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DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

HWY-DS 2.1834

AUG - 4 2006

TO: THE HONORABLE GENEVIEVE SALMONSON, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: BRENNON T. MORIOKA
DEPUTY DIRECTOR-HIGHWAYS

SUBJECT: FINAL ENVIRONMENTAL ASSESSSMENT
KALANIANAOLE HIGHWAY IMPROVEMENTS
RETAINING WALL AT MAKAPUU
FEDERAL AID PROJECT NO. NH-072-1(51)

The State Department of Transportation has reviewed the comments received during the 30-day public comment period, which began on May 23, 2006. The agency has determined that this project will not have significant environmental effects and has issued a Finding of No Significant Impact (FONSI). Please publish this notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and four copies of the final EA. Please call Henry Kennedy at 692-7550 if you have any questions.

Enclosures

2006-08-23-OA-FEA-KALANIANAOLE HWY IMPROVEMENTS AT MAKAPUU PT.

Final Environmental Assessment

Kalaniana'ole Highway Improvements at Makapu'u Point

Federal Aid Project No. NH-072-1 (51)

Prepared For

State of Hawai'i
Department of Transportation
Highways Division

Prepared By

Wilson Okamoto Corporation

Engineers & Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawai'i 96826

August 2006

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PREFACE

This Final Environmental Assessment (EA) was prepared pursuant to Chapter 343, Hawai'i Revised Statutes, and Title 11, Chapter 200, Hawai'i Administrative Rules (HAR), Department of Health. The State Department of Transportation, Highways Division (DOT-HWY) proposes additional interim measures to address remaining rockfall hazards along Kalaniana'ole Highway at Makapu'u Point. In conjunction with these improvements, DOT-HWY also proposes to address an existing road subsidence problem in the same vicinity and to provide other highway improvements.

Previously implemented rockfall protection measures in the vicinity of the project site were undertaken pursuant to an emergency proclamation issued by Governor Benjamin Cayetano on October 25, 2002 and, therefore, were exempt from the environmental review requirements of Chapter 343, HRS, according to Section 11-200-8(f), HAR.

This EA will be processed as a Finding of No Significant Impact (FONSI) by the DOT-HWY, determining that the impacts of the proposed project will not warrant the preparation of an environmental impact statement pursuant to Chapter 343, HRS.

The proposed project will also receive federal funding and therefore, subject to the requirements of 23CFR771 pertaining to Environmental Impact and related procedures. Since the proposed action is anticipated to be classified as a "categorical exclusion" pursuant to 23CFR771.117; however, a Federal Environmental Assessment is not required.

ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practices
BWS	Board of Water Supply
CDUP	Conservation District Use Permit
DBEDT	Department of Business, Economic Development, & Tourism
DHHL	Department of Hawaiian Home Lands
DOH	Department of Health
DOT	Department of Transportation
DOT-HWY	Department of Transportation-Highways Division
DPP	Department of Planning and Permitting
FIRM	Flood Insurance Rate Map
HECO	Hawaiian Electric Company
HAR	Hawaii Administrative Rules
HRS	Hawaii Revised Statutes
FONSI	Finding of No Significant Impact
LOS	Level-of-Service
LUO	Land Use Ordinance
MSL	Mean Sea Level
NPDES	National Pollutant Discharge Elimination System
PM	Particulate Matter
SCP	Sustainable Communities Plan
SMA	Special Management Area
TMK	Tax Map Key

SUMMARY

PROPOSING AGENCY:	Highway Division Department of Transportation State of Hawai'i 869 Punchbowl Street Honolulu, Hawai'i 96813
ACCEPTING AUTHORITY:	Department of Transportation State of Hawai'i 869 Punchbowl Street Honolulu, Hawai'i 96813
PROJECT LOCATION:	Makapu'u, O'ahu, Hawai'i
TAX MAP KEY:	4-1-14: portion 2 and 13
AREA:	Approximately 6.4 acres
EXISTING USE:	State highway and undeveloped conservation land
STATE LAND USE DESIGNATION:	Conservation
KO'OLAUPOKO SUSTAINABLE COMMUNITIES PLAN:	Important transportation linkage and scenic value
ZONING DESIGNATION:	P-1 Restricted Preservation District
PROPOSED ACTION:	The State Department of Transportation, Highway Division (DOT-HWY), proposes additional interim rockfall protection measures to further address an identified rockfall hazard along Kalaniana'ole Highway at Makapu'u Point. The DOT-HWY also proposes to address an existing road subsidence problem on Kalaniana'ole Highway in the immediate vicinity and to provide other highway improvements.
IMPACTS:	No significant long-term adverse impacts are anticipated to result from the proposed project.

In the short-term, construction activities requiring periodic nighttime road closures, as well as daytime lane closures will inconvenience area residents and businesses. Construction activities will also have short-term air quality and noise impacts on the surrounding area.

DETERMINATION: Finding of No Significant Impact (FONSI)

PERMITS AND APPROVALS THAT MAY BE REQUIRED:

Individual NPDES Permit
Special Management Area Permit
Grading Permits
Conservation District Use Permit

PARTIES CONSULTED DURING PRE-ASSESSMENT:

Federal
Federal Highway Administration
U.S. Fish and Wildlife Service
U.S. Natural Resources Conservation Service
U.S. Engineer District, Honolulu
U.S. Geological Survey

State
Department of Business, Economic Development and Tourism (DBEDT)
DBEDT, Office of Planning
DEBEDT, Land Use Commission
Department of Defense
Department of Hawaiian Home Lands
Department of Health (DOH)
DOH, Office of Environmental Quality Control
DOH, Environmental Management Division
Department of Land and Natural Resources (DLNR)
DLNR, Land Division
DLNR, Historic Preservation Division
Office of Hawaiian Affairs
University of Hawai'i, Environmental Studies Center

PARTIES CONSULTED DURING DRAFT EA COMMENT PERIOD:

City and County of Honolulu
Board of Water Supply
Department of Design and Construction
Department of Emergency Services
Department of Environmental Services
Department of Facility Maintenance
Department of Parks and Recreation
Department of Planning and Permitting
Department of Transportation Services
O'ahu Civil Defense Agency
Fire Department
Police Department

Organizations
Waimānalo Neighborhood Board No. 32
Hawai'i Kai Neighborhood Board no. 1
Sea Life Park Hawai'i
The Oceanic Institute

Federal
Federal Highway Administration
U.S. Fish and Wildlife Service
U.S. Natural Resources Conservation Service
U.S. Engineer District, Honolulu
U.S. Geological Survey

State
Department of Business, Economic Development and Tourism (DBEDT)
DBEDT, Office of Planning
DBEDT, Land Use Commission
Department of Defense
Department of Hawaiian Home Lands
Department of Health (DOH)
DOH, Office of Environmental Quality Control
DOH, Environmental Management Division
Department of Land and Natural Resources (DLNR)
DLNR, Land Division
DLNR, Historic Preservation Division
Office of Hawaiian Affairs
University of Hawai'i, Environmental Studies Center

City and County of Honolulu
Board of Water Supply
Department of Design and Construction
Department of Emergency Services
Department of Environmental Services
Department of Facility Maintenance
Department of Parks and Recreation
Department of Planning and Permitting
Department of Transportation Services
O'ahu Civil Defense Agency
Fire Department
Police Department

Organizations and Elected Officials
Waimānalo Neighborhood Board No. 32
Hawai'i Kai Neighborhood Board no. 1
Sea Life Park Hawai'i
The Oceanic Institute
Senator Fred Hemmings
Senator Sam Slom
Representative Thomas D. Waters
Representative William Stonebraker
Councilmember Barbara Marshall
Councilmember Charles Djou

1. INTRODUCTION

Based on an islandwide assessment of rockfall hazard locations, the State Department of Transportation, Highways Division (DOT-HWY) proposes additional interim rockfall protection measures to further address an identified rockfall hazard along Kalaniana'ole Highway at Makapu'u Point. Previously, the DOT-HWY installed rockfall netting over the rocky cliff face above Kalaniana'ole Highway. The proposed rockfall protection measures will extend protection along the adjoining hillside above Kalaniana'ole Highway toward Sea Life Park. The DOT-HWY also proposes to address an existing road subsidence problem on Kalaniana'ole Highway in the immediate vicinity and to provide other highway improvements.

1.1 Project Location

The project site is located on the eastern tip of O'ahu in the Waimānalo and Maunalua Districts, extending approximately 2,150 feet along Kalaniana'ole Highway between the Upper Makapu'u Lookout and the opposing driveway entrances to Makapu'u Beach Park and Sea Life Park, respectively (See Figure 1-1). The project site encompasses approximately 6.4 acres of land, including a construction parcel along the makai side of the highway. Most of the proposed improvements will be within the Kalaniana'ole Highway right-of-way, which includes the Lower Makapu'u Lookout. The portion of the proposed rockfall protection measures will extend mauka into a portion of Tax Map Key (TMK) parcel 4-1-14: 13 (See Figure 1-2). In addition, a 20-foot wide construction parcel along the makai side of the highway will include a portion of TMK 4-1-14:2, although the completed improvements will be within the existing right-of-way. The area makai of the highway, within TMK 4-1-14:2, is owned by the Department of Hawaiian Home Lands (DHHL) and under License Agreement with the City and County of Honolulu; while land mauka of the highway, within TMK 4-1-14:13, is owned by the State of Hawai'i, which includes a lease to The Oceanic Foundation and Attractions Hawai'i. The Department of Transportation has obtained a permit from DHHL for temporary use during the project as a construction parcel.

1.2 Project Need

The proposed rockfall protection measures, as well as the previously completed rockfall netting project, are considered interim measures until a permanent rockfall protection plan can be developed and implemented. The proposed interim rockfall protection measures include stabilizing the hillside by removing talus material and installing rockfall protection systems.

The previous rockfall netting project on the adjacent rocky hillside included removing rocky overhangs, removing loose rocks and installing PVC-plastic coated steel netting over the hillside (See Figure 1-3, Photos 1 & 2). That project was undertaken following Governor Cayetano's issuance of an Emergency Proclamation on October 25, 2002. The proclamation exempted the previous

project from environmental review pursuant to Chapter 343, HRS as well as from various land use and environmental permit requirements. The proposed additional rockfall protection measures were not regarded as emergency measures meaning to protect the public from an imminent hazard and, therefore, were excluded from the proclamation. Nevertheless, they are needed to address the remaining identified rockfall hazard in the area.

The road subsidence problem affects portions of Kalaniana'ole Highway between the Upper Makapu'u Lookout and the Lower Makapu'u Lookout (See Figure 1-3, Photos 3 & 4). The subsidence appears to have resulted from decades of increasing use by heavy vehicles. Along the section highway between the Upper Makapu'u Lookout and the upper end of the Lower Makapu'u Lookout, the subsidence is caused by heavy Waimānalo-bound vehicles rounding the curve in the makai lane. The weight of the vehicles on the right-side tires pushes the pavement outward. The pavement, in turn, pushes against an existing rock retaining wall, portions of which have been damaged as a result. This damage allows the pavement to shift outward, causing the roadway to subside under the weight of the tires.

In the section of roadway adjacent to the Lower Makapu'u Lookout, as well as the pull-out area of the Lookout, the pavement is not confined by a retaining wall. In this area, the pavement is cracking under the weight of vehicles due to an unstable sub-grade along the edge of the makai slope.

1.3 Existing and Surrounding Land Uses

Aside from Kalaniana'ole Highway, the project area is comprised of steep undeveloped land. Existing uses near the project site include Sea Life Park to the northwest, Makapu'u Beach Park to the north and Makapu'u Lighthouse to the northeast (See Figure 1-4). The City and County of Honolulu Board of Water Supply (BWS) maintains a tunnel facility containing a 36-inch transmission line above the highway.

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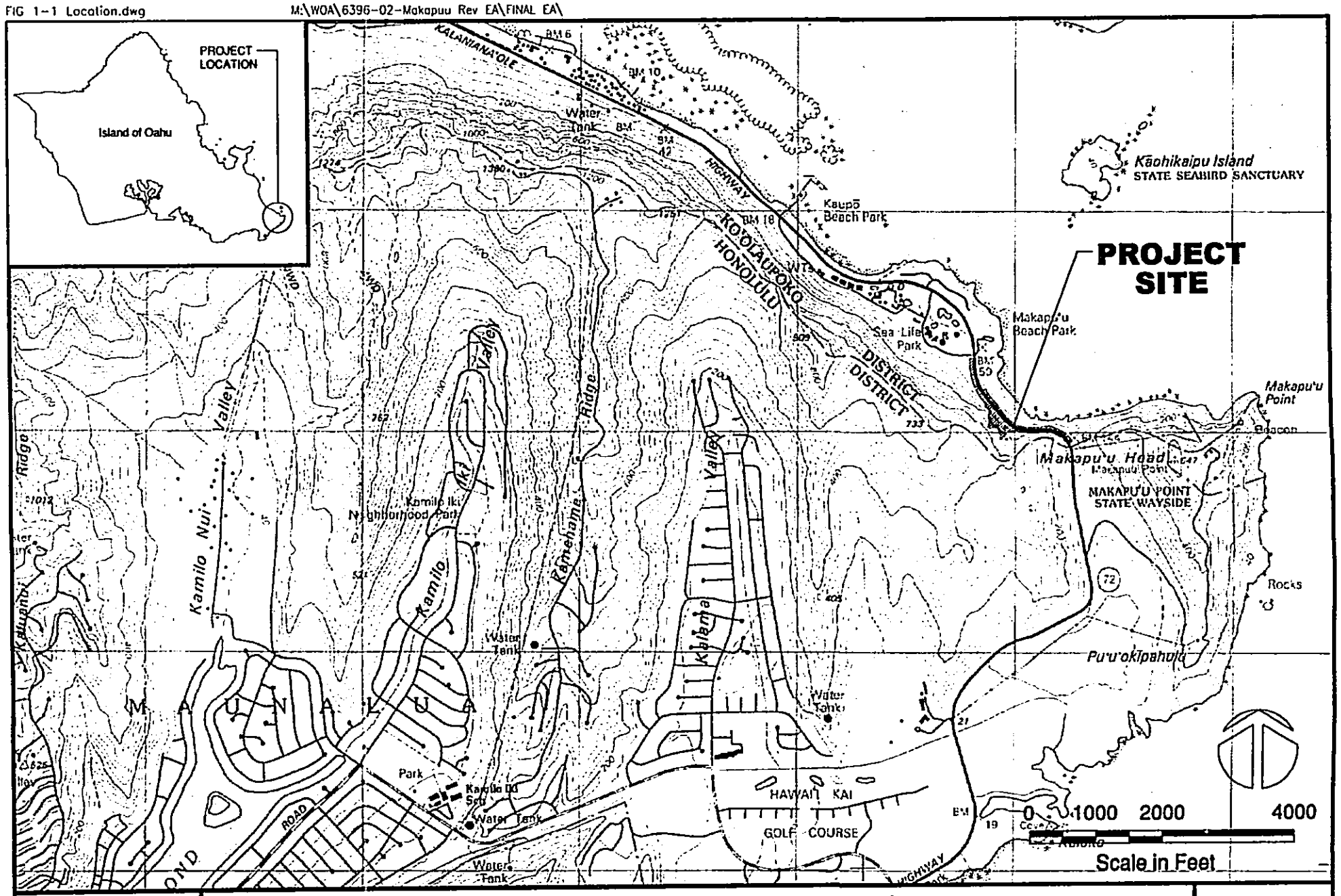
FIG 1-1 Location.dwg M:\WOA\6396-02-Makapuu Rev EA\FINAL EA\



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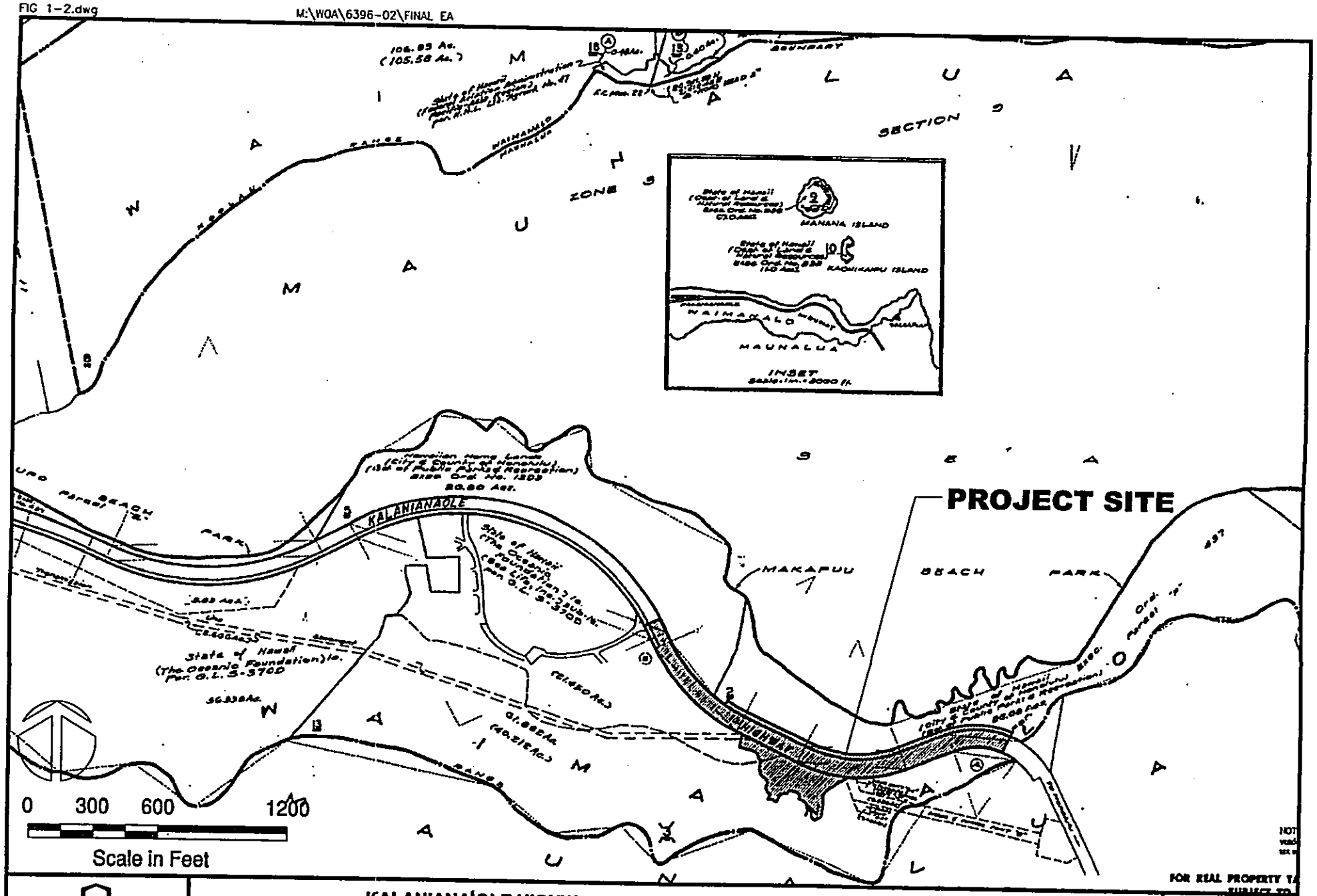
ENGINEERS • PLANNERS

KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

LOCATION MAP

FIGURE 1-1

FIG 1-2.dwg M:\WOA\6396-02\FINAL EA



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KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

TMK 4-1-14: PORTION 2 and 13

FIGURE 1-2

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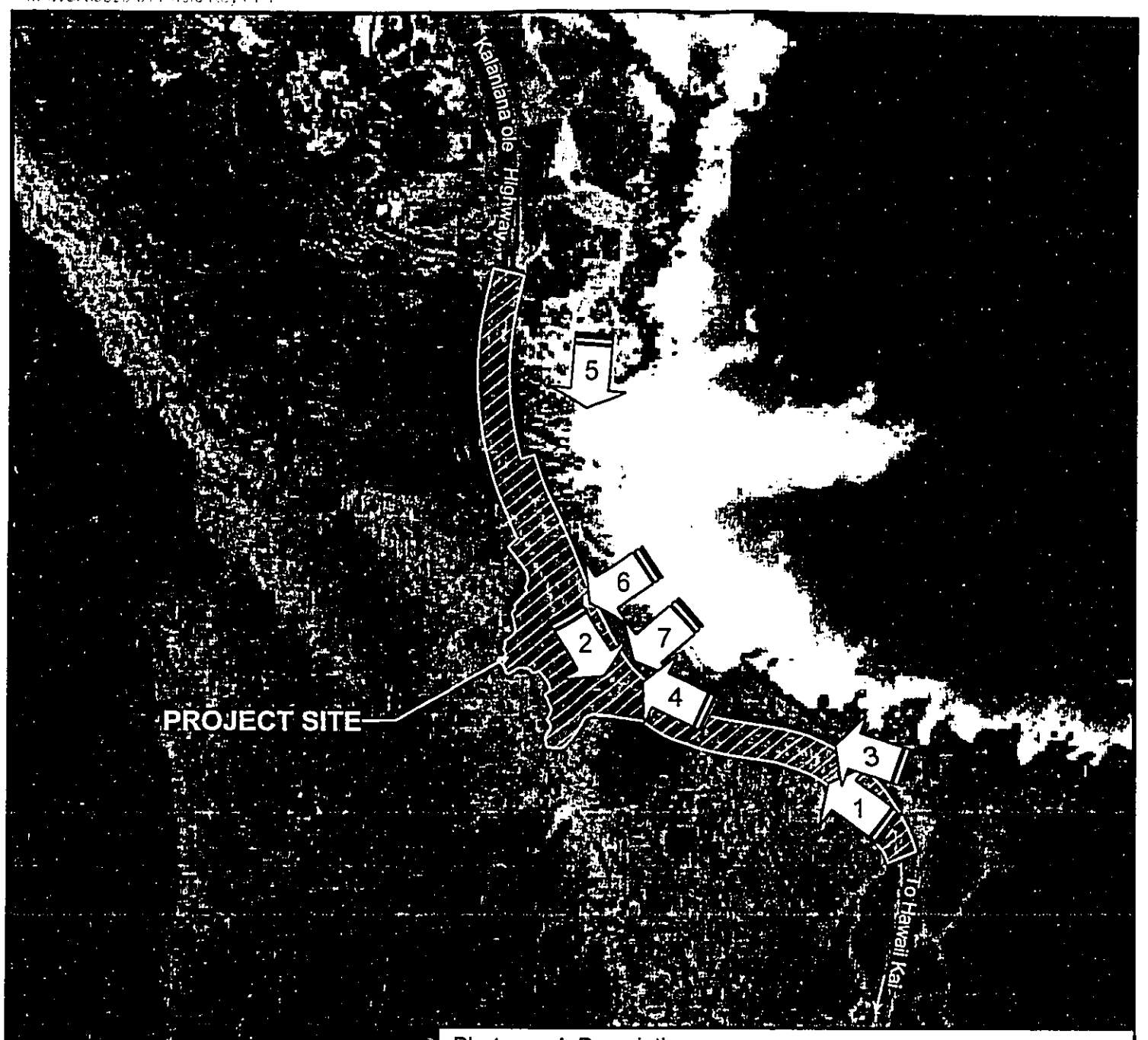

Photograph Description

Photograph 1 and 2:	Completed Rockfall Netting Project
Photograph 3 and 4:	Road Subsidence
Photograph 5:	Rockfall Protection Area
Photograph 6 and 7:	Talus Material

Not shown

Photograph 8 and 9:	Papakolea Rockfall Impact Barrier
Photograph 10 and 11:	Pu'u Kilo I'a Location

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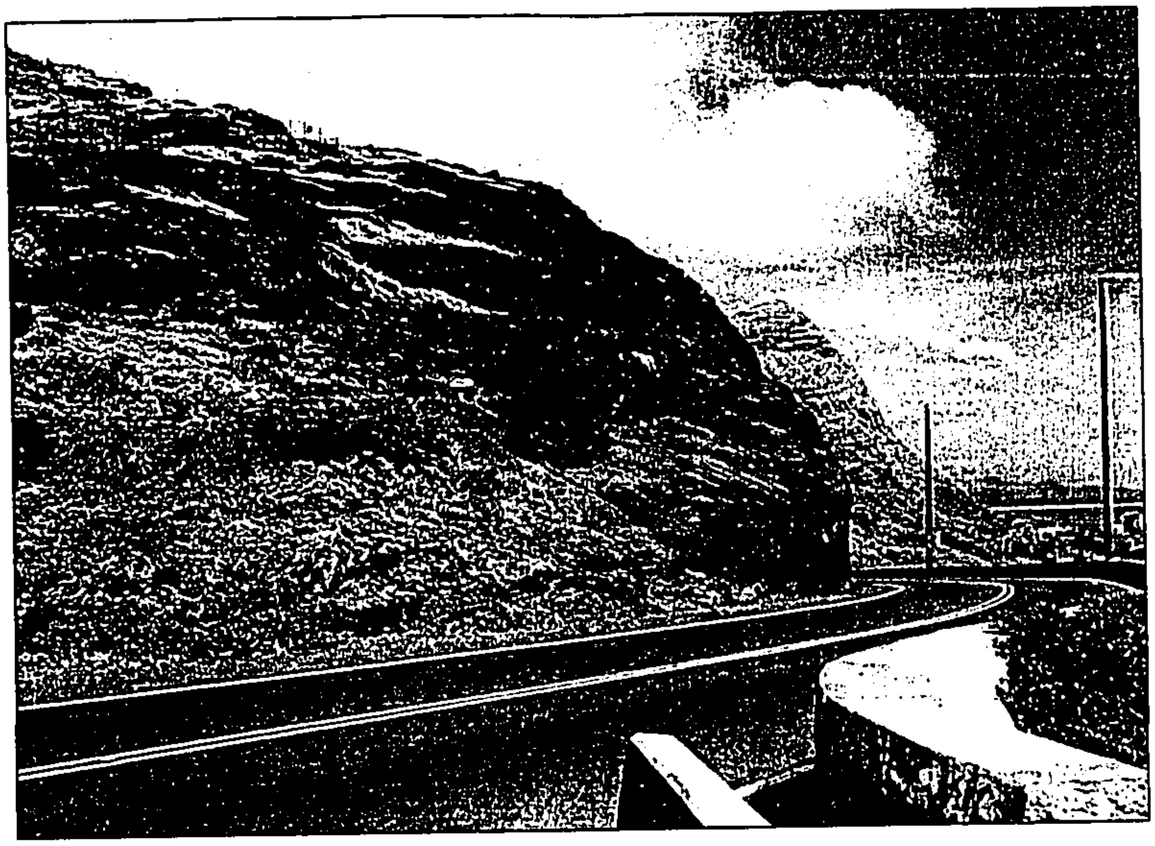
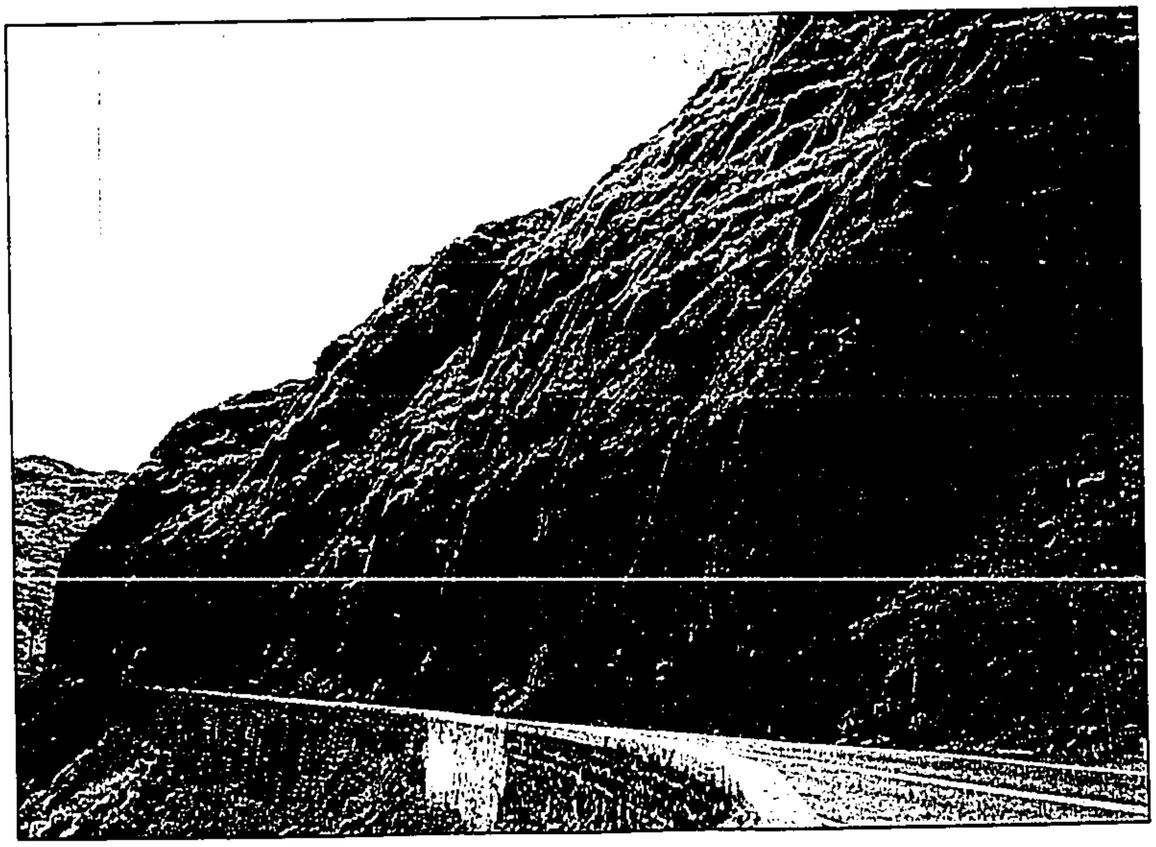
KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

PHOTOGRAPH KEY

Figure 1-3





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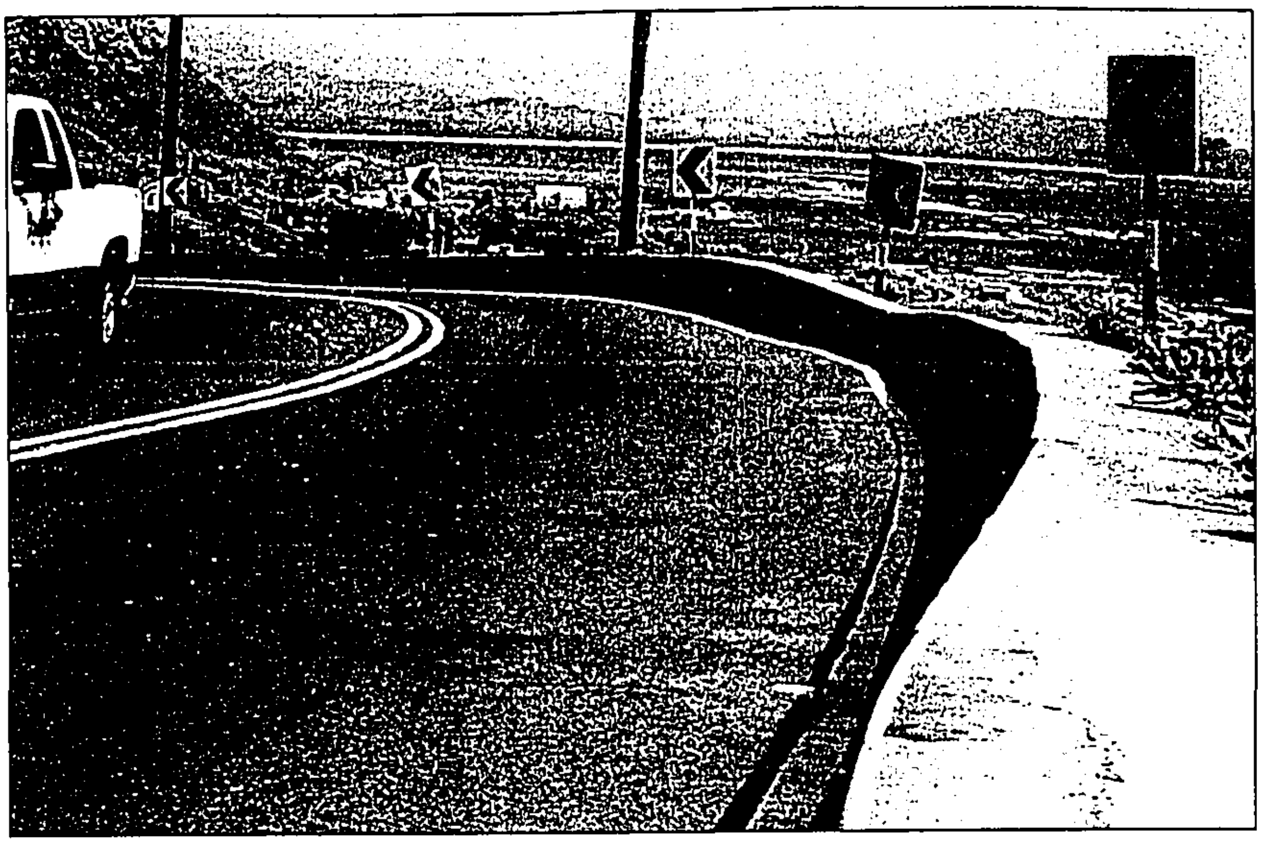
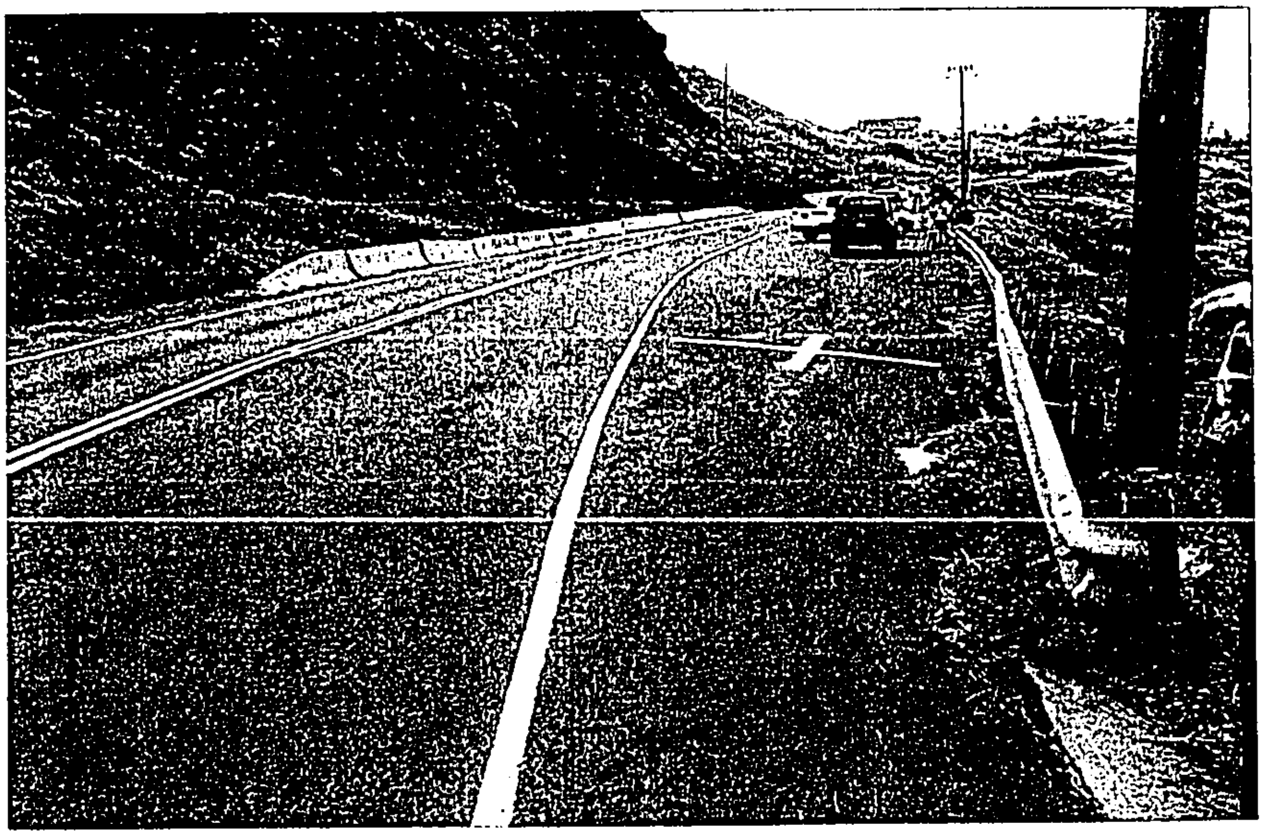
KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

COMPLETED ROCKFALL NETTING PROJECT

Photos 1 & 2





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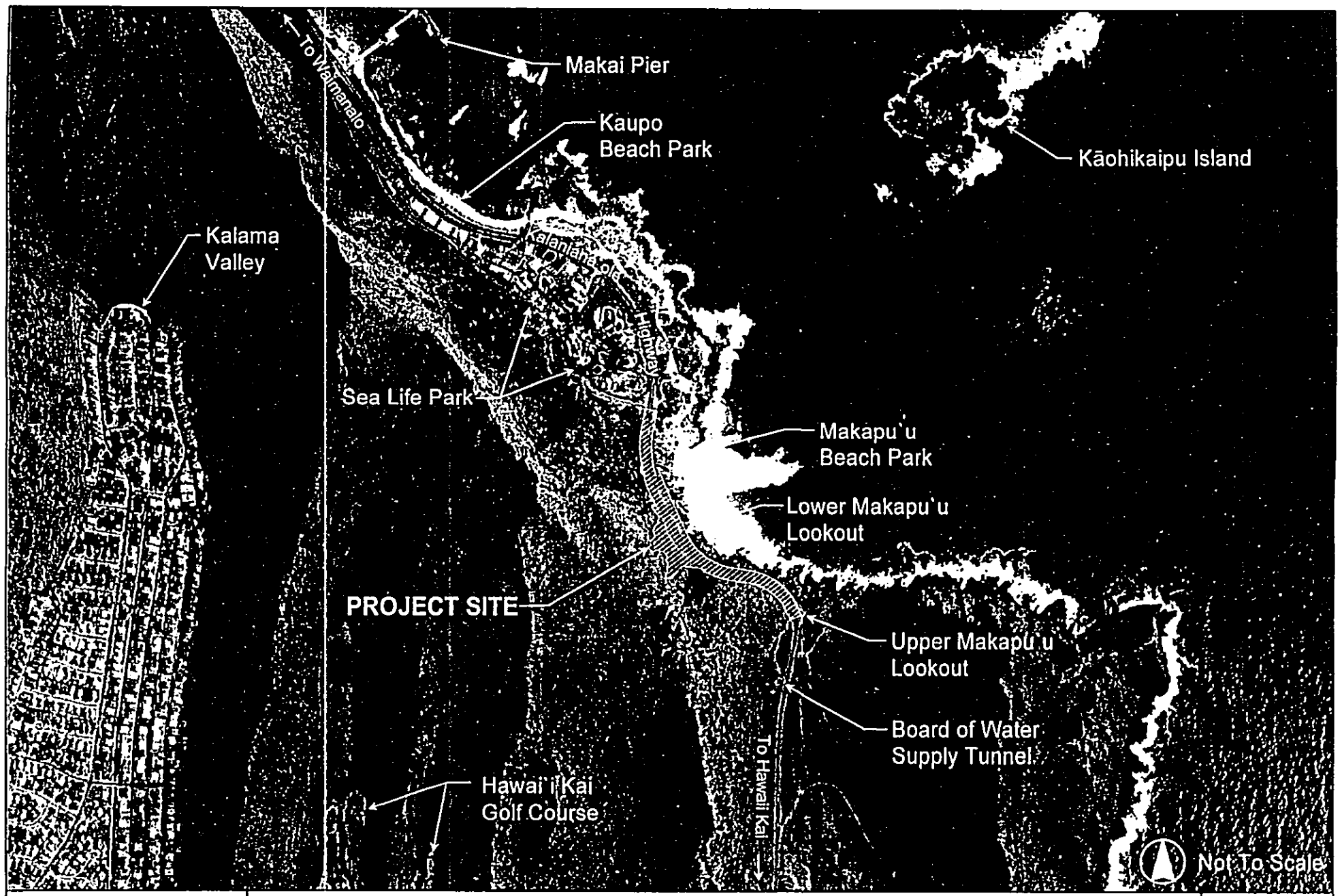
KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

ROAD SUBSIDENCE

Photos 3 & 4



WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT SURROUNDING USES MAP	FIGURE 1-4

2. PROJECT DESCRIPTION

The proposed project includes two major components, including rockfall protection measures on the mauka side of Kalaniana'ole Highway and road stabilization measures with other roadway improvements along the highway (See Figure 2-1).

