheria indica L.	*`uhaloa*	Nat..	Su	U	
THYMELAEACEAE					
Wikstroemia oahuensis (A. Gray) Rock	*`akia*	**End.**	Su	U	
ULMACEAE					
Trema orientalis (L.) Blume	gunpowder tree	Nat	Sl	R	
VERBENACEAE					
Lantana camara L.	lantana	Nat	Su	O	
Stachytarpheta cayennensis (Rich.) Vahl	---	Nat.	Sl	R	
MONOCOTYLEDONES					
AGAVACEAE					
Agave sisalana Perrine	Sisal	Nat.	Sl	U	
ALOEACEAE					
Aloe sp.	aloë	Orn..	Qu	C	
ARACEAE					
Philodendron bipinnatifidum Schott	split-leaf philodendron	Orn.	Qu	U	
ARECACEA					
Cocos nucifera L.	coconut	**Pol.**	Sl	R	
Phoenix sp.	date palm	Orn.	Sl	R	
ASPARAGACEAE					
Asparagus sprengeri Regel	asparagus "fern"	Orn.	Sl	C	
BROMELIACEAE					
Neoregelia carolinae (Beer) L.B. Smith	---	Orn.	Su	U	(2)

Table 1 (continued).

Species	Common name	Status	Abundance AREA	Abundance CODE	Notes
COMMELINACEAE					
?Callisia sp.	---	?Orn.	Sl	U	
Commelina diffusa N. L. Burm.	day-flower	Nat.	Sl,u	O	(2)
Tradescantia spathacea Sw.	Moses-in-a-boat	Orn.	Sl	Oc	
CYPERACEAE					
Carex wahuensis C.A. Mey	---	**End.**	Sl.	U	
DRACAENACEAE					
Sansevieria trifasciata Prain	bowstring hemp	Orn.	Su	U	(2)
POACEAE (GRAMINEAE)					
Chloris radiata (L.) Sw.	radiate fingergrass	Nat.	Ru	U	
Digitaria insularis (L.) Mez ex Ekman	sourgrass	Nat.	Sl,u	O	
Melinus minutiflora P. Beauv.	molasses grass	Nat.	Su	O	
Melinus repens (Willd.) Zizka	Natal redtop	Nat.	Sl	U	
Panicum maximum Jacq.	Guinea grass	Nat.	Sl	AA	
Setaria gracilis Kunth	yellow foxtail	Nat.	Su	R	
indet.	---	?	Su	R	

Legend to Table 1

Status = distributional status
- **end.** = endemic; native to Hawaii and found naturally nowhere else.
- **ind.** = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
- nat. = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
- orn. = exotic, ornamental or cultivated; plant not naturalized (not well-established outside of cultivation).
- **pol.** = Polynesian introduction before 1778.

Site –
- Qu = Quarry; sheer basalt walls, interior tallus with soil
- Sl = lower valley margin slope; steep, mixed soil and rock outcrop
- Su = upper valley margin slope; steep, mixed soil and rock outcrop

Abundance = occurrence ratings for plants by area (defined as: SITE = Old pistol range and area south to parking lot, and comparable distances east and west of site surveyed on January 6, 2003; AREA = along ridgeline north from above backstop to and just beyond power line, also surveyed on January 6.
- R – Rare - only one or two plants seen.
- U - Uncommon - several to a dozen plants observed.
- O - Occasional - found regularly, but not abundant anywhere.
- C - Common - considered an important part of the vegetation and observed numerous times.
- A - Abundant - found in large numbers; may be locally dominant.
- AA - Abundant - abundant and dominant; defining vegetation type.
- P – Present - noted just outside of study area; abundance not recorded.

Notes:
- (1) plant without flowers or fruit; identification uncertain.
- (2) although recorded from upper slope, distribution is related to house lots at the very top of the parcel..

In this biological survey, a total of 71 different species of plants were recorded as growing in the assessment area. Of these, seven species (9.9%) are recognized as botanical natives, four of which are endemics, that is, species found naturally only in the Hawaiian Islands. One other plant (*Cocos* or coconut) is considered a Polynesian introduction. Although the vast majority of species are alien plants that have become naturalized in this medium elevation environment near urban

Honolulu on leeward Oahu, the number and biomass of natives is moderately high in comparison with most lowland locations on Oahu. Fifteen percent (15%) of the species recorded are ornamentals that have escaped yards in the nearby neighborhoods or are persisting from plantings made in the past, although not presently regarded as truly naturalized.

