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IN REPLY REFER TO:

HWY-K 4.060570

September 14, 2006

TO: MS. GENEVIEVE SALMONSON, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: BRENNON T. MORIOKA
DEPUTY DIRECTOR – HIGHWAYS 

SUBJECT: FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR PROJECT
ENVIRONMENTAL ASSESSMENT ENTITLED: "KUHIO HIGHWAY,
RETAINING WALLS AT LUMAHAI", TAX MAP KEY NUMBERS
5-6-03:4, 5-7-03, AND 5-7-03:3, DISTRICT OF HANAIEI, ISLAND OF
KAUAI

The State of Hawaii, Department of Transportation, Highways Division has reviewed the comments received during the 30-day public comment period that began on March 23, 2006. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, four copies of the final EA, and the project summary on disk. Please call Mr. Steven M. Kyono, Kauai District Engineer, at 808-241-3000 if you have any questions.

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

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**FINAL
ENVIRONMENTAL ASSESSMENT**

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'06 SEP 18 P2:27

DEPT. OF ENVIRONMENTAL
QUALITY CONTROL

**Kuhio Highway Retaining Walls at
Lumahai, Kauai**

Proposing Agency:

**State of Hawaii
Department of Transportation
Highways Division
869 Punchbowl Street
Honolulu, Hawaii 96813**

Prepared By:

**EKNA Services, Inc.
615 Piikoi Street, Suite 300
Honolulu, Hawaii 96814**



Photo date: October 2004

July 2006

This document is prepared pursuant to Chapter 343, HRS.

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Summary Sheet:
Kuhio Highway Retaining Walls at Lumahai, Kauai

Project: The project addresses repair of approximately 900 feet of Kuhio Highway, between milepost (MP) 5.0 and 5.17, on the north shore of Kauai. This distressed section of the highway exhibits erosion damage of the makai edge of the highway embankment, cracking of the highway pavement, and damage to the existing CRM walls. This roadway section will be rebuilt using reinforced concrete overlain with asphalt paving, railings of reinforced concrete with rock veneer to replace existing CRM walls, and a Keystone retaining wall system for the embankment protection. The concrete railing with rock veneer is being used to maintain the historic character of the highway in conformance with the desires of the community, while still complying with highway safety requirements. Existing guardrails will be replaced with new metal guardrails along roadway sections that do not require repair of pavement.

Location	Kuhio Highway, Route 560, north shore of Kauai, between MP 5.0 and 5.17 in vicinity of Lumahai, island of Kauai
Tax Map Keys	MP 5.0 to 5.08: roadway lies in an easement through State of Hawaii parcel TMK (4) 5-6-03:4. Portions of existing highway improvements lie makai of easement. MP 5.08 to 5.17: TMK (4) 5-7-03 Kuhio Highway right-of-way MP 5.08 to 5.10: TMK (4) 5-7-03:3 B.P. Bishop Estate (makai of ROW)
Project Site Area and Elevation	Site area approx. 0.5 acre Elevation approx. 130 to 150 feet above mean sea level
State Land Use District & Zoning	Conservation (State Land Use District); Open (County Land Use Zoning)
Ownership	State of Hawaii
Approving Agency	Department of Transportation, Highways Division, 869 Punchbowl Street, Honolulu, Hawaii 96813.
Applicant	Department of Transportation, Highways Division, 869 Punchbowl Street, Honolulu, Hawaii 96813. Contact: Steven Kyono, Kauai District Engineer, 808-241-3000 (telephone), 808-241-3011 (fax).
Consultant	Nishimura, Katayama & Oki, Inc., 826 Kaheka Street, Suite 302, Honolulu, HI 96814, Contact: George Nishimura, 947-2808 (telephone), 941-5424 (fax)
Associated Consultant	EKNA Services Inc., 615 Piikoi Street, Suite 300, Honolulu, HI 96814, Contact Elaine Tamaye, 591-8553 (telephone), 593-8551 (fax)
Required Permits and Approvals	Conservation District Use Permit (CDUP) (DLNR, Land Use Division), Work Within State Highway Right-of-Way (State Department of Transportation)

Contents

1.	Description of the Proposed Action	1
1.1	Technical Characteristics	1
1.1.1	Project background and purpose of this environmental assessment	1
1.1.2	Location and purpose of the project	2
1.1.3	Description of the project	2
1.1.4	Project schedule and estimated cost	3
1.1.5	Importance of Kuhio Highway to the community	3
1.2	Socio-economic characteristics	3
1.2.1	Economic impacts on the community at large	3
1.2.2	Provision of income for county or state and creation of employment opportunities in areas with high unemployment rates	3
1.2.3	Targeted segment of the population	3
1.2.4	Population density	3
1.2.5	Recreational facilities	4
1.2.6	Child care provisions	4
1.2.7	Relocation of residences	4
1.2.8	Costs of the proposed project and economic analysis	4
1.3	Environmental characteristics	4
1.3.1	Aesthetics and view planes	4
1.3.2	Air quality	4
1.3.3	Traffic	5
1.3.4	Noise levels	5
1.3.5	Effects on water quality	5
1.3.6	Other environmental effects	5
2.	Affected Environment, Anticipated Effects and Proposed Mitigative Measures	6
2.1	Location	6
2.2	Land ownership and tenancy	6
2.3	County zoning, State Land Use District	6
2.4	Special Management Area, Coastal Zone Management Consistency	6
2.5	Land and related water use plans	6
2.5.1	County of Kauai General Plan	6
2.5.2	County of Kauai, North Shore Development Plan	7
2.5.3	State of Hawaii	7
2.5.4	Federal	7
2.6	Flora	7
2.7	Fauna	7
2.8	Soils	8
2.9	Water quality, water resources, hydrology	8
2.10	Historical, archaeological sites, traditional practices and cultural impacts	9
2.11	Sensitive habitats or bodies of water adjacent to the proposed project	10
2.12	Flood zone	10
2.13	Topography and geology	10

2.14	Seismic activity	11
2.15	Climate	11
2.16	Noise levels	11
2.17	Air quality	11
2.18	Aesthetics and view planes	12
2.19	Transportation facilities	12
2.20	Population	13
2.21	Environmental Justice	14
3.	Alternatives Considered	15
3.1	No action alternative	15
3.2	Repair Alternative - drilled shafts	15
3.3	Localized realignment of the highway	15
4.	Expected Determination	16
4.1	Finding of No Significant Impact (FONSI)	16
4.2	Findings and Reasons Supporting the Determination Including Justifying Evidence.	16
5.	Identification of Agencies, Organizations and Individuals Consulted and Permits or Approvals Required	19
5.1	State of Hawaii	19
5.2	County of Kauai	19
5.3	United States Government	19
5.4	Community, Organizations and Individuals	19
5.5	Public Involvement Prior to Preparation of the Final Environmental Assessment	20
5.6	Permits or Approvals Required.	21
	References	22

Exhibits All Follow Page 22

- 1 Location Map
- 2 Photos Vicinity of MP 5.02 to 5.05
- 3 Photos Vicinity of MP 5.12
- 4 Concept Plan for Highway Repair - Typical Sections
- 5 Plan of Improvements
- 6 Railing End Treatments
- 7 Photo Rendering of Proposed Railing - Concrete Wall with Rock Veneer
- 8 Tax Map TMK: (4) 5-6-03
- 9 Tax Map TMK: (4) 5-7-03
- 10 State Land Use Districts
- 11 Kauai North Shore Planning District Land Use Map
- 12 Special Management Area
- 13 Soils
- 14 Heritage Resources (Kauai General Plan)
- 15 Flood Insurance Rate Map (FIRM)
- 16 Topographic Map of Project Reach

- Appendix A - Botanical Survey Report for the Proposed Kuhio Highway Improvements at Lumahai and Wainiha, Kauai, Hawaii
- Appendix B - A Survey of Avian and Terrestrial Mammalian Species for the Kuhio Highway Improvements at Lumahai'i and Wainiha Project, Kauai
- Appendix C - Cultural Impact Assessment for the Kuhio Highway Improvements, Between Lumahai and Wainiha, Island of Kauai
- Appendix D - Coordination, Comment and Response Letters

1. Description of the Proposed Action

1.1 **Technical characteristics.** This section describes the location and purpose of the project and how it would be accomplished.

1.1.1 **Project background and purpose of this environmental assessment.** The DOT-HWY (State of Hawaii, Department of Transportation, Highways Division) proposes to repair about 900 feet of Kuhio Highway, Route 560, on the north shore of Kauai in the vicinity of Lumahai, between milepost (MP) 5.0 and 5.17, as shown on Exhibit 1. The highway at this location has experienced erosion of the highway shoulder embankment, deterioration and damage of the CRM walls, and cracking of the highway pavement.

Kuhio Highway is believed to have been constructed by the County of Kauai in about 1930 and given to the State of Hawaii for maintenance and operation. The highway lies along steep coastal cliffs. It is a major collector road and is the only vehicular link for the communities along the north shore of the island. Because of this, it is subject to heavy local and tourist traffic.

The roadway is a narrow (about 20 feet wide) two lane asphalt paved road with little or no shoulders at the site where the repairs will be constructed. The highway is at elevation between about 130 feet and 150 feet above mean sea level within the project reach. Slopes along the inland or mauka side of the roadway are vegetated, steep to near-vertical slopes extending to the ridgeline. Seaward (makai) slopes average about 45% and are near vertical in some areas. Low concrete rubble masonry (CRM) walls have been constructed in numerous areas to serve as safety barriers along the makai side of the highway.

Roadway distress is evidenced by the settled and cracked CRM wall along the makai shoulder between the turnout areas (approx. MP 5.02 to 5.07). Longitudinal pavement cracking in the roadway and shoulder pavement are also present. Exhibit 2 provides photos of this reach.

At approximate MP 5.12, the makai shoulder has eroded and significant distress has occurred consisting of tension cracks up to an inch in width extending up to nearly the centerline of the road. The edge of the highway pavement is becoming undermined because of the erosion of the embankment slope. Exhibit 3 provides photos of this area.

This environmental assessment is required because State DOT funds will be used for construction of this project. The project, therefore, is subject to preparation of

environmental documentation in accordance with the requirements of Chapter 343, Hawaii Revised Statutes. This Environmental Assessment addresses the limited environmental impacts anticipated to be caused by the work of this project.

- 1.1.2 **Location and purpose of the project.** The project is located on the north shore of Kauai in the Lumahai area. Approximately 900 feet of highway is proposed to be repaired, identified on Exhibit 1. The project seeks to stabilize the highway shoulder embankment to prevent further damage to the roadway section, and to provide a safe roadway for continuous access to communities lying beyond the damaged areas.
- 1.1.3 **Description of the project.** The project consists of repairing a total length of approximately 900 feet of highway between MP 5.0 and 5.17. About 300 feet of the roadway will be rebuilt using reinforced concrete overlain with asphalt paving, railings of reinforced concrete with rock veneer to replace existing (deteriorated) CRM walls, and a Keystone retaining wall system for the embankment protection. Exhibit 4 provides a typical section showing the proposed repair work, and Exhibit 5 shows the plan of improvement with new wall alignment. Except for two short sections on the Wainiha side of the project reach, about 500 feet of roadway does not require retaining walls. However, existing guardrails are required to be replaced with new metal guardrails for safety purposes. Terminations of railings need to be accomplished a minimum of 13 feet from the edge of the roadway for safety reasons, otherwise, end treatments such as shown in Exhibit 6 need to be provided. For this reason, the transition from the rock-veneer concrete wall to the metal guardrail will be accomplished at the Lumahai Lookout, and the metal railing will be continuous for the remainder of the project reach for aesthetic continuity. The metal railing will be terminated near MP 5.17 where there is at least 13 feet of road shoulder such that an end treatment is not required.

The makai travel lane will be excavated to build the Keystone retaining wall system. The excavated soils will be removed from the site and replaced with granular soil. The retaining wall system will support a reinforced concrete roadway slab, which will be overlain with asphalt paving. The makai safety barrier railings will be placed at the edge of the reinforced roadway slab. The Keystone concrete blocks are small, lightweight and can be readily transported over the low capacity existing bridges. No specialized heavy equipment will be required for construction of this retaining wall system.

The rock veneer on the concrete railing is being used to maintain the historic character of the highway in conformance with the desires of the community, while still complying with highway safety requirements. The construction method takes into consideration the weight limitations of the bridges on the Hanalei side of the

project reach. The 8-ton maximum weight limit severely restricts the delivery of construction equipment and materials to the project site. The proposed construction method will not require modifications to the existing bridges to increase their weight capacity.

- 1.1.4 **Project schedule and estimated cost.** The project is anticipated to be bid in the summer of 2008 and a contractor will be engaged by DOT-HWY to construct the improvements. Construction will begin in Fiscal Year 2008 with an estimated construction period of 18 months. The estimated construction cost is \$4 million, and will be funded entirely from State monies.
- 1.1.5 **Importance of Kuhio Highway to the community.** Kuhio Highway is the only link to the main urban facilities of Kauai for residents westward beyond the project area on the north shore. Residents, the community and businesses depend entirely on the highway for access for the transportation of goods, visitors, travel to and from schools, stores, the airport, hospitals and places of work. Because of these concerns and limitations, the construction is subject to strict operational constraints and the public will suffer some inconvenience during work hours.
- 1.2 **Socio-economic characteristics.** This section discusses the impacts of the proposed project on the community at large in terms of both social and economic effects.
 - 1.2.1 **Economic impacts on the community at large.** The project will have a beneficial economic effect on the communities lying westward beyond the project sites because it maintains the only reliable transportation route, a public health and safety purpose. The highway is essential for access and economic activity; Wainiha and Haena are significant visitor destinations on the island of Kauai.
 - 1.2.2 **Provision of income for county or state and creation of employment opportunities in areas with high unemployment rates.** The project provides benefits both through jobs related to its implementation, jobs maintained by the access provided by the highway, and maintenance and enhancement of businesses which are employers.
 - 1.2.3 **Targeted segment of the population.** The Wainiha and Haena communities receive important and significant benefits from this project. Kauai County and the State of Hawaii also benefit from visitor interest in the Wainiha to Haena area.
 - 1.2.4 **Population density.** The project does not affect population density because it does not provide for a traffic level of service greater than presently afforded.

- 1.2.5 **Recreational facilities.** There are no recreational facilities at the project sites. Visitors and residents seeking recreation at Lumahai Beach, Wainiha and Haena (and other areas of Kauai for the Wainiha and Haena residents) will benefit from safer access to these areas due to the road improvements. There are no sites identified by the County of Kauai Public Access, Open Space and Natural Resources Preservation Fund Commission (Open Space Commission) within the project area that are identified as having unresolved public access issues or that are recommended for acquisition.
- 1.2.6 **Child care provisions.** There are no child care provisions in relation to the proposed project.
- 1.2.7 **Relocation of residences.** There are no residence relocations proposed by the project. The nearest residence is about one mile beyond either end of the project.
- 1.2.8 **Costs of the proposed project and economic analysis.** The estimated total cost of construction of the project is approximately \$4 million.
- 1.3 **Environmental characteristics.** This section discusses the potential effects of the proposed project on the physical environment.
- 1.3.1 **Aesthetics and view planes.** The project will result in no significant change in the visual environment after the construction is completed. Disturbed areas along roadsides will become quickly re-vegetated. The existing deteriorated CRM walls will be replaced with a railing constructed as a reinforced concrete wall with rock veneer facing. This will restore the appearance of the original CRM walls and maintain the historic character of the highway. The railings will be low so as not to obstruct the views from the highway and turnout areas. Exhibit 7 shows a photo rendering of how the proposed concrete with rock veneer railings would look compared to existing conditions. The existing guardrails (wood and metal) will be replaced with new metal guardrails, and the metal rails will be extended on the Wainiha side of the Lumahai Lookout. Texas T-6 guardrails will be used at two short sections on the Wainiha side of the Lumahai Lookout that will require Keystone retaining walls. Standard W-beam guardrails will be used where the T-6 rail is not used. Both rails have the same shape and height when viewed from the highway. The new metal guardrails will be coated with brown epoxy to blend with the surrounding foliage, and are substantially the same as new railings being used along Kuhio Highway.
- 1.3.2 **Air quality.** There will be limited short term effects on air quality during construction, arising from operation of construction equipment, which would be mitigated per state and county regulations. Additionally, trade winds typical of the

sites will quickly disperse equipment exhaust. There would be no long term effect because the project includes no air pollution sources and is not anticipated to generate additional vehicular traffic along the highway.

- 1.3.3 **Traffic.** There will be no significant long-term effects on traffic because the proposed project does not increase highway capacity, although the restored roadway will be safer. There will be effects on traffic during construction and during delivery of construction materials to the sites. Such effects are temporary and occur only during construction. Additional temporary traffic will consist of trucks and trailers (limited by severe weight restrictions of the Waipa, Waikoko, Waioli and Hanalei River bridges). Truck traffic associated with construction may be restricted to off-peak hours as necessary to provide adequate and safe access through the construction area. Construction trucks and associated vehicles will follow existing traffic regulations regarding roadway clean up resulting from their traffic. In public information hearings held by DOT, residents and businesses were advised that daytime road closures would be limited. Night road closures were generally acceptable to affected residents and business owners.
- 1.3.4 **Noise levels.** There will be increases in ambient noise levels at the construction sites, limited to the construction period, and during working hours. Contractor equipment is required to comply with Department of Health noise regulations.
- 1.3.5 **Effects on water quality.** The project will have no significant effect on water quality since there are no discharges to state waters related to the project. There are no known aquifers within the extent of the sites, from which a discharge could occur. There will be temporary discharges of rainfall runoff from the sites during construction, but this will be controlled by the contractor's operational and erosion control practices. Rainfall runoff from the construction sites are not expected to reach coastal waters.
- 1.3.6 **Other environmental effects.** The project sites are located in flood hazard areas identified as Zone X, wherein there is less than 0.2% annual chance of flooding (e.g. outside the 500-year floodplain), as delineated by the Federal Emergency Management Agency (FEMA).