2.1 Rockfall Protection

Rockfall protection measures are proposed for the hillside above Kalaniana'ole Highway, across of the Lower Makapu'u Lookout (See Photo Key Figure 1-3, Photo 5). In this area, the highway was built by cutting into a hillside comprised of talus deposits, which are eroded rocks and soils that have accumulated along the base of the steep pali. The deposits pose a rockfall hazard as they erode, exposing and releasing rocks and boulders that may roll onto the highway (See Photo Key Figure 1-3, Photos 6 &7). Extending above the talus is the steep rocky pali that also poses a rockfall hazard.

The proposed rockfall protection measures include excavating and removing talus material close to the highway, and creating a shallow swale catchment area (See Figures 2-2 and 2-3). The shallow swale will extend a minimum of 15 feet beyond the mauka edge of the pavement. With a maximum depth of 30-inches below the adjacent shoulder edge, the asphalt concrete swale will be constructed along the mauka edge of the pavement to further prevent rocks from rolling onto the highway. 48-inch tall flexible reflective plastic delineators will be installed between the road and swale for traffic control.

The talus mauka of the swale will be cut to slope more gently, thereby reducing the potential for falling rocks to gain velocity. An approximately 400 feet long terrace will be excavated above the cut slope at an elevation of 140 feet above mean sea level (msl). This excavation will remove talus deposits extending above the terrace, thereby reducing the rockfall hazard they pose. Depending on the thickness of the talus deposits along that elevation, the terrace may be as much as 70 feet wide. The terrace will provide a catchment area for rocks falling from the steep rocky pali. To prevent rocks from rolling beyond the terrace, a 12-foot high rockfall impact barrier constructed of linked steel rings and supported by anchored posts and cables will be installed along the makai edge of the terrace. The barrier will be similar to the one installed in the Papakolea area (See Photos 8 and 9). The approximately 380-foot long barrier will be placed approximately six feet from the edge of the terrace to minimize its visibility from the highway.

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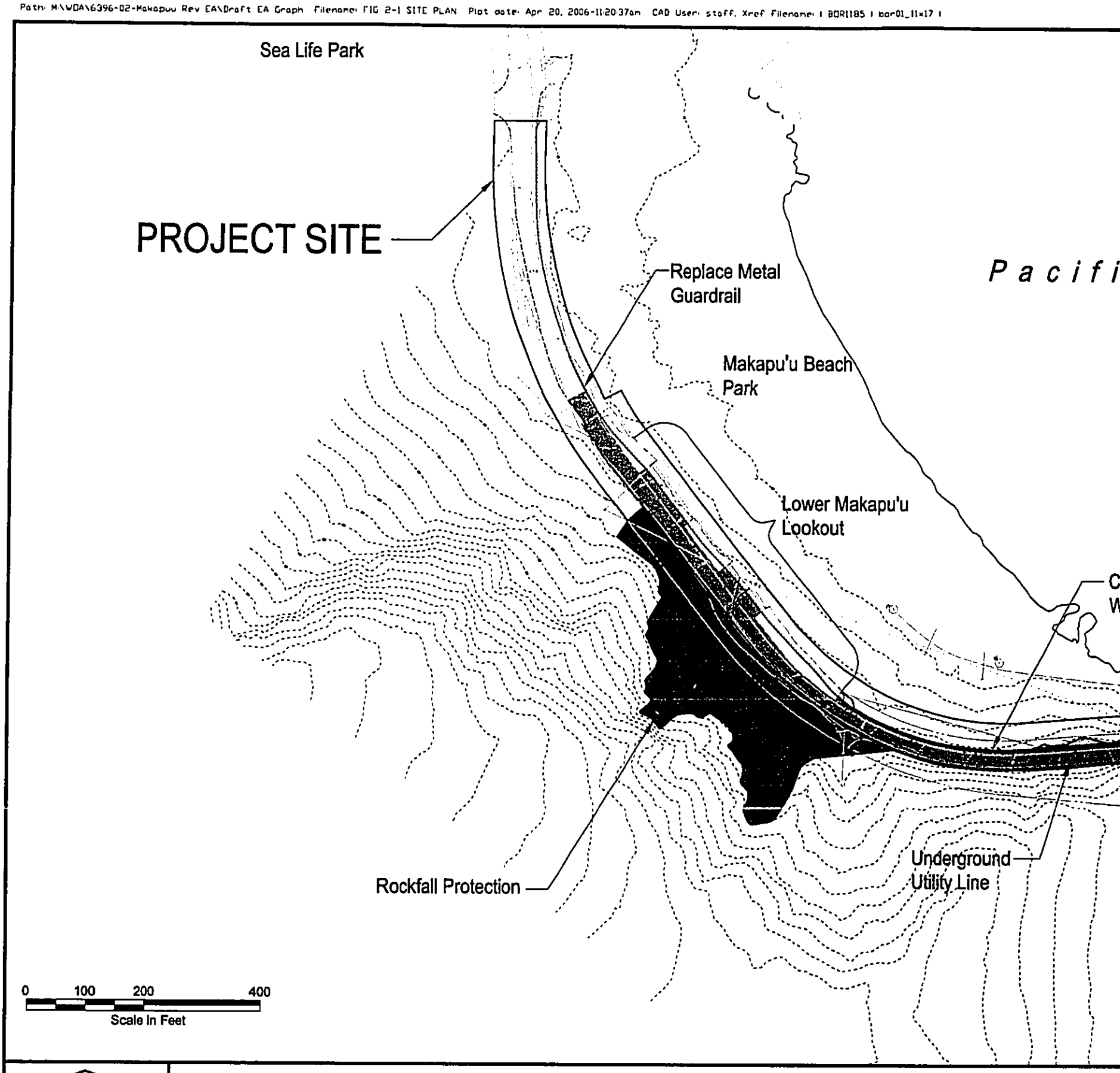
Path: M:\WOA\6396-02-Makapuu Rev EA\Draft EA Graph Filename: FIG 2-1 SITE PLAN Plot date: Apr 20, 2006-11:20:37am CAD User: staff. Xref Filename: (BOR1185 (bor01_11x17 (



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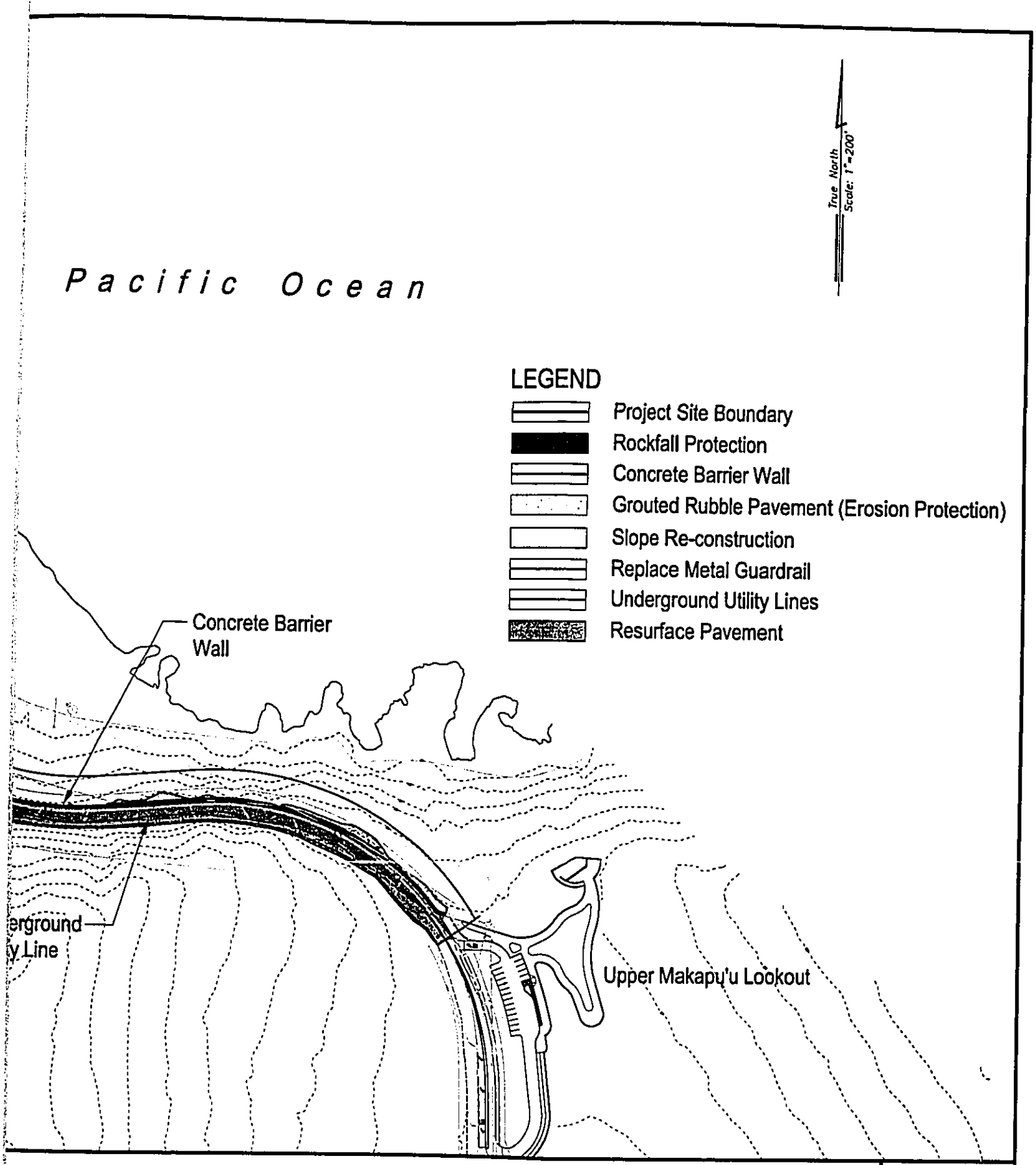
KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU

SITE PLAN



OVEMENTS AT MAKAPU'U POINT

PLAN

FIGURE 2-1

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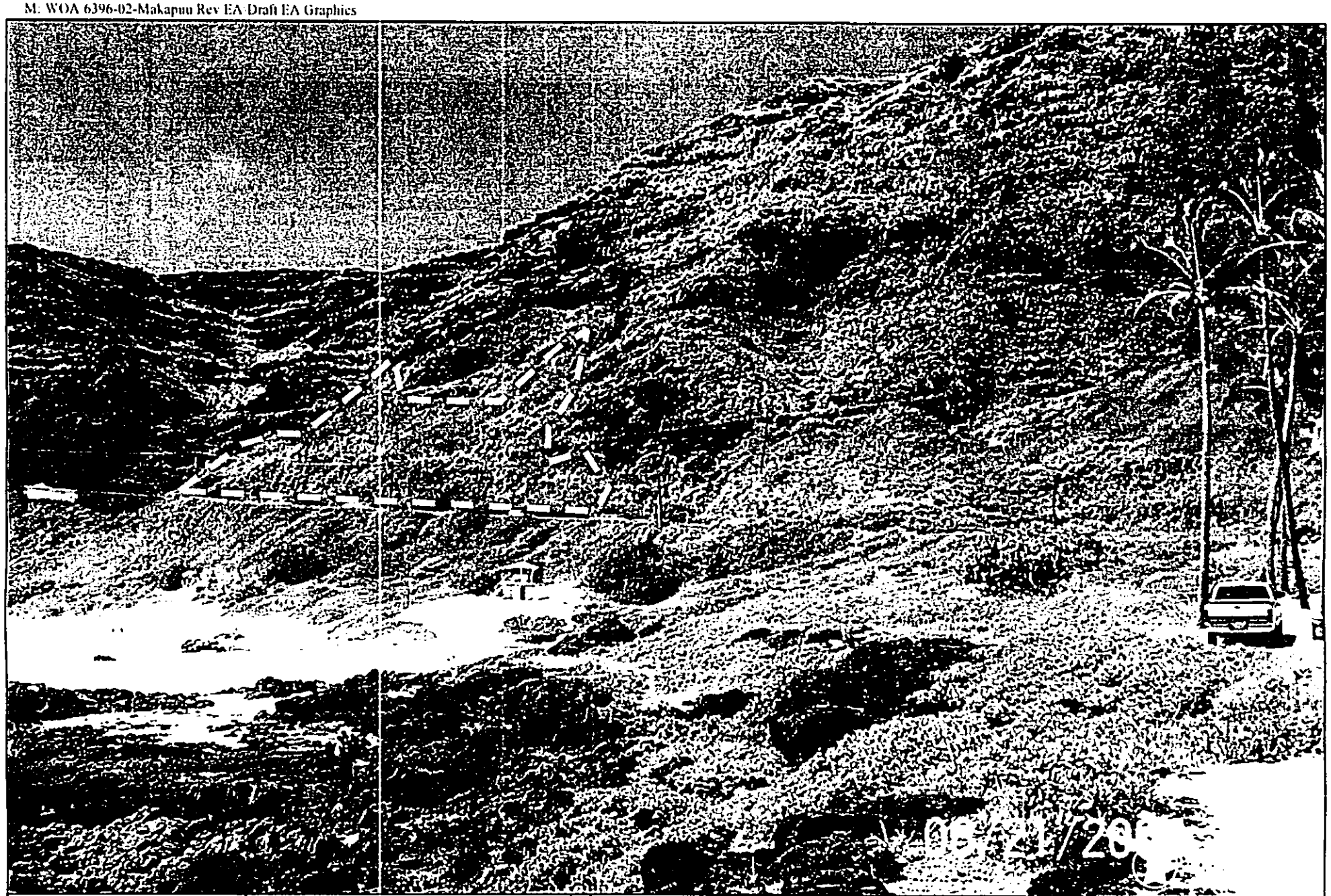
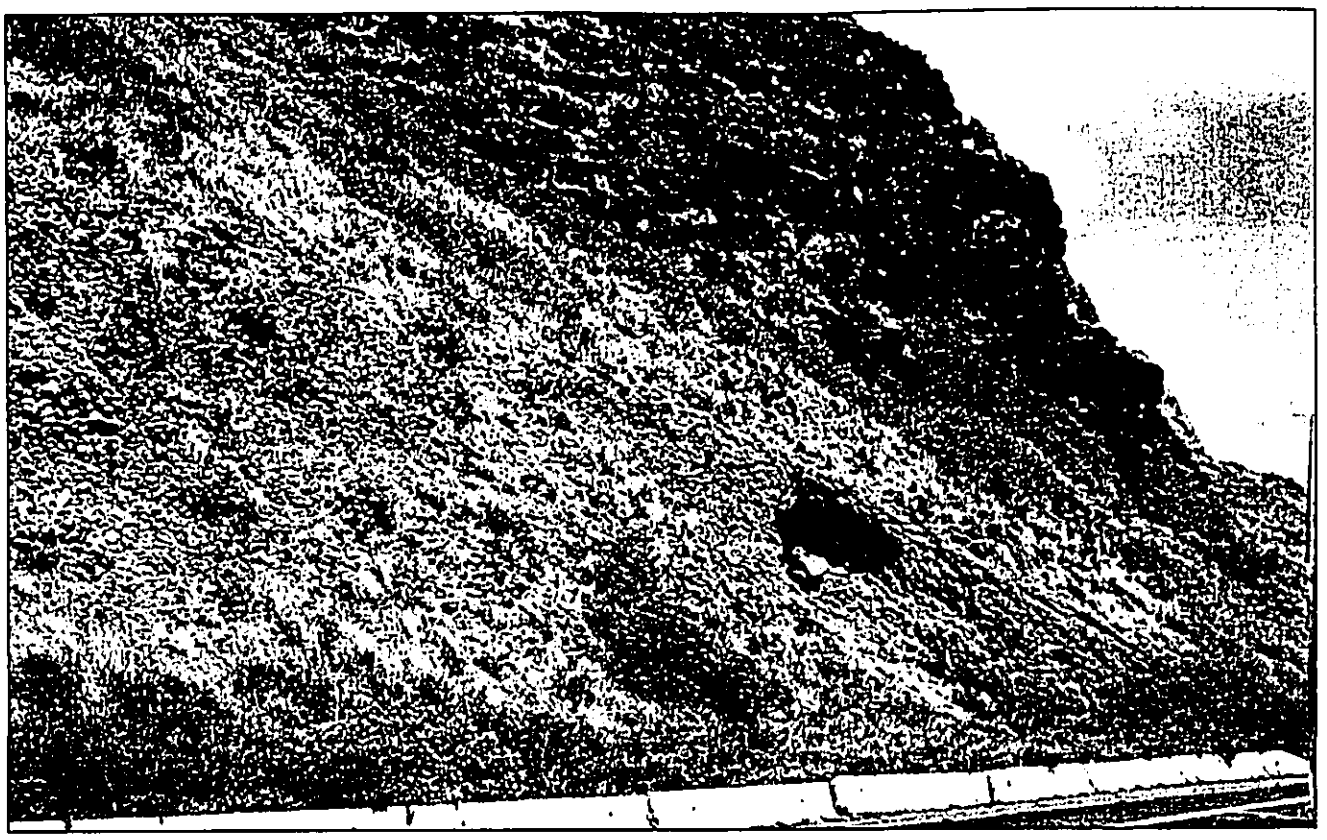
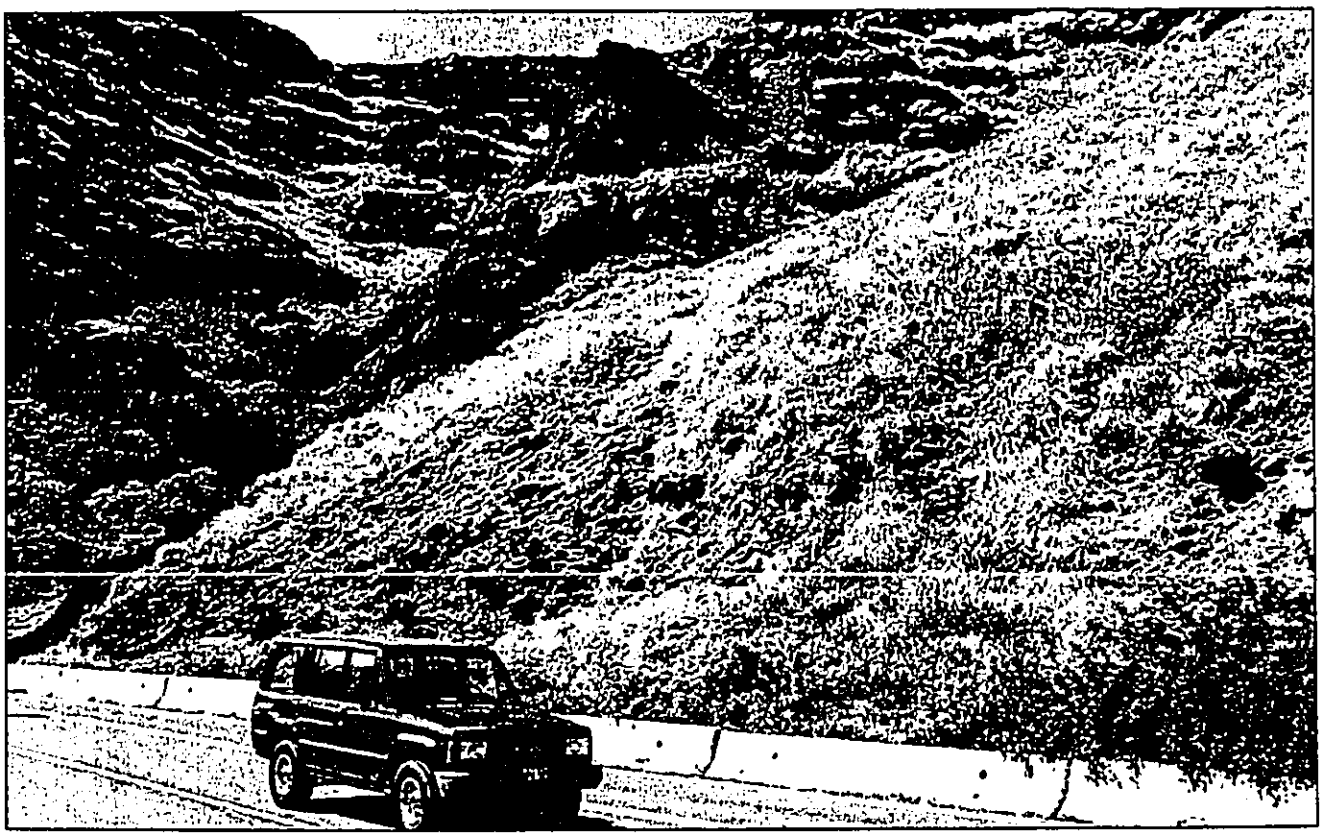


WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	**KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT**	PHOTO
	ROCKFALL PROTECTION AREA	5





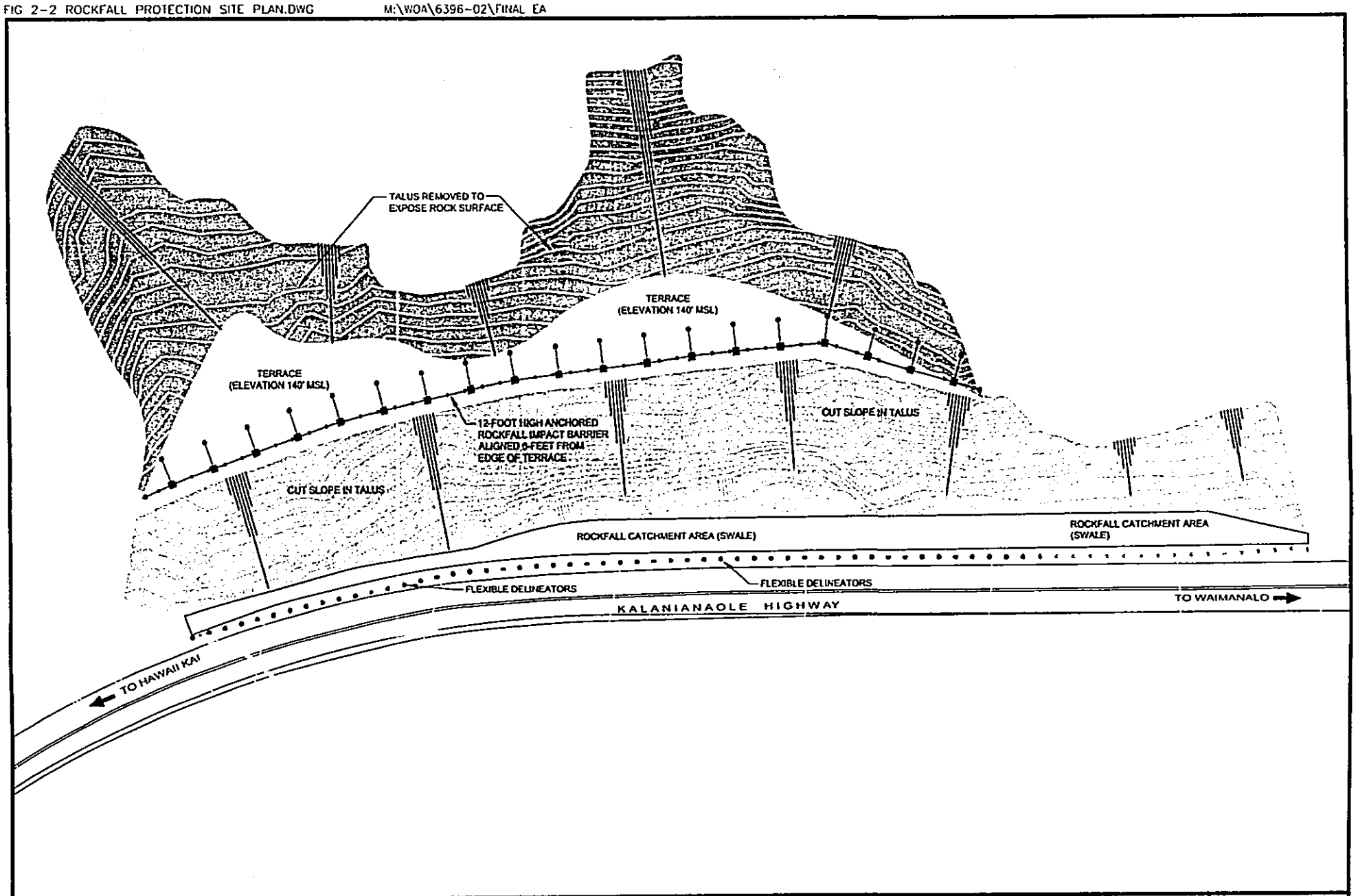
WILSON OKAMOTO CORPORATION
ENGINEERS - PLANNERS

KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

TALUS MATERIAL

Photos 6 & 7

FIG 2-2 ROCKFALL PROTECTION SITE PLAN.DWG M:\WOA\6396-02\FINAL EA



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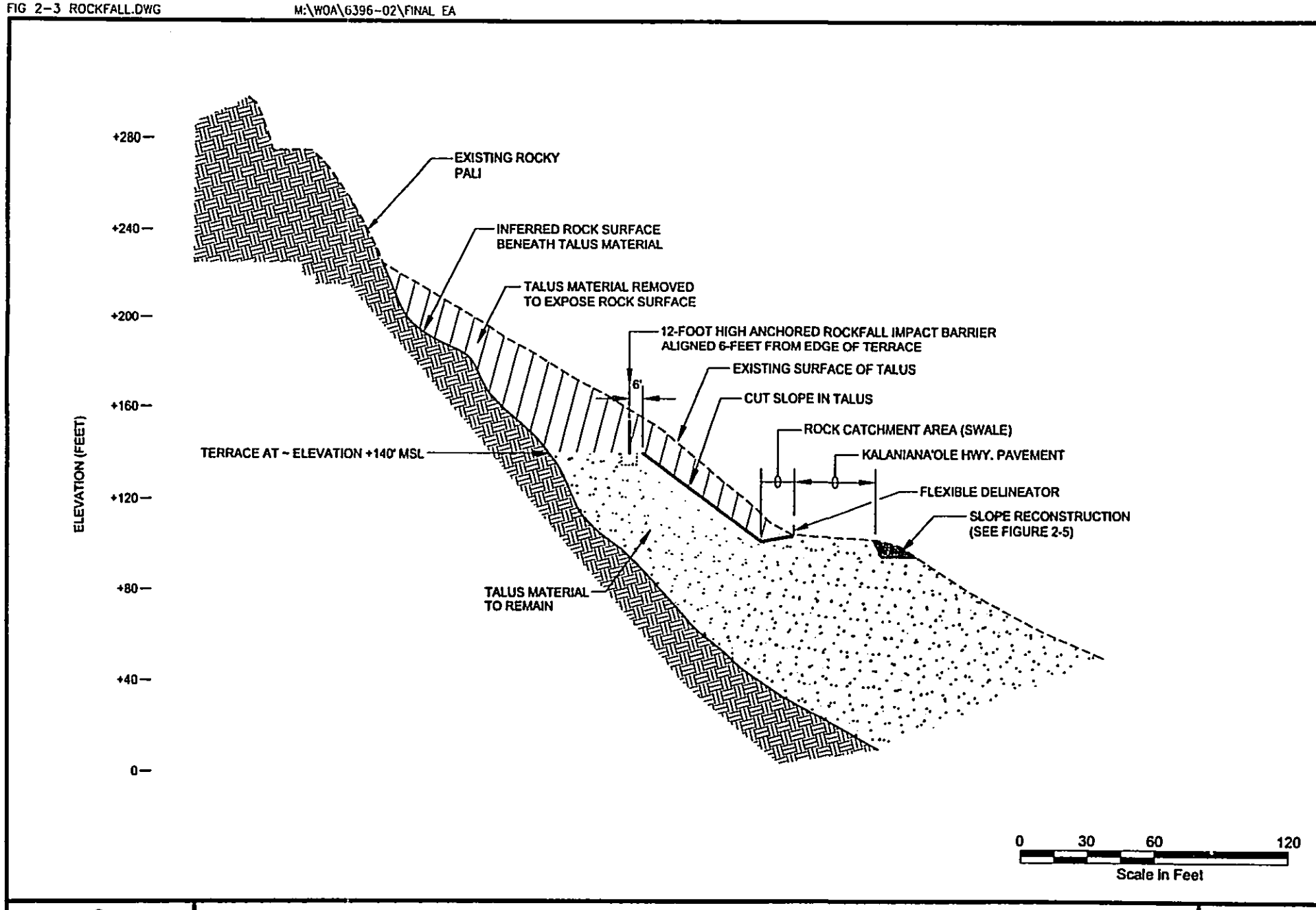
KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

ROCKFALL PROTECTION SITE PLAN

FIGURE 2-2

FIG 2-3 ROCKFALL.DWG M:\WOA\6396-02\FINAL EA



WILSON OKAMOTO CORPORATION
ENGINEERS • PLANNERS

KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

ROCKFALL MITIGATION TYPICAL SECTION

FIGURE 2-3

M:\WOA 6396-02-Makapuu Rev EA\Draft EA Graphics

WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	**KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT**	PHOTOS 8 & 9
	PAPAKOLEA ROCKFALL IMPACT BARRIER	

2.2 Roadway Stabilization

Roadway stabilization will address the causes of road subsidence and restore the roadway along Kalaniana'ole Highway from the Upper Makapu'u Lookout to the Lower Makapu'u Lookout. Roadway stabilization includes the following components:

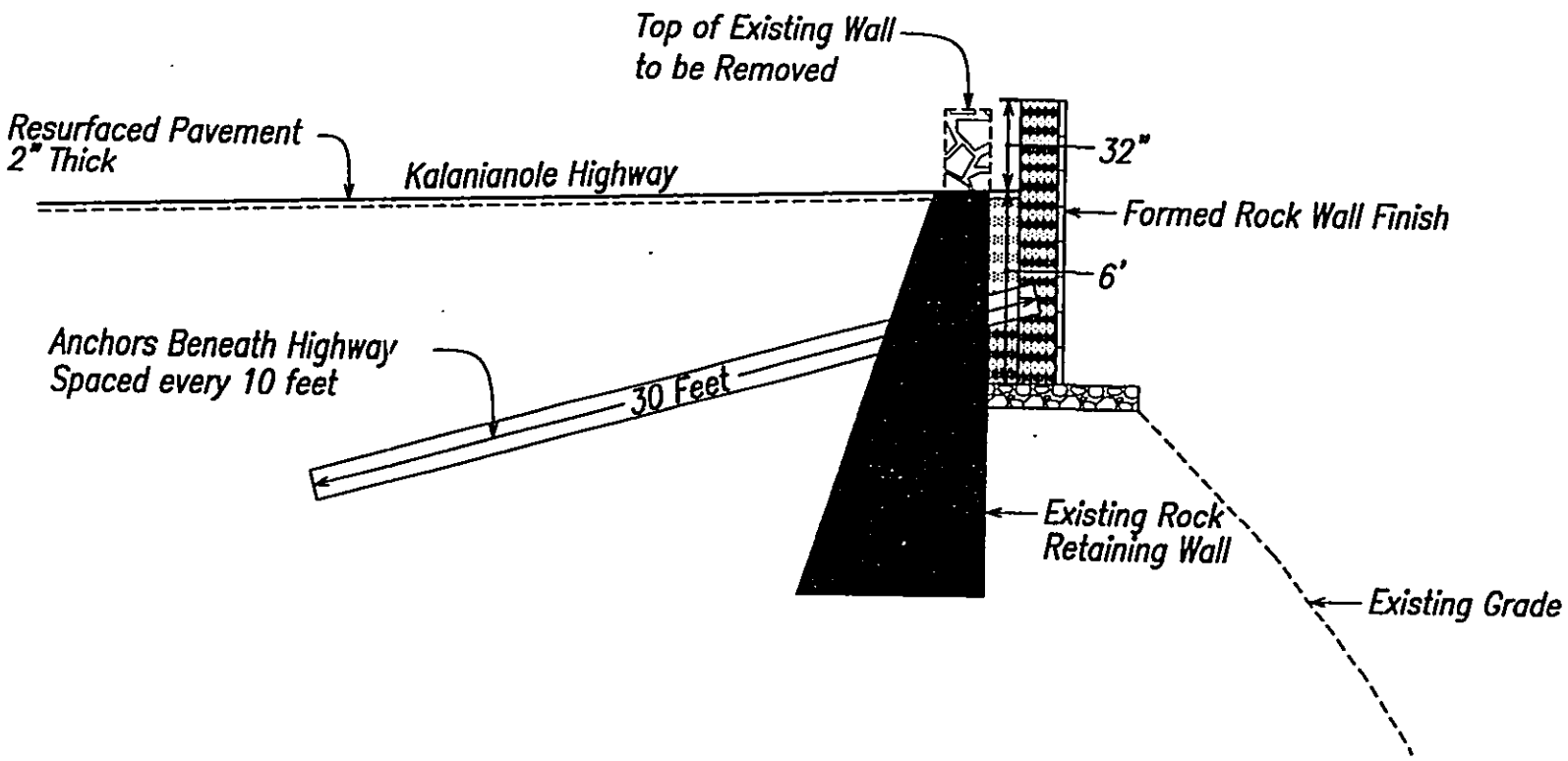
2.2.1 Concrete Barrier Wall

A new concrete barrier wall will be constructed along the makai side of the existing rock wall that extends from the Upper Makapu'u Lookout to the upper end of the Lower Makapu'u Lookout, a distance of approximately 950 feet (See Figure 2-1). The new concrete wall will be constructed in two layers. A six-foot tall by approximately one-foot thick inner wall will be constructed flush against the makai side of the existing rock retaining wall along its entire length. It will reinforce the existing wall, preventing further damage to the wall and, thus, stabilizing the roadway (See Figure 2-4). To reinforce the existing rock retaining wall against the lateral pressure of the road pavement, the inner wall will be held against the existing wall by a series of anchors, spaced ten feet apart along its length. Holes for the anchors will be drilled through the existing wall into the ground beneath the roadway. The holes will be drilled from atop the highway using equipment suspended over the existing rock wall. Each anchor will extend approximately 30 feet deep into the ground beneath the highway.

The top of the inner wall will match the elevation of the adjoining surface of the roadway. A taller outer layer of the wall, also approximately one-foot thick, will extend 34 inches higher than the top of the inner wall. The upper portion of the existing rock wall, which extends approximately 24 to 30 inches above the existing pavement and currently serves as a guardwall, will be removed. A two-inch thick layer of new pavement will be placed over the existing roadway pavement and extend over the top of the truncated existing rockwall and the top of the inner wall. The new paved surface of the roadway will, thus, be more than two feet wider than the existing roadway. The top portion of the outer wall will become the new guard wall, rising 32 inches from the finished pavement. At this height, the spectacular views of the coast from vehicles will be preserved. The new guardwall will be a crash-tested design that will be stronger than the existing rock wall, portions of which have been damaged. Its smooth inner concrete surface facing traffic will more safely deflect errant vehicles back onto the roadway, based on current highway design standards. The smooth inner surface will reduce the potential for any vehicles striking the wall to "snag" and spin into traffic lanes. The makai face of the outer wall will be formed and finished to resemble a rock wall to preserve the aesthetic character of hillside above Makapu'u Beach Park.

The addition of a metal railing atop the new 32-inch high barrier wall is being considered by DOT-HWY to protect bicyclists. The proposed railing will be ten inches tall, for an overall height of 42 inches from the finished pavement.

FIG 2-4 CONC BARR WALL.DWG M:\WOA\6396-02\FINAL EA



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KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

CONCRETE BARRIER WALL

FIGURE
2-4

Consideration of the additional railing was prompted by the recent striping of a bicycle lane along the makai side of Kalanianaole Highway fronting the Upper Makapu'u Lookout and a portion of Ka Iwi State Park. The bicycle lane clearly indicates that the Waimanalo-bound makai lane of the highway extending from the lookout is intended for shared use with bicycles. Addition of the bicycle railing will comply with the requirements of Chapter 343, HRS.

The bottom of outer wall will be flush with the bottom of the inner wall. In some sections, particularly near the Lower Makapu'u Lookout, where the existing wall rises more than 12 feet above the makai grade, the new wall will be suspended above grade. In other sections, particularly near the Upper Makapu'u Lookout, the bottom of the new wall will extend below the existing grade of the makai slope. In these areas, the adjoining slope will be leveled flush to the bottom of the new wall and the leveled portion will be covered with an approximately eight-inch thick grouted rubble pavement to control erosion.

2.2.2 Slope Reconstruction

Three sections of the Lower Makapu'u Lookout will be reconstructed to stabilize the sub-grade and prevent further cracking and subsidence (See Figure 2-1). In these areas, a portion of the lookout and the makai slope will be excavated to a depth of approximately five feet to remove unsuitable sub-grade materials contributing to the instability (See Figure 2-5). The excavated areas will then backfilled and properly compacted with appropriate aggregate material and erosion-control netting will be installed over the edge of the makai slope prior to resurfacing the roadway.

2.2.3 New Guardrails

New steel W-beam guardrails will replace the existing guardrails along the makai edge of the roadway from the end of the new barrier wall to the entrance driveway to Makapu'u Beach Park.

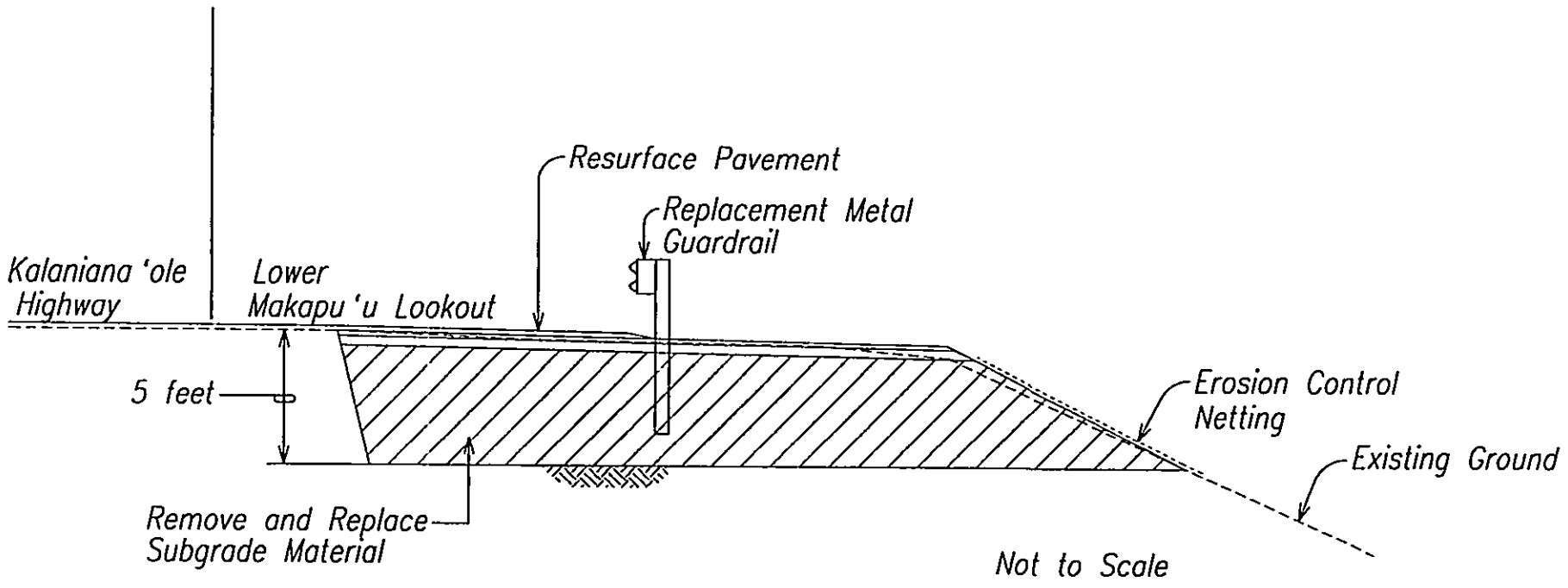
2.2.4 Underground Utilities

The existing utility poles and overhead lines will be displaced by the new barrier wall and talus removal so they will be replaced with an underground utility system beneath the roadway. Utility lines to be placed underground include those of Hawaiian Electric Company (HECO), Hawaiian Telcom (formerly Verizon Hawaii) and Time Warner Oceanic Cable (cable television).