Aside from the fact that natives like *`ulei* and *`ilima* are moderately common on the slopes, the presence of several endemics (notably *Bidens asymmetrica* and *Carex wahuensis*) is of interest, representing remnants of the vegetation that once predominated here and continues to hang on. Although not listed as threatened or endangered, *B. asymmetrica* is relatively rare and limited in its distribution to southeastern Oahu, and therefore a Hawaiian native plant potentially at risk (listed as "apparently secure" in Wagner et. al., 1999). *Carex wahuensis* is distributed more widely, occurring on all the main islands except Niihau and Kahoolawe (Wagner, Herbst, & Sohmer, 1990).

Vertebrate Survey ~ Two alien mammalian species were detected during the course of this survey. A number of barking dog (*Canis f. familiaris*) were heard barking from housing areas below the study site. Three small Indian mongoose (*Herpestes a. auropunctatus*) was seen in the lower section of the slope just above the quarry. All of the alien mammalian species recorded during this survey are deleterious to avian and floristic components of the remaining native ecosystems present on the Island.

A total of 85 individual birds of 12 different species, representing 8 separate families were recorded during the course of this survey (Table 2). All but one of the species detected are considered to be alien to the Hawaiian Islands. We recorded as incidental observations three Pacific Golden-Plover (*Pluvialis fulva*) flying over the site and defending winter foraging territories at the base of the hill. The Pacific Golden-Plover is an indigenous migratory shorebird species commonly encountered throughout the Hawaiian Islands between late July and the end of April each year. Avian diversity and densities were relatively low. During the point counts one species, Common Waxbill (*Estrilda a, astrild*) accounted for 22% of the total number of individual birds recorded. An average of 41.5 birds were detected per station count.

Discussion

None of the plants observed are listed or special in any respect that would require care to be taken in planning or conducting slope stabilization and rockfall mitigations on this property. No protected avian or mammalian species were recorded from within the study area, nor is the habitat that is present likely to support listed vertebrate species. It is highly unlikely that the stabilization of the hillside within the project area will have any impacts on protected avian or

mammalian species. It is likely that during the construction phase of the proposed action some individual alien birds and mammals may be temporarily disturbed, and elements of the vegetation destroyed. It is to be expected that following the completion of the construction phase of the project that any displaced birds and mammals will again resume use of the area and the alien vegetation will re-establish itself.

Table 2. Avian species detected at the project site.

Common Name	*Scientific Name*	*ST*	*RA*
PLOVERS & ALLIES - Charadriidae			
Pacific Golden-Plover	*Pluvialis fulva*	**IM**	3.00
PIGEONS & DOVES – Columbidae			
Rock Pigeon	*Columbia livia*	A	2.50
Spotted Dove	*Streptopelia chinensis*	A	6.00
Zebra Dove	*Geopelia striata.*	A	5.00
BULBULS – Pycnonotidae			
Red-vented Bulbul	*Pycnonotus cafer*	A	4.00
Red-whiskered Bulbul	*Pycnonotus jocosus*	A	3.50
SILVEREYES – Zosteropidae			
Japanese White-Eye	*Zosterops japonicus*	A	3.00
STARLINGS – Sturnidae			
Common Myna	*Acridotheres tristis*	A	2.50
SALTATORS, CARDINALS & ALLIES – Cardinalidae			
Northern Cardinal	*Cardinalis cardinalis*	A	2.00
CARDULINE FINCHES & ALLIES – Fringillidae			
House Finch	*Carpodacus mexicanus frontalis*	A	3.00
WAXBILLS & ALLIES – Estrildidae			
Common Waxbill	*Estrilda a. astrild*	A	9.00
Java Sparrow	*Padda oryzivora*	A	1.00

Key to Table 2.

ST Status
IM Indigenous migratory species
A Alien (i.e., introduced to Hawai'i by humans) species
RA Relative Abundance: Number of birds detected divided by the number of VCP count stations (2)

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_____. 2000. Forty-second supplement to the American Ornithologist's Union *Check-list of North American Birds.* Auk 117:847-858.