2. Affected Environment, Anticipated Effects and Proposed Mitigative Measures

- 2.1 **Location.** The proposed highway repairs are located on the north shore of the island of Kauai, within the highway right-of-way on Kuhio Highway between MP 5.0 and 5.17 in the vicinity of Lumahai.
- 2.2 **Land ownership and tenancy.** The proposed highway repairs will be constructed substantially within the State of Hawaii right-of-way for the highway. From MP 5.0 to approximately MP 5.08, the roadway lies in an easement through a parcel (TMK: (4) 5-6-03:4) owned by the State of Hawaii (Exhibit 8). However, the existing turnout areas are outside of the easement, and much of the existing (albeit deteriorated) CRM wall between the two turnouts is outside of the easement (on the makai edge of the highway pavement). From MP 5.08 to 5.17, the roadway lies in a highway right-of-way (TMK: (4) 5-7-03) (Exhibit 9). The adjoining mauka and makai landowner is B.P. Bishop Estate (TMKs 5-7-03:10 and :3 respectively). A short (approximately 100-foot) length of roadway and part of the turnout area between approximately MP 5.08 and 5.10 is outside of the highway right-of-way, and encroaches into parcel 5-7-03:3. Exhibit 16 shows the existing highway improvements in relation to the easement and right-of-way. The State of Hawaii will resolve the ownership and access issues prior to construction of the proposed improvements.
- 2.3 **County zoning, State Land Use District.** The project reach is in the State Conservation District, Resource subzone (Exhibit 10). Kauai County zoning is Open as shown on the Kauai North Shore Planning District Land Use Map (Exhibit 11).
- 2.4 **Special Management Area, Coastal Zone Management Consistency.** The project reach is in the Special Management Area (Exhibit 12). The County of Kauai Planning Department has determined that the proposed project is exempt from the requirements of the SMA.
- 2.5 **Land and related water use plans.** Following is a discussion of land and water use plans which are related to the proposed project.
- 2.5.1 **County of Kauai General Plan.** The proposed project conforms to the Community Values ideals of the *Kauai General Plan* by enabling access to the Lumahai-Wainiha-Haena area, which enhances enjoyment of open spaces, natural beauty, rural lifestyle, outdoor recreation and parks; access to and along shorelines, economic growth promoting jobs and a strong economy, and safety for all citizens and visitors. The General Plan also

imbues responsibility with the County to provide, maintain and improve shoreline access from public roads.

2.5.2 County of Kauai, North Shore Development Plan. The North Shore Planning Area is defined by the Hanalei Judicial District boundaries, extending from Moloaa Bay, west to Puanaiea Point. The development plan is a physical plan intended to guide the physical development of the community - describing how, why, when, and where to build, rebuild, or preserve. The proposed project conforms to the plan objectives to provide a safe road and bridge system to and within the North Shore.

2.5.3 State of Hawaii. The *Hawaii State Plan* provides long-range planning objectives and policies for the State. The proposed project conforms to the State objectives to preserve scenic views and historic resources, and reduce threats to life or property from erosion. The State Land Use Law classifies all state lands as urban, rural, agricultural or conservation. The sites of the proposed project are designated in the Conservation district, Resource subzone, in which a highway and repairs to it are permissible uses.

2.5.4 Federal. There are no federal plans for the area.

2.6 Flora. A botanical survey (provided in Appendix A) was conducted for this project. The survey found that "Aside from naupaka and hala trees, which may be early Polynesian introductions, no endemic or indigenous plants were found at these sites. Otherwise the vegetation found during this survey is all introduced and can be found in many places throughout the Hawaiian Islands and will quickly regenerate if disturbed." As for threatened or endangered species, the botanical report notes "No candidate, proposed, or listed threatened or endangered species as set forth in the Endangered Species Act of 1973 as amended (16 USC 1531-1543) are known from this site and none were found during this survey."

Mitigative Measures: No mitigation is required.

2.7 Fauna. A faunal survey (provided in Appendix B) was conducted for this project. The survey detected two mammal species and observed 12 bird species at or around the proposed sites. No threatened or endangered fauna are resident at the project sites. However, one endangered endemic bird species (the Hawaiian Petrel, *Pterodroma sandwichensis*) and one threatened endemic subspecies (Newell's Shearwater, *Puffinus auricularis newelli*) were found to traverse the highway corridor en route to inland nesting sites.

Mitigative Measures: To reduce the possibility that the nocturnally flying Hawaiian Petrels and Newell's Shearwaters may be disoriented and downed by construction lighting, nighttime construction will be allowed between January and July, but prohibited between August and December. This mitigation would minimize the threat of disorientation and downing of both species, especially fledgling birds which are at particular risk during the fledging period which is concentrated between mid-August and mid-December each year.

- 2.8 **Soils.** Soils in the vicinity of the project sites are classified by the U.S. Department of Agriculture, Natural Resources Conservation Service as being Type HMMF, Hihimanu Series silty clay loam, 40 to 70 percent slopes (Exhibit 13). The Hihimanu Series consist of well-drained soils on uplands on the island of Kauai. These soils developed in material weathered from basic igneous rock and colluvium at the base of slopes. They are very steep, and elevations range from 100 to 2,000 feet. The annual rainfall amounts to 70 to 120 inches. Hihimanu Series silty clay loam, 40 to 70 percent slopes (HMMF) soils are specifically described as very steep and occupying uplands. In a representative profile, the surface layer is dark-brown silty clay loam and silty clay about 15 inches thick. The subsoil, 24 to more than 57 inches thick, is brown, dark-brown, and reddish-brown silty clay and clay that has subangular blocky structure. The substratum is soft, weathered rock. The soil is very strongly acid in the surface layer and subsoil. Permeability is moderately rapid. Runoff is medium, and the erosion hazard is moderate. In places roots penetrate to a depth of 5 feet or more.

The proposed project will occur within and adjacent to the highway right-of-way on previously disturbed soils. The soils beneath the highway pavement will be excavated and replaced with granular structural fill, to provide a better foundation for the rebuilt pavement section. The Keystone retaining wall system will be used to stabilize this fill and to prevent erosion of the highway embankment. Embankment areas disturbed by construction will be quickly revegetated naturally.

Mitigative Measures: Best Management Practices will be implemented during construction to prevent soils and construction debris from sliding down the slope.

- 2.9 **Water quality, water resources, hydrology.** There are no perennial streams, wetlands or groundwater resources (aquifers) within the project reach. No new discharges from the proposed project are anticipated.

Mitigative Measures: Best Management Practices will be implemented during the construction phase to prevent construction site runoff from entering coastal waters.

2.10 **Historical, archaeological sites, traditional practices and cultural impacts.** Kuhio Highway, Route 560, is listed on the State and National registers of Historic Places. The highway westward of Waioli Bridge in Hanalei is identified as a scenic roadway corridor on the Kauai County North Shore Heritage Resources Map (Exhibit 14). There are no registered archaeological sites, historic buildings or structures, or other known historic or cultural features affected by the project. The closest cultural feature is a heiau site located at the mouth of the Lumahai River. Because the highway is cut into steep shoreline topography, there is little likelihood that cultural sites or archaeological features will occur in the immediate vicinity of the highway. Further, within the right-of-way and limits of existing highway improvements, most of the ground has been substantially disturbed by highway construction.

A cultural impact assessment (provided in Appendix C) was conducted for this project. The purpose was to investigate the project area for possible traditional practices that would be disturbed by the proposed highway improvements. The results of the study indicate that gathering, hunting, and fishing continue to be conducted by Native Hawaiians in the vicinity of the project. Plants collected on the makai edge of the highway may be impacted by the construction activities. The botanical survey conducted for this project indicated that the plants that were identified for gathering are not uncommon in the project area. According to the botanist who conducted the survey, those plants are common members of the roadside community of plants. All work will be conducted with the highway right-of-way and in areas previously disturbed by the construction of the highway. The project will not affect the hunting trails on the mauka side of the highway nor the fishing trails on the makai side. However, it was related by one of the interviewees that the breaks in the CRM walls are used as visual reference points to locate the fishing trails. The proposed highway improvements will replace the broken CRM walls with new walls, therefore new visual references will need to be acquired.

Route 560 is a 10-mile rural road that was part of the first completed belt road in the Hawaiian Islands (constructed in early 1900s), and has retained a significant portion of its original characteristics and features. In recognition of Route 560's historic stature, a Rural-Historic Road Corridor Plan was drafted to provide design guidelines for the DOT-HWY that reflect a community consensus for future work on the highway. The proposed highway improvements are consistent with this plan.

Because Kuhio Highway is on the State and National registers of Historic Places, approval from the State Historic Preservation Division (SHPD) is required for the proposed construction. By letter dated April 4, 2006, the SHPD determined that "no historic properties will be affected" by the project. The proposed repair to Kuhio Highway is similar to the repair of Hana Highway, which is also listed on both the

State and National registers of Historic Places. An environmental assessment for the Hana Highway Repair was prepared in November 2003.

Mitigative Measures: If previously unknown cultural or historic resources, including human skeletal remains, are discovered during construction, the Contractor will stop work immediately in the immediate vicinity of the find. The Kauai Office of the SHPD will be immediately notified and the site secured pending inspection by an SHPD representative who will determine the appropriate treatment.

- 2.11 **Sensitive habitats or bodies of water adjacent to the proposed project.** There are no sensitive habitats or bodies of water adjacent to the project site. Coastal waters offshore the project area are designated Class AA. The highway project site is situated sufficiently distant from the shoreline such that no impacts are anticipated.

Mitigative Measures: Best Management Practices will be implemented during the construction phase to prevent construction site runoff from entering coastal waters.

- 2.12 **Flood zone.** The project site is located in a flood hazard area identified as Zone X, wherein there is less than 0.2% annual chance of flooding (outside the 500-year flood plain), as delineated by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Map (FIRM) Panel Number 1500020035 E, revision dated September 16, 2005 (Exhibit 15). Coastal areas seaward of the highway are located in Zone VE, with base flood elevations between 20 and 27 feet in the vicinity of the project reach.

Mitigative Measures: No mitigation is required.

- 2.13 **Topography and geology.** The sections of Kuhio Highway to be repaired lie at elevations ranging from approximately 130 feet to 150 feet above mean sea level. Unimproved shoulder areas are steeply sloping to nearly vertical. Exhibit 16 provides topographic survey data for the project reach. Although construction will involve earthwork, the finish grades within the construction limits will match the existing condition upon completion of construction.

Geotechnical borings were conducted during preparation of an engineering report describing conditions and possible solutions to the observed distressed sections of roadway. Sixteen exploratory borings were advanced to depths between 15 and 50 feet. Soils beneath the roadway consist generally of completely weathered rock, defined as rock which has completely disintegrated into soil, but retaining relic structure and texture. This material may also be defined as mottled brown to brown clayey silt, medium stiff to stiff, and which becomes less weathered and stiffer with

increasing depth. Weathered rock extended to the maximum depths drilled at MP 5.22, and was underlain by hard basalt at depths ranging from 38 feet at MP 5.5 to 14 feet at MP 6.4. No groundwater was encountered during the exploratory drilling, but some seepage was observed.

Mitigative Measures: No mitigation is required.

- 2.14 **Seismic activity.** Kauai County is classified in lowest earthquake risk Zone 4 in the Uniform Building Code. In comparison, the island of Hawaii has the most severe risk and is classified in Zone 1; Maui is in Zone 2A, Oahu has a lesser risk in Zone 2B.

Mitigative Measures: No mitigation is required.

- 2.15 **Climate.** Monthly average temperature along the Kuhio Highway in the vicinity of the sites is between 70 and 75 degrees Fahrenheit. Predominant winds are moderate northeast trades at speeds of 10 to 20 miles per hour. The mean annual rainfall at the sites is 78 inches per year. The project will not affect the climatic conditions in the area.

Mitigative Measures: No mitigation is required.

- 2.16 **Noise levels.** No significant or long-term impacts to ambient noise levels will occur. There will be some local noise increase during construction but the communities of Wainiha and Hanalei are at sufficient distance from the project sites and the terrain is such that construction noise levels will not be audible in residential areas. Contractor equipment is required to meet DOH noise regulations (Title 11, Chapter 46, "Community Noise Control").

Mitigative Measures: No mitigation is required.

- 2.17 **Air quality.** There are no existing air pollution sources at the site and no stationary sources of air pollution in the area. Operation of construction equipment, and construction activities, will create temporary dust and exhaust emissions, which impacts will cease upon completion of the restorative construction. The contractor will be required to mitigate dust during construction using measures such as water sprinkling. Construction equipment exhaust emissions will be controlled by adherence to the requirements of the Department of Health Administrative Rules (Title 11, Chapters 59 and 60 regarding Air Pollution Control). There will be no long term effects because the proposed project does not include permanent sources of air pollution, and will create no significant difference in traffic numbers from existing conditions.

Mitigative Measures: No mitigation is required.

- 2.18 **Aesthetics and view planes.** The project will result in no significant change in the visual environment. The only non-natural view features resulting from the project will be the safety railings. Concrete walls with rock veneer are the safety railings replacing the existing deteriorated CRM walls. The concrete walls with rock veneer will be low walls that will not obstruct views from the highway and turnout areas. The rock-veneer wall will improve the appearance of the highway. Existing deteriorated metal and wood guardrails will be replaced with new metal guardrails along sections of the project reach that do not require retaining walls. Texas T-6 guardrails will be used at two short sections on the Wainiha side of the Lumahai Lookout that require Keystone retaining walls. Standard W-beam guardrails will be used where the T-6 rail is not used. Both rails have the same shape and height when viewed from the highway. The metal guardrails are required for safety purposes and will be coated with brown epoxy to blend in with the foliage. This type of guardrail is substantially the same as new guardrails being used along Kuhio Highway in the vicinity of the project site. Terminations of railings need to be accomplished a minimum of 13 feet from the edge of the roadway for safety reasons, otherwise, end treatments such as shown in Exhibit 6 need to be provided. For this reason, the transition from the rock-veneer concrete wall to the metal guardrail will be accomplished at the Lumahai Lookout, and the metal railing will be continuous for the remainder of the project reach for aesthetic continuity. The metal railing will be terminated near MP 5.17 where there is at least 13 feet of road shoulder such that an end treatment is not required.

Mitigative Measures: No mitigation is required.

- 2.19 **Transportation facilities.** The highway repair site is only accessible along Kuhio Highway. Kuhio Highway is the only link to the main urban facilities of Kauai for residents westward beyond the project area on the north shore. The DOT conducts 24-hour traffic counts on odd-numbered years, and from the data estimates the average daily traffic (ADT) for various highway segments. ADT data for Kuhio Highway in the areas closest to the proposed project are tabulated below. "Waioli Bridge" is on the Hanalei side of the project and "Wainiha Road" is on the Haena side of the project reach.

Average Daily Traffic (ADT) Data		
Year	Waioli Bridge	Wainiha Road
1993	4087	3177
1995	5325	3760
1997	6181	4678
1999	6420	5023
2001	5984	4299

Due to the extremely restricted work area, for construction and public safety reasons it is infeasible to keep the roadway open at all times. Certain work activities will require full use of the roadway and temporary road closures to permit the work to be performed safely. These activities include: excavating for and placing the reinforced concrete road slab, maneuvering of construction equipment, and delivery of materials. To reduce adverse impacts to traffic, daytime road closures will be allowed for these activities only. The following table shows the proposed road closure hours.

Proposed Road Construction and Road Closure hours	
No lane or road closures	4:30 AM to 8:30 AM
One lane or partial road closure	8:30 AM to 3:30 PM
No lane or road closure	3:30 PM to 9:30 PM
Complete road closure	9:30 PM to 4:30 AM

Mitigative Measures: Traffic control and construction time limitations will be accompanied by flagmen and/or traffic light during working hours, signs, public notices, a 24-hour telephone information line, and media releases. On the occasions when both lanes of the road are required to be closed, the Highways Division will coordinate with police, fire and ambulance. As necessary, arrangements will be made to station emergency vehicles and equipment on the Haena-side of the closure.

2.20 **Population.** According to the *State of Hawaii Data Book 2003*, the population of Kauai County was 58,463 based on the 2000 census. The average age was 36, 63 percent of the population over 16 years of age was employed, the median household income was \$45,020, and average household size was 2.86. The total

population has increased 14 percent since the 1990 census. The Hanalei District census tract 401 had a population of 6,348 in 2000, an increase of 37% from 1990.

Mitigative Measures: No mitigation is required.

- 2.21 **Environmental Justice.** Federal Executive Order 12898 requires federal agencies to take necessary steps to identify and avoid any disproportionate negative effects on minority and low-income population. Because there is no federal participation (funding or sponsorship) for this project, compliance with EO 12898 is not required for this EA. Nevertheless, this project will not disproportionately affect low-income or minority populations. Any short-term construction impacts will affect the entire population of the north shore districts served by the highway.

3. Alternatives Considered

- 3.1 **No action alternative.** There is minimal to no initial cost for this alternative, however the highway will continue to experience erosion and damage to the road surface; liability of the DOT will increase, costs of maintenance will continue to mount, continued monitoring and maintenance will be necessary, and the public should be informed of the conditions.

Advantages: Minimal or no construction cost.

Disadvantages: Continued deterioration of the roadway embankment will worsen existing problems; health and safety issues will increase; liability exposure will increase; could be very costly if deterioration is allowed to continue; requires continued monitoring for public safety.

- 3.2 **Repair Alternative - drilled shafts.** Closely drilled shafts would provide the foundation support for the reinforced concrete road slab. The drilled shafts would be four feet in diameter, and spaced 12 feet apart on centers. The roadway slab would be cantilevered over the existing grade.

Advantages: Construction is confined to within the state right-of-way and the cantilevered road section provides more flexibility for roadway width.

Disadvantages: Restricted load bridges would require temporary decking or shoring in order to transport large drilling equipment to the construction site. The quantity of site mixed concrete would be about 5 times the quantity required for the preferred plan. The total construction period would be much longer than for the preferred plan, and the construction cost could be 10 times the cost of the preferred alternative.