2.2.5 Resurfacing, and Signage

Following major construction work, the portion of Kalaniana'ole Highway from the Upper Makapu'u Lookout to the Lower Makapu'u Lookout will be resurfaced, striped and signed according to highway design standards.

FIG 2-5 SLOPE RECONSTRUCTION.DWG M:\WOA\6396-02\FINAL EA



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KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

SLOPE RECONSTRUCTION

FIGURE 2-5

2.3 Construction Phasing and Traffic Control

Construction is anticipated to be phased. During the various phases of construction periodic nighttime closure of the highway to all traffic will be required, as well as daytime lane closures during which at least one-lane will be open for traffic in both directions at all times. Nighttime road closure will be limited to weekdays between 9:30 pm and 4:30 am. Daytime lane closures will be limited to weekdays between 8:30 am and 3:30 pm. Notices and schedules for road and lane closures will be provided through various media, including newspaper, radio and TV announcements and roadway signage, including portable electronic message signs at key locations prior to and during road and lane closures. Passage for emergency vehicles will be provided at all times during lane and road closures.

The anticipated duration of phases and road or lane closure requirements are as follows:

- Phase I – *Underground Utilities: Approximate duration five months* with periodic nighttime road closures and daytime lane closures required.
- Phase 2 – New Barrier Wall: Approximate duration five months with periodic nighttime road closures and daytime lane closures required.
- Phase 3 – Rockfall Protection Measures: Approximate duration three months with no anticipated road or lane closures.
- Phase 4 – Roadway Improvements: Approximate duration two months with no anticipated road or land closures.

2.4 Project Schedule and Cost

The construction work for the entire proposed project is anticipated to span approximately 14 months, and cost in the range of $8 to $10 million. The proposed construction will use State and Federal funds.

2.5 Required Permits and Approvals

- Individual NPDES
- Conservation District Use Permit
- Special Management Area Permit
- Grading Permits

3. DESCRIPTION OF THE EXISTING ENVIRONMENT, IMPACTS, AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential impacts and proposed measures to mitigate potential adverse impacts resulting from the proposed project.

3.1 Climate

Daily maximum temperatures in the project vicinity range from the high 60's (degrees Fahrenheit) in the winter to the low 90's in the summer. Daily minimum temperatures vary from the low 60's in the winter to the low 70's in the summer. The project area is usually sunny and dry. The average annual rainfall at Makapu'u Point is approximately 10 to 20 inches. Between May and October, tradewinds predominate with wind mostly from the northeast or east. Wind direction is more variable during the rest of the year.

3.2 Geology and Topography

Makapu'u Head is at the southeastern end of the Ko'olau Range. The Ko'olau Volcano was initially shield-shaped, like Mauna Loa on the Island of Hawai'i, and extended several miles seaward of Makapu'u. When volcanic activity ended about 2.5 million years ago, the highest part of the Ko'olau Range was northeast of the existing crest. Subsequently, fluvial erosion carved a series of valleys in the Ko'olau shield, which may have reduced its height by as much as 1,000 feet (MacDonald, 1986).

Coastal areas of O'ahu underwent a series of submergences and emergences resulting from changes in the ocean level during glacial and interglacial phases. Long ago, during much higher stands of the sea, ocean waves eroded away all ridgelines dividing windward valleys from Makapu'u through Waimānalo, cut a seacliff around Makapu'u Head, and scattered blocks of marine limestone between the Upper Makapu'u Lookout and the summit of Makapu'u Head.

Impacts and Mitigation Measures

Proposed rockfall protection measures mauka of Kalaniana'ole Highway will substantially modify the topography of this area by removing talus material comprised of rocks and soils at the base of the rocky pali. By comparison, the previously completed netting project only slightly altered the topography of the adjoining area by removing the larger rocky overhangs and loose rocks and boulders. The purpose of the previous and proposed rockfall protection measures is to reduce the hazards posed by geological conditions above the highway.

3.3 Soils

According to the U.S. Department of Agriculture Natural Resources Conservation Service, the soil type in the project area is Rock Outcrop (rRO) (See Figure 3-1).

Rock outcrop consists of areas where exposed bedrock covers more than 90 percent of the surface. Outcrops are mainly basalt and andesite. This land type is gently sloping to precipitous. A small portion of the project site is Rock Land (rRK) and is similar to rRO.

Impacts and Mitigation Measures

Proposed rockfall protection measures mauka of Kalaniana'ole Highway will remove substantial amounts of talus material comprised of rocks and soils at the base of the rocky pali. By comparison, the previously completed netting project removed the larger rocky overhangs and loose rocks and boulders but little soil. The purpose of the previous and proposed rockfall protection measures is to reduce the hazards posed by geological and soil conditions above the highway.

3.4 Coastal Water Quality

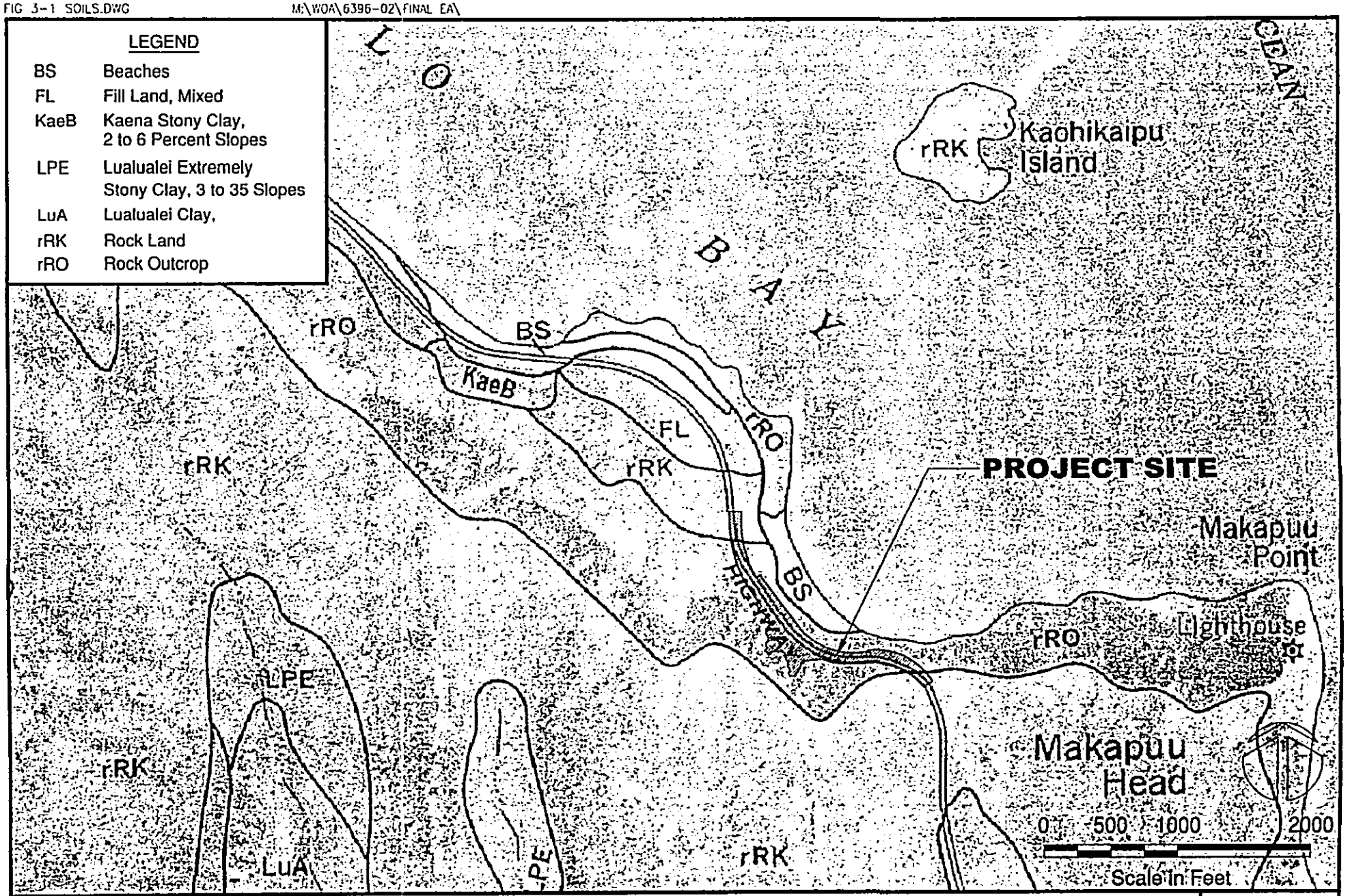
Coastal waters in the vicinity of Makapu'u Point, including the waters surrounding Mānana and Kāohikaipu Islands, are classified as Class AA waters. Class AA waters are high quality coastal waters classified by the State Department of Health (DOH) with the objective that "*these waters remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions.*" (*Water Quality Standards, Title 11, Chapter 54, Hawai'i Administrative Rules (HAR).*

Impacts and Mitigation Measures

In the short-term construction activities for the proposed rockfall protection measures mauka of Kalaniana'ole Highway will disturb substantial amounts of talus material. Slope reconstruction within the Lower Makapu'u Lookout will also expose soils. The proposed concrete barrier wall will involve leveling portions of makai slopes flush to the bottom of the wall. Stormwater runoff occurring during such construction activities could potentially impact coastal water quality if not appropriately mitigated. During the previous netting project, the removal of rocky overhangs and loose rocks released soils and fine particles of weathered rock to be conveyed toward the base of the cliff at Makapu'u Beach. Since storm discharges onto Makapu'u Beach rapidly percolate into the sand, it is unlikely that sediment-laden water would flow overland to discharge directly into the ocean. No degradation of coastal waters offshore of Makapu'u Beach during and following work completed to date have been reported.

No significant impacts on coastal water quality are anticipated to result from the proposed construction activities. The proposed talus removal for slope stabilization will disturb approximately 1.7 acres of talus material while slope reconstruction will expose a total of approximately 0.24 acres of soil. The leveling of slopes makai of the concrete barrier wall will be

FIG 3-1 SOILS.DWG M:\WOA\6396-02\FINAL EA\



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SOILS

FIGURE 3-1

minimal. Appropriate measures for controlling sedimentation and runoff will be used in compliance with City Grading Ordinances. In addition, since the area of soil disturbance exceeds one acre, a National Pollutant Discharge Elimination System (NPDES) permit for Construction Storm Water Activities will be required from the State of Hawaii Department of Health (DOH) pursuant to Chapter 11-55, HAR, prior to commencing construction. A Best Management Practices (BMP) Plan will be prepared for construction activities at each of the respective project sites in conjunction with the NPDES permit application and may include typical mitigation measures such as: using silt fences, protecting inlets and catch basins, and appropriately stockpiling materials on-site to prevent runoff. To minimize time of exposure, natural re-vegetation and paving over the slope reconstruction sites and placement of grouted rubble pavement over leveled slopes makai of the concrete barrier wall will be done as soon as possible in construction phasing.

In the long-term, talus removal will reduce the amount of material exposed to stormwater runoff, thereby reducing the potential for impacting coastal water quality relative to existing conditions. Slope reconstruction includes the installation of erosion control netting and construction of the concrete barrier wall includes covering cut slopes on the makai side of the highway with grouted rubble pavement for erosion control.

3.5 Flood Hazard

According to the Flood Insurance Rate Map (FIRM), Community Panel Number 15003C0385 E (revised November 20, 2000) and 15003C395 E (revised November 20, 2000), the project site is within Zone D "*areas in which flood hazards are undetermined*" (See Figure 3-2).

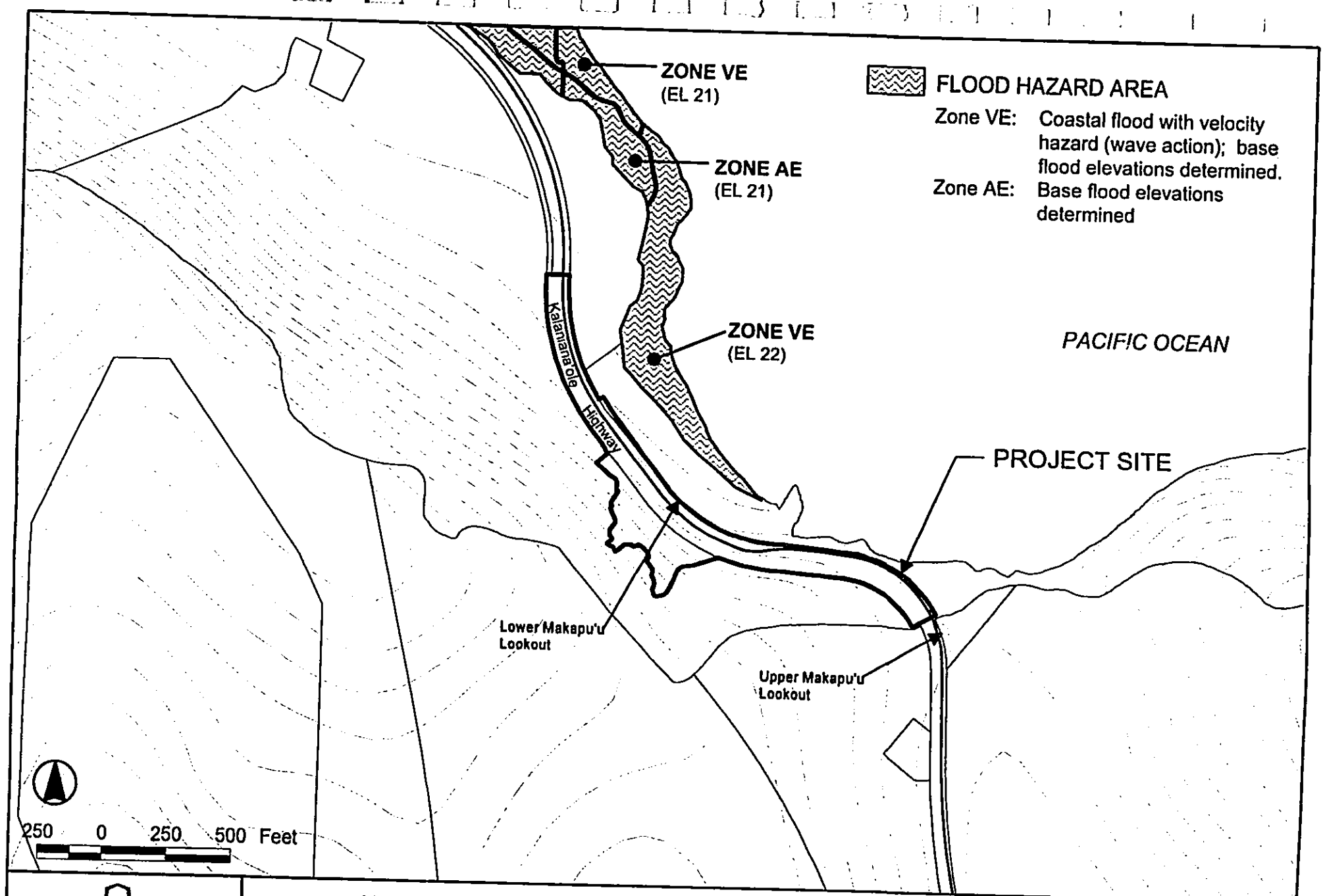
Impacts and Mitigation Measures

In the short-term, project-related activities are not anticipated to impede stormwater runoff such that flooding would occur within the vicinity of the project site. In the long-term existing drainage patterns will be restored along the highway. The proposed project will not significantly increase the existing area of impervious surface within the project site and, therefore, will not significantly increase the potential volume of stormwater runoff.

3.6 Flora

A botanical survey of the project site as well as the adjoining rockfall netting project area was conducted by Botanical Consultants, Inc. in December 2001. The botanical survey is included in Appendix A and is summarized below.

The area surveyed consisted of four distinct habitats, supporting a different vegetation type.



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KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

FLOOD ZONES

FIGURE 3-2

Makai of Kalaniana'ole Highway is largely Sand Dunes with Scattered Trees. The tree population is made up of a few milo, ironwood, and beach heliotrope. There are scattered patches of naupaka and ground cover-type plants such as seashore rush and morning glory. Farther up the slope, along the highway, can be found the skeletons of naupaka, koa haole, and beach heliotrope plants that were killed by drought and the constant wind.

Upslope at the western end of the site can be found common roadside type weedy vegetation such as Chinese violet, bufflegrass, stargrass, Henry's Crabgrass, and other similar plants. Skeletons of koa haole are scattered, probably killed by drought.

From the eastern end near the entrance to the Board of Water Supply's water tunnel to Makapu'u Point, is a layered mass of stone with thousands of small narrow ledges. Small colonies of plants such as naupaka, Chinese violet, bufflegrass can be found on these ledges.

The wind swept ridge of the project site supports the fourth vegetation type, wind sheered, mixed scrub. There are several large colonies of pānini cactus, which survived the high winds. The scrub is made up of koa haole, kule, Zulu-giant, Chinese violet, and grasses such as Bermuda grass, Guinea grass, and Henry's crabgrass.

Only two plant species native to the Hawaiian Islands were found within the project site during the survey, beach morning glory and Pā'ūohi'iaka, neither of which is rare or endangered. No candidate, proposed or listed threatened or endangered species were found within the survey area.

Impacts and Mitigation Measures

No significant impacts on flora species within the project site are anticipated as a result of the proposed project-related activities. No candidate, proposed or listed threatened or endangered species will be disturbed. Similarly, the previous rockfall netting project did not significantly impact flora species, nor did it disturb any candidate, proposed or listed threatened or endangered species.

3.7 Fauna

An avian and terrestrial mammalian survey of the project site and the adjoining rockfall netting project area was conducted by Rana Productions Ltd. in March 2002. The survey is included in Appendix B and is summarized below.

Within the survey area, three mammalian species were identified: domestic dog, Indian mongoose, and cats. The endangered hoary bat was not detected during the survey. Although no rodents were detected during the survey, it is likely that rats use various resources within the area.

Eight avian species were observed during the survey. Of the eight species detected, three species - Red-footed Booby, Great Frigatebird, and Sooty Tern - are indigenous, breeding seabird species. All three species were seen flying from the direction of Mānana and Kāohikaipu Islands, and passing between the survey area and Makapu'u Head to the east. The remaining five species are alien species. The cliff face does not provide suitable nesting habitat for any listed avian species. No candidate, proposed or listed threatened or endangered avian species were observed within the survey area.

Impacts and Mitigation Measures

No significant impacts on avian and terrestrial mammalian species are anticipated as a result of the proposed project-related activities. The survey found that the cliff face within the survey area does not provide suitable nesting habitat for any listed avian species. Similarly, the previous rockfall netting project did not significantly impact avian and terrestrial mammalian species or disturb any listed avian species.

The proposed project at Makapu'u Point is not anticipated to affect marine life in nearby coastal waters. Since storm discharges onto Makapu'u Beach rapidly percolate into the sand, it is unlikely that sediment-laden water would flow overland to discharge directly into the ocean. The proposed project will require processing an Individual National Pollutant Discharge Elimination System (NPDES) permit since the waters offshore are class AA. In conjunction with the Individual NPDES, a Best Management Practices (BMP) Plan will be prepared to ensure that all construction storm water is appropriately mitigated.

3.8 Noise

Ambient noise in the vicinity of the project site is predominantly attributed to vehicular traffic along Kalaniana'ole Highway. Other sources of ambient noise include ocean wave action and recreational activities at Makapu'u Beach Park.

Impacts and Mitigation Measures

In the short-term noise from the various proposed project-related construction activities is unavoidable. Operation of construction equipment and vehicles for proposed additional rockfall protection and road stabilization will also raise ambient noise levels in the project vicinity. Construction noise would be audible to motorists using the highway at Sea Life Park, which is located immediately to the west of the project site, and by beachgoers at Makapu'u Beach Park and other nearby coastline areas. Construction noise for those users, however, is not a significant adverse impact. There are no noise sensitive uses such as residences, schools and hospitals in the vicinity. To the extent possible, construction noise impacts will be mitigated by compliance with provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations.

By contrast, the highest levels of ambient noise were generated during the previous rockfall netting project to remove rocky overhangs, which required the use of power tools and controlled blasting techniques. Helicopter over-flights during netting installation also increased noise levels.

No significant noise impacts are anticipated following completion of the proposed project.

3.9 Air Quality

There are no point sources of airborne emissions in the immediate vicinity of the project site. The air quality in this area is considered good with the primary non-point source of emissions from vehicles traveling along Kalaniana'ole Highway. While there is no air quality monitoring station in the vicinity of the project site, air quality is assumed to be in compliance with State and Federal standards. The State DOH's nearest air quality monitoring station is located within the Waimānalo Sewage Treatment Facility, approximately 3 miles west of the project site. The Waimānalo Sewage Treatment Plant is in a rural agricultural community. The Waimānalo station monitors for particulate matter (PM_{10}), which has been well below the Federal and State Standards (Department of Health, 2002).

Impacts and Mitigation Measures

In the short-term, air quality impacts of project-related construction activities include dust generation, especially during talus grading and removal, as well as exhaust emissions from construction vehicles and equipment. The construction contractor is responsible for complying with State Department of Health Administrative Rules, Title 11, Chapter 60-11.1 regarding "Air Pollution Control, specifically Section 11-60.1-33 regarding fugitive dust and will employ appropriate measures stipulated by the rules to control dust from debris being hauled away from the project site, and dust from roadwork.

Emissions from construction equipment, trucks and commuting construction workers are not anticipated to significantly impact ambient air quality.

During the previous rockfall netting project, air quality impacts of dust generated by controlled-blasting for rocky overhang removal and removal of loose rocks were limited to the immediate vicinity and apparently did not significantly affect nearby uses, including Sea Life Park and Makapu'u Beach

In the long-term, the proposed project will have no significant impact on air quality in the vicinity of the project site.

3.10 Aesthetics

Existing public viewpoints of the project site include the two-lane Kalaniana'ole Highway and steep, undeveloped cliffs mauka of the highway. Within the context of the surrounding project vicinity, the project site is within an area offering spectacular views of the ocean set against steep, rocky seacliffs.

Impacts and Mitigation Measures

Removal and grading of talus material on the mauka side of Kalaniana'ole Highway will change the visual character of the slope. Removal of talus above the terrace will expose more of the rocky pali. Although the newly exposed portion will be initially distinguishable, it is expected to blend with the previously exposed portion as it weathers. Since talus supports vegetation, the rocky pali will likely appear more barren. The terrace in the talus material will not be visible from the highway but the upper portion of the 12-foot tall rockfall impact barrier, which will be set back six feet from the edge of the terrace, may be visible from some perspectives along the highway. The plastic reflective delineators will be 48-inches in height and 3-inches wide. The delineators may be visible in the distance from the parking lot area of Makapu'u Beach Park and from waters offshore of the Park.

The new barrier wall will be visible in the distance from Makapu'u Beach Park, as a band along the top of the existing rock retaining wall. To reduce its visual impact, the makai face of the wall will be formed and finished to resemble a rock wall similar to the existing wall. Viewed from the highway, the existing rock guardwall will be replaced by a slightly higher concrete wall. The smooth concrete surface facing traffic is designed to more safely deflect errant vehicles back onto the roadway than the existing rock guardwall. The slightly taller 32-inch guardwall will marginally impact motorists' present views of the spectacular coastal scenery. Elevated views from tour buses and vans would not be impacted.

Replacement steel guardrails extending from the end of the new concrete guardwall, along the makai edge of the Lower Makapu'u Lookout to the Makapu'u Beach Park driveway will be approximately 26-inches tall, similar to the existing guardrails. They will look new but will not affect views from the highway. Removal of utility poles and overhead lines will enhance the natural visual character of the area.

The proposed additional rockfall protection and road stabilization measures will have a cumulative visual impact, together with the previous rockfall netting project. The visual character of the project area will be somewhat less natural and rustic. On the other hand, the rockfall protection and road stabilization measures could be perceived as an

assuring reminder that potentially hazardous conditions along the highway have been mitigated.

3.11 Archaeological, Historic, and Cultural Resources

3.11.1 Archaeological / Historic Resources

An archaeological inventory survey of the project site and the adjoining rockfall netting project area was conducted by Haun & Associates in October 2002. The survey included pedestrian coverage of the level ridge crest along the south edge of the project site and of the talus slopes, and inspection of the cliffs, including several small cavities in the cliff face. The survey is included in Appendix C and is summarized below.

Archaeological and historical background research indicates that in late prehistory, the central portion of Waimānalo and portions of Maunalua were well populated and extensively cultivated. Permanent residences were scattered along the coast and larger settlements were present in the inland portion of the Puha Stream drainage. Temporary habitation, probably associated with agricultural activity and obtaining natural resources, occurred in inland rock shelters, caves and walled shelters. Fishing shrines and rock formations of legendary and probably ritual significance were scattered along the coast. Heiau were sited on prominent topographic features overlooking the coast. Sand dunes and cliff face cavities were used to inter the deceased.

Agricultural use included wet taro cultivation in topographically suitable locations with sufficient freshwater. Dryland gardens were present around the coastal residences and on the lower slopes. Upland areas above the coastal cliffs were also cultivated. Radiocarbon dates for the area indicate settlement by at least the 800's, with the most intensive use occurring during the 1600's to early 1800's.

In the early to mid-1800's, coastal settlements served as anchorages and provisioning sites for foreign ships. In the mid- to late 1800's, Waimānalo and Maunalua were used for ranching, a use which continued into the early to mid-1900's. By the late 1800's, most of the arable portions of Waimānalo were used for sugar cane cultivation.

In the early 1900's, establishment of the Makapu'u Point lighthouse and completion of Kalaniana'ole Highway occurred. In the 1930's and 1940's, the military established facilities in Waimānalo and at Maunalua. Between 1960 and 1980, truck farming in Maunalua was gradually displaced by residential development.

The survey area consists of moderate to steep slopes and vertical cliffs that would have severely limited prehistoric and historic land use. Based on previous archaeological research and historical documentary evidence, expected

prehistoric to early historic remains in the project site vicinity consist of burials in cavities in the cliff faces and possibly the remains of a trail. Historic remains potentially include roads and military defense features. A recently constructed small private monument was noted on top of a ridge within the eastern portion of the project site overlooking Makapu'u Beach.

Impacts and Mitigation Measures

No significant impacts on archaeological/historical resources within the project site are anticipated from project-related activities. No potentially significant archaeological sites or features were identified within the project site during the inventory survey. This is not unexpected since most of the project site is precipitously steep and portions of area contain artificial cuts resulting from the construction of Kalaniana'ole Highway. Similarly, no archaeological/historical resources were impacted by the previous rockfall netting project. If any archaeological resources are uncovered, including human skeletal remains, work in the immediate vicinity will cease and the Department of Land and Natural Resources, Historic Preservation Division will be notified immediately.

3.11.2 Cultural Resources

Kanawao, Inc. prepared a cultural impact assessment of the project site in April 2000. The purpose of the cultural impact assessment was to provide an overview of native Hawaiian cultural resources, practices and beliefs pertaining to the *ahupua'a* within which the project site is located, and to assess potential impacts of the proposed project. The survey is included in Appendix D and is summarized below.

The assessment was based upon six research components: 1) maps; 2) archival documents; 3) historical literature; 4) pre-historical literature; 5) inspection of the immediate area to assess cultural sites, ocean water quality, quantity of ocean life, and flora and fauna; and 6) oral history, including interviews with *kama'āina* (natives of Waimānalo).

The most valuable cultural resources of Makapu'u identified by the cultural impact assessment include:

1. The ocean, which is considered to be the area's most important resource. Its abundant marine life is an important food source and it also serves as a mode of travel.

2. The headland of Makapu'u is important for navigation as it is the eastern-most point of the island. The headland is also linked to Hawaiian mythological characters such as Pele, Hi'iaka, and Pa'ao, who helped shaped the culture of Hawai'i.

3. The Pu'u Kilo I'a site is a man-made feature located at the headland and was used as a lookout for fish spotters who would alert the community of the arrival of schools of fish. (See Photos 10 and 11). Although the Pu'u Kilo I'a site was used historically, it is not known when it was last used for that purpose, or whether it is even used today.

4. The association of Makapu'u with the deity Mālei, which is the *akua* or god of the *uhu* or parrotfish and all red and speckled fish from Makapu'u to Hanauma. Native chants speak of the deity as a rock seen from the ocean in Keanaokeakuapōloli cave. The deity is said to have *mana* (power) that attracts fish.

The Kealakīpapa trail, which was not located during site investigations, is identified in the archaeological inventory survey (Appendix C) as an old road that connected the upper potion of the valley to lower Kaupō Village.

Impacts and Mitigation Measures
Based on the findings of the cultural impact assessment, no significant project-related impacts on native Hawaiian cultural resources, beliefs and practices are anticipated.

While access between ahupua'a may have and will be temporarily impacted by road and lane closures during construction, long-term access to traditional resources and sites will not be affected.

The cultural impact assessment recommended that to maintain the delicate balance of the ocean, precautions should be taken to prevent rocks and debris from entering the ocean. No significant adverse impacts on coastal water quality are anticipated as a result of project-related activities, as discussed in Section 3.4.

3.12 Socio-Economic Characteristics

3.12.1 Social Characteristics

The project site is located within the Waimānalo Census Designated Place, which was reported to have a population of 3,664 in the year 2000 (U.S. Census Bureau, 2000). Of the total population, Native Hawaiians comprise 21.8%. The median age is 30.2 with 13.5% of the population falling between the ages of 35 and 44 years. Of the 849 households in Waimānalo, family households comprise 88.5%. The overall population per household is 4.31 people, and the average population per family is 4.42 people.

Impacts and Mitigation Measures
In the short-term, project-related construction activities will periodically impact access along Kalaniana'ole Highway during temporary lane and

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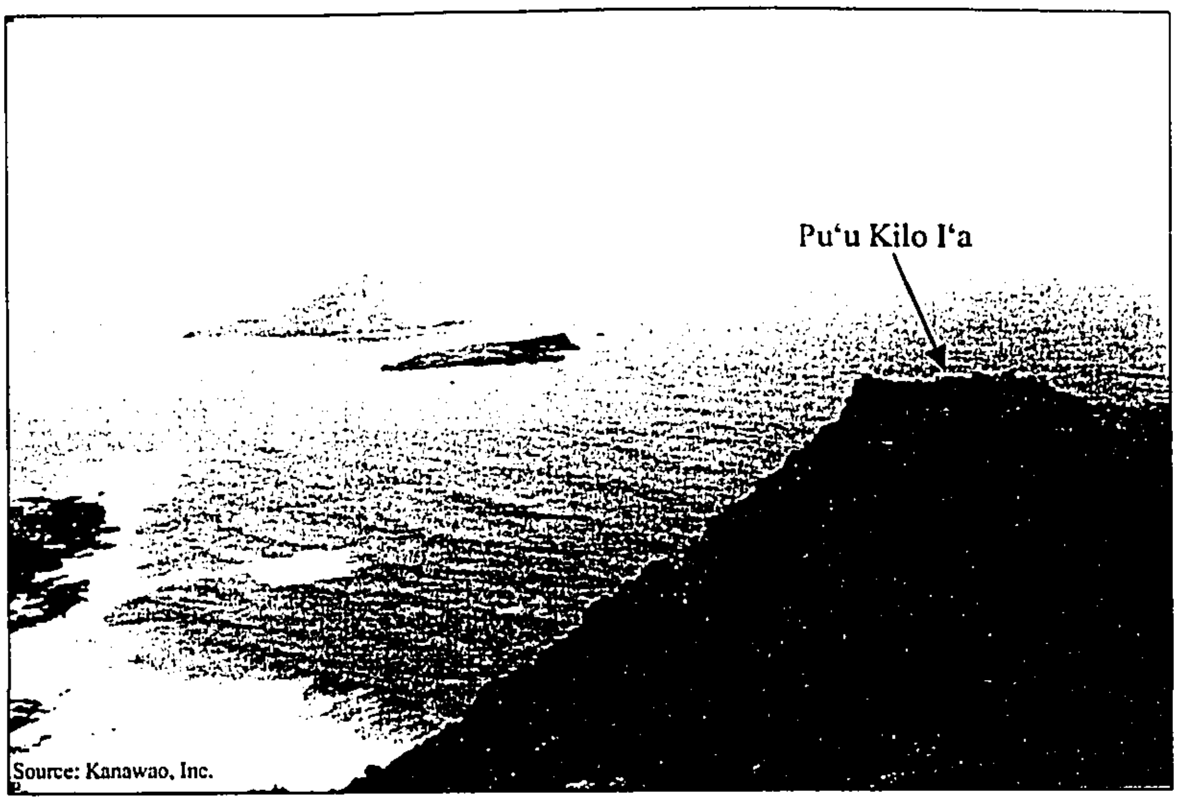

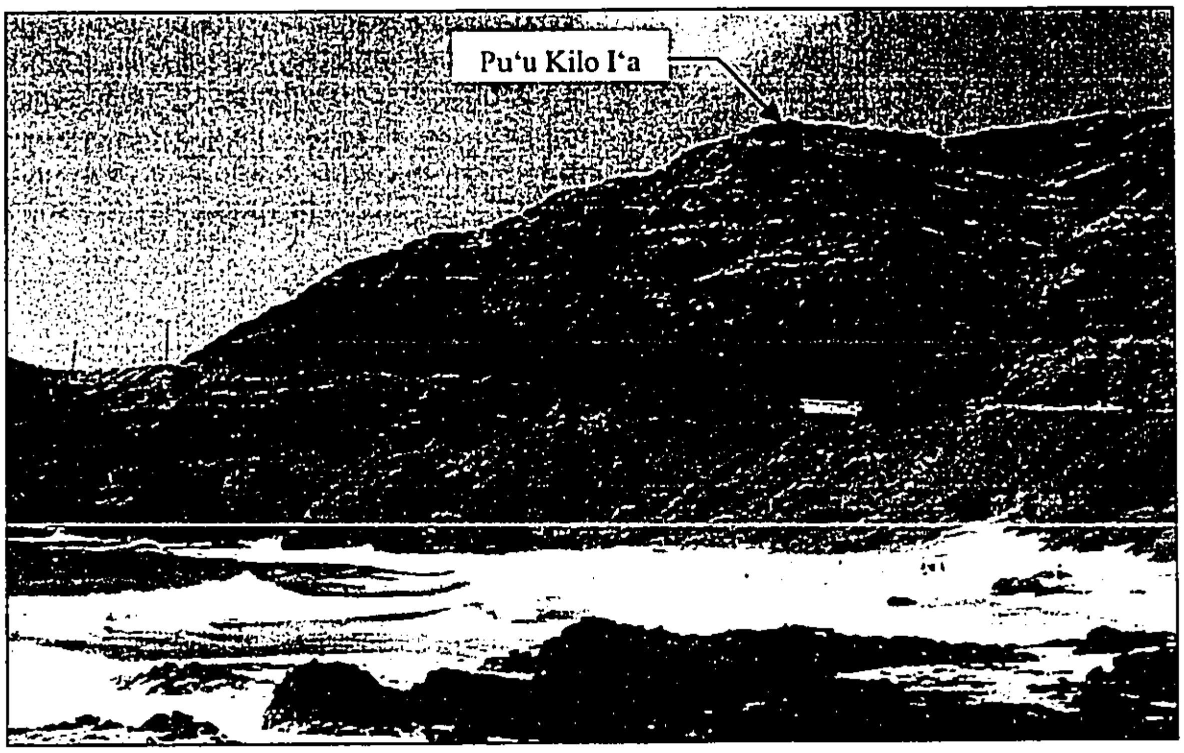

WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT PU'U KILO I'A LOCATION	Photos 10 & 11

road closures. To minimize such impacts, required daytime lane closures will be limited to weekdays between 8:30 am and 3:30 pm, when at least one-lane will be open for traffic in both directions. Nighttime road closure will be limited to weekdays between 9:30 pm and 4:30 am. Notices and schedules for road and lane closures will be provided through various media, including newspaper, radio and TV announcements and roadway signage, including portable electronic message signs at key locations prior to and during road and lane closures. Passage for emergency vehicles will be provided at all times during lane and road closures.

By contrast, the previous rockfall netting project required daytime road closures during certain phases of construction. An Economic Impact Assessment was prepared by Decision Analysts Hawai'i, Inc. in September 2002 to assess the economic impacts of the proposed construction activity and road and lane closures on the affected businesses and commuters. The primary adverse economic impact addressed by the Assessment was the three-week period of daytime road closure required for the previous rockfall netting project. Since the proposed additional rockfall protection and road stabilization measures will not require daytime road closures, economic impacts are not anticipated to be significant.

In the long-term, the proposed rockfall protection and road stabilization measures, as well as the previous rockfall netting project will improve public safety along this section of Kalaniana'ole Highway by mitigating a rockfall hazard, addressing road subsidence and upgrading the highway to adhere to current design standards. No long-term impacts to population or housing in the vicinity of the project site are anticipated as a result of project-related activities.

3.13 Public Services and Facilities

3.13.1 Police Protection

Police protection for the project area is provided by the City and County of Honolulu Police Department, from its Kailua Police Substation located at 219 Ku'ulei Road in Kailua.

Impacts and Mitigation Measures

No significant short-term impacts to police services are anticipated during construction of the proposed project. Emergency vehicles will be allowed to traverse the project site via Kalaniana'ole Highway at all times, including during nighttime road closures, when access by the public will be restricted.

In the long-term, the proposed project will improve safety for emergency vehicles traveling along this section of Kalaniana'ole Highway.

3.13.2 Fire Protection

Fire protection for the project area is provided by the Hawai'i Kai Fire Station located at 515 Lunalilo Home Road. Back-up support would be provided by the Waimānalo Fire Station (#27) located at 41-1301 Kalaniana'ole Highway.

Impacts and Mitigation Measures

No significant short-term impacts to fire protection services are anticipated during construction of the proposed project. Emergency vehicles will be allowed to traverse the project site via Kalaniana'ole Highway at all times, including during nighttime road closures, when access by the public will be restricted.

In the long-term, the proposed project will improve safety for emergency vehicles traveling along this section of Kalaniana'ole Highway.

3.13.3 Health Care Services

Castle Medical Center, located approximately 22 miles northwest of the project site, offers a full range of emergency and acute-care services. The closest ambulance unit is located at the Hawai'i Kai Fire Station. An ambulance unit is also stationed at the Waimānalo Fire Station.

Impacts and Mitigation Measures

No significant short-term impacts to ambulance services are anticipated during construction of the proposed project. Emergency vehicles will be allowed to traverse the project site via Kalaniana'ole Highway at all times, including during nighttime road closures, when access by the public will be restricted.

In the long-term, the proposed project will improve safety for emergency vehicles traveling along this section of Kalaniana'ole Highway.

3.13.4 Recreational Facilities

Recreational facilities in the project vicinity include the following:

Oahu Bike Path: The Department of Transportation, Highways Division bike plan designates a portion of Kalaniana'ole Highway adjacent to the project site for experienced bicyclists as the road includes adequate shared use between bicyclists and motorists.

The addition of a metal railing atop the new 32-inch high barrier wall is being considered by DOT-HWY to protect bicyclists. The proposed railing will be ten inches tall, for an overall height of 42 inches from the finished pavement. Consideration of the additional railing was prompted by the recent striping of a bicycle lane along the makai side of Kalanianaole Highway fronting the Upper Makapu'u Lookout and a portion of Ka Iwi State Park. The bicycle lane clearly

indicates that the Waimanalo-bound makai lane of the highway extending from the lookout is intended for shared use with bicycles. Addition of the bicycle railing will comply with the requirements of Chapter 343, HRS.

Makapu'u Lookout: This lookout is located on about 0.65 acre of land between Makapu'u Beach Park and the Hawai'i Kai Golf Course. Owned by DHHL, it is currently under License Agreement with the Division of State Parks. This lookout gives sightseers easy access to one of the most spectacular views of the Windward Coast, from Waimānalo to the Kāne'ohe Marine Corps Air Station on the Mōkapu Peninsula, and from the steep Ko'olau cliffs to the offshore Mānana and Kāohikaipu Islands.

Makapu'u Beach Park: Makapu'u Beach Park is renowned for its bodysurfing waves which attract bodysurfers throughout the islands. The majority of the beach park is steep and rocky. Usable portions of the park include approximately one acre of sandy beach. The City and County of Honolulu is presently under License Agreement from DHHL for operation and maintenance of the beach park.

Sea Life Park: This privately owned and operated marine park is located approximately 1,000 feet west of the project site, and mauka from the entrance to Makapu'u Beach Park. Features of the park include a 300,000-gallon Hawaiian Reef exhibit, Ocean Theater, a Hawaiian Monk Seal care center, and various other marine life exhibits. Besides its entertainment features, Sea Life Park's Oceanic Institute is also a world-class research facility.