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_____, and D. R Herbst. 1999. *Supplement to the Manual of the flowering plants of Hawai'i*, pp. 1855-1918. *In:* Wagner, W.L., D.R. Herbst, and S.H. Sohmer, Manual of the flowering plants of Hawai'i. Revised edition. 2 vols. University of Hawaii Press and Bishop Museum Press, Honolulu.

_____, _____, and S. H. Sohmer 1990. *Manual of the Flowering Plants of Hawai'i.* University of Hawaii Press, Honolulu, Hawaii 1854 pp.

Appendix D
Archaeological Resource Survey Report

Pacific
Consulting
Services, Inc.

720 Iwilei Road, Suite 424 • Honolulu, HI 96817
Phone (808) 546-5557 • Fax (808) 546-5557

January 31, 2005

Ms. Michelle Mason
Earth Tech, Inc.
841 Bishop Street, Suite 500
Honolulu, Hawaii 96813

Subject: Archaeological Reconnaissance Survey of TMK 1-8-26:6, Nu`uanu, Honolulu District, Island of O'ahu, Hawaii.

Dear Ms. Mason;

This letter report summarizes the archeological reconnaissance survey undertaken by Pacific Consulting Services Inc. (PCSI) on December 8, 2004. Earth Tech, Inc. subcontracted PCSI to conduct archaeological services to support upcoming rock-fall mitigation at the Old Puunui Quarry (TMK 1-8-26:6) project area in Nu'uanu Ahupua'a, Honolulu District, Island of O'ahu. Project personnel included Dennis Gosser, M.A., and Keola Nakamura, B.A. Four hours were spent in the field.

The project area (approximately 2.4 acres) is on the northern slope of central Nu'uanu Valley, below the Alewa Heights (Figure 1). The project area is bounded on the east by Oahu Country Club, on the north by private residences on Alewa Heights, and on the west and south by residences in Nu`uanu Valley.

Vegetation in the project area includes guava (*Psidium guajava)*, *haole koa* (*Leucaena glauca*), Christmas berry (*Schinus terebinthifolius*), coral berry (*Rivina humilis*), and grass. The terrain consists of heavily vegetated steep slopes as well as areas of bare basalt outcropping (often with high vertical facings) and boulders situated on a moderate to severe Southeast sloping ridge. The project area receives between 30 and 40 inches of rain annually, predominantly between November and April (Foote et al. 1972:49).

No previous archaeological studies have been conducted within the project area. However, within upper Nu'uanu Ahupua'a, more than 30 archaeological projects have been conducted and are summarized in Flood and Dixon (1993), Dixon et al. (1994), and Moore and Kennedy (1999). Several projects have been conducted at the historical Queen Emma's Summer Palace as well as the Royal Mausoleum. The remainder of projects were either conducted on parcels closer to the coast or southeast of Nu`uanu Stream.

The results of previous archaeological studies suggest that the predominant land use in the valley included irrigated agriculture along the stream bed, dry land agriculture on the steeper slopes, and residential structures on the

lower plains, and possibly habitation within caves and rock overhangs on the steeper slopes. Previous work also demonstrates that pre-Contact and post-Contact sites are present within the central and upper portions of the valley.

The current study was conducted by two team members spaced 10-15 meters apart transecting in an upslope/downslope fashion. Documentary photographs of the project taken as well as field notes. Global Positioning System (GPS) locations were not obtained due to vegetation and satellite availability. Ground visibility throughout the study area was generally poor due too dense under story growth. In order to observe as much of the surface as possible, the survey transects zigzagged across the slope. Special consideration was given to basalt outcrops where caves and overhangs might be present.

No archaeological remains were observed during the reconnaissance. Several areas of basalt cobble accumulations were determined to the natural result of rock fall rather than purposeful modifications. Although no archaeological features were observed during this project, there is a possibility that historic properties could be present below the ground surface. In the event that archaeological or human remains are inadvertently discovered during subsequent phases of the rock fall mitigation, it is required that the State Historical Preservation Division (SHPD) be notified. Furthermore, it is recommended that a qualified archaeologist be retained in the event that historic properties, or suspected historic properties, are encountered during the rock fall mitigation work.