- 3.3 **Localized realignment of the highway.** Field investigation indicates that realigning the highway would be extremely costly and not economically feasible. Massive earthmoving would be required due to the steepness and height of cuts into the mountainside. Strong sentiment among residents to maintain the pristine and rural character of the area may result in opposition to this alternative. Additional right-of-way may need to be purchased for the widened area from owner B. P. Bishop Estate. For these reasons, this alternative is deemed infeasible.

4. Expected Determination

- 4.1 **Finding of No Significant Impact (FONSI).** In accordance with Chapter 343, Hawaii Revised Statutes, this Environmental Assessment characterizes the technical, social and environmental issues related to improvements of Kuhio Highway in the vicinity of Lumahai. It is anticipated that the project will not have significant effect on the environment, and therefore preparation of an environmental impact statement is not required. The Department of Transportation has rendered a Finding of No Significant Impact (FONSI) based on review and analysis of the "Significance Criteria" in Section 11-200-12 of the Hawaii Administrative Rules as documented below.
- 4.2 **Findings and Reasons Supporting the Determination Including Justifying Evidence.**
- 4.2.1 *No irrevocable commitment to loss or destruction of any natural or cultural resource would result.* Although Kuhio Highway is listed on the State and National registers of Historic Places, the proposed project would not alter the site or view planes from the highway and there will be no effect. If previously unknown resources are uncovered during the course of construction, the Contractor will stop work immediately and notify the SHPD who will determine the appropriate treatment.
- 4.2.2 *The proposed project will not curtail the range of beneficial uses of the environment.* The proposed project will not affect the beneficial use of the existing highway and surrounding environment.
- 4.2.3 *The proposed project will not conflict with the state's long-term environmental policies or goals and guidelines.* The state's environmental policies and guidelines as set forth in Chapter 344, HRS, "State Environmental Policy", encompass two broad policies: conservation of natural resources, and enhancement of the quality of life. The proposed project would not significantly conflict with the state's environmental policies, and quality of life would be maintained or enhanced through availability of reliable and safe transportation system.
- 4.2.4 *The proposed project will improve the economic and social welfare of the community and the state.* Kuhio Highway is the only highway access to the north shore of Kauai. Maintenance of the highway contributes to the economic and social welfare of the community and of the state. The project will have no effect on the number of vehicles using the highway, and would not change the rural character of the communities.

- 4.2.5 *The proposed project does not affect public health.* The proposed project will facilitate provision of emergency and other public health services and will benefit public health by maintaining a reliable and safe highway.
- 4.2.6 *No substantial secondary impacts, such as population changes or effects on public facilities, are expected.* The project will not alter the present location or capacity of the highway, and will not cause substantial secondary impacts.
- 4.2.7 *No substantial degradation of environmental quality is expected due to the proposed project.* Construction activities will have some effect on traffic and temporary mitigation will be implemented to minimize disruption. In the long term, the projects will improve the environmental quality by replacing the deteriorated railings and retaining walls with new wall systems that are consistent with the historic character of the highway.
- 4.2.8 *No cumulative effect on the environment or commitment to larger actions will be involved.* The project has no cumulative effect on the environment and will not involve a commitment to larger actions. The project entails repair and maintenance of the highway within the existing highway right-of-way.
- 4.2.9 *No rare, threatened or endangered species or their habitats are affected.* No impacts are anticipated on any candidate, proposed or listed endangered species or their habitats. There are no known threatened/endangered species or their habitats within the project limits.
- 4.2.10 *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* Construction activities may cause short-term impacts to air and noise quality, although there are no residences near the project areas. BMPs will be utilized to prevent project site runoff from reaching coastal waters. All state and county rules regarding construction practices will be adhered to. Upon completion of construction activities, air and ambient noise levels will revert to prior levels.
- 4.2.11 *The proposed project will not detrimentally affect environmentally sensitive areas such as flood plains, tsunami zones, beaches, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters or coastal waters.* The project areas are not located in a flood plain, tsunami zone, beach, geologically hazardous lands, estuary, fresh water or coastal water. The project areas are subject to erosion from rainfall runoff, and the proposed improvements will stabilize the highway embankments to prevent future erosion damage to the highway. There will be no detrimental impacts to

environmentally sensitive areas because there is no change in highway alignment or right-of-way.

4.2.12 *The proposed project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* A major factor in designation of Kuhio Highway as a historic site was because of the scenic vistas from the roadway. The proposed project will not alter any scenic vistas or viewplanes. The proposed new railings (concrete wall with rock veneer) are low and will not impact scenic views from the turnout areas.

4.2.13 *There will be no requirement for substantial energy consumption.* Construction and maintenance of the proposed project will not require substantial energy consumption.

5. Identification of Agencies, Organizations and Individuals Consulted and Permits or Approvals Required

The following agencies, organizations and individuals were provided copies of the draft environmental assessment for review and comment. Comment letters received (indicated by asterisk) and written responses are included in Appendix D.

5.1 State of Hawaii.

Department of Business, Economic Development and Tourism (DBEDT)

- Planning Office

Department of Hawaiian Home Lands (DHHL)*

Department of Health (DOH) - Environmental Planning Office

Department of Land and Natural Resources (DLNR)

- Land Division

- State Historic Preservation Division*

- Forestry and Wildlife Division*

Department of Transportation - Highways Division (DOT-HWY)

Office of Environmental Quality Control (OEQC)*

Office of Hawaiian Affairs (OHA)

5.2 County of Kauai.

Department of Planning*

Department of Public Works*

Police Department

Fire Department*

Department of Water*

5.3 United States Government.

U.S. Fish and Wildlife Service (USFWS)

5.4 Community, Organizations and Individuals.

Hanalei Roads Committee

Hanalei Community Association

North Shore Business Council

Hanalei Colony Resort

County Council Chair (Kaipo Asing)

State Representative Hermina Morita

State Senator Gary Hooser

Public Libraries:

Hawaii State Library

Princeville Public Library

Kauai Community College Library

5.5 Public Involvement Prior to Preparation of the Final Environmental Assessment.

A public information meeting was held on March 8, 2005 at the Hanalei Elementary School cafetorium to discuss the project and alternatives. As a result of the meeting, additional locations were identified within the project reach that were subsequently investigated. The Keystone retaining wall system was the preferred repair alternative and the concrete wall with rock veneer was the preferred railing alternative.

The Draft Environmental Assessment was published on March 23, 2006 in the OEQC Bulletin. On May 23, 2006, the DOT and consultants met with the Hanalei Roads Committee (HRC) to discuss their concerns about the project. The primary issue was the total length of the rock-veneered concrete railing. The preliminary plan in the draft EA identified the use of the concrete railing along the entire project reach, a length of about 900 feet. Although reconstruction of the highway pavement is only required for about 300 feet, safety requirements dictated the use of railings along the entire 900 feet of project reach. Because the rock-veneered concrete wall was the preferred railing alternative identified in the prior public information meeting, the concrete wall was extended the entire 900 feet. However, the HRC acknowledged preference for reducing the length of the concrete wall, and using a combination of the T-6 metal railings and standard guardrails for the remaining project reach.

A second public information meeting was held on July 20, 2006 at the former Hanalei Courthouse to present the final project plan and design. The plan to transition from the rock-veneered concrete wall to the metal guardrail in the vicinity of the Lumahai Lookout was well-received by the attendees. Where the highway pavement did not require reconstruction, it was the expressed desire that 2 feet or more of unpaved shoulder be provided between the pavement and the guardrail, to the extent feasible. The type of rocks to be used for the rock-veneered wall was discussed, and it was pointed out that this was not an "off-the-shelf" item. Therefore, the type of rock to be selected for the veneer will depend on the availability of the types of rock at the time of bidding. It was suggested that blue rock, which is readily available, would be a viable option. The ocean side of the concrete wall would be painted with a color to match the rock veneer.

5.6 **Permits or Approvals Required.**

State of Hawaii - DOT: A permit for "Work Within State Highway Right-of-Way" is required from the Department of Transportation, Highways Division.

State of Hawaii - DLNR: A determination from DLNR is required regarding the potential requirement for a Conservation District Use Permit (CDUP). Most of the repair work will be conducted within the existing highway right-of-way, however, some areas are outside of the right-of-way and easement.

B.P. Bishop Estate: A short section of existing highway (including a portion of the Lumahai Lookout turnout area) is outside of the highway right-of-way. Acquisition of additional highway right-of-way, or easement, will be necessary.

References

Draft Environmental Assessment For Kuhio Highway Improvements at Lumahai and Wainiha, prepared for State of Hawaii Department of Transportation, Highways Division by Kwock Associates, Inc., November 2000 (unpublished draft).

Engineering Report For Kuhio Highway, Vicinity of Lumahai and Wainiha, prepared for State of Hawaii Department of Transportation, Highways Division, Kauai District Office by Kwock Associates, Inc., July 21, 2000.

Final Environmental Assessment for Hana Highway Repair, prepared for State of Hawaii Department of Transportation, Highways Division by Eugene P. Dashiell, AICP, Environmental Planning Services, November 2003.

Final Project Assessment Report For Kuhio Highway Improvements at Lumahai and Wainiha, prepared for State of Hawaii Department of Transportation, Highways Division by Okahara and Associates, Inc., May 8, 2002.

Flood Insurance Rate Map, Federal Emergency Management Agency.

Kauai County web site

Kauai General Plan, County of Kauai Planning Department, November 2000.

North Shore Development Plan Update, Dec 1980, County of Kauai Planning Department.

Public Access, Open Space & Natural Resources Preservation Fund Commission, 2005 Report to the Kauai County Council, Final Report May 12, 2005.

Rainfall Atlas of Hawaii, Report R76, University of Hawaii Water Resources Research Center, June 1986.

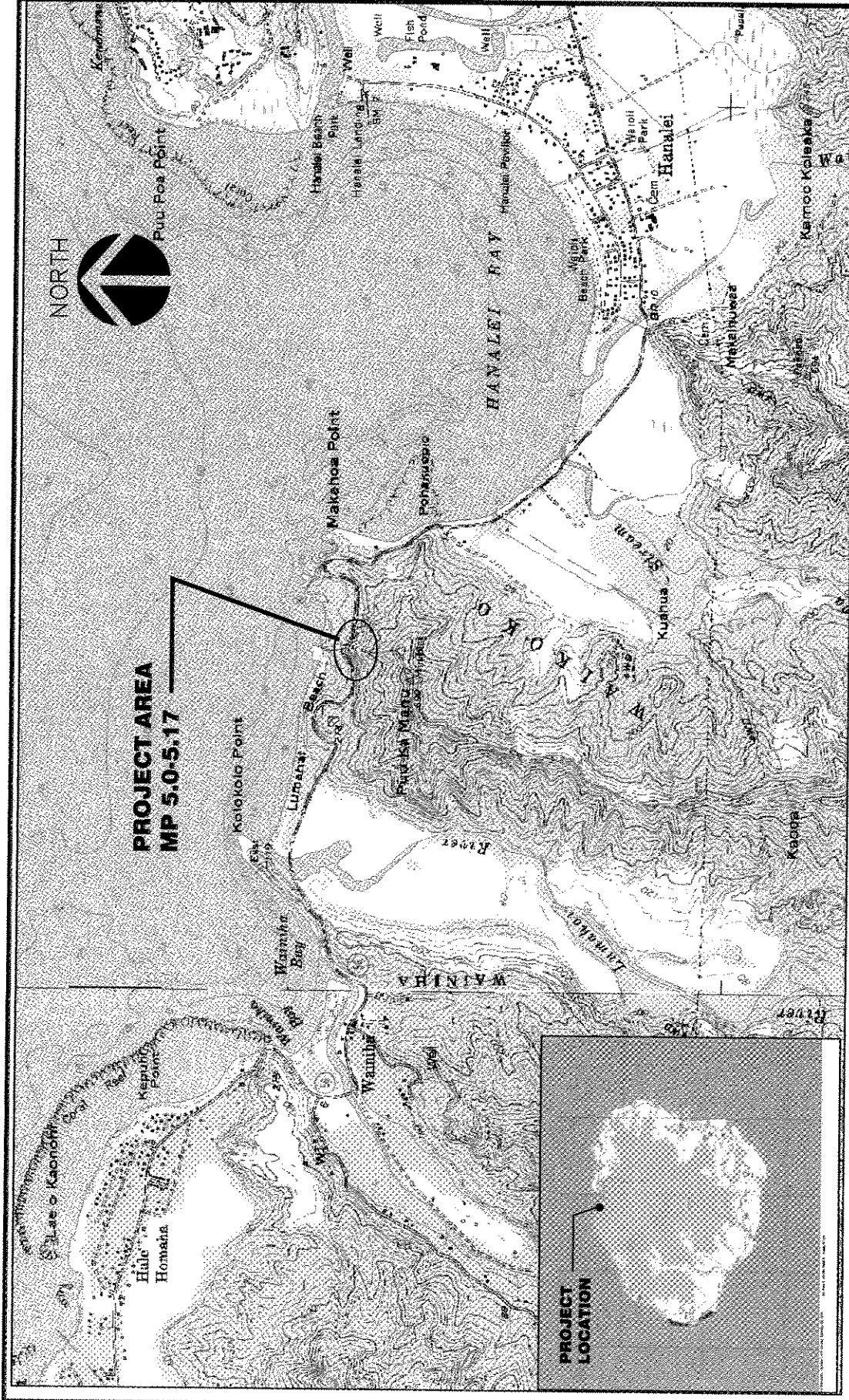
Soils Investigation, Kuhio Highway Improvements at Lumahai and Wainiha, Lumahai, Kauai, for Kwock Associates by Ernest K Hirata and Associates, August 30, 1999.

State of Hawaii Data Book 2003, State of Hawaii Department of Business, Economic Development & Tourism.

Topographic survey maps prepared by Portugal and Associates

Kuhio Highway (Route 560) Historic Roadway Corridor Plan, Hanalei, Kauai, Hawaii, prepared by Belt Collins Hawaii, Ltd. for the State of Hawaii, Department of Transportation, 2005.

EXHIBITS



Approx. Scale 1" = 2000'

EKNA 2367



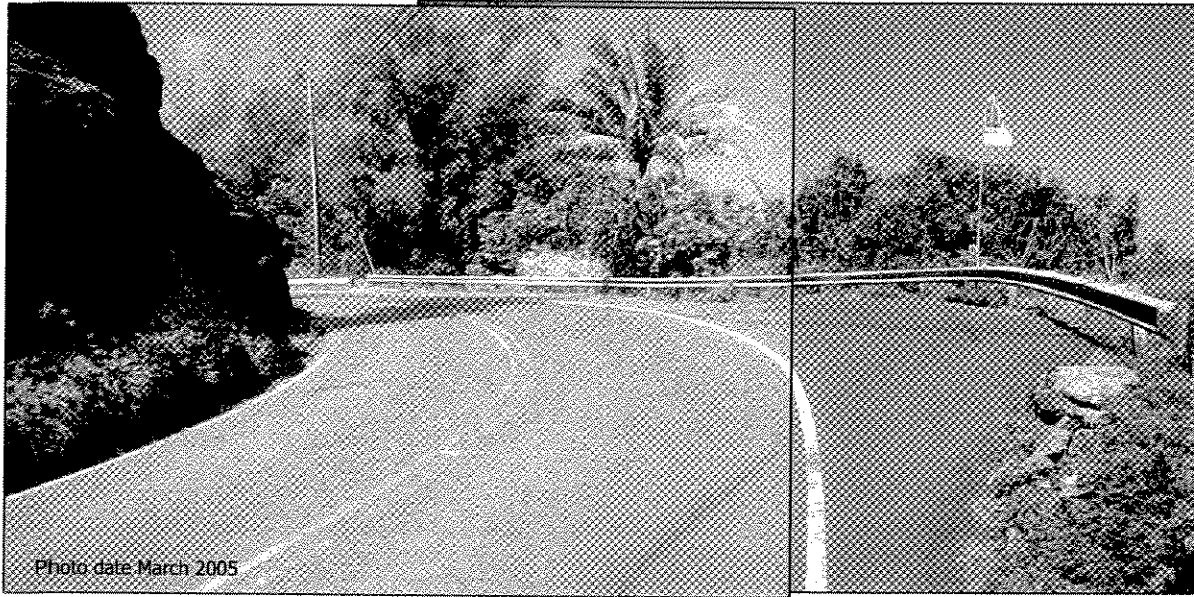
EKNA SERVICES, INC.