Impacts and Mitigation Measures

The proposed plans will increase the existing shoulder width from 2-feet to 4-feet wide and will make bicycle travel safer.

The primary project-related impact to nearby recreational resources is the temporary inconvenience to access these recreational facilities during weekday daytime lane closures.

3.14 Roadway System and Traffic

Kalaniana'ole Highway is a two-lane, two-way State highway that serves as the main access road along East Honolulu. Kalaniana'ole Highway begins at the terminus of the H-1 Freeway in Wai'alae-Kāhala and wraps around Makapu'u Point, the eastern tip of O'ahu to connect with the Pali Highway and Kamehameha Highway at Castle Junction in Kailua. In conjunction with the preparation of a traffic impact assessment, Wilson Okamoto Corporation conducted 24-hour mechanical counts of traffic along Kalaniana'ole Highway during November 15-20, 2001 at the following locations:

- Northeast of the Hawai'i Kai Golf Course
- Southeast of Waimānalo Beach Park

According to the methodologies prescribed by the Transportation Research Board *Highway Capacity Manual* and the Highway Capacity Software developed by the Federal Highway Administration, operating conditions at these locations are described in terms of the following:

- Level-of-service (LOS) ranging from LOS "A" (best) to Los "F" (worst), and,
- Volume-to-Capacity (v/c) ratio, which measures the relative traffic demand to the road carrying capacity. A v/c ratio of 1.00 indicates that the roadway is operating at capacity, while a ratio less or greater than 1.00 indicates that the roadway is operating below of above its capacity, respectively.

For the segment of Kalaniana'ole Highway northeast of the Hawai'i Kai Golf Course, the traffic counts indicate the following:

- The weekday peak hour generally occurs between 3:45 pm and 4:45 pm and operates at LOS "C" with a v/c ratio of 0.34; and
- The weekend peak hour generally occurs between 3:15 pm and 4:15 pm and operates at LOS "C" with a v/c ratio of 0.39.

For the segment of Kalaniana'ole Highway southeast of Waimānalo Beach Park, the traffic counts indicate the following:

- The weekday peak hour generally occurs between 3:30 pm and 4:35 pm and operates at LOS "C" with a v/c ratio of 0.37; and
- The weekend peak hour generally occurs between 3:15 pm and 4:15 pm and operates at LOS "C" with a v/c ratio of 0.41.

Impacts and Mitigation Measures

In the short-term, project-related construction activities will periodically impact access along Kalaniana'ole Highway during temporary lane and road closures. To minimize such impacts, required daytime lane closures will be limited to weekdays between 8:30 am and 3:30 pm, when at least one-lane will be open for traffic in both directions. Nighttime road closure will be limited to weekdays between 9:30 pm and 4:30 am. Notices and schedules for road and lane closures will be provided through various media, including newspaper, radio and TV announcements and roadway signage, including portable electronic message signs at key locations prior to and during road and lane closures. Passage for emergency vehicles will be provided at all times during lane and road closures.

A Traffic Impact Assessment was prepared by Wilson Okamoto & Associates, Inc. in February 2002 to assess the traffic impacts of the road and lane closures. The primary adverse traffic impact addressed by the

Assessment was the diversion of traffic onto the Pali Highway during the three-week period of daytime road closure required for the previous rockfall netting project. Since the proposed additional rockfall protection and road stabilization measures will not require daytime road closures, traffic impacts are not anticipated to be significant.

During construction, construction vehicles will park within the project site and, thus, will not affect traffic flow along adjoining roadways except while traveling to and from the site. As appropriate, construction contractor(s) will be required to mitigate potential vehicular and pedestrian traffic impacts through appropriate traffic control measures and safety devices. Examples of measures that may be employed include:

- Publishing newspaper notices to alert the public of construction projects;
- Providing signage and other warnings to alert approaching motorists and pedestrians to construction activities ahead;
- Providing barriers, cones, signage, lighting, non-skid covering over trenches, adequate and safe sidewalk widths, adequate intersection visibility and other provisions to promote safe passage of vehicles and pedestrians through construction zones;
- Restricting transport of construction vehicles during the peak traffic hours. To the extent possible, require construction vehicles to use available main routes/roads as alternate routes to the project site rather than local streets, to minimize the impacts on area residents;
- Providing flaggers and/or police officers, when necessary, to control traffic and pedestrian flow;
- Notifying providers of emergency services (fire, ambulance and police) prior to implementation of any required detours or street closures;
- Notifying the City Department of Transportation Services to alert O'ahu Transit Services of the detours or street closures; and,
- Providing appropriate barriers, as necessary, to deter the public from unauthorized entry into restricted or hazardous construction zones during working and non-working hours.

These measures were implemented, as appropriate, for road and lane closures during the previous rockfall netting project and will be implemented, as appropriate, for proposed additional rockfall protection and road stabilization construction activities.

3.15 Utilities

3.15.1 Water System

Water service in the vicinity of the project site is provided by the City and County of Honolulu Board of Water Supply (BWS), which maintains an integrated system of source wells, storage reservoirs and distribution lines. A 36-inch transmission

line runs along the mauka side of Kalaniana'ole Highway, interconnecting the Hawai'i Kai and windward water systems. The BWS holds an easement for an existing 50-foot wide waterline and tunnel easement which traverses through the eastern portion of the project site. There is also an abandoned water line crossing Kealakīpapa Valley and Makapu'u Head, which serviced the Makapu'u Lighthouse.

Impacts and Mitigation Measures

No significant impacts on the existing water system are anticipated as a result of the proposed project. During design and construction of the proposed project, close coordination will be maintained with BWS to ensure that the water system will not be adversely impacted and that water service to adjacent areas will not be interrupted. Coordination will also be made with the BWS to ensure that its existing 50-foot wide waterline and tunnel easement will not be adversely impacted as a result of the proposed project.

3.15.2 Wastewater System

There are no municipal wastewater collection or transmission lines in the vicinity of the project site that could be impacted by the proposed project.

3.15.3 Electrical and Communications Systems

Overhead electrical, telephone and cable television lines run along Kalaniana'ole Highway through the project site.

Impacts and Mitigation Measures

The existing overhead utility lines and utility poles in the project area will be replaced with an underground utility system. No significant disruptions of utility service during construction are anticipated. The design of the proposed underground utility system was closely coordinated with the affected utility service providers and further coordination will be pursued during construction to minimize disruption of service.

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4. RELATIONSHIP TO LAND USE PLANS AND POLICIES

A number of State plans, policies and controls provide guidelines for development within the State of Hawai'i. These guidelines include the Hawai'i State Plan, State Functional Plans, State Land Use Law, and the Coastal Zone Management Act. The following describes the relationship of the proposed project to each of these plans and regulations.

4.1 Hawai'i State Plan

The Hawai'i State Plan was developed to serve as a guide for future development of the State of Hawai'i in the areas of population growth, economic benefits, enhancement and preservation of the physical environment, facility systems maintenance and development, and socio-cultural advancement. The Plan identifies the goals, objectives, policies and priorities for the development and growth of the State, for which guidelines have been provided to give direction to the overall development of the State.

The proposed project's consistency with the objectives and policies of the Hawai'i State Plan is as follows:

4.1.1 Physical Environment (HRS §226-11, -12, & -13)

§226-11 Objectives and policies for the physical environment—land based, shoreline, and marine resources. (a) Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives: (1) Prudent use of Hawai'i's land-based, shoreline, and marine resources. (2) Effective protection of Hawai'i's unique and fragile environmental resources.

(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to: (3) Take into account the physical attributes of areas when planning and designing activities and facilities. (8) Pursue compatible relationships among activities, facilities and natural resources.

§226-12 Objectives and policies for the physical environment—scenic natural beauty, and historic resources. (a) Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources.

(b) To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to: (3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.

§226-13 Objectives and policies for the physical environment—land, air, and water quality. (a) Planning for the State's physical environment with regard to

land, air, and water quality shall be directed towards achievement of the following objectives: (1) Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resource. (2) Greater public awareness and appreciation of Hawai'i's environmental resources.

(b) To achieve the land, air and water quality objectives, it shall be the policy of this State to: (2) Promote the proper management of Hawai'i's land and water resources. (5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.

The proposed additional rockfall protection and road stabilization measures, as well as the previous rockfall netting project, are interim measures intended to allow Kalaniana'ole Highway to operate safely until a long-term solution to the identified rockfall hazard can be determined. Protection of the important scenic resources associated with the project area was a major consideration in the selection and design of the proposed measures. No long-term impacts to air or water quality are anticipated to result from the proposed project and short-term construction related impacts will be mitigated by applying appropriate Best Management Practices.

4.1.2 Facility Systems (HRS §226-14 & -17)

§226-14 Objectives and policies for facility systems—in general. (a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.

(b) To achieve the general facility systems objective, it shall be the policy of this State to: (1) Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

§226-17 Objectives and policies for facility systems—transportation. (a) Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives: (1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods. (2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.

(b) To achieve the transportation objectives, it shall be the policy of this State to: (1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter. (6) Encourage transportation systems that serve to accommodate present and future development needs of communities.

Kalaniana'ole Highway is the primary means of regional travel in the East Honolulu region and serves established communities from Waimānalo to Kāhala. The proposed project, in conjunction with previous rockfall netting project, will allow Kalaniana'ole Highway to operate safely until a long-term solution to the identified rockfall hazard can be determined.

4.1.3 Socio-Cultural Advancement (HRS §226-25)

§226-25 Objectives and policies for socio-cultural advancement—culture. (a) Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai'i's people.

(b) To achieve the culture objective, it shall be the policy of this State to: (1) Foster increased knowledge and understanding of Hawai'i's ethnic and cultural heritages and history of Hawai'i. (3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawai'i.

Potential impacts of the proposed project, as well as the previous rockfall netting project, on cultural resources have been assessed by a cultural impact assessment attached as Appendix D. No significant impacts on cultural resources are anticipated, as discussed in Section 3.11.2.

4.2 State Functional Plans

The Statewide planning system requires the preparation of State Functional Plans which are approved by the Governor of Hawai'i. The plans are formulated to specify in greater detail the policies, guidelines, and priorities set forth in the Hawai'i State Plan. The State Functional Plans guide the implementation of State and County actions in the areas of Energy, Transportation, Historic Preservation, Recreation, Health, Education, Housing, Tourism, Conservation Lands, Employment, Water Resources, Human Services, Education, Higher Education, and Agriculture. The following are objectives, policies and implementing actions of the Functional Plans as they relate to the proposed project:

4.2.1 State Transportation Functional Plan

Objective I.G: Improved transportation maintenance programs.

Policy I.G.1. Adopt an aggressive transportation maintenance program.

Implementing Action 1.G.1.a. Increase average highway resurfacing frequency from 15 to 12 years.

Implementing Action 1.G.1.b. Provide for aggressive preventive maintenance programs.

Policy I.G.2. Conduct maintenance work to minimize disruption to the general public.

Implementing Action I.G.2.a. Perform night/off-hour work as appropriate.

The proposed project will stabilize the roadway in this section of Kalaniana'ole Highway, allowing it to operate safely. Temporary road closures during construction will be limited to weeknights and temporary daytime lane closures will be limited to off-peak weekday hours.

4.3 State Land Use Districts

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect, and encourage the development of lands in the State for uses that are best suited to the public health and welfare for Hawai'i's people. The State Land Use Commission classifies all lands in the State into four land use districts: Urban, Agricultural, Conservation, and Rural (See Figure 4-1).

The project site is predominately within the State Conservation District Special Subzone with a small area within the Limited Subzone (See Figure 4-2). The proposed project will require a Conservation District Use Permit (CDUP) by the Board of Land and Natural Resources. The previous rockfall netting project would also have required a CDUP; however, issuance of an emergency proclamation by the Governor exempted that project

4.4 City and County of Honolulu General Plan

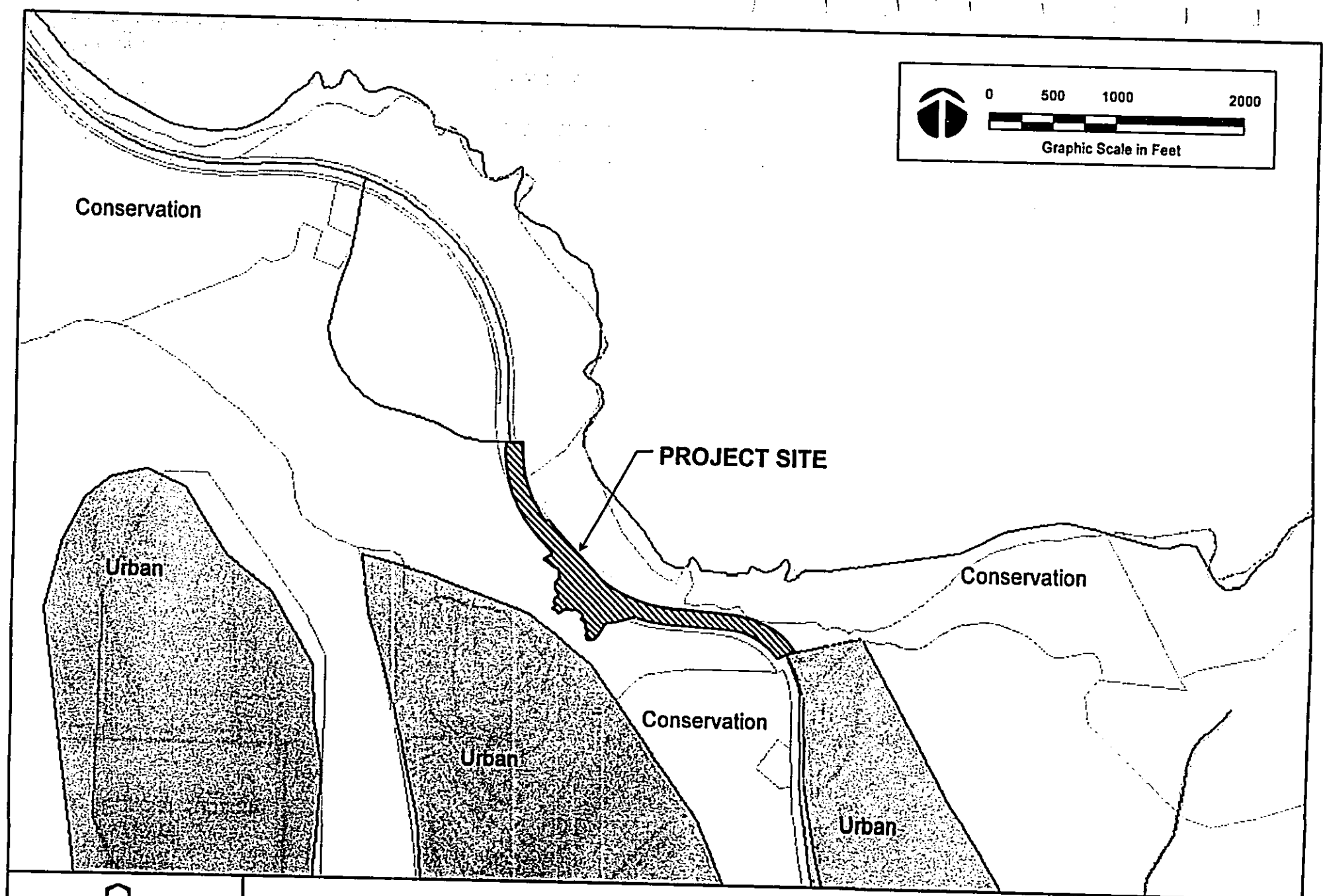
The General Plan of the City and County of Honolulu sets forth broad statements of social, economic, environmental, and design objectives and policies that are desired over the long run. The proposed project is consistent with the following General Plan policies and objectives:

V. Transportation and Utilities

Objective A: To create a transportation system which will enable people and goods to move safely, efficiently, and at a reasonable cost; serve all people, including the poor, the elderly, and the physically handicapped; and offer a variety of attractive and convenient modes of travel.

Policy 1: Develop and maintain an integrated ground-transportation system consisting of the following elements and their primary purposes: (b) Roads and highways—for commercial traffic and travel in non-urban areas.

Policy 5: Improve roads in existing communities to reduce congestion and eliminate unsafe conditions.



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KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

STATE LAND USE DISTRICTS

FIGURE 4-1

FIG 4-1 Subzone.dwg M:\WOA\6396-02\FINAL EA

LEGEND

P	Protective
L	Limited
G	General
SS	Special Subzone

PROJECT SITE

Kaohikaipu Island (State Seabird Sanctuary)

Makapuu Pt

Makapuu Head

Rocks

Puu o Kipahulu

Kamehame Ridge

Kalama Valley

Kamiloiki Valley

Kaiwi Scenic Shoreline Park

WT

0 500 1000 2000

Scale in Feet

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KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

CONSERVATION SUBZONES

FIGURE 4-2

The proposed additional rockfall protection and road stabilization measures, as well as the previous rockfall netting project, are interim measures intended to allow Kalaniana'ole Highway to operate safely until a long-term solution to the identified rockfall hazard can be determined.

VIII. Public Safety

Objective B: To protect the people of O'ahu and their property against natural disasters and other emergencies, traffic and fire hazards, and unsafe conditions.

Policy 6: Reduce hazardous traffic conditions.

The proposed additional rockfall protection and road stabilization measures, as well as the previous rockfall netting project, are interim measures intended to allow Kalaniana'ole Highway to operate safely until a long-term solution to the identified rockfall hazard can be determined.

4.5 Ko'olaupoko Sustainable Communities Plan

The island of O'ahu is divided into eight Development/Sustainable Communities Plan regions. Each plan implements the objectives and policies of the General Plan and serves as a guide for public policy, investment, and decision making within their respective region.

The project site is located within the region encompassed by the Ko'olaupoko Sustainable Communities Plan (SCP). The Plan recognizes Kalaniana'ole Highway as a major roadway that "links Ko'olaupoko to communities in East Honolulu and serves as a scenic, secondary route for travel between Kailua/Waimānalo and Honolulu."

With respect to scenic resources, Section 3.1.3.2 of the Ko'olaupoko SCP recommends the maintenance of makai view channels along Kalaniana'ole Highway between Makapu'u Point and Waimānalo Beach Park, to visually define a "windward" sense of place, a key element of the plans' vision, expressed in Section 2.2.3, Preserve and Enhance Scenic, Recreational and Cultural Features that Define a Sense of Place. The Plan's Open Space Map and Figure 2.4, Significant Scenic Features and Viewplanes in Ko'olaupoko also identify the project site as offering significant viewplane from stationary point and continuous *makai* views from the lookout.

The proposed additional rockfall protection and road stabilization measures, as well as the previous rockfall netting project, are interim measures intended to allow Kalaniana'ole Highway to operate safely until a long-term solution to the identified rockfall hazard can be determined. Protection of the important scenic

resources associated with the project area was a major consideration in the selection and design of the proposed measures.

4.6 Land Use Ordinance

The City and County of Honolulu Land Use Ordinance (LUO) regulates land use in accordance with adopted land use policies, including the City and County of Honolulu General Plan and the Development/Sustainable Communities Plans. The project site is within the P-1 Restricted Preservation District (See Figure 4-3).

Section 21-3.40-1 of the LUO provides that "within the P-1 restricted preservation district, all uses, structures and development standards shall be governed by the appropriate state agencies."

4.7 Special Management Area

Pursuant to the Hawai'i Coastal Zone Management Act (Chapter 205A, Hawai'i Revised Statutes), all counties have enacted ordinances establishing Special Management Areas (SMAs). Any development within the SMA, including development proposed by the State, requires an SMA permit. On O'ahu, the SMA permit is administered by the City Department of Planning and Permitting (DPP) and approved by Honolulu City Council pursuant to Ordinance 84-4.

The project site is within the boundaries of the SMA (See Figure 4-4). Although the complete portion of the project would normally require the procurement of a SMA Use Permit, the project was exempt from this requirement due to the issuance of the emergency proclamation by the Governor for rocky overhang removal, scaling, and netting installation. The proposed slope stabilization and road stabilization improvements will, however, require a SMA Use Permit. The project's consistency with the objectives, policies and guidelines of the Hawai'i Coastal Zone Management Act is discussed below.

(1) Recreational Resources

Objective:
Provide coastal recreational opportunities accessible to the public.

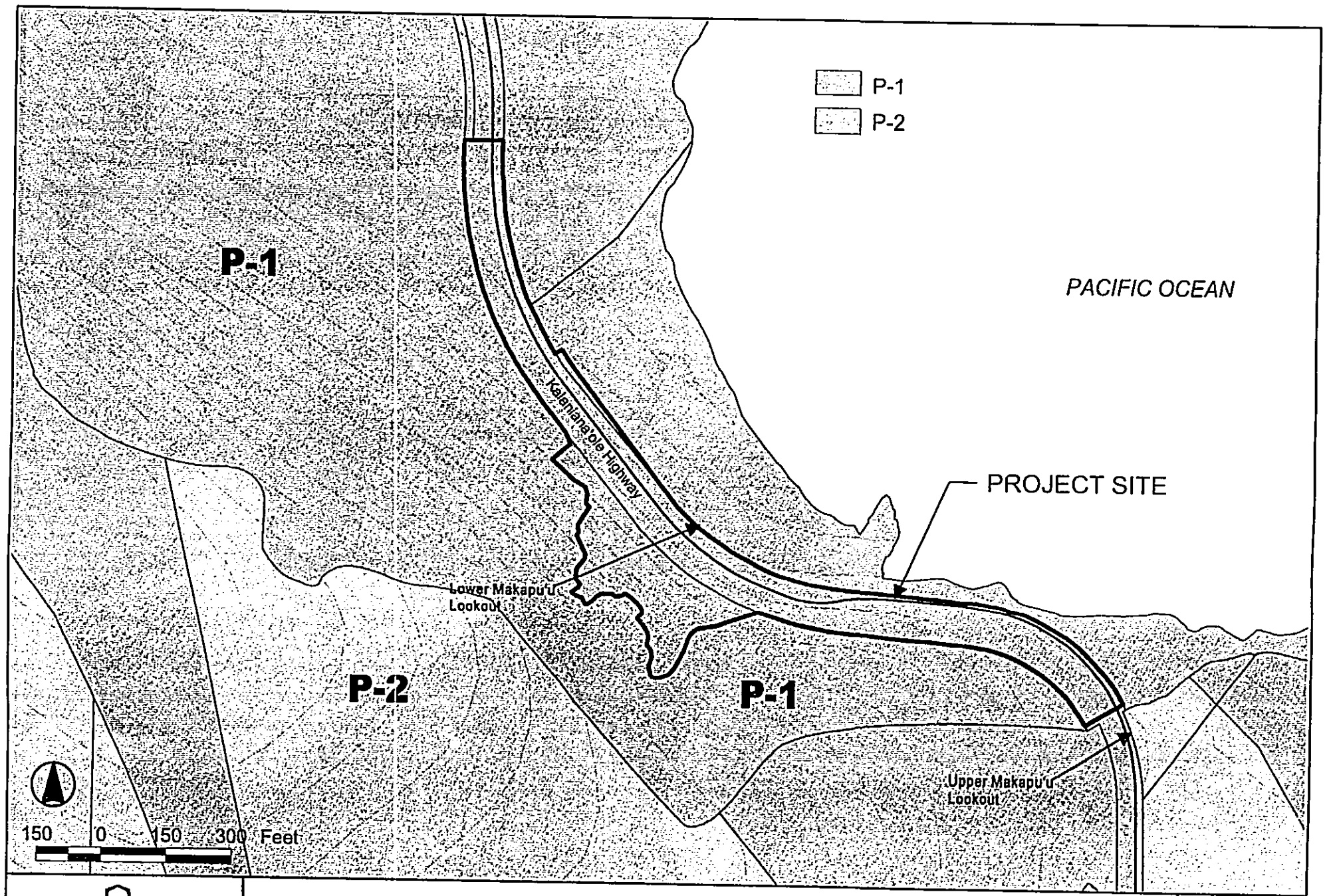
Policies

(A) Improve coordination and funding of coastal recreational planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to



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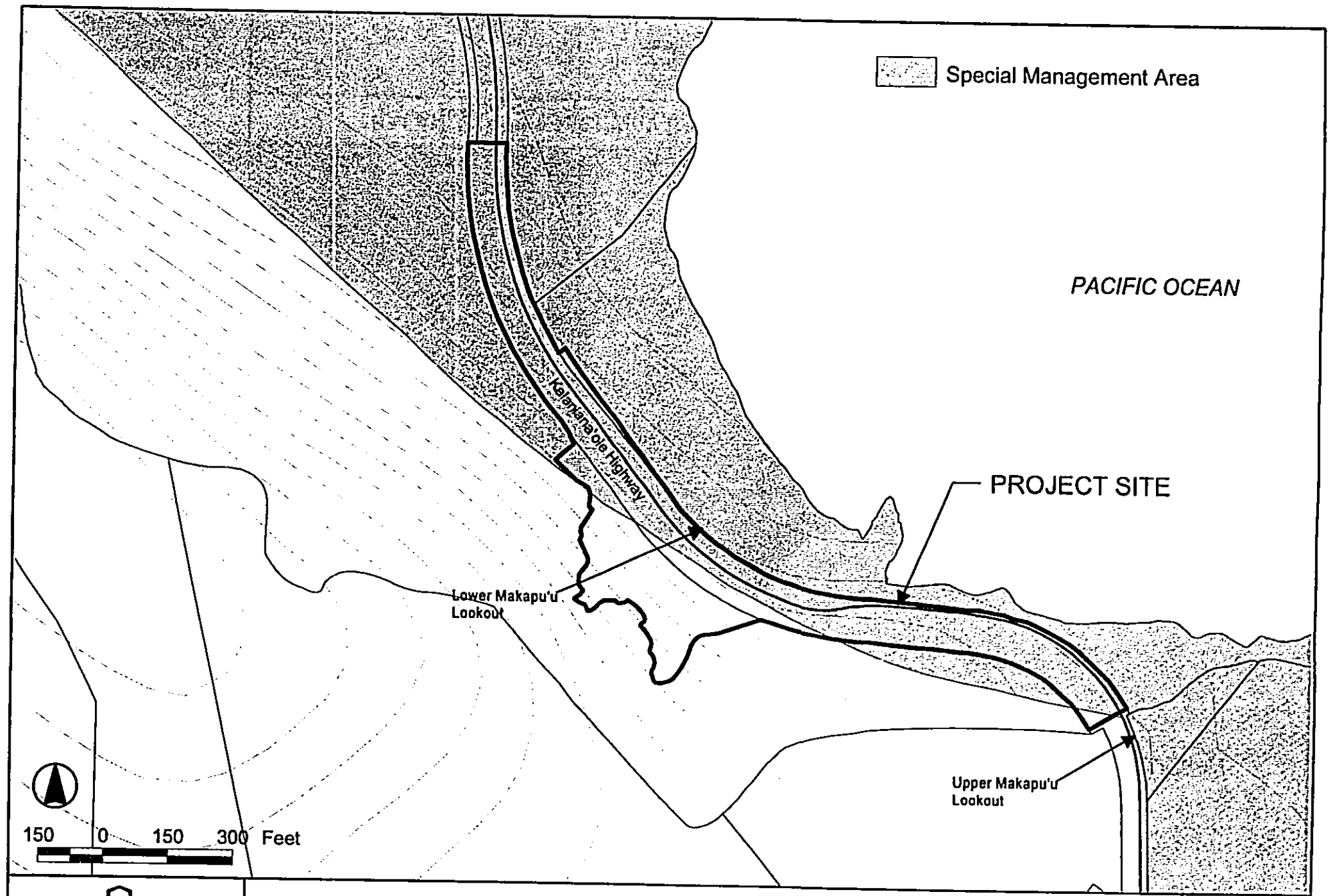
KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

ZONING MAP

FIGURE 4-3



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KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

SPECIAL MANAGEMENT AREA

FIGURE 4-4

surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

(iii) *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*

(iv) *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*

(v) *Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*

(vi) *Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters.*

(vii) *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*

(viii) *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of Section 46-6, HRS.*

In the short-term, periodic daytime lane closures during construction will temporarily impede access to recreational resources in the vicinity. Such lane closures will be limited to off-peak traffic periods on weekdays. In the long-term, the project will provide greater public safety for accessing recreational resources in the vicinity of the project site. No significant impacts on coastal water quality are anticipated, as discussed in Section 3.4.

(2) *Historic resources*

Objective:

Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

(A) *Identify and analyze significant archaeological resources;*

(B) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*

(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

No significant impacts on historic resources are anticipated, as discussed in Section 3.11.1.

(3) Scenic and open space resources

Objective:
Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:
(A) Identify valued scenic resources in the coastal zone management area;
(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and
(D) Encourage those developments which are not coastal dependent to locate in inland areas.

No significant impacts on scenic and open space resources are anticipated, as discussed in Section 3.10.

(4) Coastal ecosystems

Objective:
Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:
(A) Improve the technical basis for natural resource management;
(B) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
(C) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
(D) Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.

No significant impacts on coastal water quality are anticipated, as discussed in Section 3.4.

(5) Economic Uses

Objective:
Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:
(A) Concentrate coastal dependent development in appropriate areas;
(B) Ensure that coastal dependent developments such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and
(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
(i) Use of presently designated locations is not feasible;
(ii) Adverse environmental effects are minimized; and
(iii) The development is important to the State's economy.

In the long-term, the project will provide greater public safety for accessing coastal-dependent development served by this section of Kalaniana'ole Highway.

(6) Coastal hazards

Objective:
Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:
(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;
(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program;
(D) Prevent coastal flooding from inland projects; and
(E) *Develop a coastal point and nonpoint source pollution control program.*

In the long-term, the project will provide greater public safety for coastal hazard evacuation routes along this section of Kalaniana'ole Highway.

(7) *Managing Development*

Objective:
Improve the development review process, communication and public participation in the management of coastal resource and hazards.

Policies:
- *(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
- *(B) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and*
- *(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

The DOT-HWY conducted a series of public informational meetings regarding the previous rockfall netting project prior to and during its implementation. The need for the proposed project was also discussed.

(8) *Public participation*

Objective:
Stimulate public awareness, education, and participation in coastal management.

Policies:
- *(A) Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;*
- *(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and*
- *(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

The DOT-HWY conducted a series of public informational meetings regarding the previous rockfall netting project prior to and during its implementation. The need for the proposed project was also discussed.

(9) Beach Protection

Objective:
Protect beaches for public use and recreation.

Policies:
(A) Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;
(B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and
(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

The proposed project will not impact Makapu'u Beach.

(10) Marine Resources

Objective:
Implement the State's ocean resources management plan.

Policies:
(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
(B) Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
(C) Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;
(D) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;
(E) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
(F) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

No significant impacts on coastal water quality are anticipated, as discussed in Section 3.4.

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5. ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action Alternative

The No Action Alternative would continue to expose the public to a known remaining rockfall hazard along this section of Kalaniana'ole Highway. With regard to the proposed road stabilization measures, the No Action Alternative would allow damage to the roadway to continue. Over time, significant structural damage to the retaining wall could result. If such damage poses a public safety hazard, the highway could be closed to traffic until it is repaired. Repair work for such damage would be significantly greater and more expensive than currently proposed.

5.2 Alternative Project Improvements

Based on an evaluation of the remaining rockfall hazard and road subsidence condition, various alternatives for additional rockfall protection and road stabilization were considered with regard to factors such as cost, effectiveness, road closure requirements during construction, maintenance requirements, longevity and visual impact.

The alternative of removing all talus material was considered but dismissed due to its high cost, and visual impact of installing the rockfall impact barrier along the mauka side of the highway, instead of on the proposed terrace.

The alternative or entirely replacing the rock retaining wall was considered but dismissed due to its high cost, unnecessary replacement of structurally sound portions of the wall, and extended road and lane closure requirements during construction.

5.3 Permanent Rockfall Protection

The proposed rockfall protection measures, as well as the previously completed rockfall netting project, are considered interim measures until a permanent rockfall protection plan can be developed and implanted. A potential permanent solution may involve constructing a tunnel and rerouted highway through the hillside to avoid the hazard area. Another potential solution would be to construct a protective structure over the existing highway. The tunnel alternative would be very costly while constructing a protective structure over the existing highway would require long periods of road closure. Due to the imminent threat posed by the identified rockfall hazard and the time required to fully assess, debate, select, fund, then design and construct a permanent solution, the interim measures were pursued.

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6. DETERMINATION OF FONSI

Potential impacts of the proposed project have been evaluated in accordance with the significance criteria of Section 11-200-12 of the Department of Health's Administrative Rules. Discussion of the project's conformance to the criteria is presented as follows:

(1) Involve an irrevocable commitment to loss or destruction of any natural cultural resource;

The project will not involve irrevocable loss or destruction of any natural cultural resource, as discussed in Section 3.11.2.

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

The project will not curtail the beneficial uses of the environment.

(3) Conflict 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 project does not conflict with the long-term environmental policies, goals and guidelines of the State of Hawai'i, as discussed in Chapter 4.

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

Periodic road and lane closure during construction will be an inconvenience for residents, businesses and visitors traveling through the project area. Proposed limitations on the time and days of road and lane closures would be permitted are based on minimizing such inconvenience. In the long-term, the proposed project will mitigate the potential for substantial impacts on economic or social welfare resulting from unpredictable and indefinite road closure as a result of rockfalls or major road subsidence if these problems are not addressed.

(5) Substantially affect public health;

No impacts to the public's health and welfare are anticipated.

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

No substantial secondary impacts are anticipated as a result of the project since the existing roadway capacity will be restored following construction.

(7) Involve a substantial degradation of environmental quality;

Construction activities associated with the proposed project are anticipated to result in relatively insignificant short-term impacts to noise, air quality, and traffic in the immediate project vicinity.

(8) Individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed project will have a cumulative visual impact in association with the previous rockfall netting project. The cumulative visual impact of both projects has been minimized through design and incorporation of mitigation measures as discussed in Section 3.10. As proposed interim rockfall protection measures, they defer commitment to potentially larger future actions for a permanent rockfall protection solution.

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

There are no known rare, threatened or endangered species of flora or fauna or associated habitat on the project site that could be adversely affected, as discussed in Sections 3.6 and 3.7.

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

No significant short or long term detrimental impacts on air or water quality or ambient noise levels are anticipated, as discussed in Sections 3.4, 3.8 and 3.9, respectively.

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

No significant short- or long-term impacts on environmentally sensitive areas are anticipated. The proposed rockfall projection measures will additional mitigate an identified geological hazard.

(12) Substantially affect scenic vistas and viewplanes identified in county or state plans or studies; or

No significant impact on scenic vistas and viewplanes identified in county or state plans or studies is anticipated, as discussed in Section 3.10.

(13) Require substantial energy consumption.

Project construction will not require a substantial increase in energy consumption. Project operation does not require energy consumption.

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7. REFERENCES

1. George A.L. Yuen & Associates. *State Water Resources Protection Plan.* State of Hawaii, Review Draft March 1992.

2. Hawaii State Department of Health. *Annual Summary Hawaii Air Quality Data.* 2000.

3. Hawaii State Department of Business, Economic Development, and Tourism. *The Hawaii Census 2000.* http://www.hawaii.gov/dbedt/census2k/index.html (November 6, 2002).

4. Land Study Bureau. *Detailed Land Classification- Island of Oahu.* L.S.B. Bulletin No. 11, December 1972.

5. Macdonald, Gordon A., A.T. Abbott and Frank L. Peterson. *Volcanoes in the Sea, The Geology of Hawaii, Second Edition.* 1986.

6. Stearns, Harold T. *Geology of the State of Hawaii, Second Edition.* 1985

7. University of Hawaii, Department of Geography. *Atlas of Hawaii.* The University Press of Hawaii, Honolulu, Third Edition 1998.

8. United States Department of Agriculture Soil Conservation Service. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii,* August 1972.

9. U.S. Federal Emergency Management Agency. *Flood Insurance Rate Map, Panel Number 15003C0370 E.* November 20, 2000.

10. Wilson Okamoto & Associates, Inc. *Ka Iwi State Park Master Plan and Final Environmental Impact Statement.* Prepared for the State of Hawai'i Department of Land and Natural Resources. April 1996.

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8. CONSULTATION

8.1 Pre-Assessment Consultation

Pre-assessment consultation was conducted in February 2002, prior to the issuance of an emergency proclamation by Governor Cayetano on October 25, 2002 under which the previous rockfall netting project was completed. Therefore, the project described included the rockfall netting project, which required daytime and nighttime road and lane closures, as well as controlled-blasting to remove rocky overhangs. Most of the substantive comments received pertained to the impacts of daytime road closures, which are not required for the currently proposed project.

The following agencies and organization were contacted during the preparation of the Draft EA. Of the 16 parties that formally replied during the pre-assessment period, some had no comments, as indicated by the ✓, while others provided substantive comments, as indicated by ✓✓. All written comments are reproduced herein. Inasmuch as the substantive comments pertained primarily to impacts associated with the previously completed rockfall netting project, no response letters were prepared.

Federal Agencies

U.S. Department of the Interior, Fish and Wildlife Service
✓ U.S. Department of Agriculture, Natural Resources Conservation Service
U.S. Department of the Army, Engineer District Honolulu
✓ U.S. Department of Transportation, Federal Highway Administration
U.S. Geological Survey

State Agencies

Department of Business, Economic Development & Tourism (DBEDT)
DBEDT, Office of Planning
✓✓ DBEDT, Land Use Commission
✓✓ Department of Land and Natural Resources (DLNR)
DLNR, Land Division
✓✓ DLNR, Historic Preservation Division
Department of Defense
Department of Health (DOH)
✓✓ DOH, Office of Environmental Quality Control
Department of Hawaiian Home Lands
Office of Hawaiian Affairs
University of Hawai'i at Mānoa, Environmental Center

City and County of Honolulu Agencies

Department of Planning and Permitting
✓ Department of Design and Construction

✓✓	Board of Water Supply
✓✓	Department of Emergency Services
✓✓	Department of Transportation Services
✓	Department of Parks and Recreation
	Department of Environmental Services
✓	Department of Facility Maintenance
	Civil Defense Agency
✓✓	Police Department
✓✓	Fire Department

Organizations

	Waimānalo Neighborhood Board No. 32
	Hawai'i Kai Neighborhood Board No. 1
✓✓	Sea Life Park Hawai'i
✓✓	The Oceanic Institute

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Hawaii Division
300 Ala Moana Blvd., Room 3-306
BOX 50206
Honolulu, HI 96850
March 1, 2002

IN REPLY REFER TO
HEC-HI

Brian K. Minaai
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

Attn: Henry Kennedy, HWY-DS

Dear Mr. Minaai:

Subject: Kalanianaole Highway Improvements at Makapuu Point
(Kalanianaole Highway Improvements, Retaining Wall at Makapuu; Project No. 72B-02-99, and Kalanianaole Highway, Rock Scaling at Makapuu; Project No. 72B-02-02)
Environmental Assessment (EA)
Pre-Assessment Consultation

Thank you for your letter, HWY-DS 2.5691, dated February 21, 2002, providing Federal Highway Administration the opportunity to comment on the project.

We are aware of the need for this project and support the direction of the project. We do not have any comments at this time. However, we are very interested in the results of your environmental studies. Although not mentioned in your Pre-assessment Consultation Project Summary, we assume that you will be holding public meetings. Please notify us of these meetings, once they are scheduled.

If you have any questions, please call me at (808)541-2700 ext. 311.

Sincerely yours,

Richelle M. Suzuki, P.E.
Transportation Engineer

cc: Glenn Ikeda, ParEn, Inc. dba Park Engineering
Earl Matsukawa, Wilson Okamoto & Associates, Inc.

NRCS Natural Resources Conservation Service

United States Department of Agriculture

P.O. Box 50004
Honolulu, HI 96850
Phone: 808-541-2600
FAX: 808-541-1335

Our People...Our Islands...In Harmony

April 11, 2002

Mr. Henry Kennedy
State Department of Transportation
Highways Division
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Kennedy:

Subject: Environmental Assessment (EA) and Pre-Assessment Consultation – HWY-DS 2.5691 – Kalanalanaloe Highway Improvements at Makapuu Point (Projects Nos. 72B-02-99 and 7B-02-02, Retaining Wall at Makapuu and Rock Scaling at Makapuu, respectively), Makapuu, Oahu, HI

We have reviewed the above mentioned document and have no comments to offer at this time.

Thank you for the opportunity to review this document.