If you have any questions or comments, please feel free to contact me at 546-5557, extension 205.

Sincerely,

Dennis C. Gosser
Senior Archaeologist

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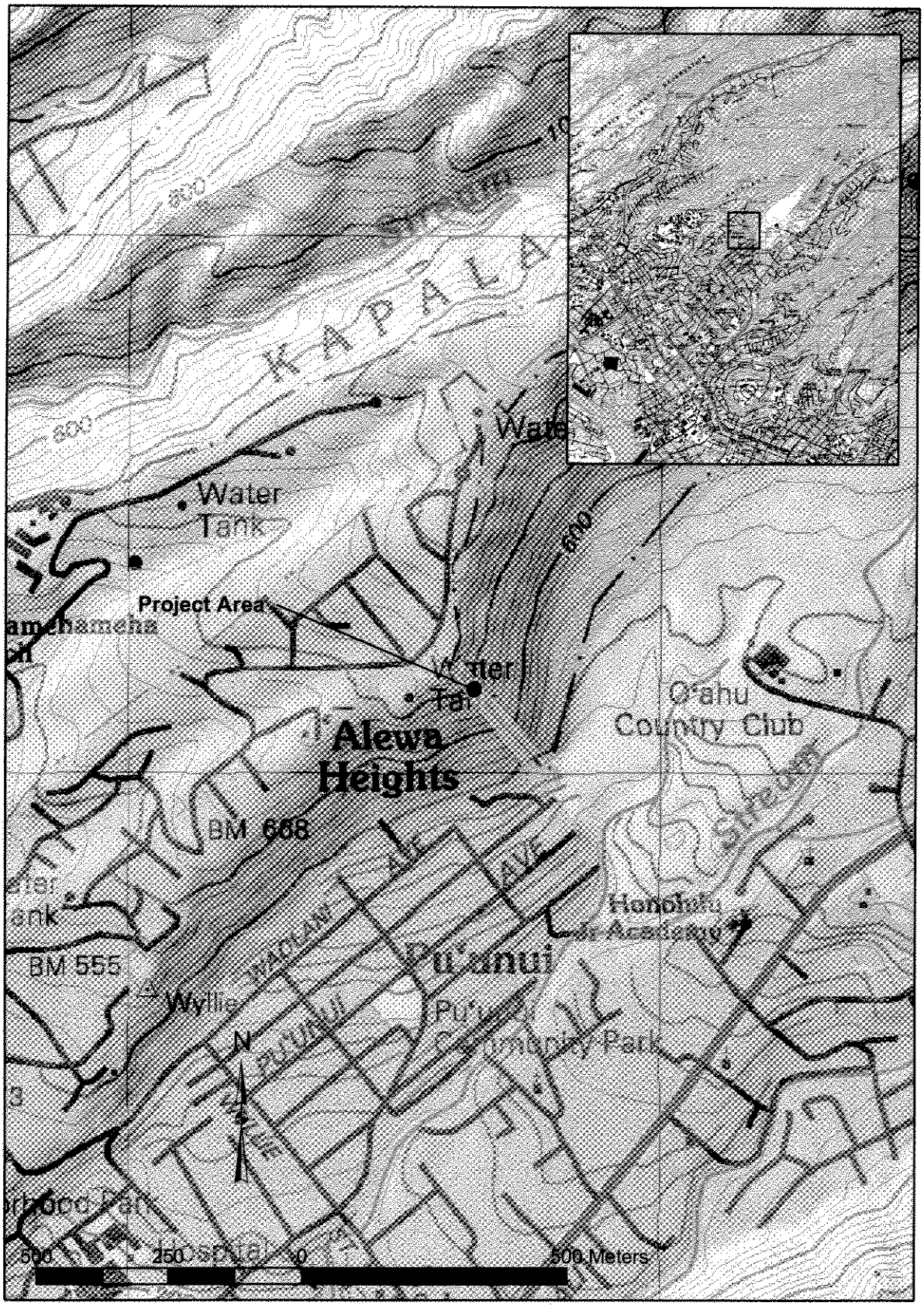

Figure 1. Alewa Heights and Nu`uanu Valley Showing Puunui Project Area. Inset: Downtown Honolulu.