LOCATION MAP

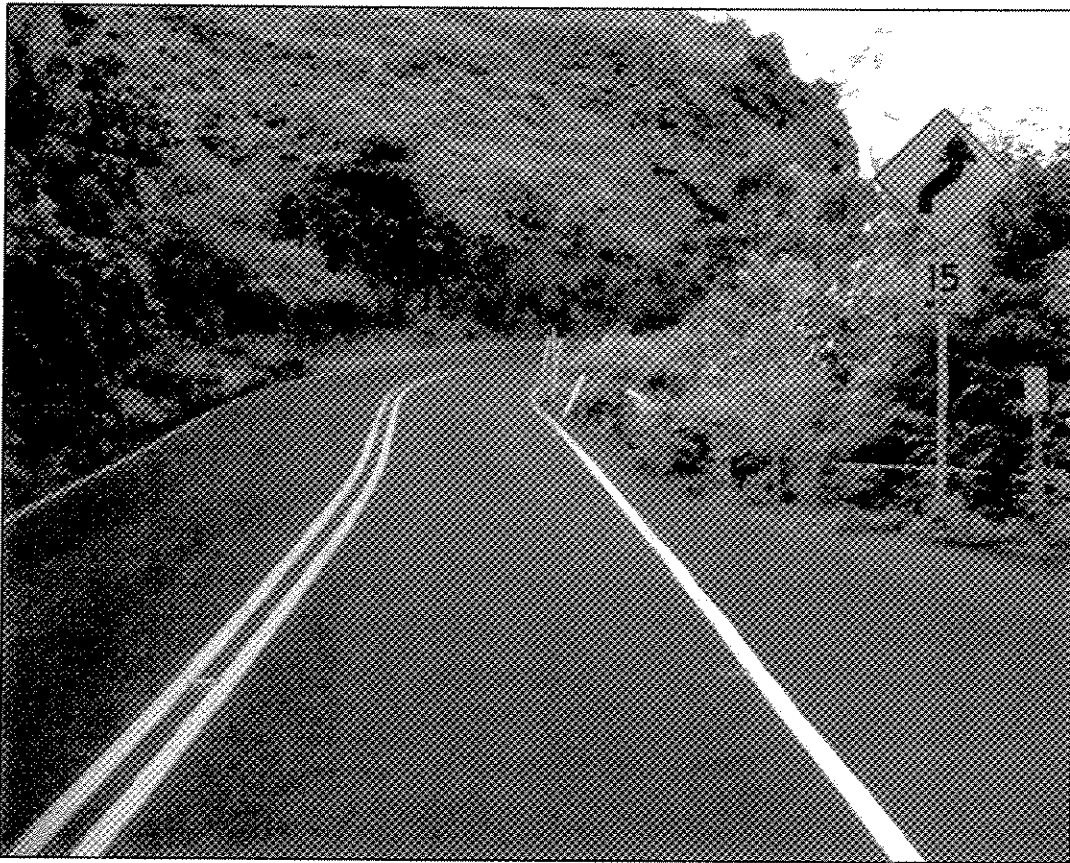
ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS AT LUMAHAI, KAUAI

EXHIBIT

1



View from MP 5.05 towards Lumahai Lookout



View from MP 5.01 at turnout area



PHOTOS – VICINITY OF MP 5.01 TO 5.05
ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS
AT LUMAHAI, KAUAI

EXHIBIT

2

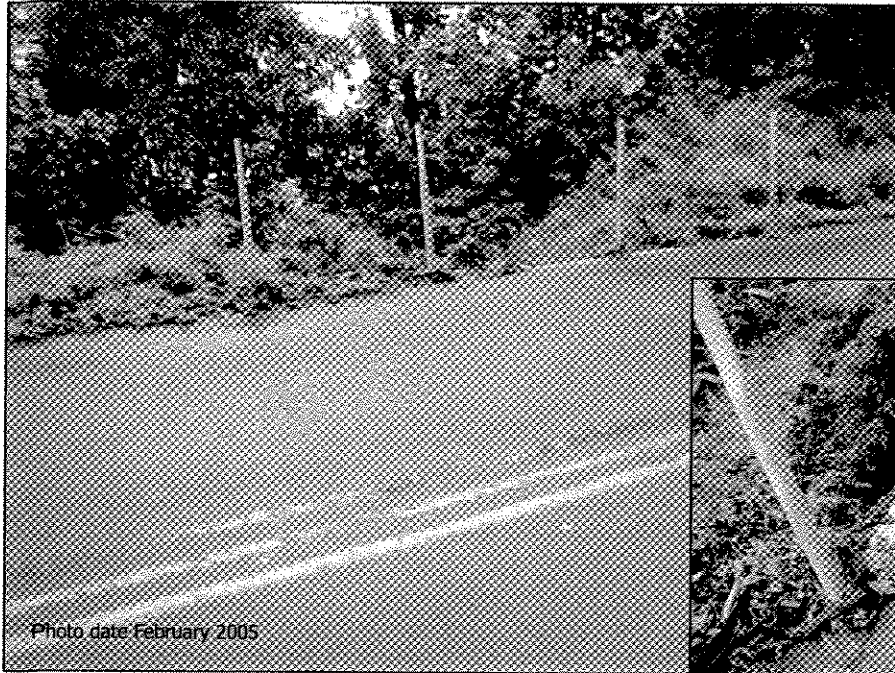
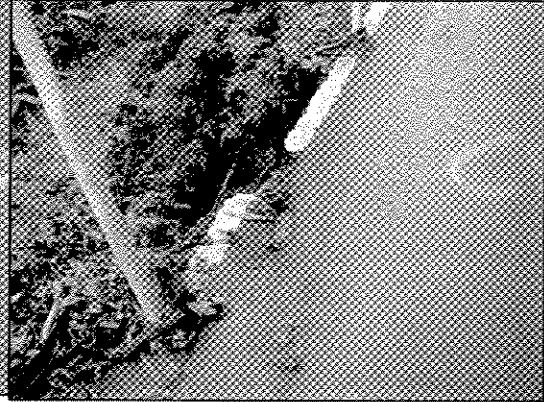
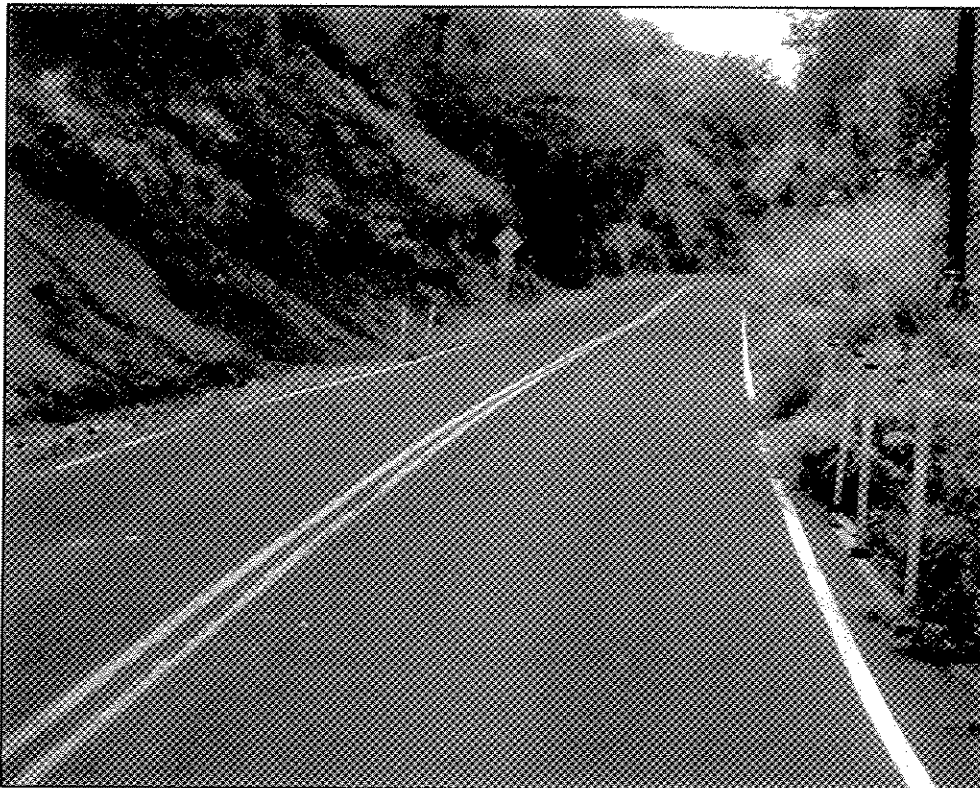


Photo date February 2005



View of undercut section of highway at MP 5.12



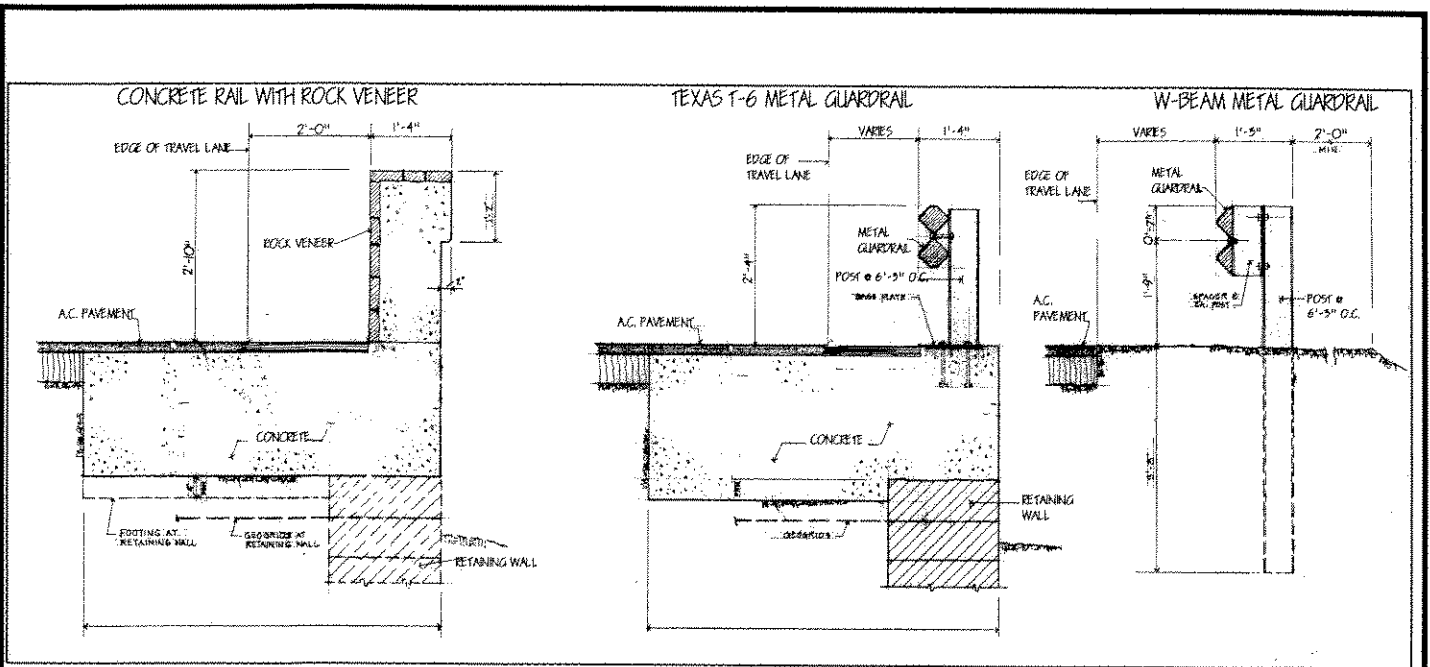
View from MP 5.12



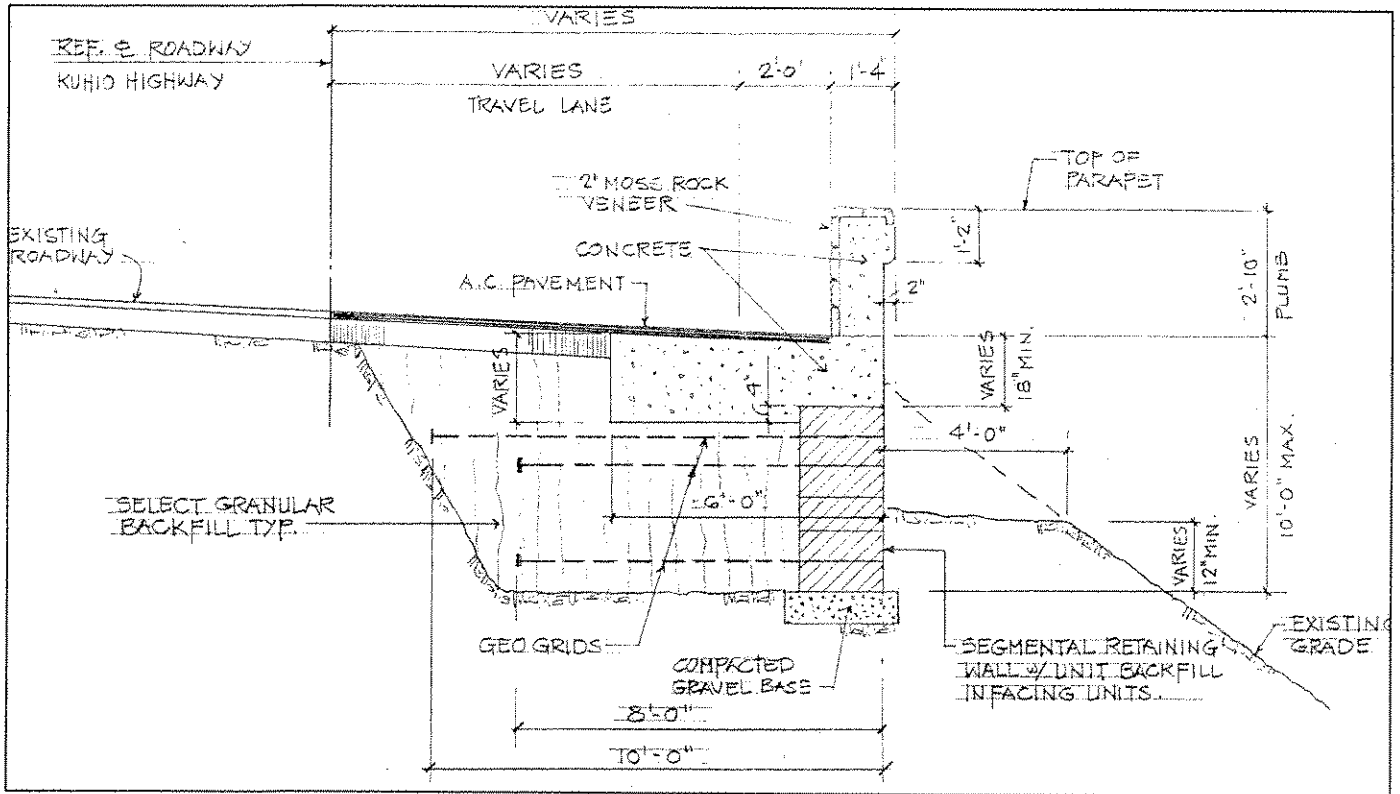
PHOTOS – VICINITY OF MP 5.12
ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS
AT LUMAHAI, KAUAI

EXHIBIT

3



Railings - Typical Sections



Keystone Retaining Wall System - Typical Section



CONCEPT PLAN FOR HIGHWAY REPAIR
 TYPICAL SECTIONS
 ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS
 AT LUMAHAI, KAUAI