Sincerely,

KENNETH M. KANESHIRO
State Conservationist

Cc:
Mr. Glenn Ikeda, P.E., ParEn, Inc. dba Park Engineering, 567 South King Street, Suite 300, Honolulu, HI 96813
Mr. Earl Matsukawa, Wilson Okamoto & Associates, Inc., 1907 South Beretania Street, Suite 400, Honolulu, Hawaii 96826

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

ERIC HIRANO
DEPUTY DIRECTOR

LINNEL T. NISHIOKA
DEPUTY DIRECTOR FOR
THE COMMISSION ON WATER
RESOURCE MANAGEMENT

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P.O. BOX 621
HONOLULU, HAWAII 96809

RECEIVED
MAR 13 2002
WILSON OKAMOTO & ASSOC. INC.

MEMORANDUM

To: Henry Kennedy, Civil Engineer & Project Manager
Technical Design Services Office, Design Branch, Highways Division

Through: Brian K. Minaai, Director
Department of Transportation

From: Gilbert S. Coloma-Agaran, Chairperson
Board of Land and Natural Resources

Subject: Pre-Assessment Consultation on the Draft Environmental Assessment (EA) for the Department of Transportation's (DOT) Proposed Improvements at Makapu'u Point. Project No. 72B-02-02, Makapu'u, Oahu, Hawaii

We have reviewed the project summary for the draft EA and would like to be a consulted party in the preparation of the draft EA.

The Division of State Parks will also be implementing proposed improvements for Ka Iwi Scenic Shoreline and as some of these improvements are related and adjacent to DOT's proposed actions, the consultation will ensure that construction activities are coordinated to the mutual satisfaction and benefit of all parties.

Thank you for the opportunity to review and provide comments. Should you have questions, please contact Lauren Tanaka at 587-0293, Park Planning Branch.

c: ParEn, Inc. dba Park Engineering (Glenn Ikeda, P.E.)
Wilson Okamoto & Associates, Inc. (Earl Matsukawa)
Land Division, DLNR (Harry Yada)

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

RECEIVED
MAR 20 2002
WILSON OKAMOTO & ASSOC. INC.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

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

March 14, 2002

Mr. Henry Kennedy
State Department of Transportation, Highways Division
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

LOG NO: 29335 ✓
DOC NO: 0203EJ04

Dear Mr. Kennedy:

SUBJECT: Chapter 6E-8 Historic Preservation Review – Pre Assessment Consultation – EA Kalaniana`ole Highway Improvements at Makapu`u Point (Kalaniana`ole Highway Improvements, Retaining Wall at Makapu`u; Project No. 72-B-02-99 and Kalaniana`ole Highway Rock Scaling at Makapu`u Project No. 72B-02-02)
Makapu`u, Kona, O`ahu
TMK: 3-9-010: por. 001
Waimanalo, Ko`olaupoko, O`ahu
TMK: 4-1-014:por. 002 and 013

Thank you for the opportunity to provide comment on the proposed Kalaniana`ole Highway improvements at Makapu`u, O`ahu. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas.

The State DOT proposes to remedy existing rock fall hazards along Kalaniana`ole Highway at Makapu`u Point as well as road subsidence along this portion of the Highway. This project proposes to stabilize the slope *mauka* of Kalaniana`ole Highway in the vicinity of the Lower Makapu`u Lookout by removing talus material, possible construction of a retaining wall and construction of a temporary road *makai* of the Highway. The DOT also proposes to remove loose rocks and hazardous rocky overhangs from the slope *mauka* of the Highway between the Upper and Lower Makapu`u Lookouts, as well as repair road portions between the lookout areas. Proposed road repairs will include construction of a concrete road and stabilization of the shoulder pavement in the vicinity of the lower lookout area. New guardrails along the makai side of the Highway are proposed at the upper and lower look out areas.

A review of our records shows that portions of the Kealakipapa Valley Road (State Site 50-80-15-03) are located just *makai* and down slope of the upper lookout, with a well documented section outside of the current project area, to the south of the lookout

between Kalaniana`ole Highway and the road to the Makapu`u Lighthouse. Archaeological inventory survey however, has not been conducted within the remaining portions of the proposed project.

Before SHPD can make a determination on the effect of this project on significant historic sites, an archaeological inventory survey of the project area 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 on 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.

Since the DOT proposes to conduct an archaeological inventory survey of the project area, we look forward to reviewing the report of findings and any recommendations made.

Should you have any questions about archaeology, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027. Should you have any questions about burial matters, please feel free to contact Kai Markell at 587-0008. Should you have any questions about cultural matters, please feel free to contact Nathan Napoka at 587-0040.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

c: Mr. A. Van Horn Diamond, Chair, O`ahu Island Burial Council
Mr. Glen Ikeda, P. E., ParEn, Inc. dba Park Engineering, 567 S. King St. Suite 300, Honolulu, HI 96813
Mr. Kai Markell, Burial Sites Program
Mr. Earl Matsukawa, Wilson Okamoto & Associates, Inc. 1907 S. Beretania St. Suite 400, Honolulu, HI 96826
Nick Vacarro, SOH, Land Division, Ref. DOTKALANIANAOLEHWY.COM

BENJAMIN J. CAYETANO
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

March 4, 2002

RECEIVED
MAR 07 2002

Mr. Henry Kennedy
Design Branch
Highways Division
State Department of Transportation
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Kennedy:

Subject: Environmental Assessment ("EA")
Pre-Assessment Consultation
Project Name: Kalanianaole Highway Improvements at Makapuu Point (Kalanianaole Highway Improvements, Retaining Wall at Makapuu; Project No. 72B-02-99, and Kalanianaole Highway, Rock Scaling at Makapuu; Project No. 72B-02-02)
Applicant: State Department of Transportation
TMK Nos: 3-9-010: 001 portion; and
4-1-014: 002 portion, and 013 portion
Maunalua and Waimanalo, Oahu, Hawaii

We have reviewed the subject pre-assessment consultation request forwarded by your transmittal received on February 25, 2002, for various improvements to Kalanianaole Highway to address rockfall protection and roadway stabilization at Maunalua and Waimanalo, Oahu, Hawaii.

We verify that the subject area is predominantly in the State Land Use Conservation District with portions in the Urban District as described in Section 4-Land Use Designations.

Thank you for the opportunity to provide comments on the subject pre-assessment consultation.

Should you require clarification or further assistance in this matter, please contact Russell Kumabe of my staff at (808) 587-3822.

Sincerely,

ANTHONY J.H. CHING
Executive Officer

c: ParEn, Inc. dba Park Engineering (G. Ikeda)
Wilson Okamoto & Associates, Inc. (E. Matsukawa)

BENJAMIN J. CAYETANO
GOVERNOR

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

March 11, 2002

Mr. Brian K. Minaai
Director of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

SUBJECT: KALANIANAOLE HIGHWAY IMPROVEMENTS AT MAKAPUU POINT
[KALANIANAOLE HIGHWAY IMPROVEMENTS, RETAINING WALL AT MAKAPUU; PROJECT NO. 72B-02-99, AND
KALANIANAOLE HIGHWAY, ROCK SCALING AT MAKAPUU;
PROJECT NO. 72B-02-021
ENVIRONMENTAL ASSESSMENT PRE-ASSESSMENT CONSULTATION

Dear Mr. Minaai,

We have reviewed the description of the subject project provided by your letter dated February 21, 2002, and suggest the following:

1. Consult with the neighborhood to be affected.
2. Address cumulative impacts this project may have on proposed projects nearby (ex. Ka Iwi State Park).

We have no other comments to offer at this time, but will reserve further comments when the documents are submitted.

Should you have any questions, please feel free to call our office at 586-4185.

Sincerely,

Genevieve Salmonson
Director

c: Mr. Henry Kennedy
Mr. Glenn Ikeda, P.E.
Mr. Earl Matsukawa

ARD OF WATER SUPPLY
/ AND COUNTY OF HONOLULU
SOUTH BERETANIA STREET
OLULU, HI 96843

April 2, 2002

Mr. Henry Kennedy
State Department of Transportation
Highways Division
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Kennedy:

Subject: Your Letter of February 21, 2002 on the Kalanianaole Highway Improvements at Makapuu Point Environmental Assessment, Pre-Assessment Consultation

Thank you for the opportunity to review the proposed rockfall protection and roadway stabilization improvements near Makapuu.

The following comments should be included on the construction drawings:

1. Blasting shall not be permitted;
2. Any damage to the Board of Water Supply's (BWS) Tunnel Facility during construction of the proposed improvements shall be referred to the contractor for corrective action at no cost to BWS.

If you have any questions, please contact Joseph Kaakua at 527-6123.

Very truly yours,

for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Glen Ikeda, ParEn, Inc.
Earl Matsukawa, Wilson, Okamoto & Associates

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4566 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR

ERIC G. CRISPIN, AIA
DEPUTY DIRECTOR

GEORGE T. TAMASHIRO, P.E.
ASSISTANT DIRECTOR

March 20, 2002

CDED-BS 02-0021

Mr. Henry Kennedy
Highways Division
Department of Transportation
State of Hawaii
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Kennedy:

Subject: Your Letter HWY-DS 2.5691 of February 21, 2002, Relating to Pre-Assessment Consultation for an Environmental Assessment for Proposed Rockfall Protection and Roadway Stabilization Improvements at Kalanianaole Highway near Makapuu Point, TMK: 4-1-14: Por. 2 and 13

We have no comments regarding the proposed action. However, the work appears to be adjacent to the lands under the jurisdiction of the City's Department of Parks and Recreation. We suggest you also consult with them.

Should you have any questions, please call Kenneth Lai, Civil Design and Engineering Division, at 527-5317.

Very truly yours,

RAE M. LOUI, P.E.
Director

KL:RN:pto

cc: Glenn Ikeda (ParEn, Inc.)
Earl Matsukawa (Wilson Okamoto & Associates, Inc.)

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 309, KAPOLEI, HAWAII 96707
PHONE: (808) 692-5561 • FAX: 692-5131 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

WILLIAM D. BALFOUR, JR.
DIRECTOR

EDWARD T. "SKIPPA" DIAZ
DEPUTY DIRECTOR

March 20, 2002

RECEIVED
MAR 25 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Henry Kennedy
State Department of Transportation
Highways Division
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Kennedy:

Subject: Kalanianaole Highway Improvements at Makapuu Point (Kalanianaole Highway Improvements, Retaining Wall at Makapuu; Project No. 72B-02-99, and Kalanianaole Highway, Rock Scaling at Makapuu; Project No. 72B-02-02)
Environmental Assessment (EA)
Pre-Assessment Consultation

Thank you for the opportunity to review and comment on the Pre-Assessment Consultation relating to the Kalanianaole Highway Improvements at Makapuu Point.

The Department of Parks and Recreation has no comment on this Pre-Assessment Consultation.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,

W. D. Balfour Jr.

WILLIAM D. BALFOUR, JR.
Director

WDB:cu (8823)

cc: Mr. Glenn Ikeda, P.E., ParEn, Inc., dba Park Engineering
Mr. Earl Matsukawa, Wilson Okamoto & Associates, Inc.

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 215, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5654 FAX: (808) 692-5657

JEREMY HARRIS
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

ALVIN K. C. AU
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 02-383

April 29, 2002

RECEIVED
APR 29 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Brian Minaai
Department of Transportation
Highways Division
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. Henry Kennedy

Dear Mr. Minaai:

Subject: **Kalanianaole Highway Improvements at Makapuu Point (Kalanianaole Highway Improvements, Retaining Wall at Makapuu, Project No. 72B-02-99 and Kalanianaole Highway, Rock Scaling at Makapuu, Project No. 72B-02-02)**
Environmental Assessment(EA)
Pre-Assessment Consultation

We have reviewed the Environmental Assessment Pre-Assessment Consultation Project Summary for subject project and offer no comments at this time.

Should you have any questions, please call Mr. Larry Leopardi, Chief of Road Maintenance, at 523-4472.

Very truly yours,

R. S. S.

ROSS S. SASAMURA, P.E.
Director and Chief Engineer

cc: Glenn Ikeda, P.E.
(ParEn, Inc.)

Earl Matsukawa
(Wilson Okamoto & Associates. Inc.)

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4525 • FAX: (808) 523-4730 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP2/02-00741R

March 18, 2002

RECEIVED
MAR 25 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Henry Kennedy, Highways Division
State Department of Transportation
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Kennedy:

Subject: Kalanianaole Highway Improvements at Makapuu Point

In response to the February 21, 2002 letter from Mr. Brian Minaai, the project information provided was reviewed. The following comments are the result of this review:

1. In Section 3. PROJECT DESCRIPTION, it is stated that a temporary road on the makai side of the highway in the vicinity of the Lower Makapuu Lookout is proposed to divert traffic around the construction site. Although this temporary road is being proposed, we understand that complete closure of Kalanianaole Highway in the vicinity of the project site will still be necessary during certain phases of activities for safety reasons. This department should be notified of the road closure schedule as early as possible, in order for TheBus operations to be adjusted accordingly.

2. We look forward to reviewing the Traffic Study that is being conducted for the draft environmental assessment.

Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

cc: Mr. Glenn Ikeda, ParEn, Inc. dba Park Engineering
✓Mr. Earl Matsukawa, Wilson Okamoto & Associates, Inc.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 • AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS-KP

March 5, 2002

Mr. Brian K. Minaai
Director of Transportation
State Department of Transportation,
Highways Division
Attention: Mr. Henry Kennedy
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Minaai:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment, Pre-Assessment Consultation, for the Kalanianaole Highway Improvements at Makapuu Point.

If Kalanianaole Highway were to be closed for any period of time, it would definitely have a negative impact on the services provided by the Honolulu Police Department. Therefore, we would like to recommend that one lane of Kalanianaole Highway be open at all times and that special duty police officers with portable radios be hired to direct traffic through the area.

If there are any questions, please call Ms. Carol Sodetani of the Support Services Bureau at 529-3658.

Sincerely,

LEE D. DONOHUE
Chief of Police

By
KARL GODSEY
Acting Assistant Chief of Police
Support Services Bureau

cc: Mr. Henry Kennedy, Department of Transportation

Mr. Glenn Ikeda, P.E., ParEn, Inc.
dba Park Engineering

✓Mr. Earl Matsukawa, Wilson Okamoto & Associates, Inc.

Serving and Protecting with Aloha

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1883
TELEPHONE: (808) 831-7781 • FAX: (808) 831-7750 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

March 7, 2002

RECEIVED
MAR 12 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Henry Kennedy
State Department of Transportation
Highways Division
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Kennedy:

Subject: Kalanianaole Highway Improvements at Makapuu Point
(Kalanianaole Highway Improvements, Retaining Wall at Makapuu;
Project No. 72B-02-99, and
Kalanianaole Highway, Rock Scaling at Makapuu;
Project No. 72B-02-02
Environmental Assessment (EA)
Pre-Assessment Consultation

We received a letter from Brian K. Minaai, Director of Transportation for the State Department of Transportation, dated February 21, 2002, regarding the Draft Environmental Assessment for the Kalanianaole Highway Improvement projects at Makapuu Point. The Honolulu Fire Department requests that the fire apparatus access be maintained throughout the construction site for the duration of the project.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

Sincerely,

ATTILIO K. LEONARDI
Fire Chief

AKL/KB:bh

cc: Mr. Glenn Ikeda, P.E., ParEn, Inc. dba Park Engineering
Mr. Earl Matsukawa, Wilson Okamoto & Associates, Inc.

HONOLULU EMERGENCY SERVICES DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H-450 • HONOLULU, HAWAII 96819-1859
Phone: (808) 831-4331 • Fax: (808) 833-3934

JEREMY HARRIS
MAYOR

SALVATORE S. LANZILOTTI, Ed.D.
DIRECTOR

GEORGINA M. YUEN
DEPUTY DIRECTOR

15 March, 2002

RECEIVED
APR 01 2002
WILSON OKAMOTO & ASSOC., INC.

Mr. Henry Kennedy
State Department of Transportation
Highways Division
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Dear Mr. Kennedy:

The following comments are in response to your request for input to a proposed roadway improvement project to mitigate the rockfall hazard on Kalanianaole Highway at Mokapuu Point.

As the provider of the City's 9-1-1 emergency ambulance service, we are always concerned about road closure situations where our ambulance response times to emergencies may be delayed. The information provided indicates the work "may potentially entail temporary daily road closures" of Kalanianaole Highway, but does not indicate if these closures are absolute, or if exceptions will be made for emergency vehicles.

The area in question is served by emergency ambulance units from our Waimanalo station to the north, and our Hawaii Kai station on the south side of the proposed work. Major emergency medical incidents may require both the Waimanalo and Hawaii Kai units to respond to the same location. Also, each of these units backs-up the adjacent area when one of these ambulances is out of the area on a call.

While our service can adapt to any given closure given adequate forewarning by the contractor, there is no doubt that given the lack of alternative routes, any road closure in the area will slow ambulance response times to emergency medical incidents. We therefore request that our concerns be addressed as part of the Environmental Assessment.

Sincerely,

Salvatore S. Lanzilotti, Ed.D.
Director

c: Mr. Glenn Ikeda, P.E., ParEn Inc.
Mr. Earl Matsukawa, Wilson Okimoto and Associates, Inc

Sea Life Park
HAWAII

March 9, 2002

Mr. Henry Kennedy
State Department of Transportation, Highways Division
601 Kamokila Boulevard, Room 688
Kapolei, HI 96707

Gentlemen:

I wanted to take a moment to thank you for inviting comments as part of your pre-assessment process for the proposed rockfall stabilization improvements. Pursuant to your letter of request dated February 21, 2002, please find my comments with reference to the Kalanianaole Highway Improvements and Rock Scaling at Makapuu; Project No. 72B-02-99 and 72B-02-02.

We are still reeling from the effects of 9-11 and completely closing Kalanianaole Highway to any traffic whatsoever would result in additional layoffs and could seriously endanger Sea Life Park's future. Assuming that everything goes exactly as planned and the highway is closed to all traffic for only three weeks and assuming we are able to pressure the Tour & Travel agency's to agree to some modified bus schedule, the Park would sustain an estimated Net Loss from Operations of approximately $71,000 per week. Currently, the tour busses flow in a one way circular direction so as not to repeat any part of the tour and each bus has a specific arrival and departure time for the many specific stops. The vast majority of the T&T busses will not backtrack to Sea Life Park from the Pali Highway and that business will evaporate or simply go elsewhere. These regular scheduled stops bringing visitors to and from Sea Life Park are critical to our business.

I would not want to speculate as to the Park's ability to survive should the road be closed to all day traffic for a month or two. Any and all work, which would necessitate road closure, must be done at night when road usage is minimal. During the hours of 7:00AM to 5:00PM at least one lane must remain open to alternating traffic. Where there is a will, there is a way and I look forward to a positive result.

Should you have any questions or require additional input, please do not hesitate to contact me directly @ 259-2502. In advance, your consideration and cooperation in this matter is greatly appreciated.

Sincerely,

Wayne Nielsen
Park Director/General Manager

cc: Mr. Glenn Ikeda, P.E., ParEn, Inc.dba Park Engineering
Mr. Earl Matsukawa, Wilson Okamoto & Associates, Inc.

The Oceanic Institute
CENTER FOR APPLIED AQUACULTURE AND MARINE BIOTECHNOLOGY

March 8, 2002

Mr. Henry Kennedy
State of Hawai'i
Department of Transportation, Highways Division
601 Kamokila Boulevard, Room 688
Kapolei, Hawai'i 96707

Dear Mr. Kennedy:

Re: Pre-Assessment Comments, Kalaniana'ole Highway Improvements at Makapu'u Point, Project No. 72B-02-99 and Project No. 72B-02-02

The Oceanic Institute (OI) appreciates this opportunity to comment on the proposed project to address existing rockfall hazards along Kalaniana'ole Highway at Makapu'u Point. We understand that construction to repair a road subsidence problem is also proposed as part of the project.

The Institute concurs with the purpose and intent of the project. Kalaniana'ole Highway from Makapu'u toward Hawai'i Kai presents an unpredictable road hazard to highway users. Loose rocks of varying sizes occasionally fall from the slopes, landing on the travel way or on vehicles creating a significant safety concern. In addition, the makai side of Kalaniana'ole Highway may be unstable in places presenting an additional roadway hazard. We agree that repairs to the road are needed to improve highway safety.

While OI supports the proposed highway improvements, we have substantial concerns with the possible reduction in highway access to our campus from Honolulu eastbound on Kalaniana'ole Highway. Our concerns are twofold. Limitations on highway access would affect roughly 37 employees, or approximately 40 percent of our workforce, who regularly use Kalaniana'ole Highway to commute to work. Should Kalaniana'ole Highway be closed to traffic, or its use restricted during peak commuting hours, these employees would be forced to use a circuitous route using Pali Highway. Such a route would increase commutes significantly, particularly for those employees who live in east Honolulu. Accordingly, traffic should not be interrupted during commuting hours. We also use Kalaniana'ole Highway regularly during the business day to conduct banking, supply transactions, and to carry out other business activities in Hawai'i Kai. To the extent that access may be restricted, closures would reduce the efficiency of our routine business transactions.

While access for our employees is certainly important, our greater concerns are the limitations and restrictions the construction may impose upon visitors to Sea Life Park. Sea Life Park is a tenant of the Oceanic Institute. Any reduction in the Park's visitor count would cause its gross revenues to

Makapuu Point 41-202 Kalanianaole Highway, Waimanalo, Hawaii 96795 • Phone (808) 259-7951 • Fax (808) 259-5971

fall, which would not only directly impact the short-term financial health of Sea Life Park, but also indirectly that of the Oceanic Institute. As a not-for-profit research organization that must depend on a steady stream of rental income from Sea Life Park to pay its routine and fixed operational expenses, the Oceanic Institute could not survive long if Park revenues were to drop. Since Sea Life Park pays a percentage of its gross revenues to OI as lease payment, a drop in visitor count would result in a reduction in our rental income.

OI and Sea Life Park have had a symbiotic relationship since the Institute was founded in 1960. OI (then called the Pacific Foundation for Marine Research) was awarded a 65-year lease for its Makapu'u campus in October 1962. The purpose of the lease was to construct, maintain, and operate a scientific research facility for the study of marine life and a public exhibiting facility of marine life. The lease from the State Department of Land and Natural Resources (DLNR) required the construction and operation of a "wholesome recreational and educational attraction in a healthy, park-like atmosphere commensurate with the best features of first-class public or private attractions of a similar nature in the United States." In December 1963, OI entered into a Construction and Operation Agreement with Sea Life, Incorporated that set aside a portion of the 118 acres leased from DLNR for Sea Life to "construct, maintain, operate, and improve a commercial oceanarium exhibit and its related facilities and services..." From the outset, the State's intent in leasing lands ordinarily reserved strictly for conservation purposes was for the "exhibiting facility" to provide a continuing source of funds for the pursuit of scientific research.

Sea Life Park has paid roughly $350,000 of rental income per year for the past four years to the Oceanic Institute. Additionally, for the past four years Sea Life Park has paid DLNR roughly $175,000 per year as lease rent payments on behalf of OI. Thus, on an annual basis Sea Life Park operations have resulted in over $500,000 per year of unrestricted income for the Institute. This constitutes 95 percent of the Institute's total unrestricted income and is the only source for paying expenses that are unrecoverable through research grants. Such expenses include certain indirect costs such as those for master facilities and strategic business planning, business development, public outreach, and community relations—essential functions of the organization that are classified as unallowable by federal audit standards.

Under the terms of its sublease Sea Life Park pays rent to the Oceanic Institute the higher of $50,000 or 3% of the first $4,000,000 in gross revenues, 4% of the next $1,000,000 in revenues, 5% of the next $1,000,000 in revenues, and 6% of all gross revenues exceeding $6,000,000. Rents paid by Sea Life Park to DLNR on behalf of OI are based on a similar gross revenue basis. Clearly, a drop in visitor count at Sea Life Park would result in substantial revenue losses to the Institute and the State, a drop that would significantly degrade the OI's financial stability. Any interruption of highway access that reduces opportunities for visitor access to Sea Life Park would greatly affect our ability to function as a nonprofit resource to the State.

While we are not privy to the details, we have been advised that the initial construction plan was to close Kalaniana'ole Highway for up to one year while the work progressed. Such a plan would undeniably have destroyed our capability to continue as a business concern. More recently, we have been advised that the plan has been revised so that there will be multiple stages to the project including several weeks of partial road closures—single-lane traffic, followed by a second phase of

several weeks of total road closure—except for nights and an hour or two during the day, culminating in a last phase of perhaps three months of severely restricted access—alternating an hour of closure with an hour of access throughout the day. We remain concerned that the revised plan may still be too restrictive for Sea Life Park to maintain its customer base.

Businesses in O'ahu's north shore community of Hale'iwa reportedly experienced significant declines in tourist traffic when Kamehameha Highway along Waimea Bay was closed after a rockfall. Some business owners claimed declines that varied from 40 to 90 percent in tourist traffic, while others opined that tourists were not interested in going to Hale'iwa if they could not continue in an around-the-island circuit. We could very well face a similar situation at Makapu'u. Tourists and tour bus companies could simply bypass Sea Life Park rather than backtracking on a one-way route in and out of the Makapu'u area.

While the recent failure of Waimea Falls Park may not be directly attributable to the closure of Kamehameha Highway, the rockfall likely exacerbated the already financially precarious business. Waimea Fall Park's former parent company, Attractions Hawai'i, is also the parent company of Sea Life Park. Attractions Hawai'i remains under the protection of the federal bankruptcy court in New York. Given its bankruptcy status, Sea Life Park may not have the strength to sustain itself through a period of limited revenues caused by highway access restrictions. Failure of Sea Life Park would have a severe domino effect upon the Oceanic Institute. The construction needs to be phased and executed so it does not jeopardize businesses such as Sea Life Park, the Oceanic Institute, and others in the Waimānalo community.

Thank you for this opportunity to provide these comments to you. We ask that you consider these factors in finding a way to complete the project without jeopardizing the existence of businesses that rely on access to Honolulu via Kalaniana'ole Highway. Please contact me at 259-3111 or via email at jmuratsuchi@oceanicinstitute.org should you have any questions or desire additional information.

Sincerely,

James T. Muratsuchi, P.E.
Director, Communications & Engineering Services

cf: Mr. G. Ikeda, ParEn, Inc. dba Park Engineering, 567 S. King St., Suite 300, Honolulu, HI 96813
Mr. E. Matsukawa, Wilson Okamoto & Associates, Inc., 1907 S. Beretania St., 4th Floor, Honolulu, HI 96826

9. PARTIES CONSULTED DURING DRAFT ENVIRONMENTAL ASSESSMENT

The following agencies and organizations were consulted during the public review period of the Draft EA. Of those who formally replied during the pre-assessment period, some had no comments while others provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments are reproduced herein.

Federal
Federal Highway Administration
U.S. Fish and Wildlife Service
U.S. Natural Resources Conservation Service
U.S. Engineer District, Honolulu
U.S. Geological Survey

State
✓✓ Department of Business, Economic Development and Tourism (DBEDT)
✓✓ DBEDT, Office of Planning
✓✓ DEBEDT, Land Use Commission
Department of Defense
Department of Hawaiian Home Lands
✓ Department of Health (DOH)
✓✓ DOH, Office of Environmental Quality Control
Department of Land and Natural Resources (DLNR)
DLNR, Land Division
✓ DLNR, Historic Preservation Division
✓ Office of Hawaiian Affairs
University of Hawai'i, Environmental Studies Center

City and County of Honolulu
✓ Board of Water Supply
✓ Department of Design and Construction
Department of Emergency Services
Department of Environmental Services
✓ Department of Facility Maintenance
✓ Department of Parks and Recreation
✓✓ Department of Planning and Permitting
✓✓ Department of Transportation Services
O'ahu Civil Defense Agency
✓✓ Fire Department
✓ Police Department

Organizations and Elected Officials
Waimānalo Neighborhood Board No. 32
Hawai'i Kai Neighborhood Board no. 1

Sea Life Park Hawai'i
The Oceanic Institute
Councilmember Barbara Marshall
Councilmember Charles Djou
Senator Fred Hemmings
Senator Sam Slom
Representative Thomas D. Waters
Representative William Stonebraker

LINDA LINGLE
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, Hawaii 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

May 23, 2006

Mr. Glenn Yasui
Highways Division
State Department of Transportation
869 Punchbowl, Room 513
Honolulu, Hawaii 96813

RECEIVED
MAY 30 2006
WILSON OKAMOTO CORPORATION

Dear Mr. Yasui:

Subject: Draft Environmental Assessment (DEA)
Kalanianaole Highway Improvements at Makapuu Point
Honolulu, Oahu, Hawaii
Tax Map Key: 4-1-14: por. 2 and por. 13

We have reviewed the DEA for the subject project and confirm that the project site, as generally represented on the Location Map, is designated within the State Land Use Conservation District.

We suggest that the Final EA include a map showing the project site in relation to the State land use districts.

We have no further comments to offer at this time. Thank you for the opportunity to comment on the subject DEA.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

ANTHONY J. H. CHING
Executive Officer

c: Office of Environmental Quality Control
Wilson Okamoto Corporation

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-DS 2.1592

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG - 4 2006

TO: THE HONORABLE THEODORE E. LIU, DIRECTOR
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM

ATTN: ANTHONY J.H. CHING, EXECUTIVE OFFICER
LAND USE COMMISSION

FROM: BRENNON T. MORIOKA
DEPUTY DIRECTOR-HIGHWAYS

SUBJECT: KALANIANAOLE HIGHWAY IMPROVEMENTS
RETAINING WALL AT MAKAPUU
FEDERAL AID PROJECT NO. NH-072-1(51)

Thank you for your letter of May 23, 2006, confirming that the project site is designated within the State Land Use Conservation District. Figure 4-1, State Land Use District Map, has been included in the Final Environmental Assessment (EA).

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
LAURA H. THIELEN
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING
235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

RECEIVED
JUN 26 2006
WILSON OKAMOTO CORPORATION

Ref. No. P-11413

June 23, 2006

To: Glenn Yasui
Department of Transportation, Highways Division

From: Laura H. Thielen
Director

Subject: Draft Environmental Assessment (DEA), Kalanianaole Highway Improvements at Makapuu Point, Honolulu, Island of Oahu, Hawaii
TMK: 4-1-14: Por. 2 and 13

We have reviewed the above referenced proposal for the roadway improvements on the Highway, for road stabilization and rockfall protection in Makapuu. The proposed project will consist of new concrete and rail barriers, resurfacing pavement, grading and slope reconstruction, constructing rockfall impact barriers, and other related work. This project will provide a permanent rockfall protection plan for motorists along Kalanianaole Highway, and replaces an existing temporary fence barrier. The project is within the City's P-1 Preservation District, the Special Management Area (SMA), and State Land Use Conservation District, and will require a Conservation District Use Permit. We note that this project will also require a SMA permit. The project is located along the coastline and may impact scenic and visual views as well as coastal nearshore water quality. The document indicates that City grading ordinance will be implemented to mitigate any adverse impacts associated with the construction of the project.

However, we have concerns that section 3.7 Fauna of the document does not include a description of the marine life in this area, or discussion as to whether any endangered or threatened marine life will be disturbed or affected during the construction of the project. The document should be revised to include this information.

We have no further comments at this time. Thank you for the opportunity to comment on this DEA. If you have questions, please call Lorene Maki at 587-2888.

c: Genevieve Salmonson, OEQC
✓Earl Matsukawa, Wilson Okamoto Corporation

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
HWY-DS 2.1593

AUG - 4 2006

TO: THE HONORABLE THEODORE E. LIU, DIRECTOR
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM

ATTN: LAURA THIELEN, DIRECTOR
OFFICE OF PLANNING

FROM: BRENNON T. MORIOKA
DEPUTY DIRECTOR-HIGHWAYS

SUBJECT: KALANIANAOLE HIGHWAY IMPROVEMENTS
RETAINING WALL AT MAKAPUU
FEDERAL AID PROJECT NO. NH-072-1(51)

Thank you for your letter of June 23, 2006 (P-11413) commenting on the subject Draft Environmental Assessment (EA). The proposed project at Makapuu Point is not anticipated to affect marine life in nearby coastal waters. Since storm discharges onto Makapuu Beach rapidly percolate into the sand, it is unlikely that sediment-laden water would flow overland to discharge directly into the ocean. The proposed project will require processing an Individual National Pollutant Discharge Elimination System (NPDES) permit since the waters offshore are class AA. In conjunction with the Individual NPDES, a Best Management Practices (BMP) Plan will be prepared to ensure that all construction storm water is appropriately mitigated.

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

PHONE (808) 594-1888 FAX (808) 594-1865

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

HRD06/82C

June 19, 2006

Glen Yasui
Department of Transportation, Highways Division
869 Punchbowl Street
Honolulu, HI 96813-5097

RE: Draft Environmental Assessment for the Proposed Kalaniana'ole Highway Improvements at Makapu'u Point, Makapu'u, O'ahu, TMK (4-1-14 (por) 13 and 2.

Dear Mr. Yasui,

The Office of Hawaiian Affairs (OHA) is in receipt of your May 19, 2006 request for comment on the above-listed submission. OHA offers the following comments:

The Draft Environmental Assessment states that due to modifications to the mauka slope abutting Kalaniana'ole Highway, and the severity of the incline, there is a low probability that the proposed project will impact historic properties or native flora and fauna. Due to this assessment, our staff has no comment specific to the Draft Environmental Assessment at this time. Thank you for your continued correspondence.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck, Native Rights Policy Advocate, at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

CC: Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Earl Matsukawa
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO

HWY-DS 2.1788

AUG - 4 2006

TO: THE HONORABLE CLYDE W. NAMUO, ADMINISTRATOR
OFFICE OF HAWAIIAN AFFAIRS

FROM: BRENNON T. MORIOKA
DEPUTY DIRECTOR-HIGHWAYS

SUBJECT: KALANIANAOLE HIGHWAY IMPROVEMENTS
RETAINING WALL AT MAKAPUU
FEDERAL AID PROJECT NO. NH-072-1(51)

Thank you for your letter of June 19, 2006 (HRD06/82C) stating that at present the Office of Hawaiian Affairs has no comment specific to the subject Draft Environmental Assessment (EA) as there is a low probability that the proposed project will impact historic properties or native flora and fauna.

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
EPO-06-080

June 22, 2006

RECEIVED
JUN 28 2006
WILSON OKAMOTO CORPORATION

Mr. Earl Matsukawa
Wilson Okamoto Corporation
1907 South. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: Draft Environmental Assessment for Kalaniana'ole Highway Improvement at Makapu'u Point, Oahu, Hawaii
TMK: 4-1-014: 2 and 13 (portion)

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time. We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

HWY-DS 2.1594

AUG - 4 2006

TO: THE HONORABLE CHIYOME FUKINO, M.D., DIRECTOR
DEPARTMENT OF HEALTH

ATTN: KELVIN H. SUNADA, MANAGER
ENVIRONMENTAL PLANNING OFFICE

FROM: BRENNON T. MORIOKA
DEPUTY DIRECTOR-HIGHWAYS

SUBJECT: KALANIANAOLE HIGHWAY IMPROVEMENTS
RETAINING WALL AT MAKAPUU
FEDERAL AID PROJECT NO. NH-072-1(51)

Thank you for your letter of June 22, 2006 (EPO-06-080) stating that the Department of Health (DOH) has no comments to offer on the subject Draft Environmental Assessment (EA). We acknowledge the project will be subject to all DOH rules found on your website.

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

LINDA LINGLE
GOVERNOR OF HAWAI'I

235 S BERETANIA ST. SUITE 702
HONOLULU, HAWAI'I 96813

STATE OF HAWAI'I
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

GENEVIEVE SALMONSON
DIRECTOR

Telephone (808) 586-4185
Facsimile (808) 586-4186
Email: oeqc@doh.hawaii.gov

June 6, 2006

Glenn Yasui
Department of Transportation
Highways Division
869 Punchbowl Street
Honolulu, HI 96813

Attn: Harry Kennedy

Dear Mr. Yasui:

Subject: Draft environmental assessment (EA),
Kalanianaole Highway Improvements & Retaining Wall at Makapuu

We have the following comments to offer:

Segmentation: Our office has received draft EAs on three Kalanianaole Highway improvement projects since the beginning of 2006. They cover the highway from Olomana Golf Course through Waimanalo, at Makapuu and Hawaii Kai Drive to Keahole Street. How many other highway projects are planned? The environmental impact statement law prohibits segmentation of larger projects and requires that full disclosure of impacts be made on projects in their entirety. We recommend preparing and submitting a master plan disclosure document that will cover all areas of the highway slated for improvement or development now or in the foreseeable future.

Timeframe: What are the anticipated start and end dates of this project?

Permits and approvals: List all required permits and approvals for this project and the status of each or the expected date of filing. Will a Federal 4(f) review be required? If so include it in this list.

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

Sincerely,

GENEVIEVE SALMONSON
Director

c: Earl Matsukawa

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO
HWY-DS 2.1595

AUG - 4 2006

TO: THE HONORABLE GENEVIEVE SALMONSON, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: BRENNON T. MORIOKA
DEPUTY DIRECTOR-HIGHWAYS

SUBJECT: KALANIANAOLE HIGHWAY IMPROVEMENTS
RETAINING WALL AT MAKAPUU
FEDERAL AID PROJECT NO. NH-072-1(51)

Thank you for your letter of June 6, 2006 commenting on the subject Draft Environmental Assessment (EA). We offer the following responses in respective order of your comments:

Segmentation: Kalanianaole Highway stretches approximately twenty miles across the south and east shores of Oahu. Per your discussion with Mr. Henry Kennedy of Department of Transportation, the project was developed independently of projects elsewhere on Kalanianaole Highway. Each of these projects serves their unique and unrelated purposes. There was no intent to segment a larger highway project.

Timeframe: The construction work for the entire proposed project is anticipated to begin January 2007 and span approximately 14 months.

Permits and Approvals: The Final EA will list permits and approvals for the proposed project. No Federal 4(f) review is required, as the proposed project has no impact on Makapuu Beach Park.

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

LINDA LINGLE
GOVERNOR OF HAWAII

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

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

June 26, 2006

RECEIVED
JUL 3 2006
WILSON OKAMOTO CORPORATION

Mr. Glen Yasui
State DOT, Highways Division
869 Punchbowl Street, Room 513
Honolulu, Hawai'i 96813

LOG NO: 2006.2146
DOC NO: 0606CM33
Archaeology

Dear Mr. Yasui:

SUBJECT: **Chapter 6E-8 Historic Preservation Review [State DOT] –**
Draft EA, Kalanianaʻole Highway Improvements at Makapuʻu Point
Maunalua Ahupuaʻa, Honolulu [Kona] District, Island of Oʻahu
TMK: (1) 4-1-014:002 and 013

Thank you for the opportunity to comment on this project. We received your documents, including a cover letter and Draft Environmental Assessment, on June 2, 2006. The proposed undertaking consists of interim rockfall protection measures, and measures to address an existing road subsistence problem.

We believe that no historic properties will be affected by this undertaking because:

- ☐ a) intensive cultivation has altered the land
- ☐ b) residential development/urbanization has altered the land
- ☐ c) previous grubbing/grading has altered the land
- ☒ d) an acceptable archaeological assessment or inventory survey found no historic properties
- ☒ e) this project has gone through the historic review process, and mitigation has been completed
- ☒ f) other: Haun and Henry's (2002) *Archaeological Inventory Survey, Kalanianaole Highway Improvements at Makapuʻu Point* (SHPD Rpt. No. O-2289) documented no historically-significant sites and recommended no further archaeological work; this report was accepted by our office in a letter (LOG NO: 316961, DOC NO: 0302SC02).

If historic resources, including human skeletal remains, are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the SHPD needs to be contacted immediately at (808) 692-8015. Please contact Dr. Chris Monahan (Oahu Archaeologist) at (808) 692-8015.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

CM

cc: Ms. Genevieve Salmonson, OEQC
Mr. Wilson Okamoto
Mr. Lance Foster

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG - 4 2006

HWY-DS 2.1596

TO: THE HONORABLE PETER T. YOUNG, CHAIRPERSON
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: MELANIE CHINEN, ADMINSTRATOR
STATE HISTORIC PRESERVATION DIVISION

FROM: BRENNON T. MORIOKA
DEPUTY DIRECTOR-HIGHWAYS

SUBJECT: KALANIANAOLE HIGHWAY IMPROVEMENTS
RETAINING WALL AT MAKAPUU
FEDERAL AID PROJECT NO. NH-072-1(51)

Thank you for your letter of June 26, 2006 (LOG NO: 2006.2146, DOC NO: 0606CM33) determining that the proposed project will not affect any historical properties. Section 3.11 of the Final Environmental Assessment (EA) will include the statement, "If any archaeological resources including human skeletal remains are uncovered, work in the immediate vicinity will cease and the Department of Land and Natural Resources, Historic Preservation Division will be notified immediately".