EXHIBIT
 4

POSITION MILE RAIL - CONCRETE WALL

NEW KEYSTONE RETAINING WALL

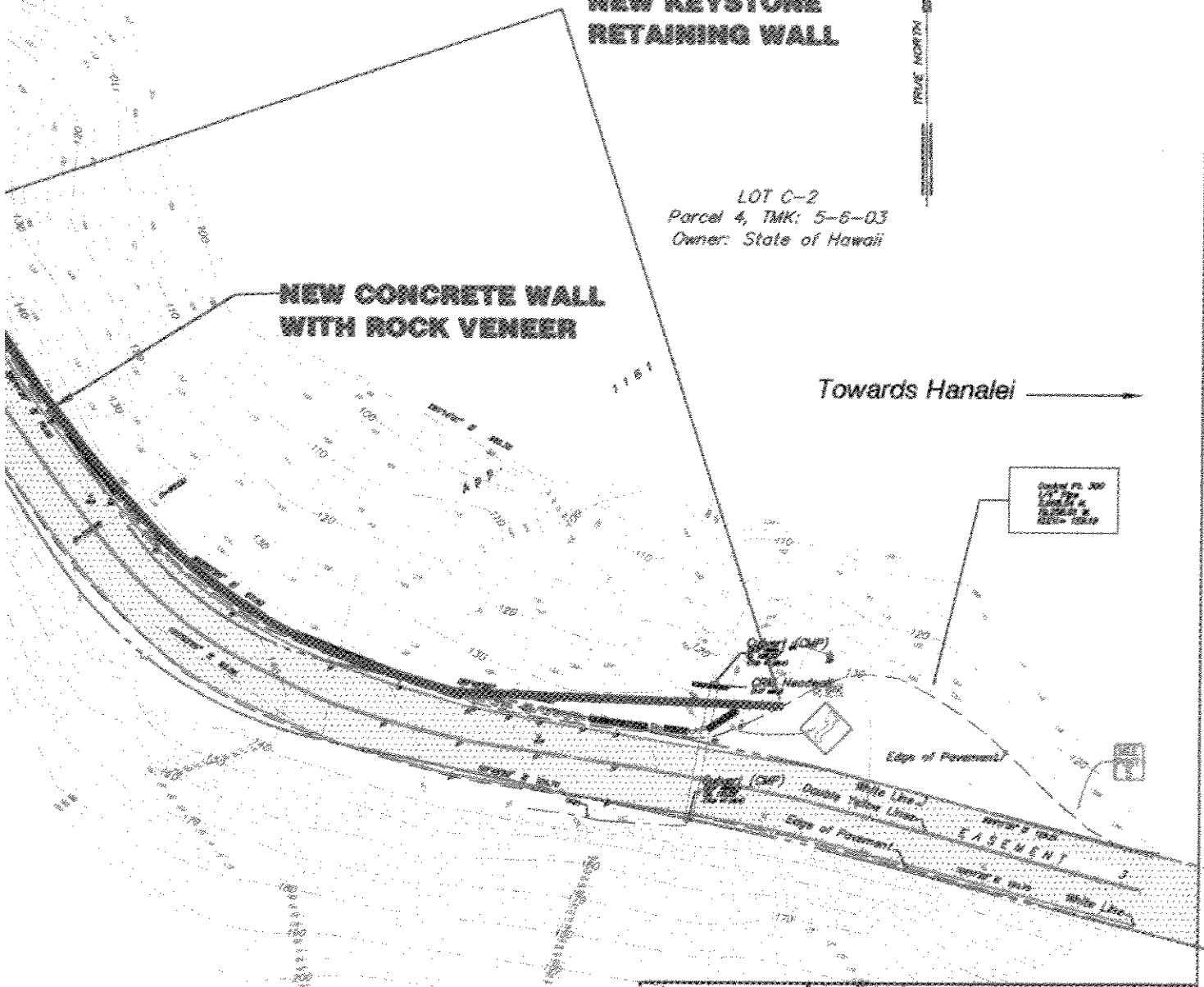
NEW CONCRETE WALL WITH ROCK VENEER

LOT C-2
Parcel 4, TMK: 5-6-03
Owner: State of Hawaii

PLEASE REFER TO


Towards Hanalei →

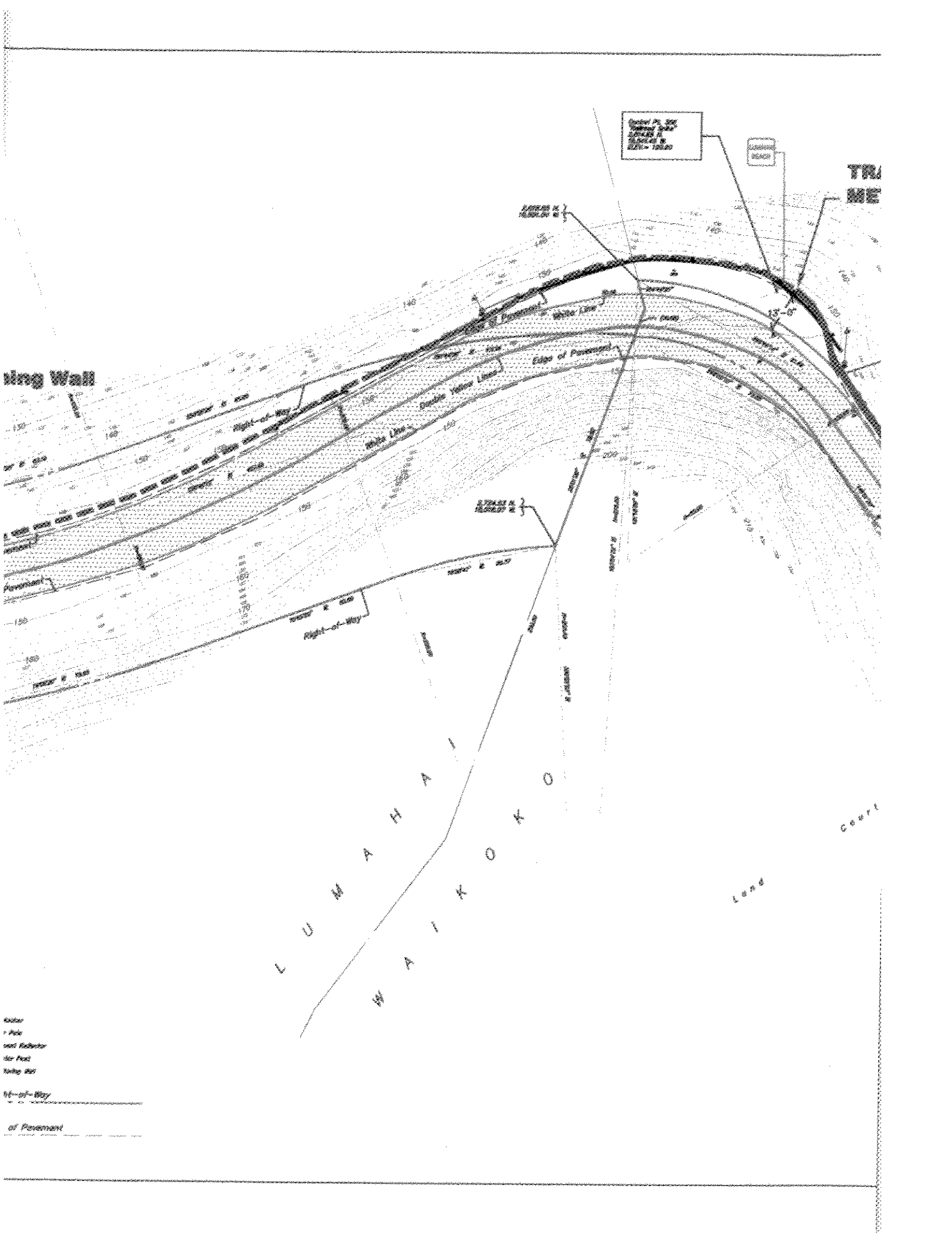
Order Pt. No. 300
Lot 20
Lumahaui &
Waihiha
Kauai 1984



LOT C-2
Parcel 4, TMK: 5-6-03
Owner: State of Hawaii

PLAN OF IMPROVEMENTS

 <p>THIS MAP WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p>LICENSED PROFESSIONAL LAND SURVEYOR EXPIRES ON 12/31/02</p>	<p>PROJECT NO. S60A-03-96 "KUMHO HIGHWAY, RETAINING WALLS AT LUMAHAUI AND WAIHIHA" KAUAI, HAWAII</p>
	<p>TOPOGRAPHIC MAP MILE POST 5.008 TO 5.22 KUMHO HIGHWAY, LUMAHAUI KAUAI, HAWAII</p>
<p>PORTUGAL SURVEYING & MAPPING INC. 1240 Lisianski St. Lihue, Kauai, Hawaii PH: (808) 245-8749 Fax: (808) 245-8391</p>	<p>DESIGNED BY: _____ DRAWN BY: _____ CHECKED BY: _____ DATE: _____</p>



Water
 Pole
 Spot Elevation
 Low Point
 High Point
 Right-of-Way
 Edge of Possession

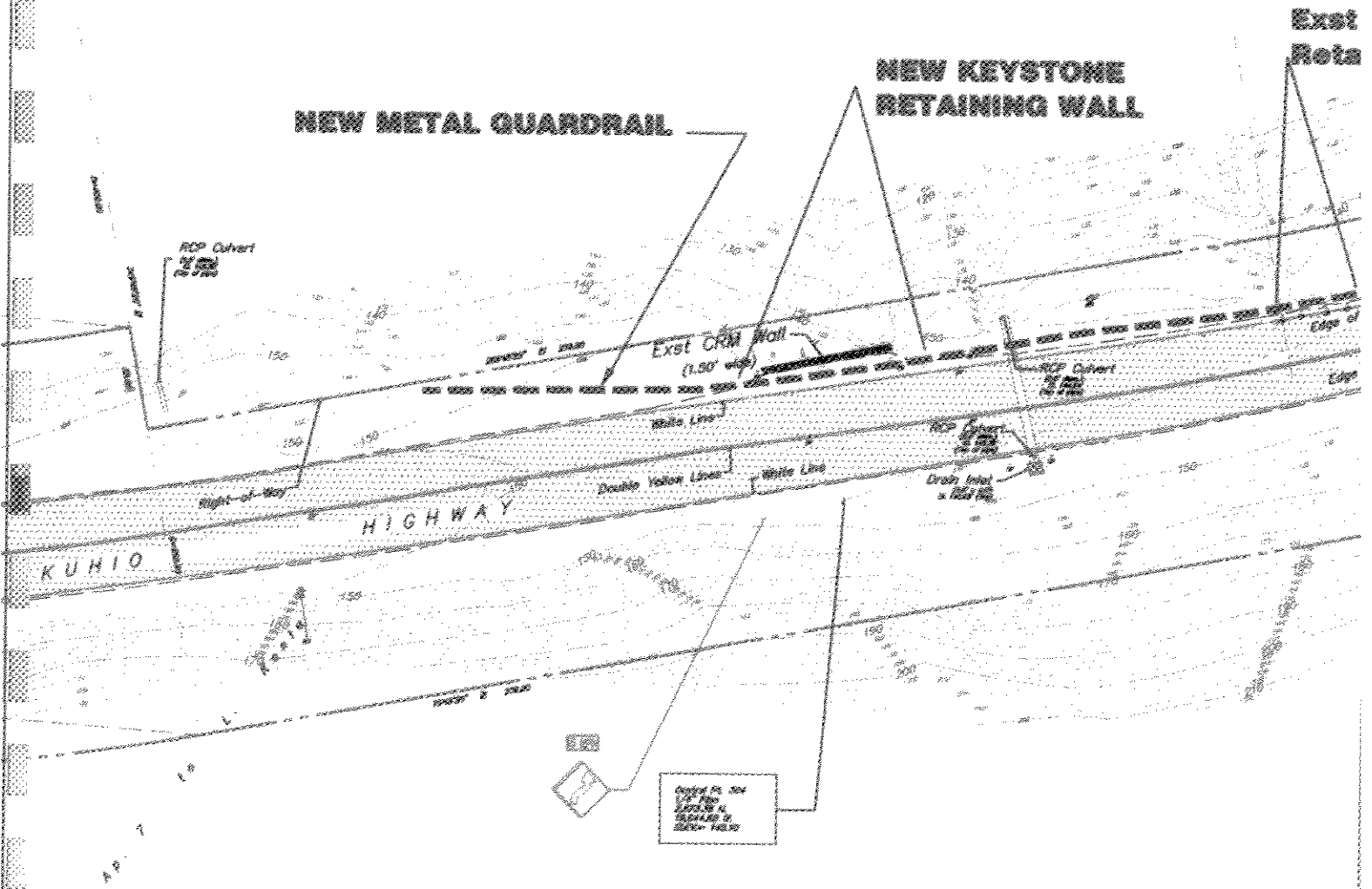
↑
Ocean

Parcel 3, TMK: 5-7-03
Owner: B. P. Bishop Estate

NEW METAL GUARDRAIL

**NEW KEYSTONE
RETAINING WALL**

**Exst
Rota**



Parcel 10, TMK: 5-7-03
Owner: B. P. Bishop Estate

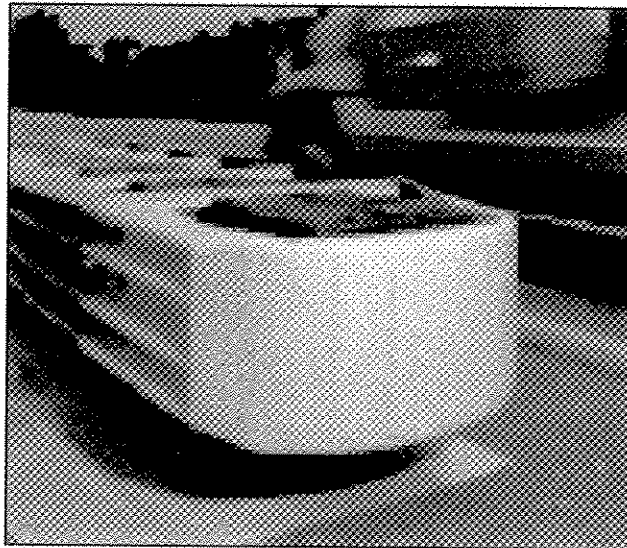


GRAPHIC SCALE IN FEET

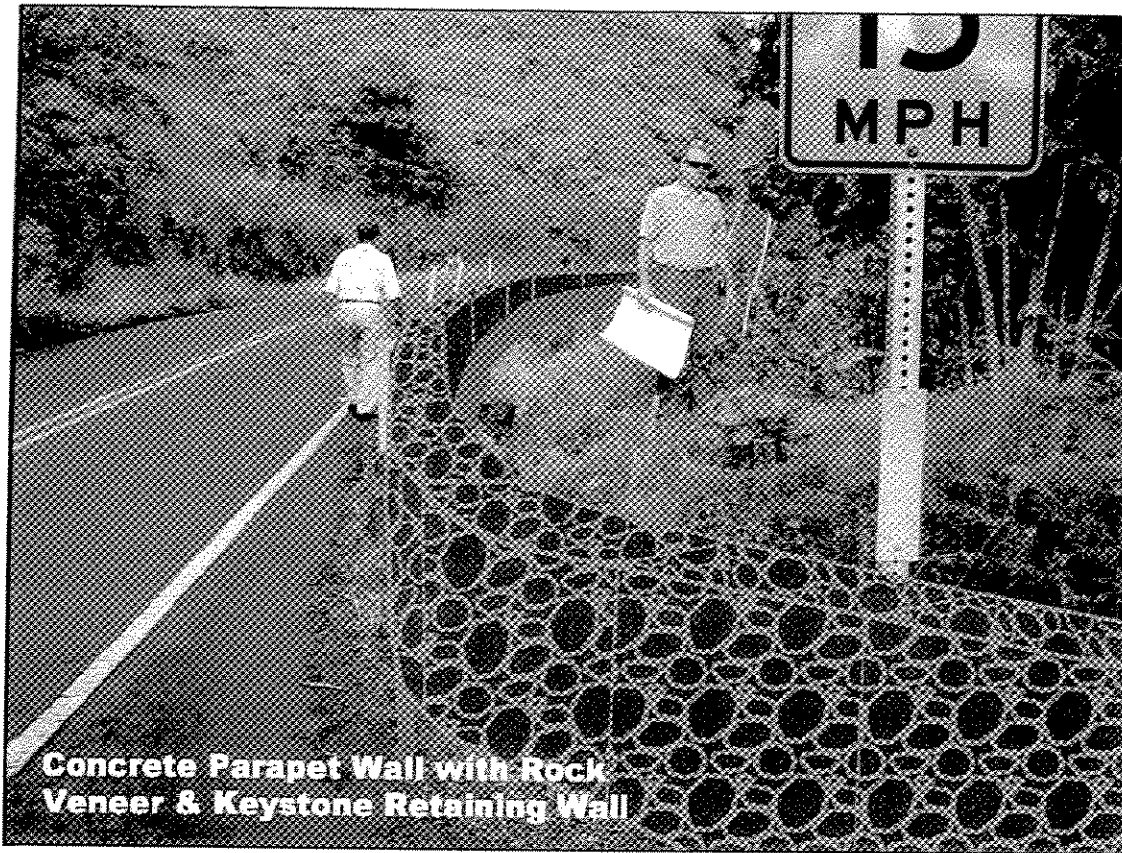
FLEAT 350 Terminal



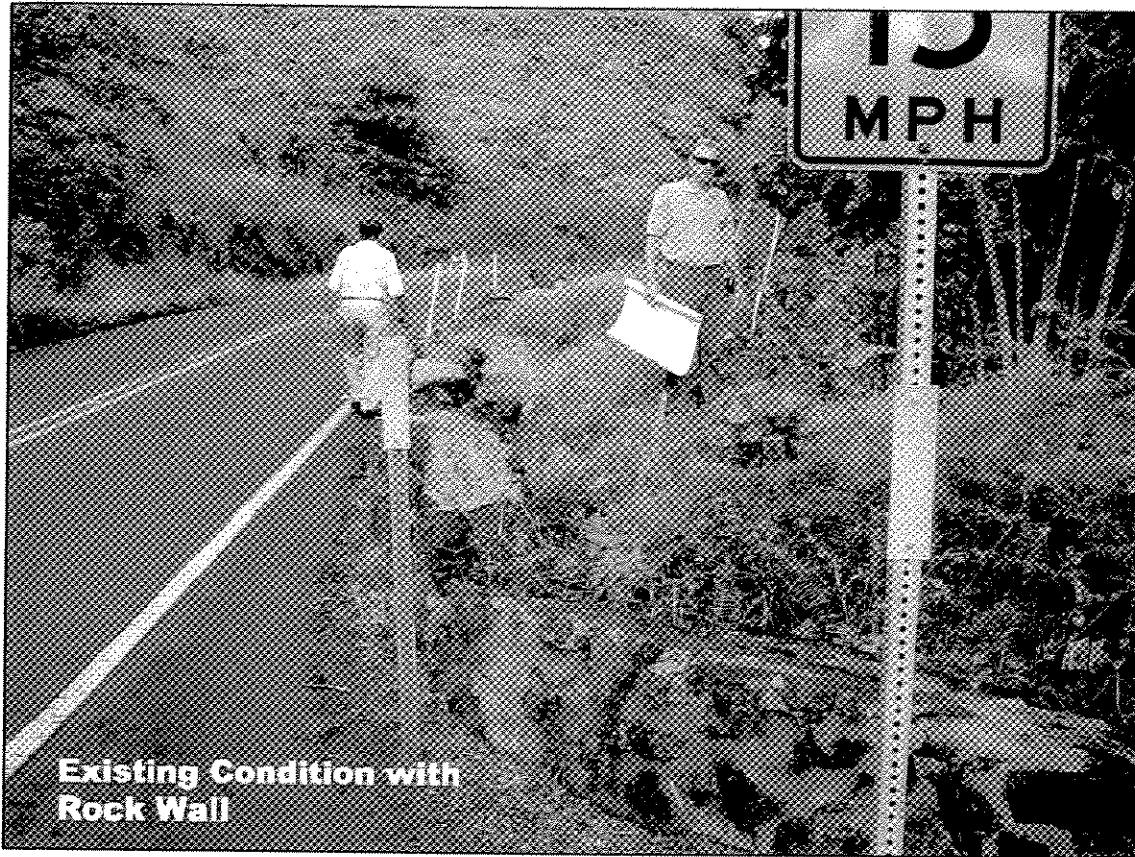
QuadGuard Crash Cushion System



Typical railing end treatments that must be used if termination is less than 13 feet from the edge of the roadway (white line).

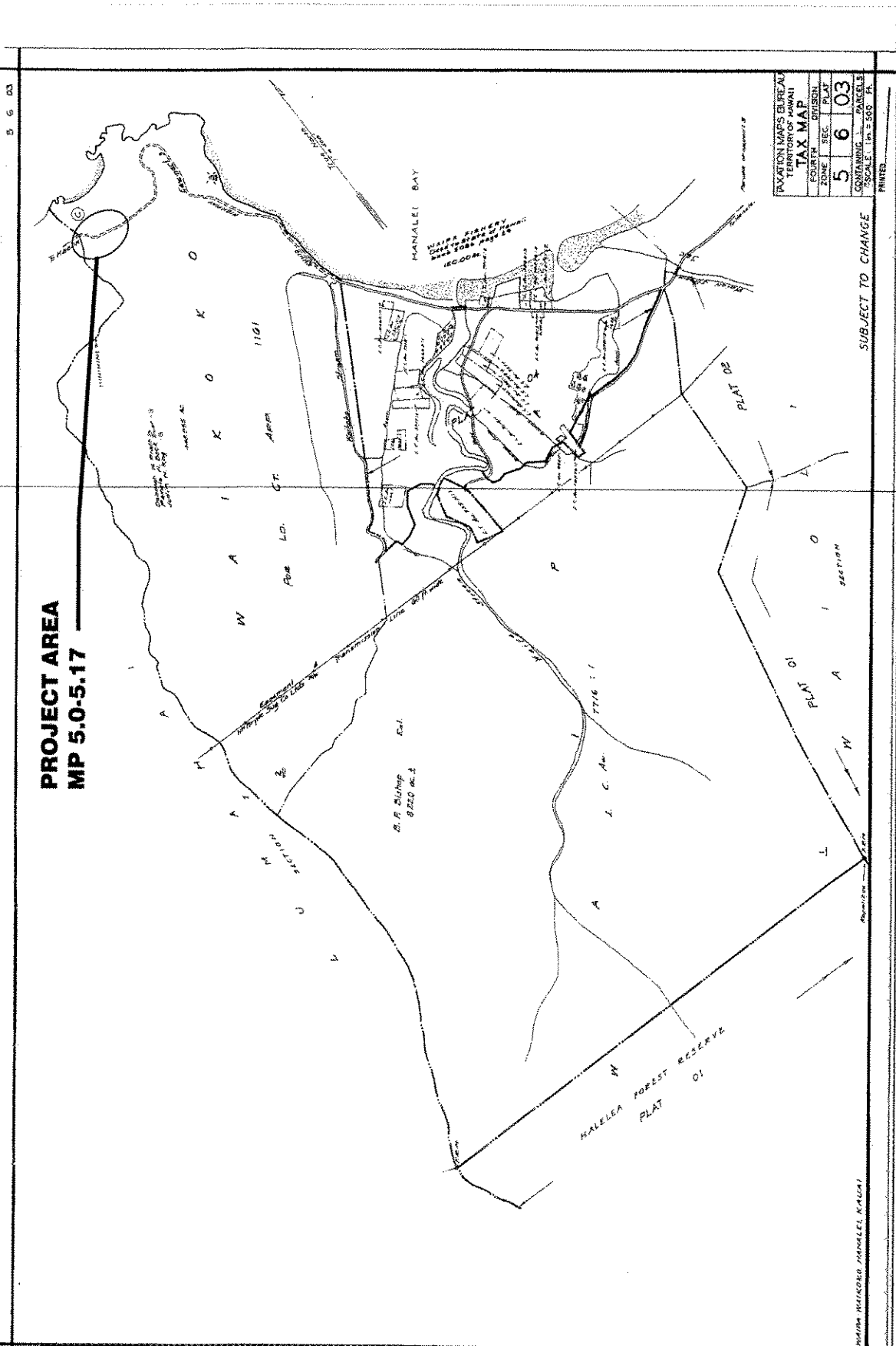


Concrete Parapet Wall with Rock Veneer & Keystone Retaining Wall



Existing Condition with Rock Wall

**PROJECT AREA
MP 5.0-5.17**



TAXATION MAPS BUREAU TERRITORY OF HAWAII			
TAX MAP			
FOURTH	DIVISION	PLAT	SECTION
5	6	03	
CONTAINING 10 ACRES SCALE: 1" = 500' EA.			

SUBJECT TO CHANGE

Approx. Scale 1" = 1600'

EKNA 2367



EKNA SERVICES, INC.

TAX MAP TMK: (4) 5-6-03

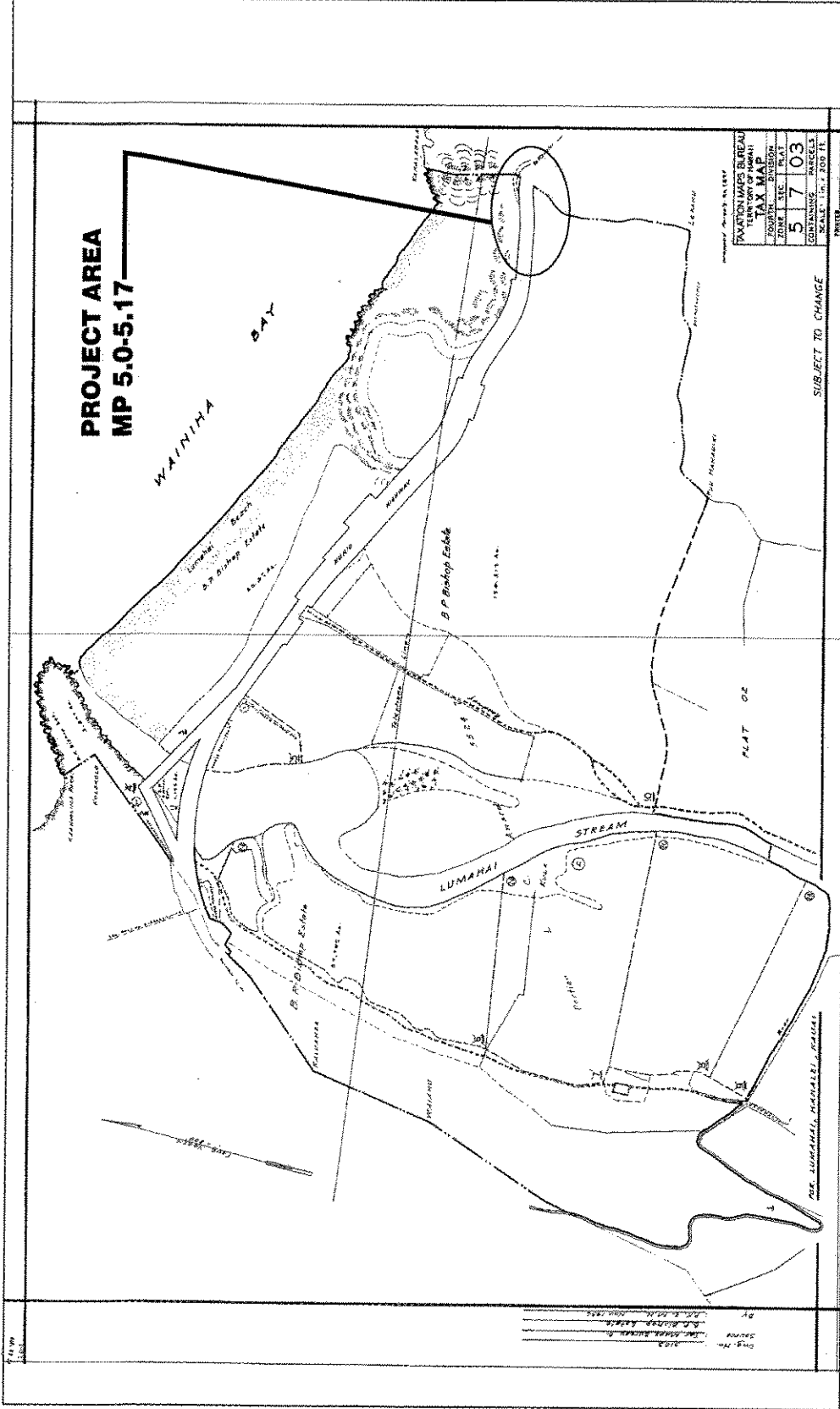
ENVIRONMENTAL ASSESSMENT FOR: KUHIU HIGHWAY RETAINING WALLS AT LUMAHAU, KAUAI

EXHIBIT

8

NO. 1278
VOL. 1, PAGES
1-10
MAY 1954

Drawn by _____
Checked by _____
Approved by _____
Date _____



Approx. Scale 1" = 800'

EKNA 2367



EKNA SERVICES, INC.

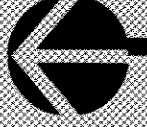
TAX MAP TMK: (4) 5-7-03

ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS AT LUMAHAI, KAUAI

EXHIBIT

9

NORTH



PROJECT AREA
MP 5.0-5.17

Hanalei

Rural

Urban

Agricultural

Conservation

SOURCE: Office of State Planning (Approx. Scale 1" = 2000')

EKNA 2367



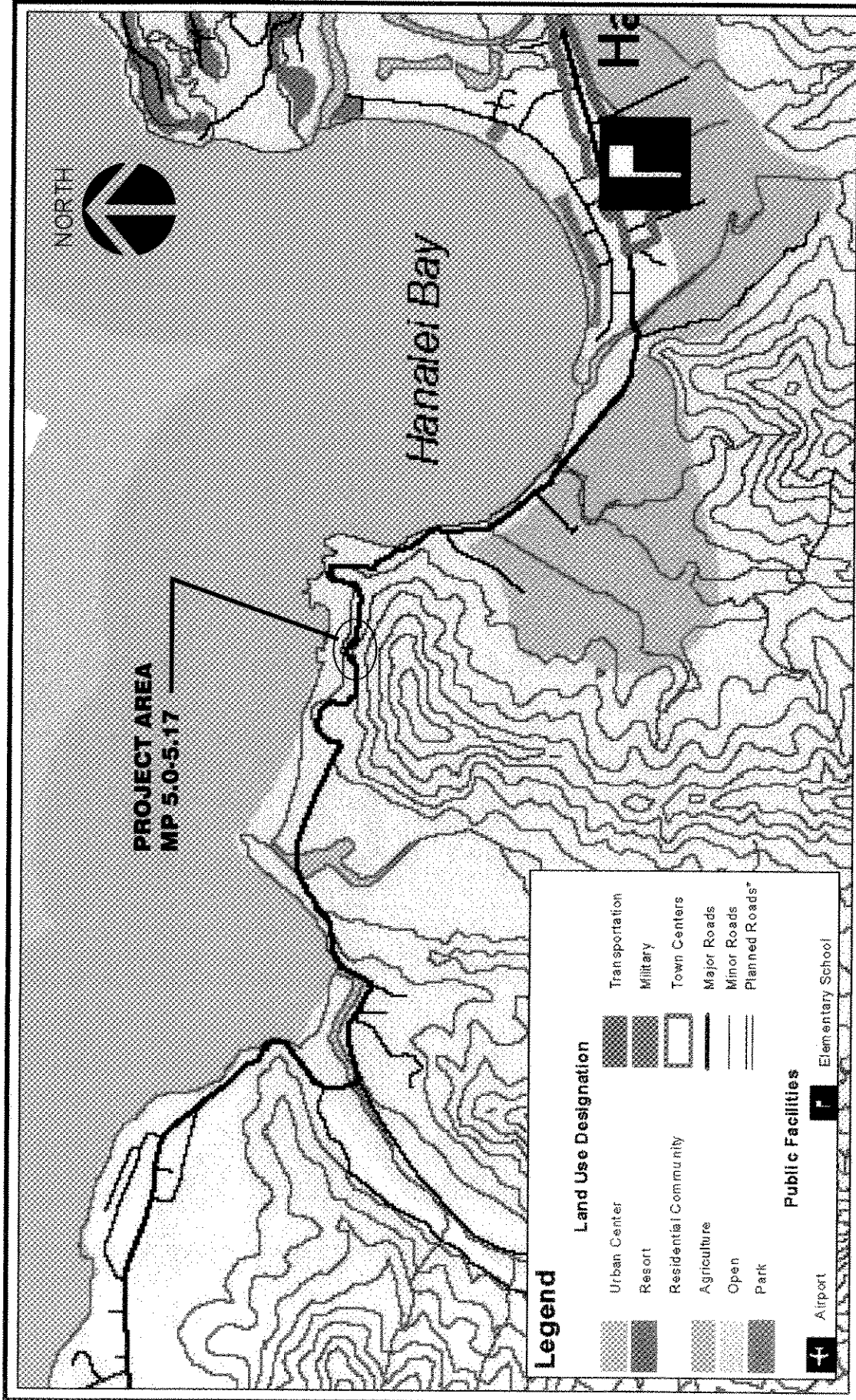
EKNA SERVICES, INC.

STATE LAND USE DISTRICTS

ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS AT LUMAHAI, KAUAI

EXHIBIT

10



SOURCE: The Kauai General Plan (County of Kauai web site) (Approx. Scale 1" = 2000')



EKMA SERVICES, INC.

KAUAI NORTH SHORE PLANNING DISTRICT LAND USE MAP
ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS AT LUMAHA'I, KAUAI

EXHIBIT

11



**PROJECT AREA
MP 5.0-5.17**

**Special
Management
Area**

EKNA 2367

SOURCE: State GIS (DBED&T web site) (Approx. Scale 1" = 2000')

EXHIBIT

12

SPECIAL MANAGEMENT AREA (SMA)

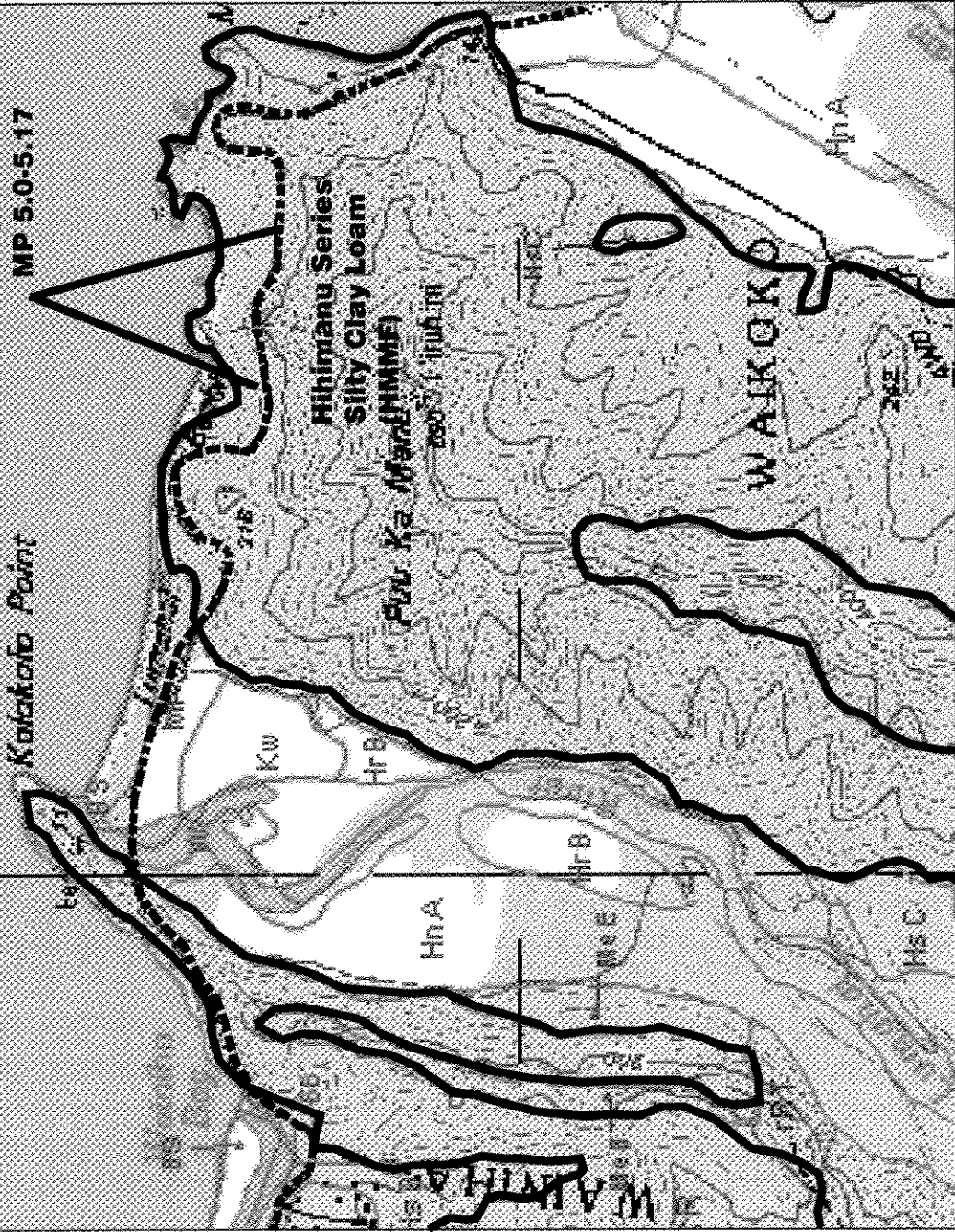
ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS AT LUMAHAU, KAUAU



EKNA SERVICES, INC.



PROJECT AREA
MP 5.0-5.17



Source: Natural Resources Conservation Service website (Approx. scale 1" = 1000')

EKNA 2367



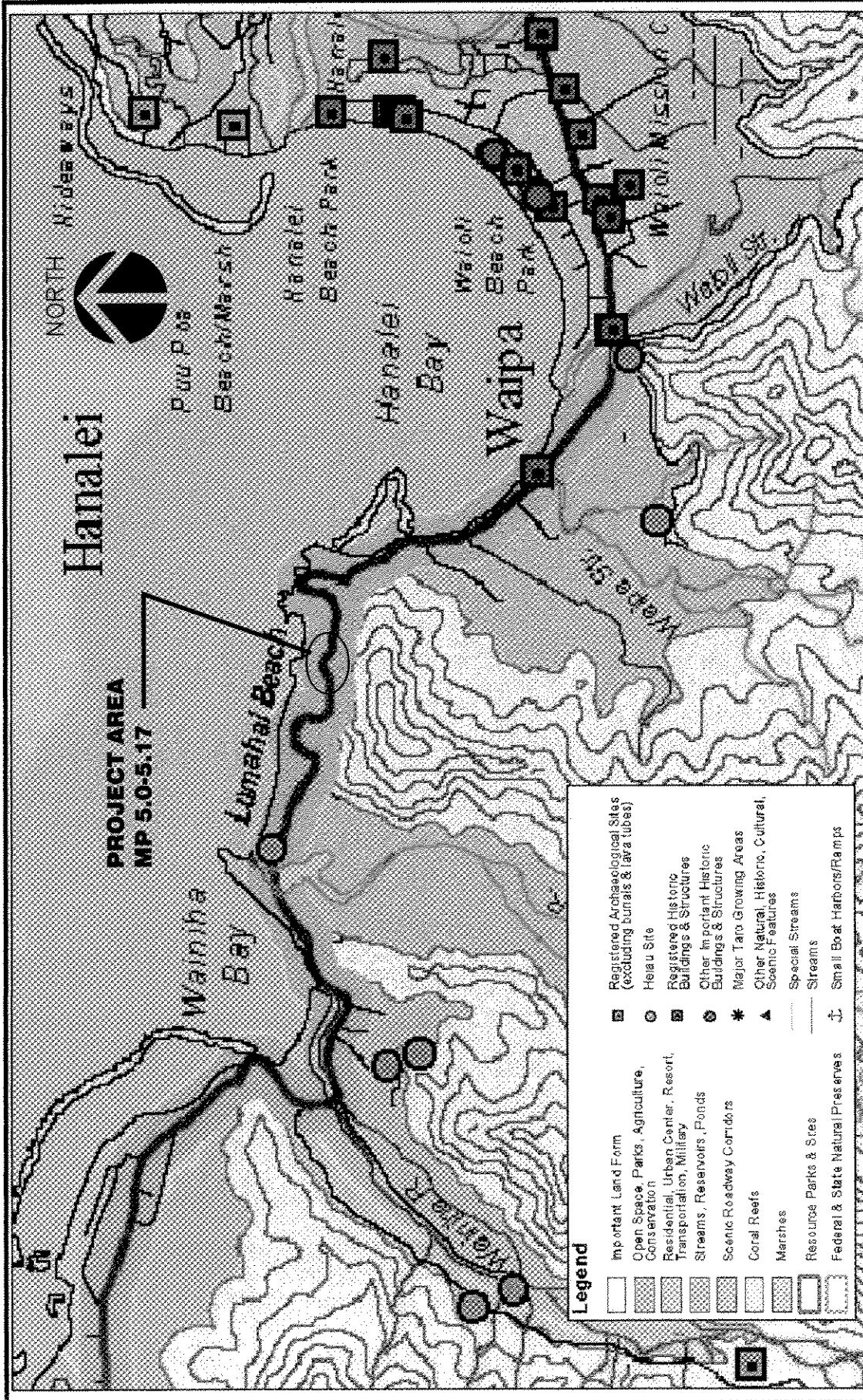
EKNA SERVICES, INC.