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

May 31, 2006

Mr. Glenn Yasui
State of Hawaii
Department of Transportation
Highways Division
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813

Dear Mr. Yasui:

Subject: Your Letter Dated May 18, 2006 Regarding the Draft Environmental Assessment for Kalanianaole Highway Improvements at Maknpu'u Point Honolulu, Island of Oahu, Hawaii T.M.K. 4-1-14: Portion 2 and 13

Thank you for the opportunity to comment on the proposed project.

The construction drawings shall be submitted for our review and approval.

If you have any questions, please contact Robert Chun at 748-5440.

Very truly yours,

KEITH S. SHIDA
Principal Executive
Customer Care Division

cc: Genevieve Salmonson, Department of Health
Earl Matsukawa, Wilson Okamoto Corporation

Water for Life . . . Ke Wai Ola

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG - 4 2006

IN REPLY REFER TO:
HWY-DS 2.1789

Mr. Keith S. Shida
Principal Executive
City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Shida:

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of May 31, 2006 commenting on the subject Draft Environmental Assessment (EA). As you are aware, we have submitted construction drawings for review and approval.

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

for

BRENNON T. MORIOKA
Deputy Director-Highways

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.gov

MUFI HANNEMANN
MAYOR

DIRECTOR
EUGENE C. LEE, P.E.
DEPUTY DIRECTOR

CDP 06-157514

June 6, 2006

Mr. Glenn Yasui
Highways Division
Department of Transportation
State of Hawaii
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813

RECEIVED
2006
CORPORATION

Dear Mr. Yasui:

Subject: Wilson Okamoto Corporation's Letter of May 18, 2006, Relating to Transmittal of Draft Environmental Assessment (DEA) for Kalanianaole Highway Improvements at Makapuu Point, TMK: 4-1-4: Por. 2 and 13

We have reviewed the above DEA and have no comments to offer. Thank you for the opportunity to comment.

If there are any questions, please contact Gregory Sue at 527-6304.

Very truly yours,

Eugene C. Lee, P.E.
Deputy Director

GS:dk

c: Genevieve Salmonson (Office of Environmental Quality Control)
Earl Matsukawa (Wilson Okamoto Corporation)

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG - 4 2006

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-DS 2.1790

Mr. Eugene Lee, P.E.
City and County of Honolulu
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Lee:

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of June 6, 2006 (CDP 06-157514) stating that you have no comments on the subject Draft Environmental Assessment (EA).

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

BRENNON T. MORIOKA
Deputy Director-Highways

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU
1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 692-5054 • Fax: (808) 692-5857
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LAVERNE HIGA, P.E.
DIRECTOR AND CHIEF ENGINEER
GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

IN REPLY REFER TO:
06-585

June 20, 2006

Mr. Glenn Yasui
State of Hawaii
Department of Transportation
Highways Division
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813

RECEIVED
JUN 22 2006
WILSON OKAMOTO CORPORATION

Dear Mr. Yasui:

Subject: **Draft Environmental Assessment (DEA)**
Kalanianaole Highway Improvements at Makapuu Point
Honolulu, Island of Oahu, Hawaii
TMK: 4-1-14: Portion 2 and 13

Thank you for the opportunity to provide comments on the DEA, dated May 2006, for the subject project. We have no comments to add to the document at this time.

Should you have any questions, please call Charles Pignataro of the Division of Road Maintenance, at 484-7697.

Sincerely,

Laverne Higa

Laverne Higa, P.E.
Director and Chief Engineer

LH:sm

cc: Ms. Genevieve Salmonson, Director
(State of Hawaii-Department of Health)

Mr. Earl Matsukawa
(Wilson Okamoto Corporation)

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG - 4 2006

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-DS 2.1791

Ms. Laverne Higa
Director and Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Uluohia Street, Suite 215
Kapolei, Hawaii 96707

Dear Ms. Higa

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of June 20, 2006 (06-585) stating that the Department of Facility Maintenance has no comments to offer on the subject Draft Environmental Assessment (EA).

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

for BRENNON T. MORIOKA
Deputy Director-Highways

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
636 SOUTH STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 723-7139 • FAX: (808) 723-7111 • INTERNET: www.honolulufire.org

MUFI HANNEMANN
MAYOR

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

June 5, 2006

Mr. Glenn Yasui
Highways Division
State of Hawaii
Department of Transportation
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813

RECEIVED
JUN 09 2006
WILSON OKAMOTO CORPORATION

Dear Mr. Yasui:

Subject: Draft Environmental Assessment
Kalanianaole Highway Improvements at Makapuu Point
Honolulu, Oahu, Hawaii
Tax Map Key: 4-1-014: Portions 002 and 013

In response to a letter from Mr. Earl Matsukawa of Wilson Okamoto Corporation dated May 18, 2006, the Honolulu Fire Department (HFD) reviewed the material that was provided and requires that the following be complied with for the duration of the above-mentioned project:

1. Maintain fire apparatus access throughout the construction site.

2. Maintain access to fire hydrants. Please notify the HFD's Fire Communication Center at 523-4411 regarding any interruption of the existing fire hydrant system.

In addition, please note that our new address is:

Honolulu Fire Department
636 South Street
Honolulu, Hawaii 96813-5007

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

Sincerely,

KENNETH G. SILVA
Fire Chief

KGS/SK:bh

cc: Ms. Genevieve Salmonson, Department of Health, Office of Environmental Quality Control
Mr. Earl Matsukawa, Wilson Okamoto Corporation ✓

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-DS 2.1792

AUG - 4 2006

Chief Kenneth G. Silva
Honolulu Fire Department
636 South Street
Honolulu, Hawaii 96813

Dear Chief Silva:

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of June 5, 2006 commenting on the subject Draft Environmental Assessment (EA). We offer the following responses in respective order of your comments:

Fire Apparatus: We will maintain fire apparatus access throughout the construction period for the proposed project.

Fire Hydrants: There are no fire hydrants situated within the project site. The nearest fire hydrant is located approximately 300 feet beyond the northern border of the project site along Kalanianaole Highway.

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

for BRENNON T. MORIOKA
Deputy Director-Highways

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5131 • INTERNET: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

DANA TAKAHARA-DIAS
DEPUTY DIRECTOR

May 30, 2006

Mr. Glenn Yasui
State of Hawaii
Department of Transportation
Highways Division
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813

RECEIVED
MAY 31 2006
WILSON OKAMOTO CORPORATION

Dear Mr. Yasui:

Subject: Draft Environmental Assessment
Kalanianaole Highway Improvements at Makapuu Point
TMK: 4-1-14: portion 2 and 13

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the Kalanianaole Highway Improvements at Makapuu Point.

The Department of Parks and Recreation has no comment and as this project will not impact any program or facility of this department, you are invited to remove us as a consulted party to the balance of the EIS process.

Sincerely,

LESTER K. C. CHANG
Director

LKCC:mk
(155736)

cc: Office of Environmental Quality Control
Wilson Okamoto Corporation

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG - 4 2006

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-DS 2.1793

Mr. Lester K.C. Chang, Director
City and County of Honolulu
Department of Parks and Recreation
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

Dear Mr. Chang:

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of May 30, 2006 stating that you have no comments to offer on the subject Draft Environmental Assessment (EA).

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

BRENNON T. MORIOKA
Deputy Director-Highways

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4432 • FAX: (808) 527-6743
DEPT. INTERNET: www.honoluludpp.org • INTERNET: www.honolulu.gov

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2006/ELOG-1165 (JP)

June 16, 2006

Mr. Glenn Yasui
Department of Transportation
Highways Division
State of Hawaii
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813

Dear Mr. Yasui:

Re: Draft Environmental Assessment for Kalanianaole Highway Improvements at Makapuu Point
Kalanianaole Highway between Makapuu Head and Makapuu Beach Park - Makapuu
Tax Map Key 4-1-14: 2 and 13

This responds to your request, received May 19, 2006, for comments concerning the above draft Environmental Assessment (EA). We have the following comments.

Civil Engineering Branch: The final EA should provide a list of required permits and approvals. The project may require a grading permit. Please contact Mr. Don Fujii at 527-7320 if you have any questions concerning our Civil Engineering Branch's comments.

Traffic Review Branch (TRB): The affected highway is under the jurisdiction of the State of Hawaii Department of Transportation. Please contact Mr. Mel Hirayama at 523-4119 if you have any questions for our Traffic Review Branch.

Land Use Permits Division: The project requires a Special Management Area Permit (Major), unless the Governor issues a new ["emergency"] exemption. Please contact Mr. Jamie Peirson at 527-5754 if you have any questions concerning our Land Use Permits Division's comments.

Planning Division: The following are comments from our Planning Division:

1. The addition of the following within the Final EA would be helpful:

   a. A glossary listing the abbreviations/acronyms and the definitions/items/entities represented; and

   b. A photographic key to facilitate orientation of the photographs.

2. Project Description, Section 2: Please add a list of the permits and/or approvals required.

3. Archeological/Historical Resources, Section 3.11.1 on pages 3-9 to 3-11: There should be a discussion on the steps to be taken should archeologically significant features be uncovered.

4. Relationship to Land Use Plans and Policies (Section 4):

   a. City and County of Honolulu General Plan (Section 4.4 on page 4-4): Add Policy 5 to Objective A of Chapter V, Transportation and Utilities, as another policy supported by the project which reads: "*Improve roads in existing communities to reduce congestion and eliminate unsafe conditions.*"

   b. Koolaupoko Sustainable Communities Plan (Section 4.5 on page 4-6):

      i. Add the following underlined section to the first sentence of the third paragraph: "*With respect to scenic resources, Waimanalo Beach Park, to visually define a "windward" sense of place, a key element of the plans' vision, expressed in Section 2.2.3 Preserve and Enhance Scenic, Recreational and Cultural Features that Define a Sense of Place.*"

      ii. Add the following underlined sentence to the last sentence of the third paragraph: "*The Plan's Open Space Map and Figure 2.4 Significant Scenic Features and Viewplanes in Koolaupoko also identify the project site as offering significant viewplane from stationary point and continuous makai views from the lookout.*"

Please contact Ray Sakai at 523-4047 if you have any questions concerning our Planning Division's comments.

Thank you for the opportunity to comment on the draft EA.

Very truly yours,

Barbara A Moran for
Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:fm
cc: OEQC
Wilson Okamoto Corporation (Attn.: Earl Matsukawa, AICP)

G:\LandUse\PosseWorkingDirectory\jpeirson\2006ELOG-1165 Response.doc

LINDA LINGLE
GOVERNOR

ROODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-DS 2.1794

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG - 4 2006

Mr. Henry Eng, FAICP
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of June 16, 2006 (2006/ELOG-1185 (JP)) commenting on the subject Draft Environmental Assessment (EA). We offer the following responses in respective order of your comments:

Civil Engineering Branch: The required permits and approvals for the proposed project will be listed in the Final EA.

Traffic Review Branch (TRB): We acknowledge that the affected portion of Kalanianaole Highway is under the jurisdiction of the State of Hawaii Department of Transportation.

Land Use Permits Division: We acknowledge the proposed project requires a Special Management Area (SMA) Permit and are currently working on the SMA application.

Planning Division:

1a. The Final EA will include a glossary listing of abbreviations and acronyms used in the document.

1b. Figure 1-3, Photograph Key, will be added to the Final EA document to orient readers to the location of the project site photographs.

2. Please refer to the above response for the Civil Engineering Branch

3. Section 3.11 of the Final EA will include the statement, "If any archaeological resources including human skeletal remains are uncovered, work in the immediate vicinity will cease and the Department of Land and Natural Resources, Historic Preservation Division will be notified immediately".

4a. Section 4.4 will cite Chapter V.A.5 of the City and County of Honolulu General Plan, indicating that the project proposal is consistent with the Objectives of Transportation and Utilities.

4b. Section 4.5 of the Final EA will cite the proposed projects consistency with the policies found in the Koolaupoko Sustainable Communities Plan (SCP) and specifically cite that, "With respect to scenic resources, Section 3.1.3.2 of the Koolaupoko SCP recommends the maintenance of makai view channels along Kalanianaole Highway between Makapuu Point and Waimānalo Beach Park, to visually define a "windward" sense of place, a key element of the plans' vision, expressed in Section 2.2.3, Preserve and Enhance Scenic, Recreational and Cultural Features that Define a Sense of Place. The Plan's Open Space Map and Figure 2.4, Significant Scenic Features and Viewplanes in Koolaupoko also identify the project site as offering significant viewplane from stationary point and continuous *makai* views from the lookout".

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

BRENNON T. MORIOKA
Deputy Director-Highways

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 • AREA CODE (808) 529-3111
http://www.honolulupd.org
www.honolulu.gov

MUFI HANNEMANN
MAYOR

BOISSE P. CORREA
CHIEF

GLEN R. HAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE BS-DK

May 30, 2006

Mr. Glenn Yasui
Highways Division
Department of Transportation
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813

Dear Mr. Yasui:

This is in response to a letter from Mr. Earl Matsukawa, AICP of the Wilson Okamoto Corporation, regarding a Draft Environmental Assessment for the Kalaniana'ole Highway Improvements at Makapu'u Point.

This project should have no unanticipated impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Janna Mizuo of District 4 at 247-2166 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

Thank you for the opportunity to comment.

Sincerely,

BOISSE P. CORREA
Chief of Police

By
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

cc: Ms. Genevieve Salmonson, OEQC
Mr. Earl Matsukawa, Wilson
Okamoto Corporation

Serving and Protecting with Aloha

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-DS 2.1795

AUG - 4 2006

Chief Boisse P. Correa
City and County of Honolulu
Police Department
801 South Beretania Street
Honolulu, Hawaii 96813

Dear Chief Correa:

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of May 30, 2006 (BS-DK) stating that the Honolulu Police Department foresees no unanticipated impact on the facilities or operations of the Honolulu Police Department.

We appreciate your interest and participation in the Draft Environmental Assessment (EA) process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

for BRENNON T. MORIOKA
Deputy Director-Highways

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4529 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TP5/06-155477R

June 29, 2006

RECEIVED
JUN 30 2006
WILSON OKAMOTO CORPORATION

Mr. Glenn Yasui
State of Hawaii
Department of Transportation
Highways Division
869 Punchbowl Street, Room 513
Honolulu, Hawaii 96813

Dear Mr. Yasui:

Subject: Kalanianaole Highway Improvements at Makapuu Point

Thank you for the May 18, 2006 letter from Wilson Okamoto Corporation, requesting our review of and comments on the draft environmental assessment for the subject project.

Our only comment is that this department, as well as the area neighborhood board, community residents, businesses, emergency personnel, bus personnel, etc., should be kept apprised of the details of the proposed project and the impacts the project may have on the adjoining local street network area.

Should you have any questions regarding this matter, please contact Ms. Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

MELVIN N. KAKU
Director

cc: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control

Mr. Earl Matsukawa
Wilson Okamoto Corporation

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
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869 PUNCHBOWL STREET
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DIRECTOR

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BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-DS 2.1796

AUG - 4 2006

Mr. Melvin Kaku
Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Kaku:

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of June 29, 2006 (TP5/06-155477R) commenting on the subject Draft Environmental Assessment (EA). When the contractor for the proposed project is selected, s/he will be required to periodically update the Neighborhood Boards and coordinate with emergency providers and Oahu Transit Services, Inc. As stated in the Draft EA, "Notices and schedules for road and lane closures will be provided through various media, including newspaper, radio and TV announcements and roadway signage, including portable electronic message signs at key locations prior to and during road and lane closures. Passage for emergency vehicles will be provided at all times during lane and road closures".

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

for BRENNON T. MORIOKA
Deputy Director-Highways

19 June 2006

355A Portlock Road
Honolulu, HI 96825

Department of Transportation's Highways Division
601 Kamakila Blvd. Room 688
Kapolei, HI 96707

cc: Governor Linda Lingle

Dear Sir or Madam;

While I agree with the project to shore up the road by Makapu'u, I strongly disagree with the plans to:

- terrace the hill on the makai side of the road, and
- to put the utility wires underground.

The wire mesh is holding the rock falls from occurring extremely well. There are now plants growing on the hillside that are holding the wire closely to the wall, which is greatly beneficial to that project. Terracing the hill would not only be a costly waste of taxpayer's money, but would also greatly detract from the esthetic state of the lookout. The $7 million already invested in the hill is more than sufficient to meet any safety concerns.

Putting the utility wires underground would only increase the time and inconvenience to motorists when they need to be mended or repaired. This has been shown time and time again in other areas where wires have been 'buried'. With this roadway the only one existing on that side of the island, surely you do not need to close part or all of it when a wire needs to be repaired.

I have never written about any issue to your department in the 54 years that I have lived here, but I am so concerned upon reading about this new project's scope and cost that I have been driven to do so this time.

Please reconsider the project's contents in a sensible and cost effective manner.

Sincerely your,

Nancy A. Henry

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
HWY-DS 2.1798

AUG - 4 2006

Ms. Nancy Henry
35A Portlock Road
Honolulu, Hawaii 96825

Dear Ms. Henry

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of June 19, 2006 commenting on the subject Draft Environmental Assessment (EA). We offer the following responses in respective order of your comments:

Terracing: The proposed construction of the rockfall protection area on the *mauka* side of the road is located on the Waimanalo-side of the completed rockfall netting project. The current proposal will not modify the portion of the rocky cliff covered with netting.

Underground utilities: Initially, the plan was to temporarily relocate the utility lines underground while the new wall was constructed and then to move the utilities back overhead. Based on the design of the concrete barrier wall, which is flush to the makai side of the existing rock retaining wall, however, it is not possible to find an appropriate location for pole replacement to carry overhead lines. Moreover cost savings can be achieved by permanently placing the lines underground instead of temporarily placing them underground during the construction period and then having to restore the permanent lines on new poles.

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

for BRENNON T. MORIOKA
Deputy Director-Highways

May 30, 2006

Wilson Okamoto Corporation
Engineers & Planners
1907 South Beretania Street, Suite 400
Honolulu, HI 96826

Kalaniana'ole Highway Improvements at Makapu'u Point
Federal Aid Project NH-072-1 (51)
Draft Environmental Assessment

Dear Friends:

My employer, the Oceanic Institute, gave me a copy of the Assessment. I read the study and wish to comment on a few aspects. The Oceanic Institute may also comment directly to you.

I appreciate the effort to place the utilities underground and the improved views resulting there from. I suggest that the underground utilities be terminated on the *mauka* side of the project boundary, wherever the current utilities enter the project boundaries. This would permit a phasing in of the underground utilities beyond the project boundaries at a later date. It does not appear that this would increase the cost of the project.

The project includes a concrete barrier wall on the *mauka* side of Kalaniana'ole Hwy, at the base of the rockfall protection site. Currently, there is a concrete barrier wall in that location that is a magnet for graffiti. I would suggest that wall be eliminated. It does not appear to be needed after the removal of talus, and the construction 12' impact barrier and the rockfall catchment area. It could perhaps be replaced with a high curb, a metal guardrail, or nothing at all.

The lower Makapu'u lookout is a major tourist stop. Tourists linger at the lookout to watch the waves, the beach and the bodyboarding. The plan calls for replacing the current metal guardrail on the *makai* side of the highway with a new metal guardrail. The guardrail does not appear to be a necessary highway safety feature as it is not on the edge of the highway. Instead, it separates a parking area from the cliff. I suggest enhancing this area for the tourist. A short, rock-faced, concrete barrier wall could be built instead of a metal guardrail. This could be used as a seating area for tourists, similar to the short walls at the Diamond Head Road lookouts.

The project replaces a 26" rock wall with a 34" concrete wall at the upper roadway curve of the project. This will limit views from passenger vehicles. I would suggest that the views be preserved as much as possible. The top 12" of the concrete wall might be replaced with a metal pipe railing that would preserve some views of the ocean. A shorter wall would also minimize graffiti.

I hope that my comments are useful, and that they will be used to enhance the tourist experience and the aesthetics of the project.

Sincerely,

Scott M. Larson

1560 Thurston Ave #802
Honolulu, Hawaii 96822

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

HWY-DS 2.1797

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG - 4 2006

Mr. Scott Larson
1560 Thurston Avenue #802
Honolulu, Hawaii 96822

Dear Mr. Larson

Subject: Kalanianaole Highway Improvements
Retaining Wall at Makapuu
Federal Aid Project No. NH-072-1(51)

Thank you for your letter of May 30, 2006 commenting on the subject Draft Environmental Assessment (EA). We offer the following responses in respective order of your comments:

Underground Utilities: The portion of Kalanianaole Highway within the project site is too narrow to remain fully open to traffic while roadwork is in progress. By including underground utility improvements as part of the proposed project, the need for a secondary round of lane closures for such a subsequent project will be avoided.

Mauka Concrete Barrier: We appreciate your concern for the potential defacement of the concrete highway barrier with graffiti. As will be described in the Final EA, the proposed project has been modified to replace the concrete barrier with a shallow swale along the mauka edge of the pavement to prevent rocks from rolling onto the highway. Instead of the concrete barrier, flexible plastic delineators will be installed between the road and swale.

Lower Makapuu Lookout Guardrail: Although the Lower Makapuu Lookout guardrail is a sightseeing area accommodating parking, it also functions as a road shoulder. The guardwall is intended to deflect errant vehicles striking them. Although this could be accomplished by extending the concrete barrier wall from the upper lookout, the cost of the barrier wall is significantly greater than a metal guardrail.

Makai Concrete Barrier: The Draft EA should have described the concrete barrier wall as rising 32 inches from the finished pavement, instead of 34 inches high, which is the height of the wall before the pavement is finished with a two-inch thick layer of asphalt. The Final EA will correct this description. The proposed 32-inch height of the wall is the minimum for a crash-tested design. A crash-tested design cannot be achieved by adding a metal pipe railing to a lower wall.

The Final EA will also indicate that the DOT is considering addition of a metal railing atop the 32-inch high wall to protect bicyclists. The railing will be 10 inches tall, for an overall height of 42 inches from the finished pavement. Consideration of the additional railing was prompted by the recent striping of a bicycle lane along the makai side of Kalanianaole Highway fronting the Upper Makapuu Lookout and a portion of Kaiwi State Park. The bicycle lane clearly indicates that the Waimanalo-bound makai lane of the highway extending from the lookout is intended for shared use with bicycles. Addition of the bicycle railing will comply with the requirements of Chapter 343, Hawaii Revised Statues (Hawaii EIS Law).

We appreciate your interest and participation in the Draft EA process. Your letter, together with this response, will be reproduced in the Final EA.

Very truly yours,

BRENNON T. MORIOKA
Deputy Director-Highways

Appendix A

Botanical Survey

Botanical Consultants, Inc.

BOTANICAL SURVEY REPORT FOR THE PROPOSED

KALANIANAOLE HIGHWAY IMPROVEMENTS AT MAKAPUU POINT

FOR
WILSON OKAMOTO AND ASSOCIATES
1907 SOUTH BERETANIA STREET, SUITE 400
HONOLULU, HAWAII 96826

BY
EVANGELINE J. FUNK, PH.D.
BOTANICAL CONSULTANTS
HONOLULU, HAWAII 96815
DECEMBER 2001

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INTRODUCTION

A botanical survey of the approximately eight acre proposed Kalanianaole Highway Improvements at Makapuu Point Project Site was carried out in late December 2001. The project site is located on the southeastern portion of Oahu in the Waimanalo and Maunalua Districts, between Sea Life Park and the upper Makapuu Lookout. The site is located at the approximately 40 to 400 feet elevation (Figure 1). The purpose of the survey was three fold, first to describe the vegetation of the area, second, to prepare a species list of all of the plant life in the area and third, to determine if any proposed candidate or listed threatened or endangered species are found in this portion of Makapuu Point.

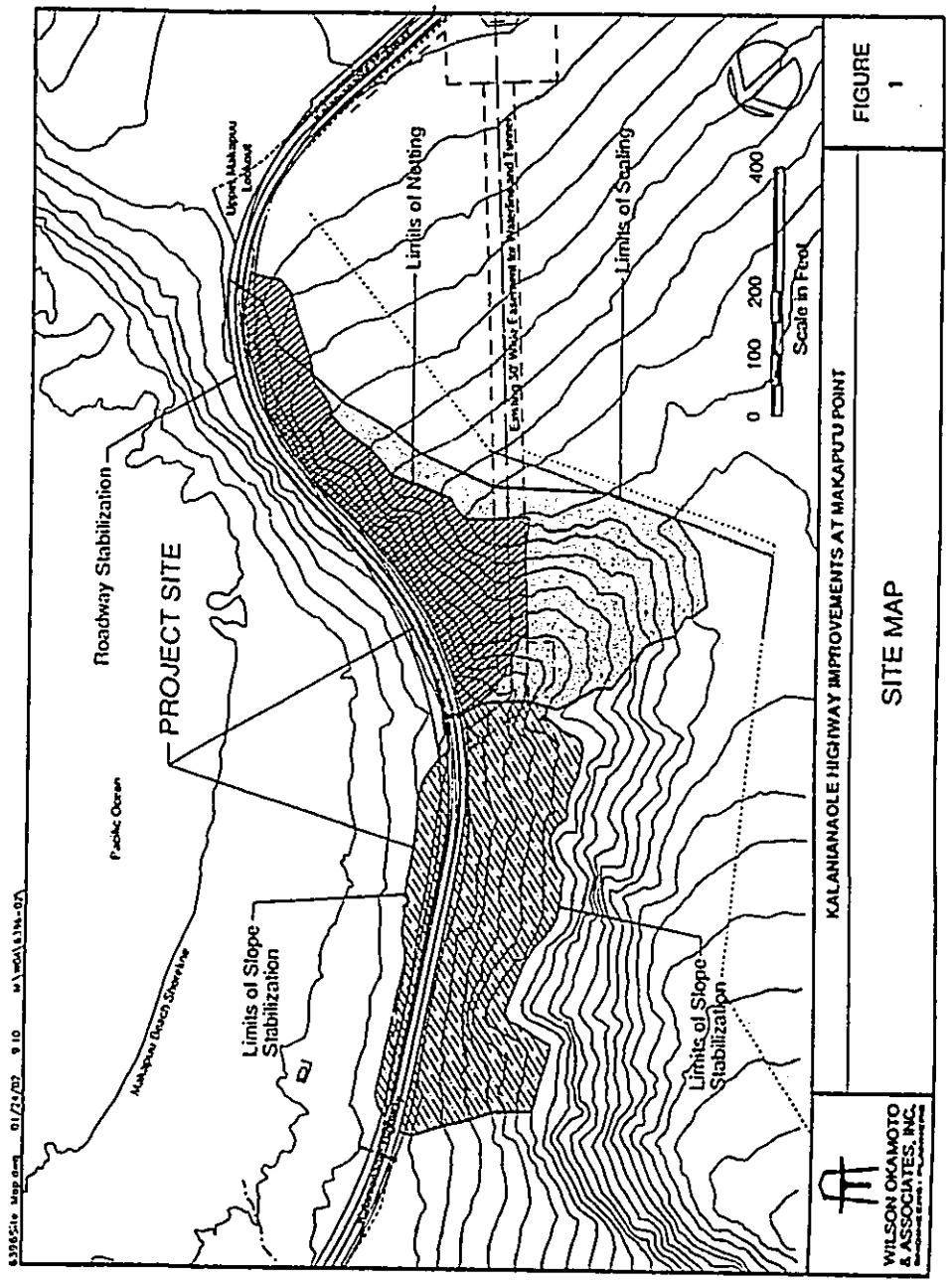
METHODS

To cover this complex site a two-person team performed a walk through survey on those portions of the site where access was possible, such as the makai side of the site along the beach, along both sides of the highway and along the ridge above the highway. On the steep, inaccessible, cliff face and the open scree, a binocular survey was conducted.

RESULTS

The approximately eight acre project site contains four distinct habitats. Each of these habitats support a different vegetation type.

The approximately one half acre portion of the project site that lies makai of the Highway is largely Sand Dunes with Scattered Trees. The tree population is made up of a few milo (*Thespesia populnea* (L.) Sol. Ex Correa), ironwood (*Casuarina equisetifolia* L., and beach heliotrope trees (*Tournefortia argentea* L. fil.). There are scattered patches



of shrubby naupaka and some ground cover type plants such as seashore rush (*Sporobolus virginicus* (L) Kunth) and beach morning glory *(Ipomoea pes-caprae* (L.) R. Br.). Altogether these plants cover about one-half the area surface, the rest is open sand dunes.

Farther up the slope, near the verge of the highway, can be found the skeletons of many naupaka (*Scaevola sericea* Vahl.), koa haole (*Leucaena leucocephala* (Lam.) de Wit), and beach heliotrope plants that were killed by the recent drought and the constant wind.

Upslope at the western end of the site is found an unstable area of about two and one half acres. Where this scree abuts the highway can be found common roadside type weedy vegetation. It consists of such species as Chinese violet (*Asystasia gangetica* (L.) T. Anderson, buffelgrass (*Cenchrus ciliaris* L.), stargrass (*Chloris divaricata* R. Br.),Henry's crabgrass (*Digitaria ciliaris* (Retz.) Koeler) and other similar taxa. Above the road, the vegetation of the scree consists of shrubby koa haole plant skeletons. Some of these dead plants showed new growth at ground level. The koa haole, like the naupaka lower down, was probably killed by the recent drought. Scattered among the koa haole twigs could be found panini cactus plants (*Opuntia ficus*-indica (L.) Mill.), buffelgrass, Chinese violet, and ilima (*Sida fallax* Walp.)

From the eastern end of the scree near the entrance to the water tunnel to the eastern end of the project site at the Makapuu Point overlook, and from the highway to the top of the ridge is found the third habitat. It is a layered mass of stone with thousands of small narrow ledges. On about five percent of these ledges can be found small colonies of plants such as naupaka, Chinese violet, buffelgrass and a few others.

The wind swept ridge of this site supports the fourth vegetation type, wind sheered, mixed scrub. Only one plant species found on the ridge does not exhibit wind sheering, that is panini cactus. There are several large colonies of panini cactus that are five to ten feet in height. The remaining vegetation is of low stature and shares the area with an equal amount of rock out-croppings. The scrub is made up of koa haole, klu (*Acacia farnesiana* (L.) Willd.), Zulu-giant (*Stapelia gigantea* N. E. Brown), Chinese violet, and grasses such as Bermuda grass (*Cynodon dactylon* (L.) Pers), Guinea grass (*Panicum maximum* Jacq.), and Henry's crab grass.

CONCLUSIONS

Only two plant species native to the Hawaiian Islands were found during this survey, beach morning glory and Pa'uohi'iaka (*Jacquemontia ovalifolia* subsp. *sandwicensis)* , neither of which is rare or endangered in any way. The remaining vegetation found during this survey is common in many low, dry, sites in the Hawaiian Islands. If this vegetation is disturbed it will quickly reestablish its self.

ENDANGERED SPECIES

No candidate, proposed, or listed threatened or endangered species as set forth in The Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) is known from this site and none were found within the project site during this survey.

SPECIES LIST OF THE PLANTS FOUND ON THE PROPOSED KALANIANAOLE HIGHWAY IMPROVEMENTS AT MAKAPUU POINT SITE

The plant families in the following species list have been alphabetically arranged within two groups, Monocotyledons, and Dicotyledons. The genera and species are arranged alphabetically within families. The taxonomy and nomenclature follow that of Wagner, Herbst, and Sohmer (1990). For each taxon the following information is provided:

1. An esterisk before the plant name indicates a plant introduced to the Hawaiian Islands since Cook or by the aborigines.
2. The scientific name of the plant.
3. The Hawaiian name or the most widely used common name of the plant.
4. Abundance ratings are for this site only and they have the following meanings:

Uncommon = a plant that was found less than fine times.
Occasional = a plant that was found between five and ten times.
Common = a plant considered an important part of the vegetation.
Locally abundant = plants found in large numbers over a limited area. For example the plants found in grassy patches.
Abundant = Plants found in large numbers in all parts of the site.

This species list is the result of an extensive survey of this site during the early growing season (December 2001) and it reflects the vegetation composition of the flora during a single season. Minor changes in the vegetation will occur due to introductions and losses and a slightly different species list would result from a survey conducted during a different growing season.

Scientific Name	Common Name	Abundance
MONOCOTYLEDONS		
CYPERACEAE - Sedge Family		
**Kyllinga brevifolia* Rottb.	Kili'o'opu	Occasional
POACEAE - Grass Family		
**Bothriochloa pertusa* (L.) A. Camus	Pitted beardgrass	Common
**Cenchrus ciliaris* L.	Buffelgrass	Common
**Chloris barbata* (L.) Sw.	Swollen fingergrass	Occasional
**Chloris divaricata* R. Br.	Star grass	Locally abundant
**Cynodon dactylon* (L.) Pers.	Bermuda grass	Locally abundant
**Digitaria ciliaris* (Retz.) Koeler	Henry's crabgrass	Common
**Digitaria insularis* (L.) Mez. Ex Ekman	Sourgrass	Uncommon
**Echinochloa colona* (L.) Link	Jungle rice	Uncommon
**Panicum maximum* Jacq.	Guinea grass	Occasional
**Panicum repens* L.	Quack grass	Common
**Rhynchelytrum repens* (Wild.) Hubb.	Natal redtop	Occasional
**Sporobolus virginicus* (L.) Kunth	Seashore rushgrass	Common
DICOTYLEDONES		
ACANTHACEAE – Acanthus Family		
**Asystasia gangetica* (L.) T. Anderson	Chinese violet	Locally abundant
ANACARDIACEAE – Mango Family		
**Schinus terebinthifolius* Raddi	Christmas berry.	Uncommon
ASCLEPIADACEAE – Milkweed Family		
**Stapelia gigantea* N. E. Brown	Zulu-giant	Common
ASTERACEAE – Sunflower Family		
**Bidens alba* (L.) DC		Occasional
**Bidens cynapiifolia* Kunth		Locally abundant
**Emilia sonchifolia* (L.) DC	Flora's paintbrush	Occasional
**Pluchea symphytifolia* (Mill.) Gillis	Sourbush	Occasional
**Sonchus oleraceus* L.	Pualele	Common
**Tridax procumbens* L.	Coat buttons	Locally abundant
**Verbesina enceliodes* (Cav.) Benth. & Hook.	Golden crown-beard	Common

Scientific Name	Common Name	Abundance
BORAGINACEAE – Borage Family		
**Tournefortia argentea* L.fil	Tree heliotrope	Uncommon
CACTACEAE – Cactus Family		
**Opuntia ficus-indica* (L.) Mill.	Panini	Common
CASUARINACEAE – She-oak Family		
**Casuarina equisetifolia* L.	Ironwood	Occasional
CHENOPODIACEAE – Goosefoot Family		
**Atriplex suberecta* Verd.		Uncommon
**Chenopodium murale* L.	'Aheahea	Uncommon
CONVOLVULACEAE – Morning glory Family		
Ipomoea pes-caprae (L.) R. Br.	Beach morning glory	Occasional
Jacquemontia ovalifolia subsp. *sandwicensis*	Pa'uohi'iaka	Common
**Merremia aegyptia (L.)* Urb.	Hairy merremia	Uncommon
CUCURBITACEAE – Gourd Family		
**Coccinia grandis* (L.) Voigt	Ivy gourd	Common
**Momordica charantia* L.	Balsam pear	Occasional
EUPHORBIACEAE – Spurge Family		
**Chamaesyce hirta* (L.) Millsp.	Hairy spurge	Occasional
**Chamaesyce hypericifolia* (L.) Millsp.	Graceful spruge	Occasional
FABACEAE – Bean Family		
**Acacia farnesiana* (L.) Willd.	Klu	Common
**Chamaecrista nictitans* (L.) Moench	Partridge pea	Occasional
**Desmanthus virgatus* (L.) Willd.	Slender mimosa	Uncommon
**Indigofera spicata* Forssk.	Creeping indigo	Occasional
**Leucaena leucocephala* (Lam.) de Wit	Koa haole	Common
**Prosopis pallida* Kunth	Kiawe	Occasional

Scientific Name	Common Name	Abundance
GOODENIACEAE – Goodenia Family		
**Scaevola sericea* Vahl.	Naupaka	Common
MALVACEAE – Mallow Family		
**Sida fallax* Walp.	I'lima	Common
**Sida sp.*	Prickly sida	Occasional
**Thespesia populnea* (L.) Sol. Ex Correa	Milo	Occasional
MORACEAE – Fig Family		
**Ficus microcarpa* L. fil.	Chinese banyan	Occasional
NYCTAGINACEAE – Four-o-'clock Family		
**Boerhavia coccinea* Mill.		Common
Boerhavia repens L.	Alena	Occasional
PORTULACACEAE – Purslane Family		
**Portulaca oleracea* L.	Pig weed	Common
STERCULIACEAE – Cacao Family		
Waltheria indica L.	'Uhaloa	Common
VERBENACEAE – Verbena Family		
**Lantana camara* L.	Lantana	Common
**Stachytarpheta urticifolia* (Salisb.) Sims		Occasional

BIBLIOGRAPHY

Haselwood, E. L. and G. G. Motter. 1976. Handbook of Hawaiian Weeds. Lyon Arboretum Association

Neal, M. C. 1965. In Gardens of Hawaii. Bishop Museum Special Publication #65. Bis. Mus. Press.

Wagner, W. L., D. R. Herbst, & S. H. Sohmer. 1990. Manual of the Flowering Plants of Hawaii. Bishop Museum Special Publication #83. Univ., Of Hawaii Press. Vols. 1 & 2.

Appendix B

Faunal Survey

Rana Productions, Ltd.

A Survey of Avian and Terrestrial Mammalian Species for the Kalaniana'ole Highway Improvements at Makapu'u Project, Waimanalo and Maunalua Districts, O'ahu, Hawai'i.

DRAFT

Prepared for:

Wilson Okamoto & Associates
1907 S. Beretania Street, Suite 400
Honolulu, Hawai'i 96826

Prepared by:

Reginald E. David
Rana Productions, Ltd.
P.O. Box 1371
Kailua-Kona, Hawai'i 96745

March 2002

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Introduction:

This report summarizes the findings of an ornithological and mammalian survey of the proposed Kalaniana'ole Highway Improvements at Makapu'u Point project site (Figure 1). The State Department of Transportation – Highways Division (DOT-H) is proposing to address a road subsidence problem and an ongoing rockfall hazard on Kalaniana'ole Highway at Makapu'u, in the Waimanalo and Maunaloa Districts, Island of O'ahu. The project site is identified as TMK: 3-9-10: portion 1, and 4-1-14: portion 2 and 13. Fieldwork was conducted on March 8th and 9th, 2002.

The primary purpose of the survey was to determine if there were any federally or State of Hawai'i listed endangered, threatened, proposed, or candidate avian or mammalian species within, or in the immediate vicinity of the project site (DLNR, 1998; Federal Register, 1999a, 1999b, 2001). In addition to the study, we also assessed the probability of any usage of the project site by listed avian and mammalian species given the habitat currently found upon it.

Avian phylogenetic order and nomenclature follows *The American Ornithologists' Union Checklist of North American Birds 7th Edition* (American Ornithologists' Union 1998), and the 42nd supplement to *Check-list of North American Birds* (American Ornithologists' Union 2000). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Plant names follow *Manual of the Flowering Plants of Hawai'i* (Wagner et al. 1990). Place names follow *Place Names of Hawaii* (Pukui et al. 1974).

General Project and Site Description:

The project site is located on both sides of Kalaniana'ole Highway, between Sea Life Park and the Upper Makapu'u lookout (Figure 1). The proposed road improvements include stabilizing the *makai* portion of the Highway in the segment between Sea Life Park and the Upper Makapu'u lookout, and repairing / strengthening the existing CMU/rock wall. The rockfall hazard will be addressed by removing loose rocks and other material from the cliff area *mauka* of the Kalaniana'ole Highway and installing a rock catchment device (Figure 1). The project site is a cliff face with a maximum elevation of ~ 475-feet above mean sea level (amsl) and a minimum elevation of ~ 75-feet amsl. (Figure 1).

Mammalian Survey Methods:

All observations of mammalian species were of an incidental nature. With the exception of the endemic (i.e. native and unique to Hawai'i), endangered Hawaiian hoary bat, or *'ope'ape'a*, as it is known in Hawaiian, all terrestrial mammals currently found on the island of O'ahu are alien species (i.e. introduced to Hawai'i by humans). Most are ubiquitous; no trapping program was proposed or undertaken to quantify the use of the study site by alien mammalian species. The survey of mammals was limited to visual and

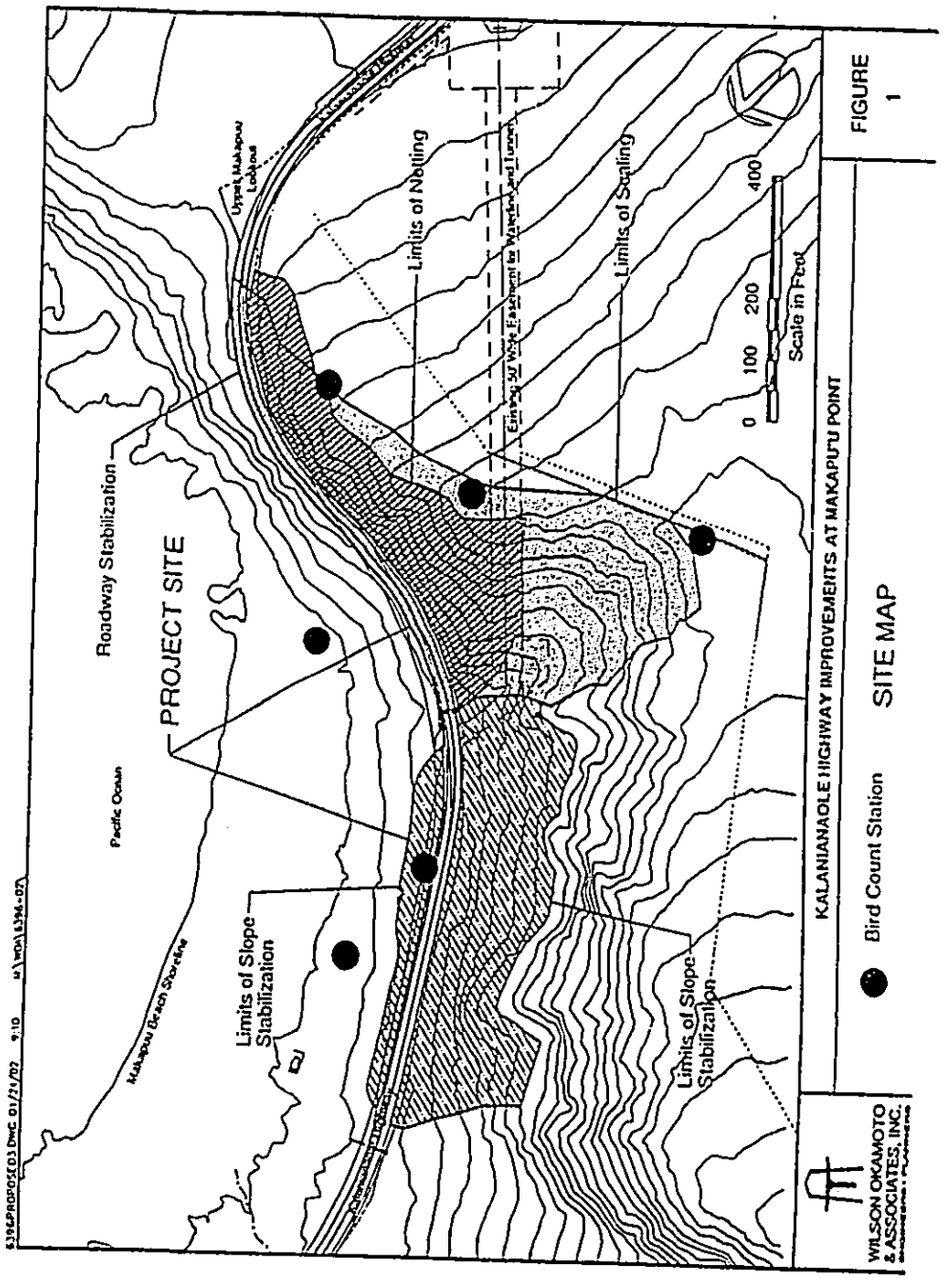

FIGURE 1

SITE MAP

auditory detection, coupled with observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the project sites. Additionally, two crepuscular (twilight) surveys were conducted on the evening of March 8, 2002 and on the morning of March 9, 2002, in an attempt to detect bats over-flying the project area.

Avian Survey Methods:

Six avian count stations were established in the general project area (Figure 1). Six-minute unlimited distance variable circular plot counts were made at each station (Reynolds et al., 1980). Each station was counted once. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated in the morning hours, the time of day that bird activity is typically at its peak. An additional two hours were spent in the project area on the evening March 8, 2002, and on the morning of March 9, 2002, in an attempt to detect nocturnally flying seabirds and owls over-flying the area. Time not spent counting was used to search the surrounding area for species and habitats not detected during count sessions.

Mammalian Survey Results

Three mammalian species; domestic dog (*Canis f. familiaris*), cat (*Felis catus*), and small Indian mongoose (*Herpestes a. auropunctatus*) were detected within the study site. All of these introduced mammalian species are deleterious to native species . The endangered Hawaiian hoary bat was not detected during the course of this survey.

Avian Survey Results

A total of 113 individual birds, representing eight avian species, from a like number of separate families were recorded during station counts (Table 1). Of the eight species detected three species; Red-footed Booby (*Sula sula rubripes*), Great Frigatebird (*Fregata minor palmerstoni*) and Sooty Tern (*Sterna fuscata oahuensis*) – are indigenous (i.e. native to Hawai'i, but also found elsewhere naturally), breeding seabird species. The remaining five species are established alien species (Table 1). No avian species listed as endangered, threatened or proposed for listing under either the Federal Endangered Species Act of 1973, as amended (ESA), or by the State of Hawai'i under it's endangered species program were recorded during the course of this survey (DLNR 1998; Federal Register 1999a, 1999b, 2001).

Avian diversity was extremely low. Two species; Sooty Tern, and House Finch (*Carpodacus mexicanus frontalis*), accounted for 51% of the total number of birds recorded during station counts. Sooty Terns were the most commonly detected species, this species accounted for 34% of the total individual birds recorded. An average of 19 birds were recorded per station-count.

Table 1.

Avian Species Detected During Station Counts:
Kalaniana'ole Highway Improvements at Makapu'u Project

Common Name	*Scientific Name*	*ST*	*RA*
BOOBIES & GANNETS - Sulidae			
Red-footed Booby	*Sula sula rubripes*	IB	0.33
FRIGATEBIRDS - Fregatidae			
Great Frigatebird	*Fregata minor palmerstoni*	IB	0.33
GULLS, TERNS & ALLIES - Laridae			
Sooty Tern	*Sterna fuscata oahuensis*	IB	6.33
PIGEONS & DOVES - Columbidae			
Zebra Dove.	*Geopelia striata.*	A	1.67
BULBULS – Pycnonotidae			
Red-vented Bulbul	*Pycnonotus cafer.*	A	3.00
STARLINGS - Sturnidae			
Common Myna.	*Acridotheres tristis.*	A	1.17
CARDULINE FINCHES & ALLIES - Fringillidae			
House Finch.	*Carpodacus mexicanus frontalis*	A	3.33
OLD WORLD SPARROWS - Passeridae			
House Sparrow	*Passer d domesticus*	A	2.67

Key to Table 1.

ST Status
IB Indigenous breeder - native to Hawai'i, but also found elsewhere naturally
A Alien species – introduced to Hawai'i by humans, established in the wild in Hawai'i
RA Relative Abundance: Number of birds detected divided by the number of count stations (6)

Discussion:

A one-time survey cannot provide a total picture of the wildlife using any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations, coupled with seasonal availability and use of resources, will cause different use patterns throughout a year and, in fact, over a number of years. Coupling the results of a one time survey with the results of previous surveys conducted in similar habitats and locations, greatly expands the value of the information gathered.

The findings of the mammalian survey are consistent with the results of other recent surveys conducted within the lowland areas on the Island of O'ahu (David, 1997a, 1997b, 1998, 1999, 2000a, 2001, 2002; David and Guinther 2000; Guinther and David 2001). Although no rodents were detected during the course of this survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus*

domesticus) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use various resources present within the project site. Without conducting a trapping program, it is difficult to assess the population densities of these often hard-to-see mammals. All of these introduced rodents are deleterious to native avian and botanical resources.

The findings of the avian survey are consistent with the findings of other recent surveys conducted within the lowland areas on the Island of O'ahu (David, 1995a, 1995b, 1995c, 1995d, 1997a, 1997b, 1997c, 1998, 1999, 2000a, 2000b, 2001, 2002; David and Guinther 2000; Guinther and David 2001). All avian species detected within the project site were alien species (Table 1). The three indigenous seabird species detected, were all recorded flying over the site. All three species were seen flying from the direction of Manana and Kaohikaipu Islands, and passing between the project site and Makapu'u Head to the east of the project site. The site has little to offer most avian species. The cliff face was inspected to ascertain if White-tailed Tropicbirds (*Phaethon Lepturus dorothae*) might be nesting within openings in the face – none were detected, nor was any "whitewash" seen on the face, which if seen, might indicate that the cliff face is being used for nesting by this indigenous seabird species. Currently there is no suitable nesting habitat for any listed avian species known from the Island of O'ahu on the project site.

During the course of construction it is likely that individual birds will be temporally displaced by the noise and activity associated with excavation and the installation of rockfall retention devices. There is adequate like habitat close to the project site that displaced birds can use. It is logical to assume that following the completion of the construction phase, that there will be no lingering impact to any of the alien species which are currently using resources within the project site.

Recommendations

Design and implement adequate Best Management Practices (BMP's) to ensure that any excavated materials and or construction materials are restricted to the construction site, and are not allowed to migrate down-slope onto the beach below the Kalaniana'ole Highway.

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Appendix C

Archaeological Inventory Survey

Haun & Associates

Report 122-101002

ARCHAEOLOGICAL INVENTORY SURVEY

KALANIANAOLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

LANDS OF MAUNALUA AND WAIMANALO

KO'OLAUPOKO AND HONOLULU DISTRICTS

ISLAND OF OAHU

(TMK: 3-9-10: Portion 1 and 4-1-14: Portions 2 and 13)

October 2002

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SUMMARY

At the request of Wilson Okamoto & Associates, Haun & Associates conducted an archaeological inventory survey of the approximately 8-acre Kalaniaaole Highway Improvements project site at Makapu'u Point, Lands of Maunalua and Waimanalo, Ko'olaupoko and Honolulu Districts, Island Of Oahu (TMK: 3-9-10: Portion 1 And 4-1-14: Portions 2 And 13). The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

No potentially significant sites or features were identified within the project site during the survey. This result was not unexpected because most of the project site is precipitously steep and portions of the site are artificial cuts made during construction of the highway.

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INTRODUCTION

At the request of Wilson Okamoto & Associates, Haun & Associates conducted an archaeological inventory survey of the proposed approximately 8-acre Kalanianaole Highway Improvements project site at Makapu'u Point, Lands of Maunalua and Waimanalo, Ko'olaupoko and Honolulu Districts, Island Of Oahu (TMK: 3-9-10: Portion 1 and 4-1-14: Portions 2 And 13; *Figure 1*). The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules (DLNR 1998). The project involves slope stabilization, scaling, and netting to reduce the rock fall hazard to vehicles on Kalanianaole Highway

The survey was conducted on December 21, 2001 and September 17, 2002. Described in this final report are the project scope of work, field methods, background information, and survey findings.

Scope of Work

Based on DLNR-SHPD rules for inventory surveys, the following specific tasks were determined to constitute an appropriate scope of work for the project:

1. Conduct background review and research of existing archaeological and historical documentary literature relating to the project area and its immediate vicinity--including examination of Land Commission Awards, *ahupua'a* records, historic maps, archival materials, archaeological reports, and other historical sources;

2. Conduct a 100% pedestrian survey of the project area of sufficient intensity to identify all potentially significant historic properties present;

3. Conduct detailed recording of all potentially significant properties including scale plan drawings, written descriptions, and photographs;

4. Conduct limited subsurface testing (manual excavation) at selected sites as necessary to (a) determine site function, and (b) obtain suitable samples for radiocarbon age determination analyses;

5. Analyze background research and field data;

6. Prepare and submit a Final Report in conformance with regulatory agency requirements for inventory survey reports. The Final Report would include initial significance assessments and specific recommendations for any further archaeological work that might be required; and

7. Revise and resubmit Final Report, if necessary, in response to DLNR-SHPD comments.

Project Area Description

The project area consists of a c. 8-acre parcel located in the Lands of Maunalua and Waimanalo, Ko'olaupoko and Honolulu Districts, Island of Oahu. The majority of the parcel is situated on the inland side of Kalanianaole Highway (c. 7.5-acres). A small strip is situated on the seaward side of the highway at the inland extent of Makapu'u Beach (c. 0.5-acres). The 7.5-acre portion of the parcel is comprised of steep

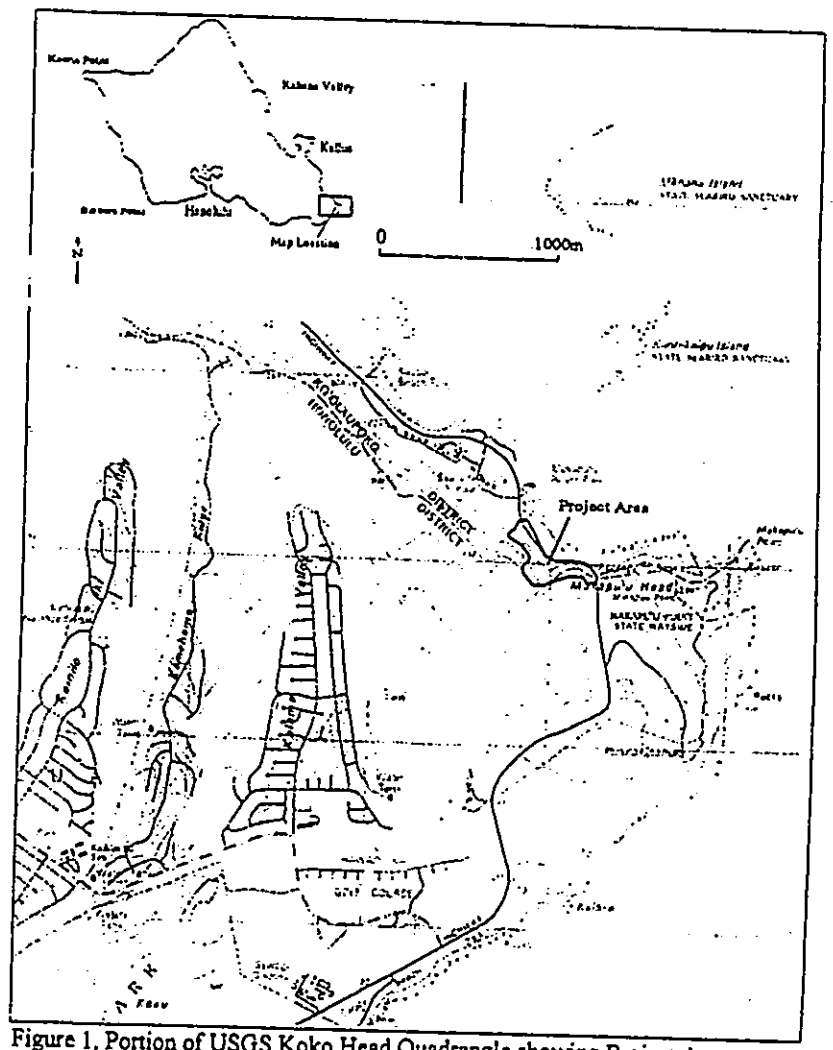


Figure 1. Portion of USGS Koko Head Quadrangle showing Project Area

slopes that range in elevation from c. 75 to 410 feet above sea level. The 0.5-acre strip consists of road fill located below the highway, at elevations ranging from 60 to 105 feet.

Sparse vegetation was noted throughout the parcel. This vegetation consists of scattered *koa haole* (*Leucaena leucocephala* [Lam.] de Wit), *naupaka* (*Scaevola sericea* Vahl), and low grasses. Three general soil types are present within the project area. The inland two-thirds of the parcel is comprised of Rock Land, which is typified by exposed rock that covers 25 to 90% of the ground surface (Foote et al. 1972:119). These outcrops are comprised of basalt and andesite. Very little soil is found in association with the rock land, but when soil does exist it is very sticky and plastic. The lower two-thirds of the parcel is dominated by the Rock Outcrop series. This soil type is similar to Rock Land, except that it occupies more than 90% of the ground surface.

Field Methods

The initial examination of the parcel in September 2001 was limited to pedestrian coverage of the level ridge crest along the south edge of the parcel and inspection of the base of steep talus slopes and cliffs along Kalaniānaole Highway. The remainder of the parcel was inspected using binoculars from the highway and ridge crest. Subsequent pedestrian coverage of the talus slopes and inspection of several small cavities in the cliff face was conducted in September 2002.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Historical Documentary Research

The project area is located within the *ahupua'a* of Waimanalo and Maunalua in the districts of Ko'olaupoko and Honolulu (Kona), respectively (*Figure 2*). Maly and Wong-Smith (1998) describe conflicting historical references to the status of Maunalua. The Indices of Awards (Indices 1929) indicate that Maunalua was an *ahupua'a* of Kona (Honolulu) District that was awarded to the Chiefess, Victoria Kamamalu (LCA 7713:10). Other sources refer to it as an *'ili*, or *ahupua'a*, of Waimanalo.

According to Kamakau (1961), the king of Hawaii Island, Alapa'i attempted to take Oahu, but his invasion forces were repelled at Koko and Hanauma in Maunalua. Kamakau (1961) and Fornander (1969) describe a battle that took place in Waimanalo in 1794 between the ruling chief of Oahu, Kalanikupule, and Ka'eokulani, who ruled the islands of Maui, Molokai, Lanai, and Kauai. Ka'eokulani's war fleet was returning to his home island, Kauai, from Molokai. Kalanikupule learned that the fleet was headed for Oahu and feared an attack. He prepared for the attack by "digging trenches and throwing up earthworks at Kukui, Kalapueo, and Waimanalo" (Kamakau 1961:168). After two days of firing between Kalanikupule's forces on the coast and the offshore fleet, the battle ended in a truce.

During Kamehameha I's residence on Oahu, he assisted in restoring the Maunalua fishpond (Kamakau 1961). I'i (1959) described the main trail (*ala loa*) that extended from Maunalua along the coast at Koko and on to Makapu'u. Handy (1940) reported that the *kula* lands in Maunalua's coastal plain and valleys, and the *kula* lands at the base of the cliffs in Waimanalo, traditionally were used for sweet potato cultivation. In the early to mid-1800s, the potatoes were traded to whalers. Two early provisioning and anchorage sites were Wawamalu Village at Kaloko (Queen's Beach) and Keawaawa Village at Kuapa Fishpond (McDermott et al. 1997). Hanauma Bay was a fishing resort for royalty (Sterling and Summers (1978).

One of the earliest western accounts of Maunalua was by reported by the Captains Dixon and Portlock in 1786. The captains landed on the coast of Maunalua in an unsuccessful search for freshwater (Maly

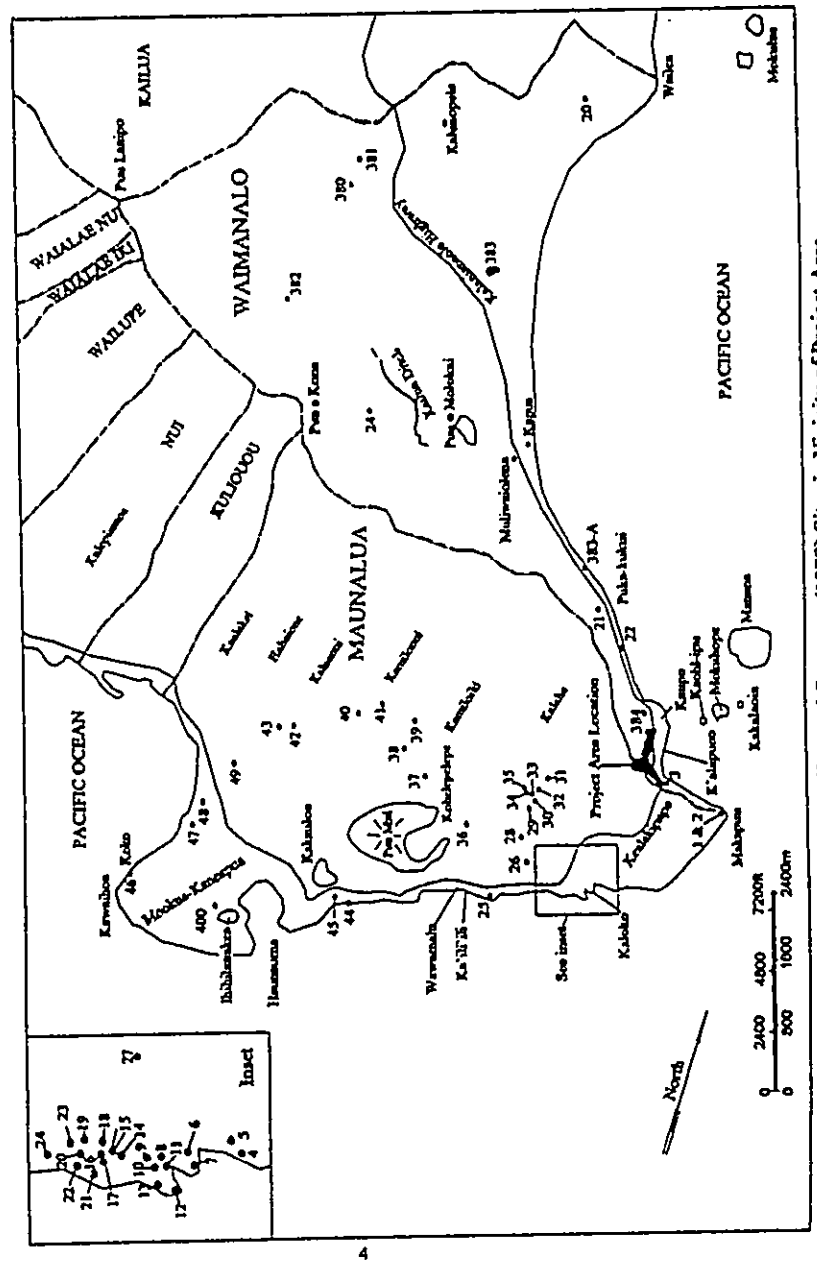


Figure 2. Location of McAllister (1933) and Sterling and Summers (1978) Sites in Vicinity of Project Area

and Wong-Smith 1998). They described the coastal plain and valleys as intensively cultivated with taro, sweet potatoes, sugar cane, and coconut trees.

McAllister (1933) cites an 1822 account of Gilbert Mathison's walk from Waimanalo to Maunalua. He described Kealakipapa Valley as thickly forested on the trek down from the ridgeline at Makapu'u. At the coast in Maunalua, he observed a fishing village with over one hundred huts and a large saltwater lake, presumably Kuapa Fishpond. Handy et al. (1972) report that in 1828, the missionary Chamberlain crossed the causeway, which formed the seaward boundary of the large fishpond, Ke-ahu-pua-o Maunalua (Kuapo). He addressed a group of thirty people at a school in the village. Most of the men were away from the village cutting sandalwood. Chamberlain also observed a series of small fishing villages along the coast at Kukui, Koanapau (Kaupo), and Kahpueo at the southern end of Waimanalo (Sterling and Summers 1978).

Sterling and Summers (1978) cite an 1847 description of Waimanalo that chronicles the transition of the *ahupua'a*:

> At that time, it seemed that the valley was filled with breadfruit, mountain apples, kukui and coconut trees. There were taro patches, with banks covered with ti and wauke plants. Grass huts occupied the dry lands, a hundred of them here and sweet potatoes and sugar cane were much grown....The whole ahupuaa of Waimanalo was leased to white men except the native kuleanas and because the cattle wandered over them, they were compelled to build fences for protection. The taro patches that were neatly built in the time when the chiefs ruled over the people and the land, were broken up. The sugar cane, ti, and wauke plants were destroyed. The big trees that grew in those days, died because the roots could not get enough moisture. The valley became a place for animals (1978:244).

During the Great Mahele, Waimanalo, except for *kuleana* lands, became Crown land, and Maunalua and its fishery was awarded to the Chiefess Victoria Kamamalu (LCA 7713:10, *Figure 3*). The Waihona 'Aina (2000) Mahele Database, which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), Foreign Register (FR n.d.) and Foreign Testimony (FT n.d.); lists 148 Land Commission Award (LCA) claims for Waimanalo and one for Maunalua. Eighty-five of the Waimanalo claims were awarded. Land use described in the claim testimony includes coastal house lots, fishponds along Puha Stream, and inland house lots associated with irrigated taro fields.

Rosendahl and Silva (1981) describe historical developments in Waimanalo. In 1850, Thomas Cummins leased most of the *ahupua'a* for ranching. The ranch converted taro lands to rice cultivation and began planting sugar cane. In 1881, Waimanalo Ranch became a sugar cane plantation that continued in use until the early 1900s. Small areas of traditional pondfield taro cultivation were still in use in the 1930s (Handy 1940). The U. S. military acquired a large coastal portion of Waimanalo in 1917. The area was developed into an airfield in the 1940s. In the 1930s, a fire control station for coastal defense batteries was constructed at Makapu'u Point (Borthwick et al. 1998). The U.S. Army utilized coastal portions of Waimanalo and Maunalua for training during World War II (*Figure 4*).

Late 1800s to early 1900s maps of eastern Oahu (*Figures 5* and *6*) show trails on both sides of Kuapa Pond that converge into a single road north of Koko Crater that extends over the ridge at Makapu'u Point and along the coast in Waimanalo. *Figure 5* shows a cluster of structures on a small point along the coast where the village of Kaupo Village was located. *Figure 6* shows a landing at the coast in Waimanalo, probably at Puka-Kukui (see *Figure 2*) and the inland sugar mill for the Waimanalo Sugar Company.

Maly and Wong-Smith (1998) summarize Maunalua's early history. In 1856, Victoria Kamamalu's Maunalua lands were leased to William Webster. During the mid- to late 1800s, the land was used for cattle ranching and the fishpond was leased for fish propagation. Victoria Kamamalu's estate eventually was inherited by Chiefess Pauahi Bishop, and was subsequently controlled by the Trustees of the Bishop Estate. Ranching and the fishery continued during the early 1900s. Most of the native forest had been destroyed by goats and cattle by the early 1920s. The Bishop Estate and the Board of Commissioners of Agriculture and Forestry established the Maunalua Forest Reserve in 1921. Hanauma Bay and other to-

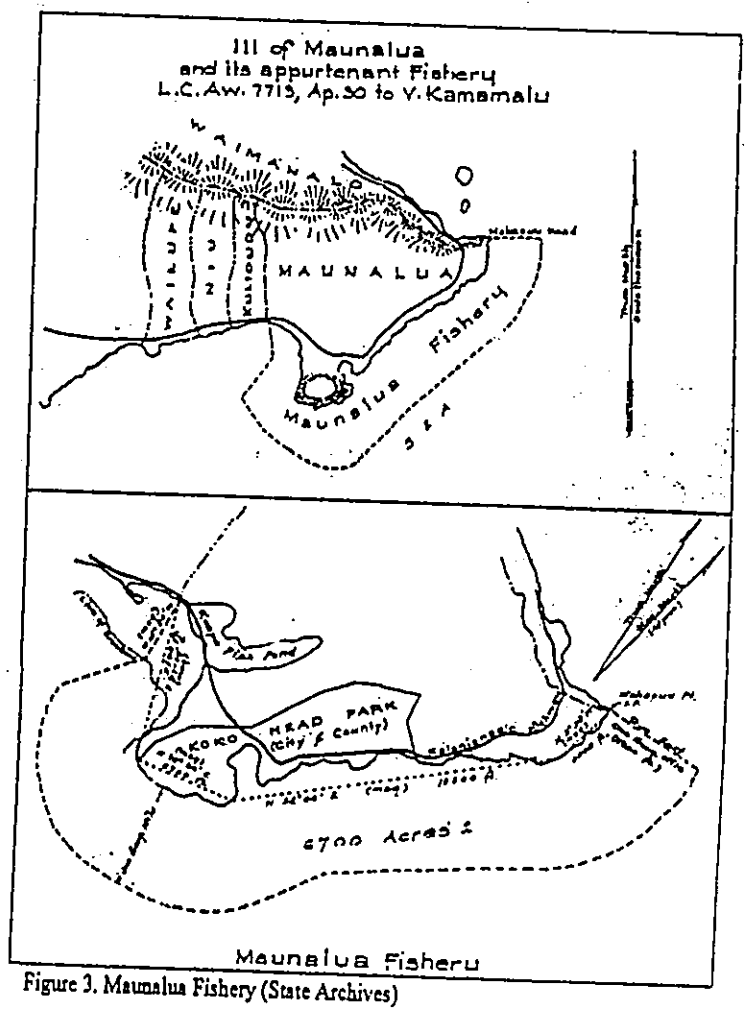


Figure 3. Maunalua Fishery (State Archives)

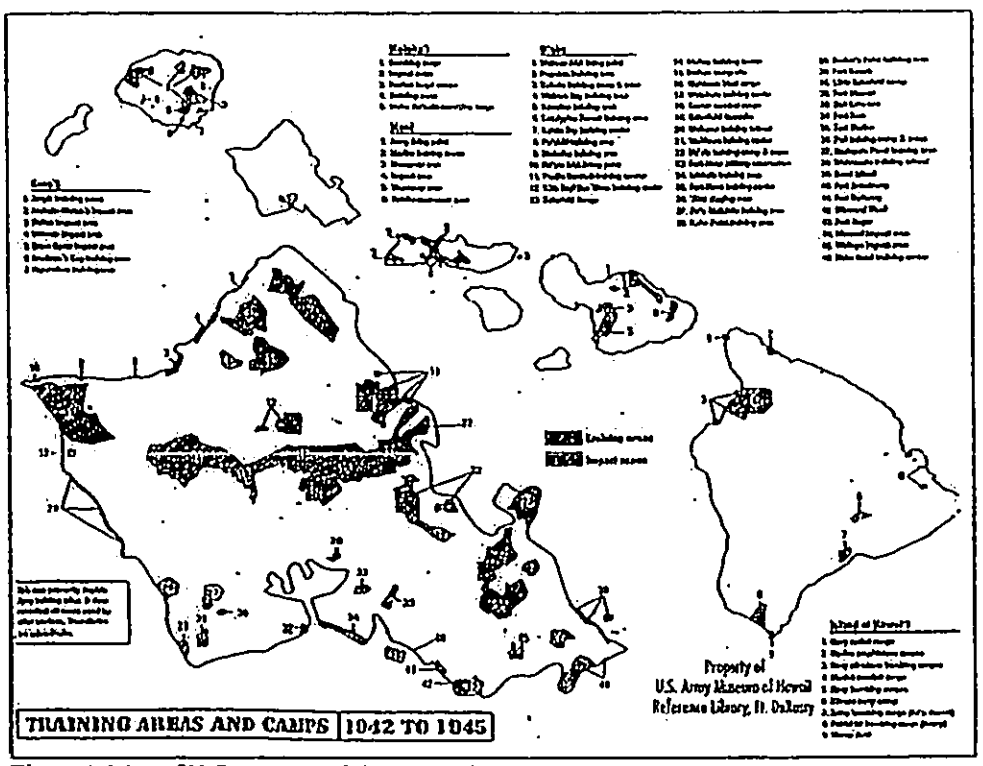


Figure 4. Map of U.S. Army Training Areas in the Hawaiian Islands, 1942-1945

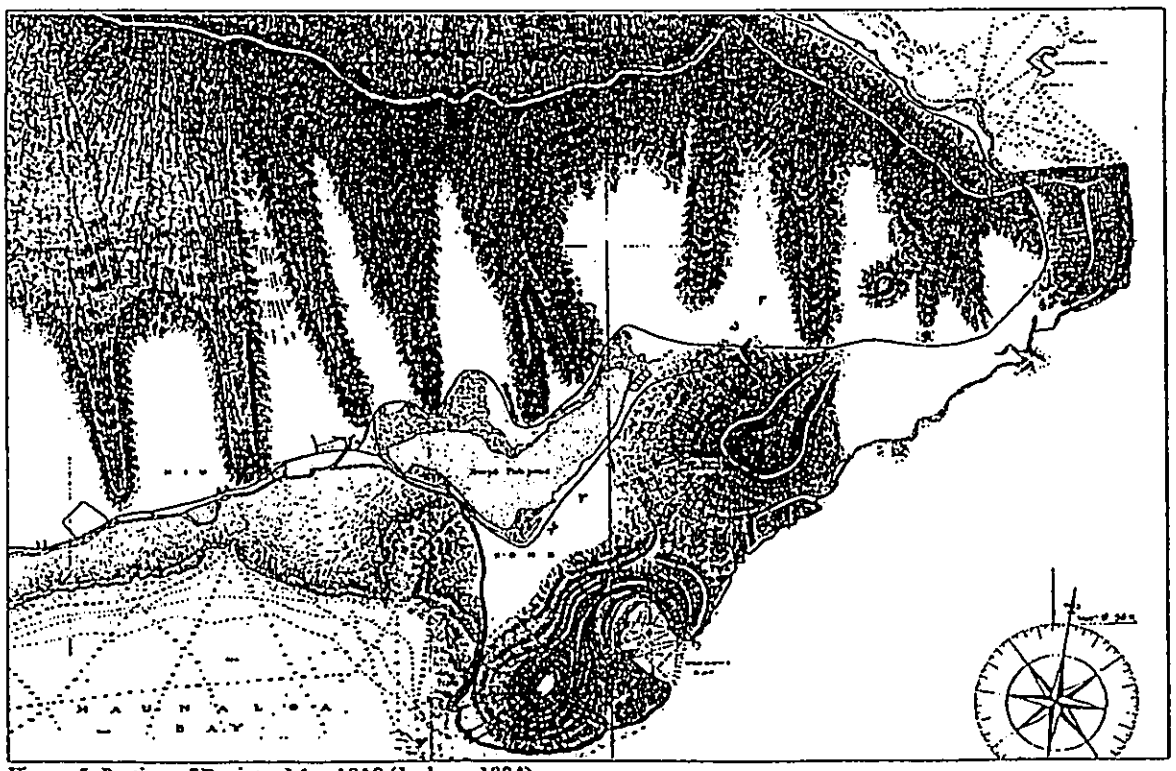


Figure 5. Portion of Register Map 1019 (Jackson 1884)

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

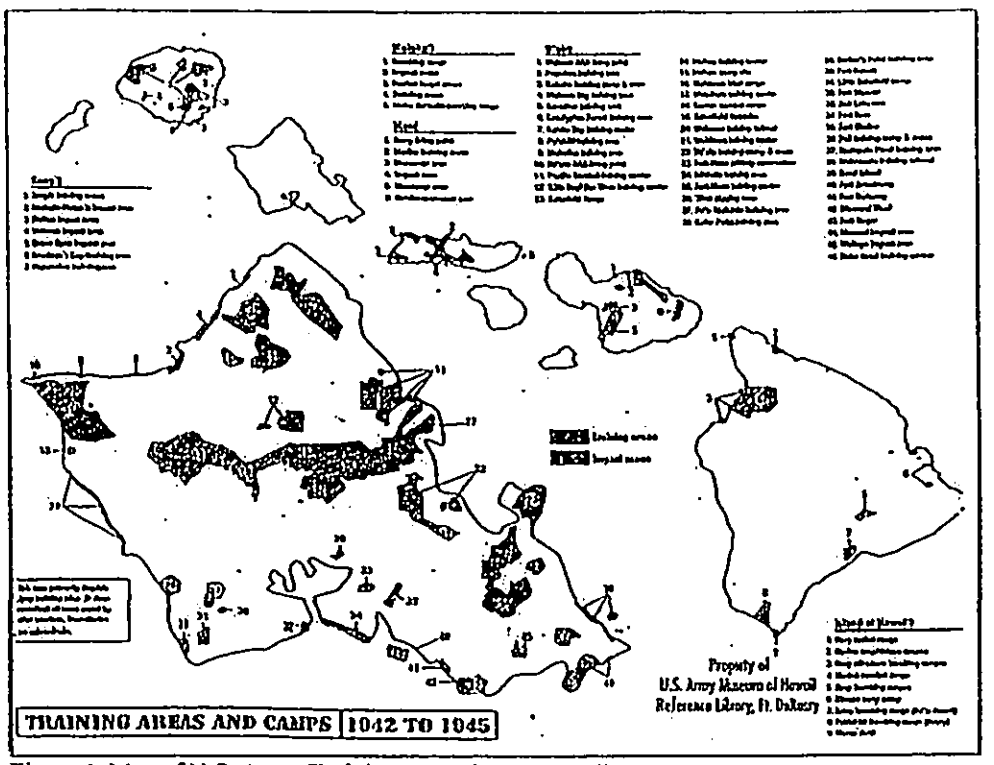


Figure 4. Map of U.S. Army Training Areas in the Hawaiian Islands, 1942-1945

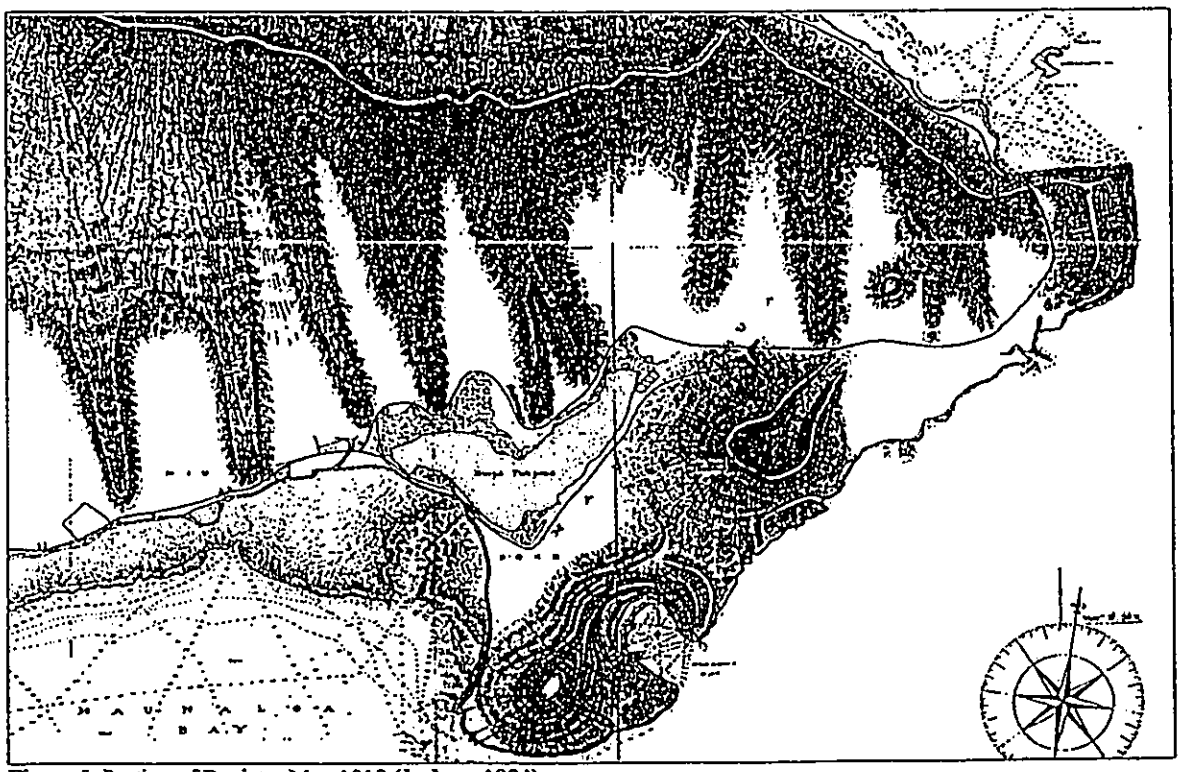


Figure 5. Portion of Register Map 1019 (Jackson 1884)

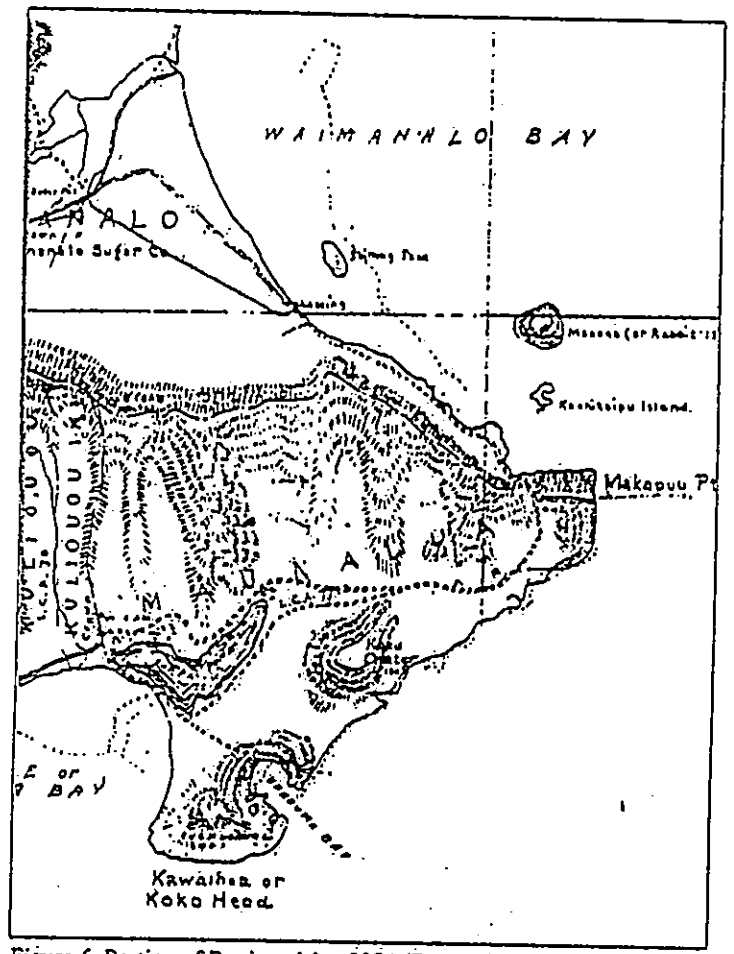


Figure 6. Portion of Register Map 2374 (Dunn 1906)

pographic features of Maunalua began drawing visitors from Honolulu. In 1924, portions of the coast and flat lands (*kula*) were leased to the City and County of Honolulu for Koko Head Park.