SOILS MAP

ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS AT LUMAHAI, KAUAI

EXHIBIT

13



SOURCE: The Kauai General Plan (County of Kauai web site) (Approx. Scale 1" = 2000')

EKNA 2367



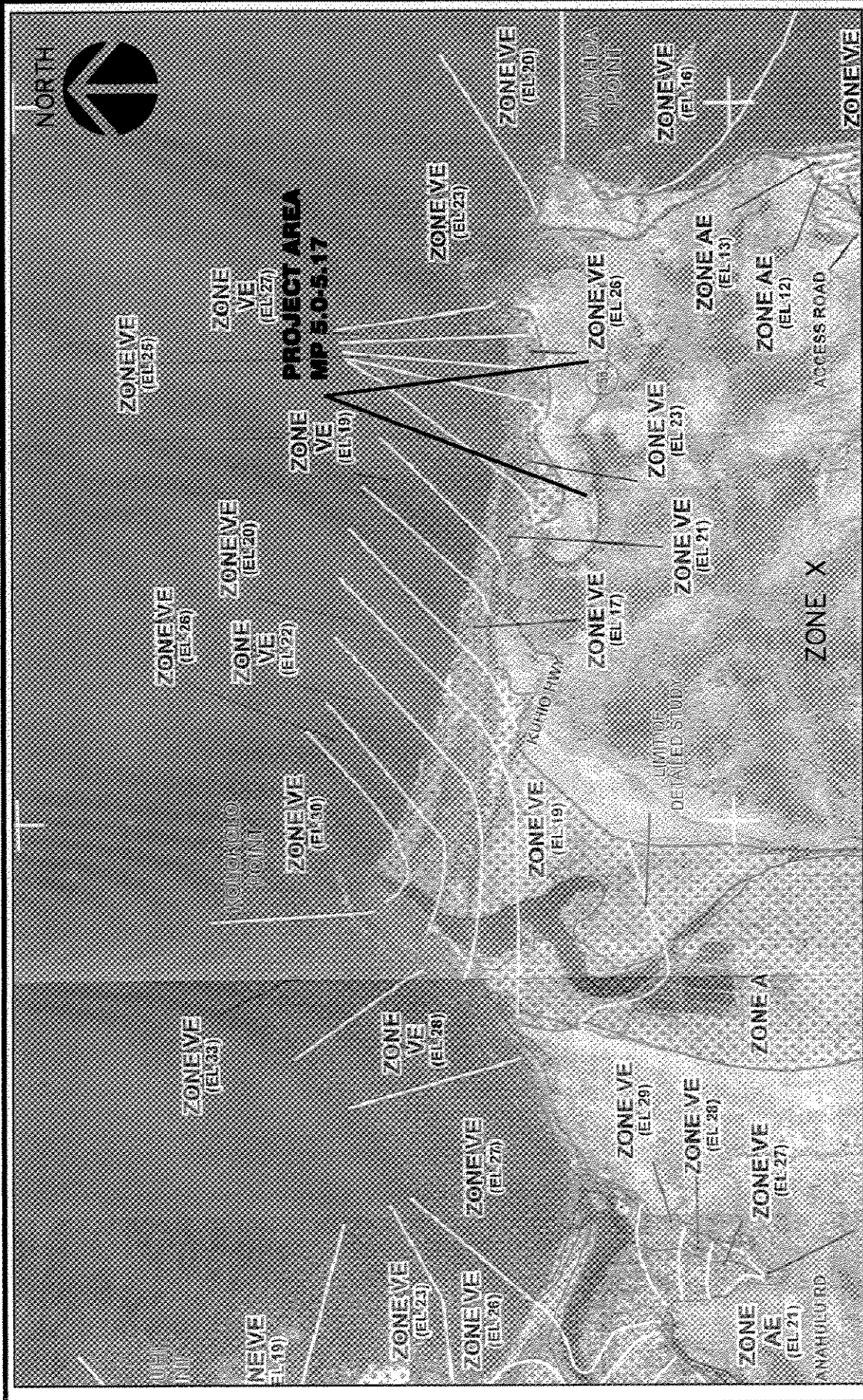
EKNA SERVICES, INC.

HERITAGE RESOURCES MAP

ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS AT LUMAHA'I, KAUAI

EXHIBIT

14

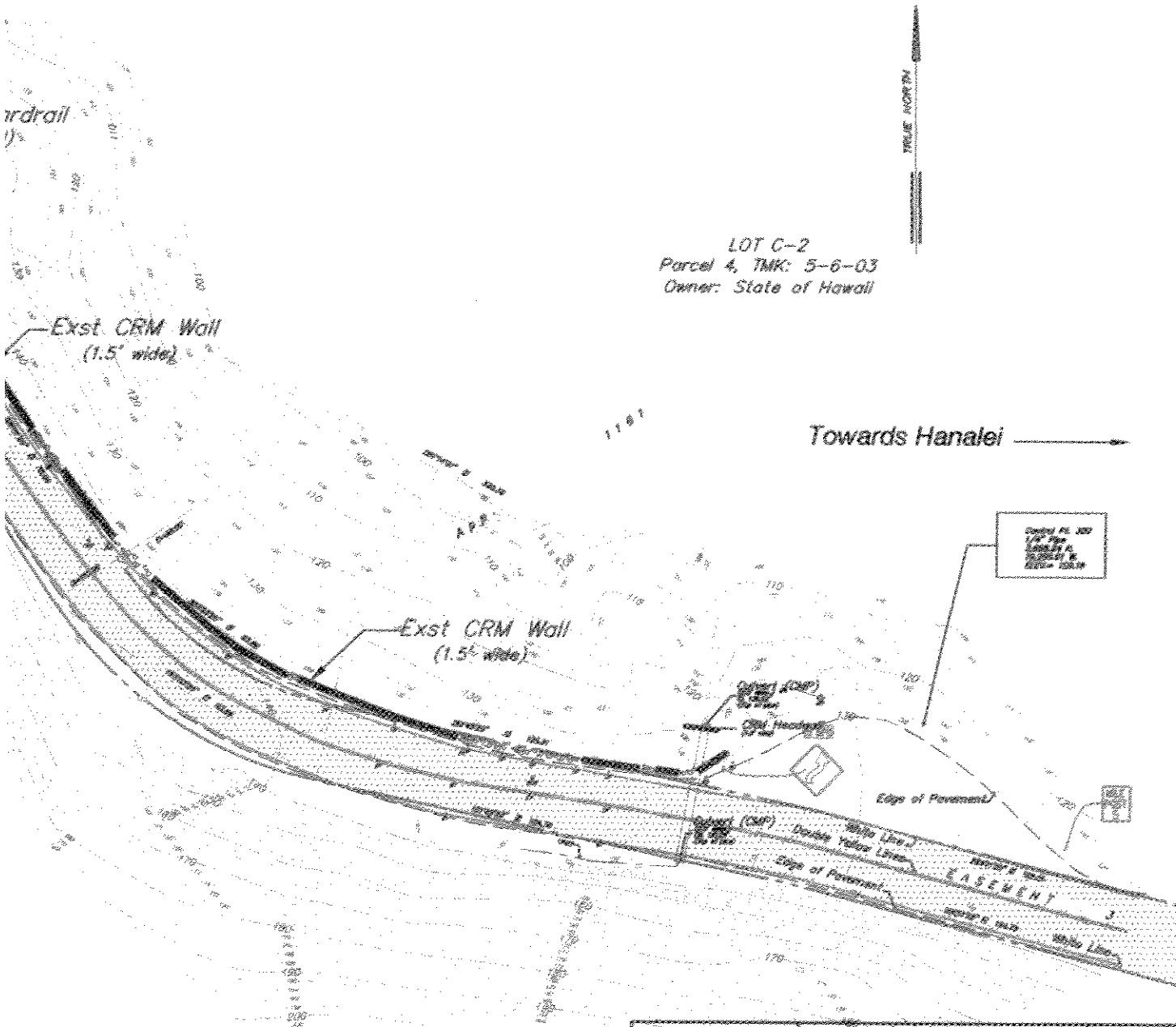


SOURCE: FIRM PANEL NO 1500020035 E, REV. DATED SEPTEMBER 16, 2005 (Approx. Scale 1" = 1000') EKNA 2367

EXHIBIT
15

FLOOD INSURANCE RATE MAP
ENVIRONMENTAL ASSESSMENT FOR: KUHIO HIGHWAY RETAINING WALLS AT LUMAHAI, KAUAI





LOT C-2
 Parcel 4, TMK: 5-6-03
 Owner: State of Hawaii

Towards Hanalei →

Exst CRM Wall
 (1.5' wide)

Exst CRM Wall
 (1.5' wide)

Control Pt. 300
 1/4" P.P.M.
 11881.1
 11881.2
 11881.3

Edge of Pavement

White Line

Double Yellow Line

Edge of Pavement

EASEMENT

White Line

LOT C-2
 Parcel 4, TMK: 5-6-03
 Owner: State of Hawaii



THIS MAP WAS PREPARED BY ME
 OR UNDER MY SUPERVISION

CERTIFIED PROFESSIONAL LAND SURVEYING
 LICENSE NO. 5268-02

REVISION NO.	DESCRIPTION	BY	APPROVED

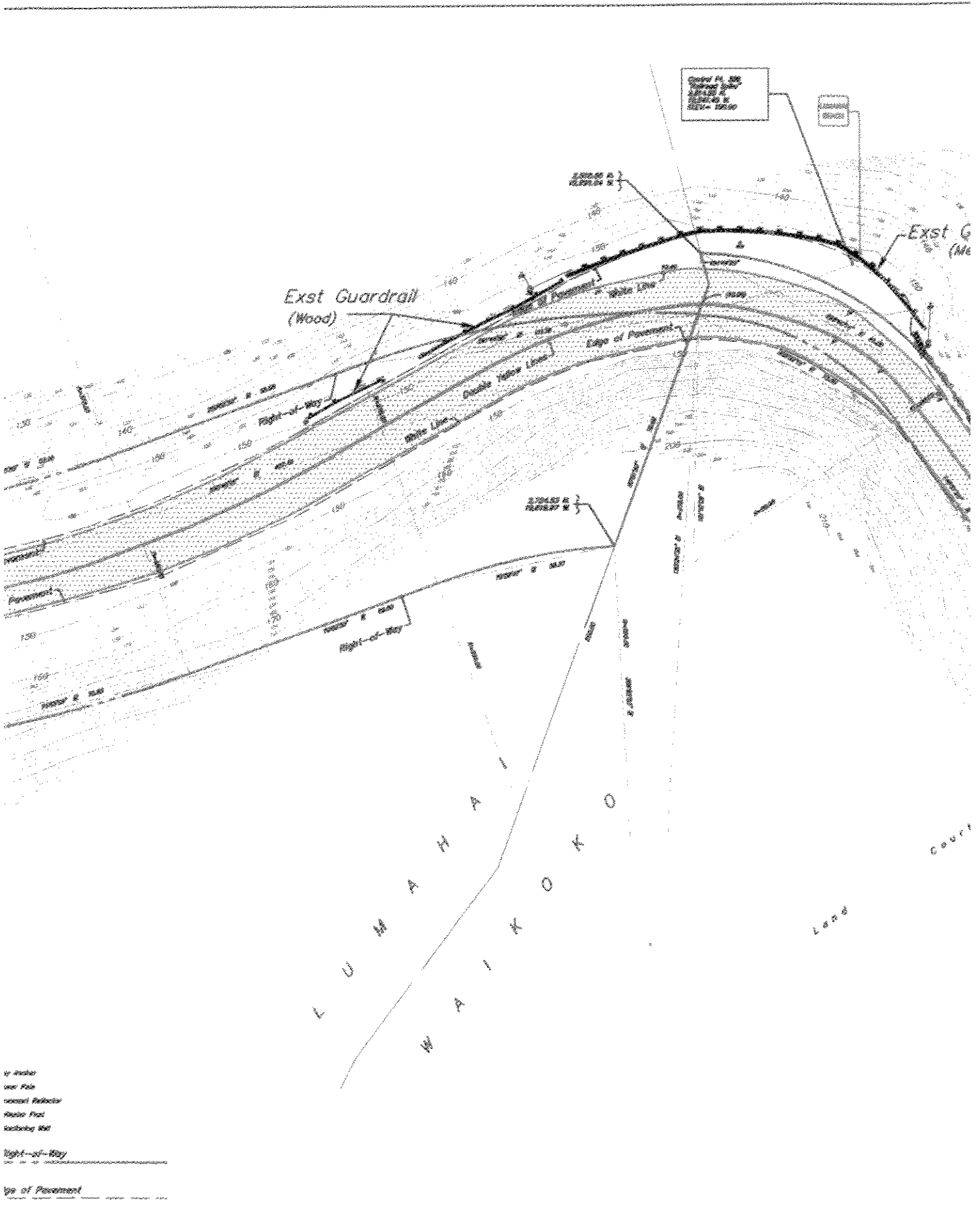
PROJECT NO. 560A-03-96
 "KUHIO HIGHWAY, RETAINING WALLS
 AT LUMAHAH AND WAININA"
 KAUAI, HAWAII

TOPOGRAPHIC MAP
 MILE POST 5.008 TO 5.22
 KUHIO HIGHWAY, LUMAHAH,
 KAUAI, HAWAII

PORTUGAL SURVEYING & MAPPING INC.
 1940 Leialoana St.
 Lihou, Kauai, Hawaii
 PH: (808) 345-8748
 Fax: (808) 246-8381

DRAWN BY
 CHECKED BY
 INSET
 OF 2 SHEETS

EXISTING CONDITION



Control Pt. 500
 207420 N
 207420 E
 207420 W

Station 5000

Station 5000

Exst G (Me)

Exst Guardrail
 (Wood)

Right-of-Way

Edge of Pavement

Orange Yellow Lines

White Line

Station 5000

Right-of-Way

L
U
M
A
H
A
I

W
A
I
K
O
K
O

Center

Lead

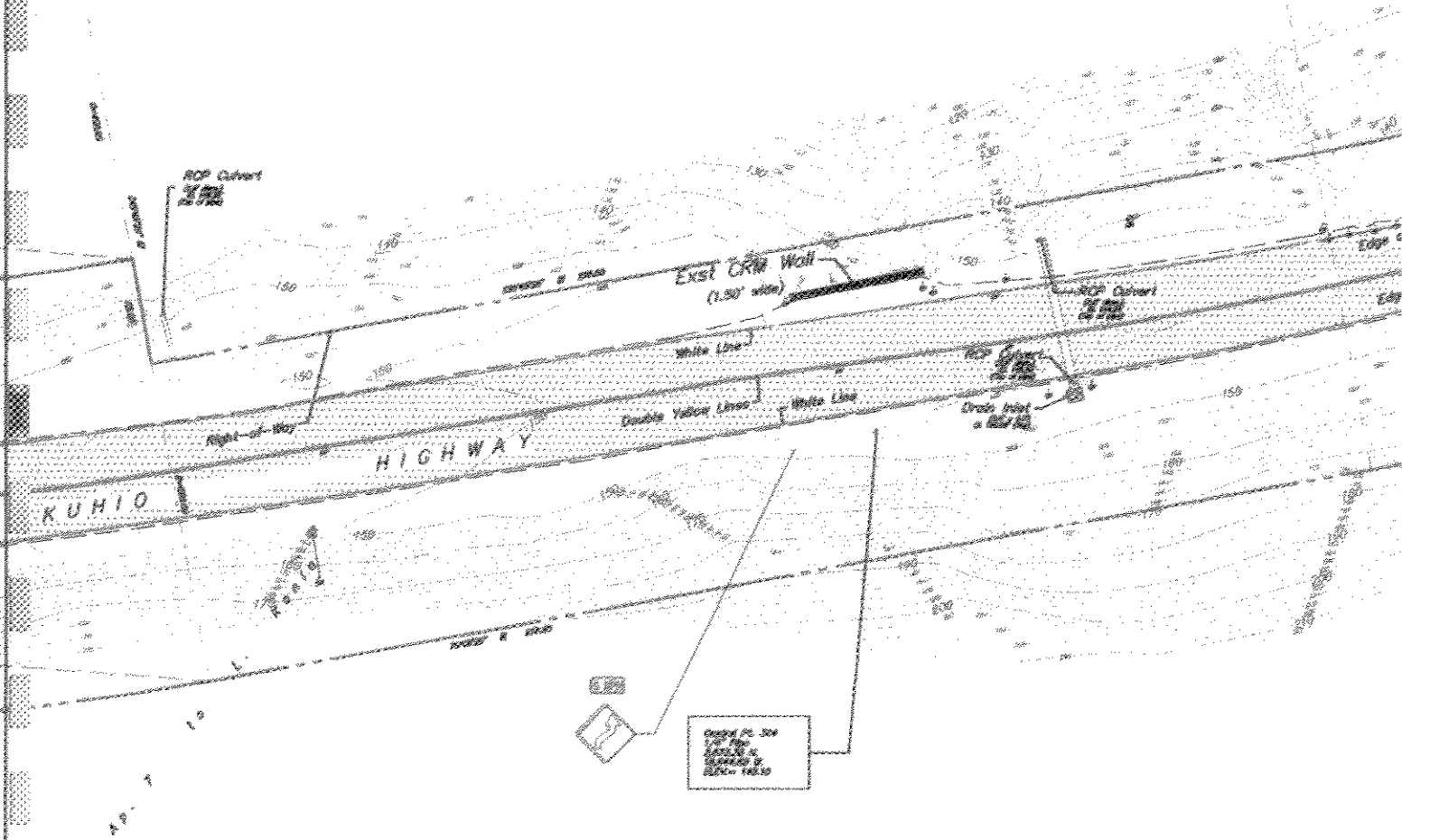
by marker
 over face
 center reflector
 rubber foot
 reflecting 30"