Jones (1996) describes twentieth century developments in Maunalua. Maunalua Ranch closed in 1926. Alan Davis established the Wawamalu Ranch in the Kaloko (Queen's Beach) and Wawamalu/Ka'ili'ili (Sandy Beach) area in the 1930s. The ranch complex included a ranch house, corral, water, tank, swimming pool, and outbuildings that were destroyed by a tidal wave in 1946. By the mid-1900s, the area around Kuapa Pond had become a major producer of vegetables, flowers, and hogs for Oahu. Between 1960 and 1980, Henry Kaiser transformed much of the area around the pond into the Hawaii Kai residential development.

McDermott et al. (1997) summarize 1900s developments in the vicinity of the project area. As a result of the 1906 grounding of a luxury steamer at Waimanalo, the Makapu'u lighthouse was constructed in 1909. In 1932, the last portion of Kalaniana'ole Highway between Waimanalo and Wawamalu was completed. Beginning in 1959, dredging and bulldozing occurred at Kaloko for a resort complex that was never completed. Between 1972 and 1975, there was further bulldozing and stockpiling of excess stone from the Hawaii Kai development.

Previous Archaeological Research

A search of the DLNR-SHPD archaeological report database and other sources identified twenty-eight archaeological studies for eastern end of Oahu. *Figure 7* shows the locations of the projects and *Table 1* summarizes the projects. Not included in the figure or table are the general studies by McAllister (1933), which focused on major sites throughout Oahu, and Sterling and Summers (1978). None of the prior studies included the project area.

Sterling and Summers (1978) list five sites for Waimanalo (Nos. 20-24, see *Figure 2*). Site 21 consists of a large rock called Kini that reportedly was a fishing shrine where offerings of *awa* and fish were placed. Site 22 is another fishing shrine. Site 23 is a large stone called Pohaku-paakiki near Kaupo Village. Site 24 was reportedly a large structure, possibly a *heiau*. Sterling and Summer's informants knew of burial caves in the cliffs. Sterling and Summers' identified one site in Maunalua, a spring called Kauanonoula (Site 400).

McAllister reported fifty-four sites in Waimanalo and Maunalua. The five sites in Waimanalo consist of an unnamed *heiau* (Site 381; see *Figure 2*), Pohakunui Heiau (Site 382), a small hill used as a place of refuge (Haununaniho Puuhonua, Site 383), and the remnants of a large fishpond, Pahonu Pond (Site 383-A,). Site 384 is the remains of Kaupo Village and consisted of fifteen features, many of which McAllister believed to be recent shelters. Probable traditional Hawaiian features included a fishing shrine, possible *heiau* remnant, a modified lava tube, and several low platforms and enclosures. A cattle pen and old roadway were also described.

Three of McAllister's Maunalua sites in the vicinity of the project area consist of a worshipped stone named Maiei (Site 1) formerly located at Makapu'u Point above the lighthouse and a large pile of stones and coral (Site 2) situated at the top of Waimanalo gap between the lighthouse and an old road (Site 3). McAllister offers no interpretation for the stone pile. Site 3 is Kealakipapa Valley Road that extended up the valley to a point inland of the lighthouse at Makapu'u Point, then down the Waimanalo gap through four switchbacks, and on to Kaupo Village (Site 384). Portions of the road were paved and had retaining walls. McAllister noted a walled enclosure near the top of the gap that was reportedly constructed in 1895.

McAllister reported a cluster of twenty-two sites at Maunalua Beach (Kaloko; Sites 4-24 and 27, see *Figure 2*). The sites include two clusters of C-shaped shelters, four walled house sites, two fishing shrines, two house platforms, an historic house site, a pig pen, a canoe house, a pile of stones, a habitation cave, and five enclosures of unrated function. McAllister interpreted two enclosures (Site 22) to be a possible *heiau* that was subsequently used for a cattle pen and historic house yard. Site 27 consisted of large enclosure interpreted as either a cattle pen or sweet potato patch, and five stone piles reported to be graves.

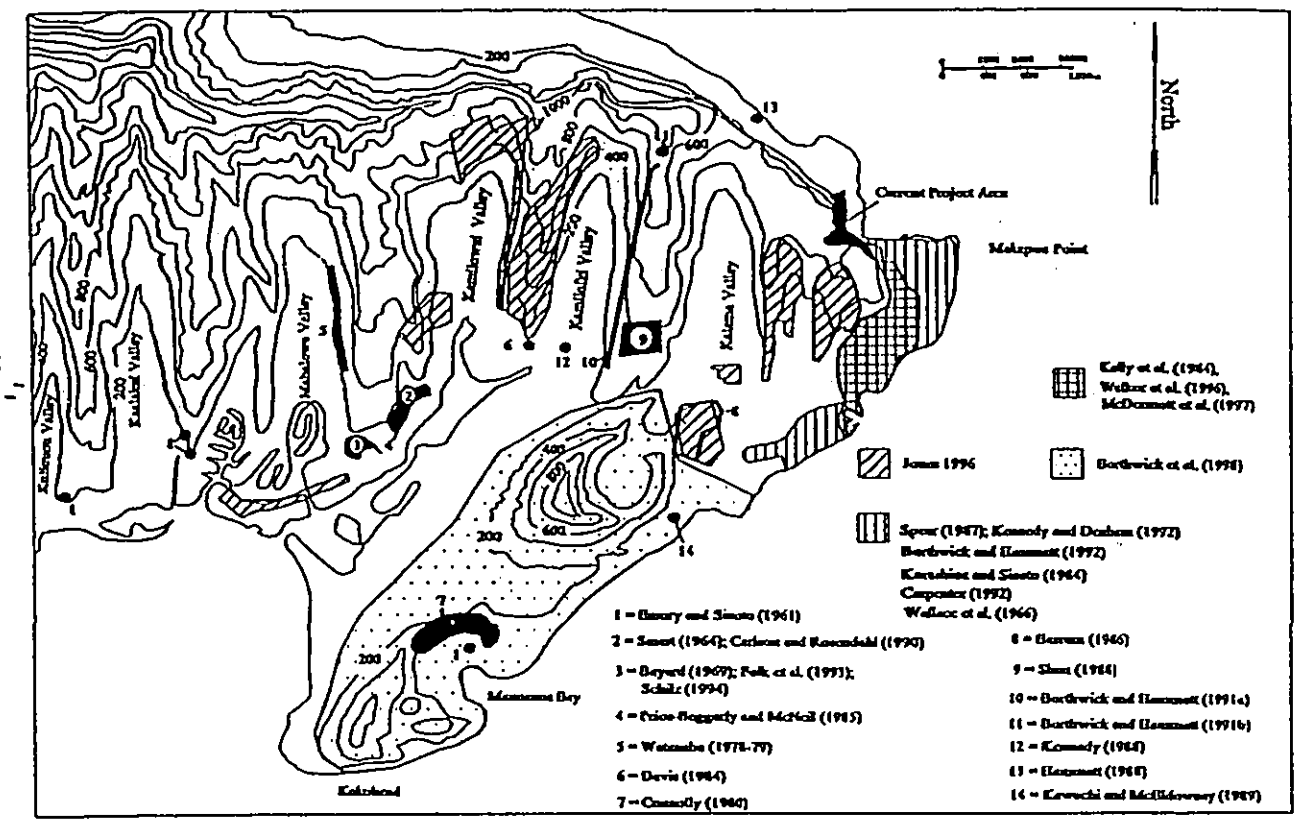


Figure 7. Previous Archaeological Work

Table 1. Summary of Previous Archaeological Work

Study	Area	Study Type*	Elevation	Acreage	No of Sites	Sites/ acre	No of Feats	Feats/ acre	Hab Feats	Hab Feats/ acre	Ag Feats	Ag Feats/ acre	Burial Feats	Ritual Feats	Misc. & Indet. Feats	Historic Feats
Kelly et al. (1964), Wallace et al. (1996), and Dermott et al. (1997)	Maunalua	FE/ AS/ IN	0-225	100	1	0.01	1	0.01								1
Kurashima and Sinoto (1964)	Kaalakapapa Valley	IN	10-20	10	4	0.40	4	0.40	2	0.20						2
Spear (1987)	Maunalua	IN	10-20	31	0											
Kennedy and Denham (1977)	Maunalua	IN	10-20	12.4	0											
Carpenter (1992)	Kaalakapapa Valley	IN	10-100	5	1	0.20	1	0.20								
Borthwick and Hammatt (1992)	Sandy Beach	IN	10-20	1	0											
Jones (1996)	Maunalua	IN	10-1000	375	11	0.03	84	0.22	18	0.05	49	0.13	16		1	
Hammatt (1988)	Sea Life Park	FIN	10-20	3.9	0											
Borthwick et al (1998)	Maunalua	IN	10-1000	1265	2	0.002	10	0.01								2
Wallace et al. (1996)	Kaloko	EX	10-20	7	1		1		1							
Kawachi and McElderowney (1989)	Kaloko Crater	FC	30-50	1	1	1.00	1	1.00								
Kennedy (1988)	Kamehame Ridge	FIN	125-150	2	0											
Bayard (1967), Folk et al. (1993), Schilz (1994)	Kaluanui	AS/EX	150-180	5	9	1.80	17	3.40	11	2.20					2	3
Davis (1985)	Kaalo Ridge	EX	150	7	1		1							1		
Price-Haggerty and McNeil (1985)	Kaluanui	IN	160-200	30	11	0.31	31	0.66	15	0.42			1	2		2
Emory and Sinoto (1961)	Kaluanui	EX	200	7	4		4		4							
Sinoto (1964), Carlson and Rosendahl (1990)	Kaluanui	EX	200	21	6	0.29	16	0.76	14	0.67			1			1
Barrera (1986)	Maunalua	FIN	200-400	30	2	0.07	2	0.07							2	
Connolly (1980)	Kaluanui	FIN	200	50	0											
Borthwick and Hammatt (1991a)	Kamehame Ridge	IN	200-700	0.7	0											
Watanabe (1978-1979)	Hanauma Valley	FIN	200	5	2	0.40	2	0.40							2	
Shun (1998)	Kamehame Ridge	IN	400	20	0											
Borthwick and Hammatt (1991b)	Kamehame Ridge	IN	700	0.2	0											
Total/Average				2047.2	56	0.41	175	0.47	45	0.71	49	0.13	34	3	7	14

*Inventory Survey, RSI=Reconnaissance Survey, EX=Excavations, AS=Assessment, FC=Feasibility Study

Inland of the coastal cluster of sites was a cluster of nine sites including two areas believed to be the remains of sweet potato patches, a habitation enclosure, a house platform, a pigpen, a possible *heiau* (Site 22), and two terraces and an enclosure of undetermined function.

The remaining fifteen sites reported by McAllister are scattered along the coast and in the central inland portion of Maunalua. These sites include five habitations, four fishing shrines, a rockshelter, petroglyph panel (Site 44), a series of terraces, an area of burial caves (Site 41), Keahupua-o-Maunalua (Kuapa) Fishpond (Site 49), and two *heiau*, Puhua (Site 39), and Hawea (Site 42).

The projects in *Table 2* cover over 2,000 acres identifying 56 sites with 174 features. To aid in reconstructing settlement patterns, features were quantified by probable age and function, and the studies are ordered by elevation. Traditional Hawaiian features were categorized as habitation, agricultural, burial (including possible burials), and ritual. Features not assignable to these categories were categorized as miscellaneous/undeterminate. Traditional sites in this category include petroglyphs and *ahu*. Historic features were not segregated by function in *Table 2*. The majority of the historic features are ranch-related walls and habitation features.

Density values are given for sites, features, and habitation and agricultural features. Overall, the studies have identified 65 habitation features, 49 agricultural features, 24 burials, and 3 ritual features. Density values for survey areas larger than 10 acres do not show any consistent trends by elevation. Overall feature density values for these studies range from 0 to 0.86 features per acre. Habitation feature density ranges from 0 to 0.67 features per acre. Except for the Jones (1996) survey areas, the absence of agricultural features is also notable. The negative findings of several surveys and low density values are probably the result of the extensive historic and modern land modifications.

Jones (1996) reported five radiocarbon dates. Three dates; AD 1475, 1655, and 1665; came from charcoal recovered from three rockshelters. A sample from a bedrock cavity produced a date of 1880 and a sample from a agricultural complex yielded a date of 1930. Samples from Kuli'ou'ou Rockshelter yielded age ranges of AD 625-700 and 1400-1900 (Emory and Sinoto 1961). Bayard (1965) reported three age ranges between AD 1330 and 1800. Folk et al. (1993) recovered charcoal from a U-shaped enclosure that yielded an age range of AD 1800-1940.

The identified archaeological sites in Maunalua primarily are distributed along the coast and in the interior valleys and ridge lines. Habitation sites consist of walled enclosures, platforms, rockshelters, and C-shapes. Food production-related sites include areas of piled stones and low walls associated with sweet potato cultivation and the large Kuapa Fishpond. Religious sites consist of fishing shrines along the coast and several small *heiau* located on prominent hills or ridges overlooking the sea. Cavities in the sea cliffs and steep ridge faces were used for burial. Most of the dated sites date to between the 1400s and 1800s.

Tuggle (1997) provides a summary of 72 archaeological studies conducted at Bellows Air Force Station in Waimanalo. He developed a model of pre-contact settlement in central Waimanalo based on archaeological data and nineteenth century archival sources. Temporary habitation sites lacking stone architecture were present along the coast and along the lower reaches of the main drainage, Puha Stream. The temporary habitation was associated with fishing, gardening, and potentially maintenance of fishponds and taro pondfields. Based on archival data, permanent habitation was situated inland in central Waimanalo along Puha Stream and was associated with irrigated taro fields. Tuggle dates the earliest permanent habitation to AD 800, with subsequent coastal occupation after AD 800. The Puha lowlands were extensively used for sweet potato cultivation. Basalt for adzes was quarried in the surrounding hills. Burial of the dead occurred at the coast and inland sand dunes. Religious sites including shrines and temples, constructed of stone are rare at the coast. Tuggle suggests that such structures were constructed of wood.

SUMMARY OF LAND USE AND PROJECT EXPECTATIONS

Archaeological and historical background research indicates that in late prehistory the central portion of Waimanalo and portions of Maunalua were well populated and extensively cultivated. There were permanent residences scattered along the coast. Small villages were present at Kukui, Kaupo, and Kalapueo in Waimanalo; and at Kaloko and Wawamalu in Maunalua. Larger settlements were present in the inland portion of the Puha Stream drainage, where extensive irrigated taro fields were present and surrounding Kuapa Fishpond in Maunalua. Temporary habitation, probably associated with agricultural activity and obtaining natural resources, occurred in inland rockshelters, caves, and walled shelters. Fishing shrines and rock formations of legendary, and probably ritual, significance were scattered along the coast. *Heiau* were sited on prominent topographic features overlooking the coast. Sand dunes and cliff face cavities were used to inter the dead.

Agricultural use included wet taro cultivation in topographically suitable locations with sufficient freshwater. Dryland gardens were present around the coastal residences and on the lower slopes. Upland areas above the coastal cliffs were also cultivated. Cultivated crops included sweet potatoes, bananas, *wauke*, sugar cane, ti, and coconuts. Food remains from archaeological excavations include dog, pig, birds, and a wide variety of fish and marine invertebrates, documenting technologies for fishing, collecting, hunting, and animal husbandry. Radiocarbon dates for the area indicate settlement by at least the 800s with the most intensive use occurring during the 1600s to early 1800s.

In the early to mid-1800s, coastal settlements served as anchorages and provisioning sites for foreign ships. Sweet potatoes were produced for export. In the mid- to late 1800s, Waimanalo and Maunalua were used for ranching. This use continued into the early to mid-1900s. In Waimanalo, taro fields were converted to rice cultivation, but by the late 1800s most of the arable portions were used for sugar cane cultivation. Kuapa Fishpond was used for commercial production through leases in the mid-1800s to early 1900s.

Early 1900s, developments included the establishment of a lighthouse at Makapu'u Point and the completion of Kalanianaʻole Highway. In the 1930s and 1940s, the U.S. military established coastal defenses including an airfield at Waimanalo, and fire control stations and training facilities in Maunalua. Truck farming in Maunalua gradually was displaced by the residential development, Hawaii Kai between 1960 and 1980.

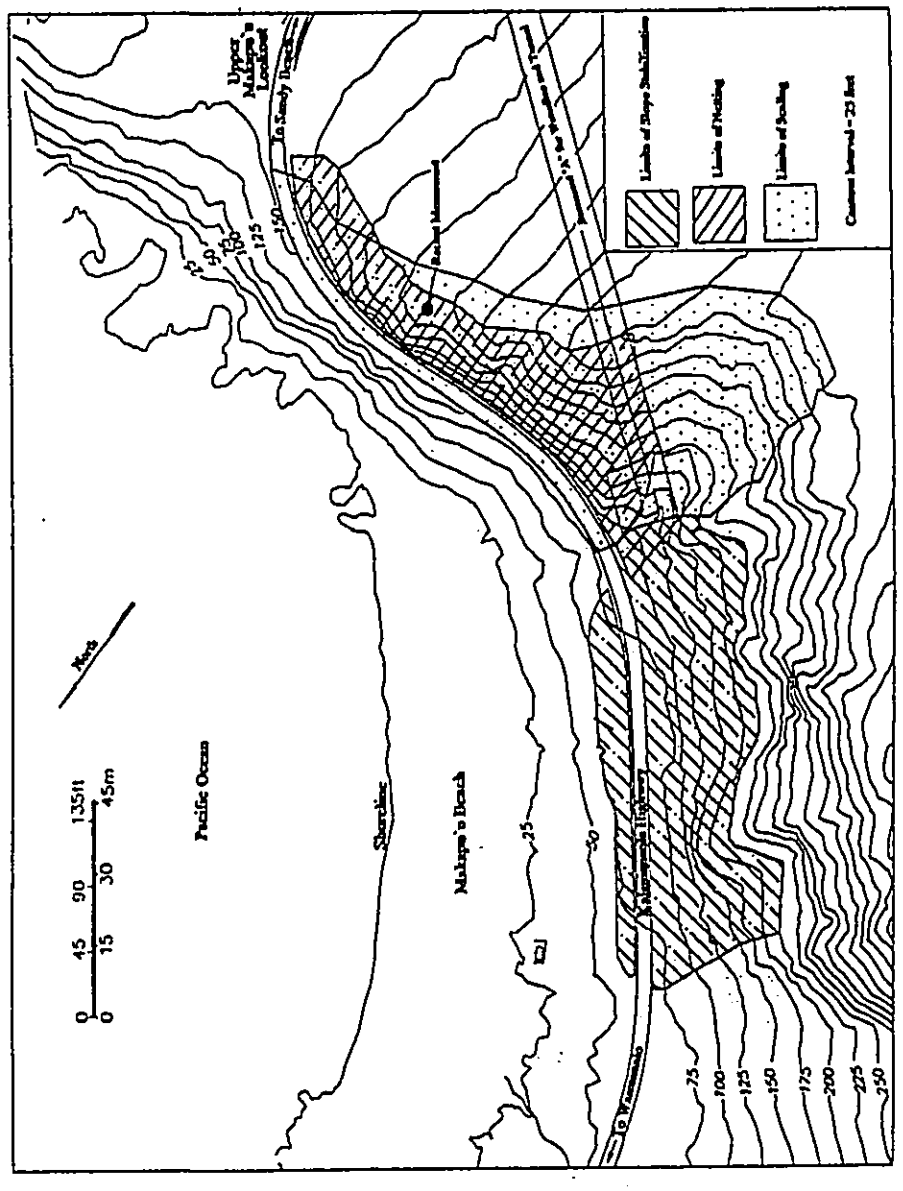
The project site consists of moderate to steep slopes and vertical cliffs that would have severely limited prehistoric and historic land use. Based on previous archaeological research and historical documentary evidence, expected prehistoric to early historic remains in the project site vicinity consist of burials in cavities in the cliff faces and possibly the remains of a trail. Historic remains potentially include roads and military defense features.

FINDINGS

No potentially significant sites or features were identified within the project site during the survey. A small recently constructed monument was noted on top of a ridge overlooking Makapu'u Beach and the Pacific Ocean to the north within the project site (*Figure 8*). The monument consists of a bronze plaque set in concrete, adjacent to an aluminum cross. An inscription on the plaque reads, "Richard Kent Yoshida – Son, Brother, Friend and Fellow Diver – Nov. 20, 1972 – Dec. 18, 1999".

CONCLUSION

No potentially significant sites or features were identified within the project site during the inventory survey. This result is not unexpected because most of the project site is precipitously steep and portions of the site are artificial cuts made during construction of the highway.



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Appendix D

Cultural Impact Assessment

Kanawao, Inc.

Pualani Kanahele

Hawaiian Cultural Consultants

CULTURE IMPACT ASSESSMENT REPORT FOR THE PROPOSED KALANIANA'OLE HIGHWAY IMPROVEMENTS AT MAKAPU'U POINT

DRAFT,

FOR
WILSON OKAMOTO AND ASSOCIATES
1907 SOUTH BERETANIA STREET, SUITE 400
HONOLULU, HAWAI'I 96826

BY
KANAWAO, INC.
PUALANI KANAHELE
HAWAIIAN CULTURAL CONSULTANTS
HILO, HAWAI'I 96720
APRIL 2002

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EXECUTIVE SUMMARY

At the request of Wilson Okamoto & Associates, Inc. (WOA) and on behalf of their client ParEn, Inc. (Client), Kanawao, Inc. conducted a Cultural Impact Assessment (CIA) of the eight acre proposed Kalaniana'ole Highway Improvements at Makapu'u Point (project site). The CIA was conducted March and April of 2002. The project site is located at Makapu'u Point on the island of O'ahu in the ahupua'a of Waimānalo and Maunalua. The project site is identified as Tax Map Keys: 3-9-10: portion 1 and 4-1-14: portions 2 and 13. The CIA is in conjunction with the Environmental Impact Assessment proposed by The State Department of Transportation – Highways Division (DOT-H) to address a road subsidence problem and rock fall hazard on Kalaniana'ole Highway at Makapu'u Point lookout.

Methodology for Study

The study for information was conducted in six components for the specific land area within the ahupua'a of Waimānalo; 1) the study of maps 2) archival documents, 3) historical material, 4) pre-historical literature, both in chant and narrative forms 5) walking/diving the immediate area in search of cultural sites, ocean water quality, quantity of ocean life, flora and fauna 6) and oral history. The oral history included kama'aina (native of Waimānalo) and others who are now living in or frequent Makapu'u and are interested in the land quality and use of the popular Makapu'u pali and beach area.

The Kanawao teams consist of two divers diving two times and taking under water pictures. The purpose of the pictures was to identify the health and abundance of fish life in the area before the excavation activities. The sea bird activity observed there during the four visits made, are also indications of the rich sea life at Makapu'u. Two individuals walked the height and length of the project site from sea level to the height of the pali. They were responsible for spotting any possible evidence of old sites, trails and recording everything on film to be discussed with the interviewees, the principle writer

and researchers. There are a principle writer/interviewer and two researchers/translators involved with the project.

The CIA will interpret and articulate the information gathered from the above sources to generate the opinions, desires and concerns of the Native Hawaiian for her/his land and the preservation of all cultural sites, natural or constructed. A perspective of Hawaiian cultural intelligence, as it refers to land as an entity, is included in the introduction of this report.

Cultural Introduction

1. Ku'u kāne i ka pali kauhuhu
My male companion on the steep precipice
2. Kahi o Makapu'u, huki i ka lani
Makapu'u, pulled to the sky
3. Ka lae o Kalā'au
Is the point of Kalā'au
4. Kēlā pali makua'ole, o laila
That cliff so independent, there
5. Anu ka ua i ka pali o Ulumawao ē
The rain is cold at the cliff of Ulumawao
6. E mao wale ana i ka lani kēlā pali
That cliff shall be clear upwards to the sky
7. Ku'i, hā'ina i ke kai
Pounding, resounded by the ocean
8. I ke kai ho'i ke akua
The deity is there in and of the ocean
9. A pōloli a moe au, ē
Famished, I prostrate
10. Ku'u lā pōloli, a ola i kou aloha
My day of hunger, I shall be regenerated with love
11. 'Īna'i pū me ka waimaka ē
Seasoned with tears
12. A e 'uwē kāua ē.
We both weep.

The above chant originating from the Sage of Pele and Hi'iaka, reveals the basic natural attribute of Makapu'u. For generations life in and about Makapu'u, for both human, birds and all other creatures, existed because of the abundant marine life. The line which best describes this attribute of Makapu'u is "line 8". "The deity is there in and of the ocean", the most important feature of Makapu'u is the bounty of the ocean. The

ocean is the deity because the ocean is the provider of food. To the mind of the Hawaiian, the god is the entity that contains life-giving substance such as; the ocean, the rain, the fresh water, the sun, the moon, the earth and air. Survival is dependent on these elemental forms.

"Pali kauhuhu" of "line 1" describes the physical characteristic of Makapu'u as an abrupt end or compelling beginning of a land feature. To the Native Hawaiian of old, Makapu'u was an outstanding headland and a means by which the canoe out at sea marked their position. Two other land features mentioned in this chant by which one is able to fix a position are Kalae o Kalā'au in "line 3" to your back and Ulumawao peak to the right mentioned in "line 5". Three points of reference are provided to pinpoint ones position.

A prostrating protocol to the god is expected to satisfy ones hunger and to recognize the presence of a deity, as stated in line 9. The reciprocation for regeneration with the copious harvest of ocean products after the protocol ensures the recipient that the god is indeed benevolent.

This first chant conveniently connects the three points, Ulumawao, Kalae o Kala'au and Makapu'u, to the travels of Pele and the volcanic beginnings of this pae 'āina (archipelago). All three are connected to mythological characters of the Pele clan who were placed in these positions sometime during her initial migration through this archipelago. Other stories record the above points as characters from legendary voyages. The folk history of Mo'ikeha announces that Makapu'u is his aunty who voyages with him from Tahiti, upon seeing this headland she requests to live here and he accommodates her wish by leaving her at that promontory which bears her name. The folk history of Pa'ao states that she is a kupua or supernatural being who travels with Pa'ao from the southern islands and is left to reside at this cliff, which bears her name, Makapu'u. Pele, on her first visist to O'ahu, seems to have had thoughts of taking up her permanent residence at Makapu'u, but continued on to Maui instead. Hi'iaka, the younger sister of Pele, on her quest to fetch Lohiau, address Makapu'u as a relative. Hi'iaka also recognized Ulumawao as a husband of

Makapu'u was an important navigational point therefore is mentioned with mythological personalities such as Pele, Hi'iaka, Mo'ikeha, and Pa'ao, who helped

shape the culture of Hawai'i. Mo'ikeha was an ali'i or chief of high rank who traveled between Hawai'i and Tahiti finally making his home on Kaua'i. Pa'ao is a priest of impressive caliber who traveled to Hawai'i to maintain his priesthood lineage, the god Kū and the bloodline of the chiefs. Pele and Hi'iaka are synonymous with volcanic eruptions and traveled through the islands touching upon each of the volcanoes of this archipelago thereby recognizing Makapu'u as a relative of volcanic beginnings.

Another chant incorporates the land and ocean features describing the kama'aina perspective of the idiosyncrasies of this land site. Unlike the other chant which speak of elemental gods and hints of legendary voyagers, the next chant speaks from a more localized relationship of Makapu'u, to the opportunities the area have to offer.

1. 'O wau e hele i nā lae 'ino o Ko'olau
I will walk along the rugged capes of the Ko'olau
2. I nā lae māka'ika'i 'o Moeau
Along the spectacular cape called Moeau
3. E hele ka wahine 'au hula 'ana o ka pali
The woman who meadered along the precipice
4. Nānā uhu ka'i o Makapu'u
To observe the passing uhu of Makapu'u
5. He i'a 'ai na Mālei, ka wahine
For Mālei, delicious ocean succulents
6. E noho ana i ka ulu o ka makani
For the woman dwelling in the rising wind
7. I Ko'olau ke ola, a ka malihini
Sustenance for the visitor is found at Ko'olau
8. I ka na'ena'e i ka weuweu
Among the shrubs, the grass
9. Ola i ka pua o ka mau'u
Sustained by the flowers of the grass
10. E Mālei ē, e uē kāua

Mālei, let's weep

11. A e Mālei ē, e aloha 'ino ē.

Mālei, we grieve.!

Other information provided by this chant is the fact that Makapu'u has two names, Makapu'u for the headland facing the Waimanalo side and Moeau is the Makapu'u headland on the Maunalua side of the cliff.

The fourth line mentions "observation of the passing uhu of Makapu'u" which seems to indicate that a large amount of fish frequent this area, however another understanding of this phrase is the past time of the locals in observing handsome women or men parading by. Beside the abundant fish available for consumption in dry, arid, windy Waimanalo, the herbage such as na'ena'e, weuweu and the blossom of the mau'u is treated as sustenance. It is not known whether these greenery were used as food and if so by whom. The chant hints to this possibility but not definite.

Cultural Description of Project Area

The overall descriptions found in the above chants reveal that this land, Makapu'u, was not productive and food was scarce except in the ocean. The reference to the grass as sustenance and the hungry god, Mālei's epitaph, concurs with the land's inability to produce because of the scarcity for water, however, the ocean is generous. From the ocean, the cape is inviting however on land it is described as rugged, steep and windy. The highway between the project site and Makapu'u point was known as the Makapu'u Pass. The fact that it is the eastern point raises the wind velocity and the nature of the Pass causes a funnel effect on air movement therefore, the winds of Makapu'u is always present.

Despite the inhospitable nature of the land, Makapu'u is praised and honored in our literature and played a significant role in shaping the cultural attitude towards this kind of land feature because the ocean is the primary mode of traveling for island people. Capes, headland and promontories were memorized and recognized by the greater Hawaiian population that traveled between islands.

The name Makapu'u is familiar in the Hawaiian mind as an impressive headland on the island of O'ahu noted in songs, chants and stories. It was respected for its unpredictable ocean, substantial amounts of fish, beautiful shoreline, commanding cliffs and off shore islands.

Makapu'u land have the appearance of being pulled up as is mentioned in the first chant second line, "Kahi o Makapu'u, huki i ka lani, or Makapu'u, pulled to the sky". . One of the migration chants of Pele mentions the two names together:

1. 'O Kapō'ulakina'u ka wahine

The woman, Kapō'ulakina'u

2. A loa'a i ka lae kapu o Makapu'u

Was found at the sacred cape of Makapu'u

3. Ilaila pau ke kuleana

There the searching ended

4. 'Iml lā Kānehoalani

Looking at Kānehoalani

Makapu'u is the easternmost point for the island of O'ahu. Ko'olaupoko is visible from beginning to end from Makapu'u. If Makapu'u is translated as "hill beginning", it has the prestigious honor as the point of beginning. The ridge of Ko'olaupoko ends at Kānehoalani and Ka Lae o Ka'ō'io where the boundary of Ko'olauloa begins. Makapu'u also marks the Honolulu, also known as Kona, in the northeast moving towards the south west direction to Moanalua. Moanalua to Maunalua are the boundaries for Honolulu district.

Hawaiian Cultural Milieu of Makapu'u

The character Mālei appearing in the second chant above is the akua or god of the uhu or parrotfish and all red and speckled fish from Makapu'u to Hanauma, O'ahu. It was the habit of fishermen of the area to place lipoa seaweed on her altar invoking success while fishing. In the stories and chants of this area, Mālei is synonymous with Makapu'u and vice versa. The deity Mālei is described as a rock with eight bulging eyes

and is seen from the ocean in a cave known as "Keanaokeakuapōloli" or "the cave of the ravenous god" at Makapu'u. This deity is often described as "ke akua pōloli" or the hungry god.

Numerous stories of Makapu'u include Mālei. One of the stories suggests that Pele brought this rock to Makapu'u and therefore was acknowledge by Hi'iaka during her journey to Kaua'i. 'Ai'ai, the son of Kū'ula, established the practice throughout the islands of setting up rocks to attract fish. These rocks were endowed with mana and named after Kū'ula eventually became known as Kū'ula, the fish god. Mālei served this same purpose as Kū'ula except that all Kū'ula gods were male and Mālei in all accounts is female.

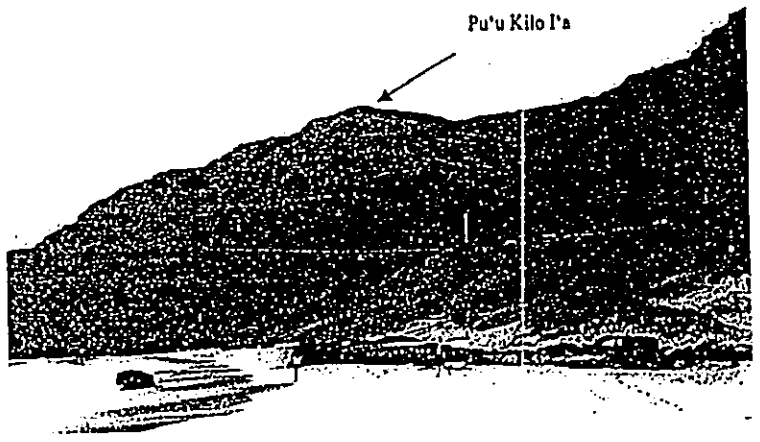
The following chant investigates the chant which hints toward the beginning of life in the ocean.

1. **Hānau ka 'ukuko'ako'a, hānau kāna**
he 'āko'ako'a, puka
The coral give birth to an offspring,
The coral head emerges
2. **Hānau ke ko'e 'enuhe, 'eli ho'opu'u honua**
The caterpillar gives birth, digging up the earth
3. **Hānau kāna, he ko'e, puka**
The worm emerges
4. **Hānau ka pe'a, ka pe'ape'a kāna keiki, puka**
The starfish gives birth, the small starfish emerges
5. **Hānau ka wēlī, he wēlīwēlī kāna keiki, puka**
The sea cucumber gives birth, the small sea cucumber emerges
6. **Hānau ka 'īna, ka 'īna**
The sea urchin gives birth
7. **Hānau kāna, he hālula, puka**
Producing an offspring, the sea urchin emerges
8. **Hānau ka hāwa'e, 'o ka wanakū kāna keiki, puka**
The sea urchin gives birth to a sea urchin

The above chant is an example of the Kumulipo, an impressive creation, genealogical chant with two thousand one hundred and seven lines. The portion of the Kumulipo written above as line #1 is the 15th line in the actual chant. It is the first tangible birth of this creation chant, a prestigious position for a creation of no consequence. The second and third tangible births are creatures of the land that also seem ineffective or of little impact however to the Hawaiian mind these are the basic foundation for life. The land area of Makapu'u did not seem productive for cultivating. The story of Kapo'i, who lived in the cave at Kaupo, very often referred to as Ko'onāpou, village had access to a water spring the eventually dried. The coral polyp, on the other hand, insures that the ocean will be productive. It builds the foundation for shelter and food supply for the starfish, invertebrate, mollusk, shellfish and seaweed eventually attracting various species of fish. The Hawaiian cultural milieu most valued at this promontory is the ocean.

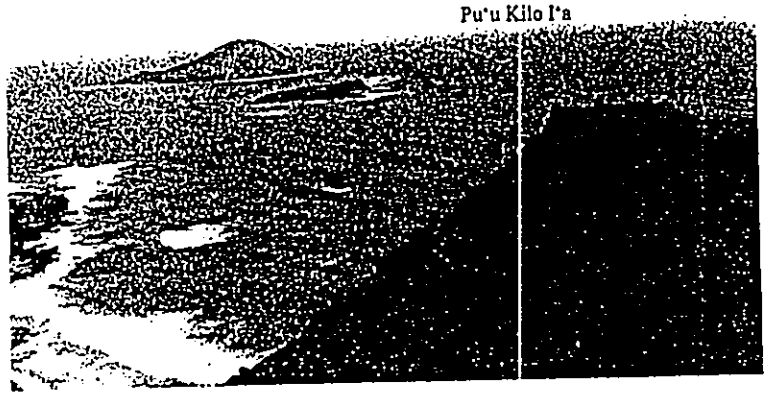
The head rock, Makapu'u point or headland, is the second most important cultural feature. This begins the Ko'olaupoko range and is a water catchment for the Ko'olaupoko basin. It is the eastern point of O'ahu and the east/west compass direction were most important for maintaining daily, monthly and annual time. Because Makapu'u is the eastern point it had navigational proficiency whether one was leaving or arriving at O'ahu. Thirdly, it is an efficient means for kilo i'a or fish spotters to alert the village or community of the arrival of fish schools. Fisher birds were also a tell tale sign of the arrival of schools of fish.

Setting up a Kū'ula or Mālei in this case is appropriate for the area for obvious reasons. Despite the sentiment that the bounty of fish does not exist today, the divers were impressed with the amount of fish they saw along the cliff of the project site. The project area has one dedicated site for kilo i'a or fish spotting. Mr. Akana, a seasoned fisherman from Waimanalo, provided this information. The last use of this spot and whether or not its still utilized for this purpose today is unknown. However the pu'u kilo i'a location does exist, note picture below:



Makapu'u 1. Project Area

Pu'u Kilo I'a



Makapu'u 2. Pu'u kilo i'a location from ma uka to ma kai.

The photograph Makapu'u 1 provides a view of the project area from the beach and the arrow locates the pu'u kilo i'a. Photograph #2 allows a view from the ma uka area on to the pu'u kilo i'a and out towards the ocean.

We were not able to locate any remnants of Kealakīpapa trail.

Fish and Fowl

Fish and fowl are part of the Cultural Milieu of the Native Hawaiian therefore I am including it as a subcategory. Two people were assigned to dive the area to provide a brief account of the amount and the variety of fish species found in the bay along the cliff of the project site. They were impressed with the amount of fish and various species found during the two dives. The fish are listed below:

Hawaiian Names	Common Names	Scientific Names
Uhu	Parrot fish	Scarus perspicillatus
Manini	Reef surgeon fish	Acanthurus triostegus
Moano kali	Goatfish	Parupeneus chryserydros
Munu	Goatfish	Parupeneus bifasciatus
Hīnālea	Wrasse	Thalassoma
Āholehole	Flag tail	Kuhlia sandvicensis
Weke	Goatfish	Mullidae
Weke'ula	Goatfish	Mulloidichthys vanicolensis
Kala	Surgeonfish	Naso unicornis
Nenue	Chub or pilot fish	Kyphosus bigibbus
Humuhumunukunukuapua'a	Trigger fish	Rhinecanthus
To'au	Black tail snapper	
'Ū'ū	Soldier fish	Myripristis
Kole	Surgeon fish	Ctenochaetus strigosus
Lau'īpala	Yellow tang	Zebrasoma flavescens
Wanakū	Prickly sea urchin	Diadema paucispinum
Maiko	Surgeon fish	Acanthurus nigroris

Final Environmental Assessment

Kalaniana'ole Highway Improvements at Makapu'u Point

Wilson Okamoto Corporation

Planning | Civil Engineering | Structural Engineering | Traffic Engineering