Right-of-Way

Edge of Pavement

Ocean

Parcel 3, TMK: 5-7-03
Owner: B. P. Bishop Estate



Parcel 10, TMK: 5-7-03
Owner: B. P. Bishop Estate



GRAPHIC SCALE IN FEET

1828
P
P
P
P
P



APPENDIX A
Botanical Survey Report

BOTANICAL SURVEY REPORT FOR THE PROPOSED
KUHIO HIGHWAY IMPROVEMENTS AT
LUMAHAI AND WAINIHA, KAUAI, HAWAII

FOR
EKNA SERVICES, INC.
615 PIIKOI STREET, SUITE 300
HONOLULU, HAWAII 96814

BY
EVANGELINE J FUNK, PhD
BOTANICAL CONSULTANTS
HONOLULU, HAWAII 96815
AUGUST 2004

TABLE OF CONTENTS

INTRODUCTION & METHODS.....	1
RESULTS.....	1
FIGURE 1.....	2
CONCLUSIONS.....	4
ENDANGERED SPECIES	5
BIBLIOGRAPHY	5
SPECIES LIST	6

INTRODUCTION AND METHODS

The proposed Kuhio Highway Improvements at Lumahai and Wainiha, Kauai, Hawaii project sight consists of four heavily vegetated, small, steep areas on both sides of the highway. Sites One, Two and Three overlook Lumahai Beach (Figure 1.) and Site Four overlooks Wainiha Bay. A botanical survey of all four sites was carried out in August 2004. Data were collected by a two-person team from the edge of the cliffs and from the base of the steep uphill or mauka banks. All parts of these sites were surveyed. The results of the survey are presented below.

RESULTS

Site One

Site One, like Sites Two, Three, and Four, measures approximately one thousand feet along Kuhio Highway. It includes the face of the uphill or mauka cliff from the highway to the cliff edge and the makai or seaward cliff face from the edge of Kuhio Highway to the beach.

On the mauka cliff of Site One the vegetation is patchy. Some of the old road cut is free of all vegetation. The vegetation that does exist includes such species as a mango sapling (*Mangifera indica* L.), a sea grape (*Coccoloba uvifera* (L.) L.), yellow guava (*Psidium guajava* L.), Koa haole (*Leucaena leucocephala* (Lam.) de Wit), Sourbush (*Pluchea symphytifolia* (Mill.) Gillis), *Schizachyrium condensatum* (Kunth) Nees and others.

The vegetation of the makai slope is dominated by a variety of large trees such as Java plum (*Syzygium cumini* (L.) Skeels), tropical almond (*Terminalia catappa* L.), Hau (*Hibiscus tiliaceus* L.), yellow guava, and Koa haole.

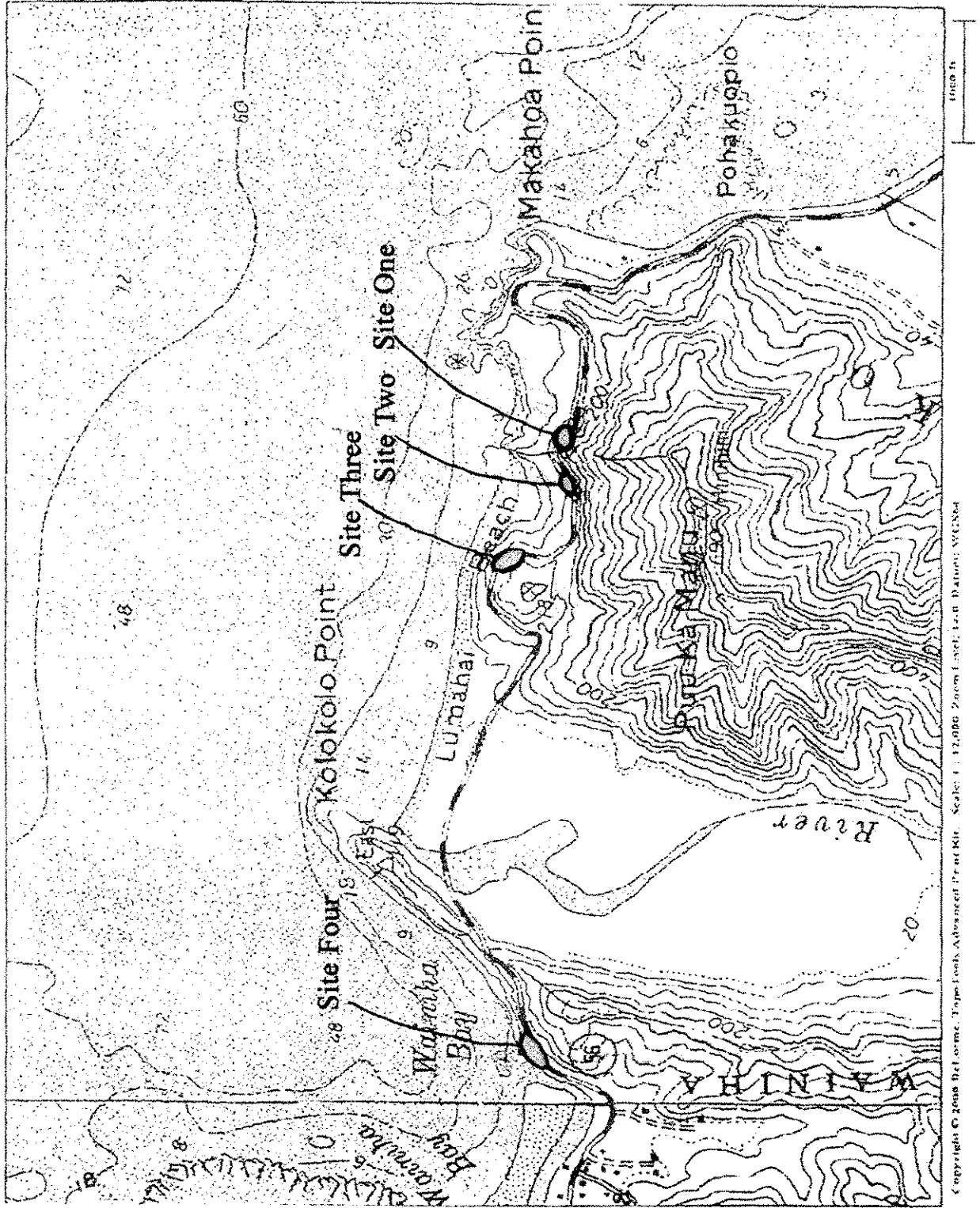


Figure 1. Kūhio Highway Improvements Sites.

There is an abundance of herbaceous taxa such as sword fern (*Nephrolepis exaltata* (L.) Schott.), several species of *Crotalaria* and such grasses as Indian dropseed (*Sporobolus diander* (Retz.) P. Beauv.), Henry's crabgrass (*Digitaria ciliaris* (Retz.) Koeler, and Hilo grass (*Paspalum conjugatum* Bergius). Near the verge of the highway low growing plants such as *Wedelia* (*Wedelia trilobata* (L.) Hitchc., *Desmodium triflorum* (L.) DC and one leaf clover (*Alysicarpus vaginalis* (L.) DC) form a regularly mowed ground cover.

Site Two

The vegetation of the mauka slope of Site Two is less robust than that of Site One. There is some evidence of wind erosion in the form of bare exposed areas and pockets of wind blown, silty soil. Some plants are beginning to become established on this steep slope. These include ironwood saplings (*Casuarina equisetifolia* L.), Hala (*Pandanus tectorius* S. Parkinson ex Z.), Koa haole, Sourbush and Ti (*Cordyline fruticosa* (L.) A. Chev.). Grasses such as Guinea grass, Stargrass (*Chloris divaricata* R. Br.) and *Schizachyrium condensatum* (Kunth) Nees are thinly scattered across this face.

The makai slope of Site Two supports a much denser vegetative cover. It includes more mature ironwood, Hau (*Hibiscus tiliaceus* L.), strawberry guava (*Psidium cattleianum* Sabine), yellow guava (*Psidium guajava* L.) and octopus trees (*Schefflera actinophylla* (Endl.) Harms). The herb layer includes laua'e (*Polypodium scolopendria* Burmann f.) and sword ferns as well as the same grasses as those found on Site One.

Site Three

The vegetative cover found on the mauka slope of Site Three is dominated by ironwood trees forty-five to fifty feet in height. There are also mature Hala trees and a scattering of

beach Naupaka (*Scaevola sericea* Vahl) shrubs. Hilo grass, Kikuyu grass (*Pennisetum clandestinum* Choiv., *Sida rhombifolia* L. and others make up the herb layer.

On the Makai slope of Site Three there are Hau, ironwood, octopus, tropical almond and Hala trees. This site supports a greater variety of herbs than do Sites One and Two. There is green tea (*Chamaecrista nictitans* (L.) Moench), *Bidens alba* (L.) DC, sleeping grass (*Mimosa pudica* L.), *Polygala paniculata* L., Flora's paintbrush (*Emilia sonchifolia* (L.) DC, *Desmodium*, *Wedelia* and *Stachytarpheta urticifolia* (Salisb.) Sims. There are the usual grasses plus Henry's crabgrass and India dropseed.

Site Four

On the uphill slope of Site Four there are mature ironwood, Hala, and Java plum trees. The shrub community is similar to that found on the other three sites – Ti, Koa haole, beach Naupaka, Sourbush (*Pluchea symphytifolia* (Mill.) Gillis, Sword fern, Guinea grass and *Wedelia* are also present.

The makai slope of Site Four is very steep and here can be found ironwood trees some fifty to sixty feet in height. The tropical almond, Java plumb and octopus trees are also of impressive heights. Here beach Naupaka, sword fern, *Wedelia*, yellow wood sorrel (*Oxalis corniculata* L.) and a large mauna-loa vine (*Canavalia cathartica* Thouars) can be found in the shade of the big trees.

CONCLUSIONS

Aside from the naupaka and hala trees, which may be early Polynesian introductions, no endemic or indigenous plants were found on these sites. Otherwise, the vegetation found during this survey is all introduced and can be found in many places in the Hawaiian Islands and will quickly regenerate if it is disturbed.

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) are known from this site and none were found during this survey.

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- 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.

**SPECIES LIST OF THE PLANTS FOUND ON THE PROPOSED KUHIO HIGHWAY
IMPROVEMENTS PROJECT SITE, LUMAHAI AND WAINIHA, KAUAI, HAWAII**

The plant list presented here is the result of our survey conducted in August, 2004. The plant families in the species list have been alphabetically arranged within three groups, Ferns and Fern Allies, 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 asterisk 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 five 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.

This species list presented here is the result of a survey conducted in August, 2004. It reflects the vegetative composition of the flora during a single season. Minor changes to 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
-----------------	-------------	-----------

FERNS AND FERN ALLIES

POLYPODIACEAE - Common Fern Family

* <i>Nephrolepis exaltata</i> (L.) Schott.	Sword fern	Locally abundant
* <i>Polypodium scolopendria</i> Burmann f.	Laua'e	Common
* <i>Sphenomeris chusana</i> (L.) Copel.	Lace Fern	Locally abundant

MONOCOTYLEDONS

AGAVACEAE – Agave Family

<i>Cordyline fruticosa</i> (L.) A. Chev.	Ti	Common
------------------------------------------	----	--------

COMMELINACEAE - Spiderwort Family

* <i>Commelina diffusa</i> N. L. Burm.	Honohono	Locally abundant
----------------------------------------	----------	------------------

PANDANACEAE – Pandanus Family

<i>Pandanus tectorius</i> S. Parkinson ex Z	Hala	Common
---------------------------------------------	------	--------

POACEAE - Grass Family

* <i>Chloris divaricata</i> R. Br.	Stargrass	Locally abundant
* <i>Digitaria ciliaris</i> (Retz.) Koeler	Henry's crabgrass	Common
* <i>Panicum maximum</i> Jacq.	Guinea grass	Common
* <i>Paspalum conjugatum</i> Bergius	Hilo grass	Locally abundant
* <i>Pennisetum clandestinum</i> Chiov.	Kikuyu grass	Common
* <i>Sporobolus diander</i> (Retz.) P. Beauv.	Indian dropseed	Common
* <i>Schizachyrium condensatum</i> (Kunth) Nees		Common

DICOTYLEDONES

ANACARDIACEAE – Mango Family

* <i>Mangifera indica</i> L.	Mango	Uncommon
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ARALIACEAE – Ginseng Family

* <i>Schefflera actinophylla</i> (Endl.) Harms	Octopus tree	Uncommon
------------------------------------------------	--------------	----------

Scientific Name	Common Name	Abundance
ASTERACEAE – Sunflower Family		
* <i>Bidens alba</i> (L.) DC		Common
* <i>Emilia sonchifolia</i> (L.) DC	Flora's paint brush	Occasional
* <i>Conyza bonariensis</i> (L.) Cronq.	Hairy horseweed	Occasional
* <i>Pluchea symphytifolia</i> (Mill.) Gillis	Sourbush	Common
* <i>Sonchus oleraceus</i> L.	Pualele	Uncommon
* <i>Wedelia trilobata</i> (L.) Hitchc.		Common
CASUARINACEAE – She-oak Family		
* <i>Casuarina equisetifolia</i> L.	Ironwood	Common
COMBRETACEAE – Indian Almond Family		
* <i>Terminalia catappa</i> L.	Tropical almond	Common
EUPHORBIACEAE – Spurge Family		
* <i>Chamaesyce hypericifolia</i> (L.) Millsp.	Grace spurge	Occasional
FABACEAE – Bean Family		
* <i>Alysicarpus vaginalis</i> (L.) DC	One leaf clover	Uncommon
* <i>Canavalia cathartica</i> Thouars	Maunaloa vine	Uncommon
* <i>Chamaecrista nictitans</i> (L.) Moench	Partridge pea	Occasional
* <i>Crotalaria incana</i> L.	Fuzzy rattlepod	Occasional
* <i>Crotalaria</i> spp.		Occasional
* <i>Desmodium triflorum</i> (L.) DC		Occasional
* <i>Leucaena leucocephala</i> (Lam.) de Wit	Koa haole	Common
* <i>Mimosa pudica</i> L.	Sensitive plant	Occasional
GOODENIACE – Goodenia – Family		
<i>Scaevola sericea</i> Vahl.	Naupaka kuhakai	Common
MALVACEAE – Mallow Family		
* <i>Hibiscus tiliaceus</i> L.	Hau	Common
* <i>Sida rhombifolia</i> L.		Occasional
MELASTOMATACEAE – Melastoma Family		
* <i>Clidemia hirta</i> (L.) D. Don	Koster's curse	Uncommon

Scientific Name	Common Name	Abundance
MYRTACEAE – Myrtle Family		
* <i>Psidium cattleianum</i> Sabine .	Strawberry guava	Occasional
* <i>Psidium guajava</i> L.	Common guava	Uncommon
* <i>Syzygium cumini</i> (L.) Skeels	Java plum	Common
OXALIDACEAE – Wood sorrel Family		
<i>Oxalis corniculata</i> L.	Yellow wood sorrel	Locally abundant
PLANTAGINACEAE – Plantain Family		
* <i>Plantago lanceolata</i> L.	Narrow-leaved plantain	Locally abundant
* <i>Plantago major</i> L.	Common plantain	Locally abundant
POLYGALACEAE – Milkwort Family		
* <i>Polygala paniculata</i> L.		Uncommon
POLYGONACEAE – Buckwheat Family		
* <i>Coccoloba uvifera</i> (L.) L.	Sea grape	Uncommon
URTICACEAE – Nettle Family		
* <i>Pilea microphylla</i> (L.) Liebm.	Artillery plant	Locally abundant
VERBENACEAE – Verbena Family		
* <i>Lantana camera</i> L.	Lantana	Occasional
* <i>Stachytarpheta urticifolia</i> (Salisb.) Sims		Occasional





APPENDIX B
A Survey of Avian and Terrestrial Mammalian Species





**A Survey of Avian and Terrestrial Mammalian
Species for the Kūhiō Highway Improvements at
Lumaha‘i & Wainiha Project, Kaua‘i.**

-
HDOT-HWY Project No. 560A-03-96

Prepared by:

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December 2004

Table of Contents

Table of Contents2
Introduction.....3
Project and Site Descriptions3
Mammalian Survey Methods.....5
Avian Survey Methods5
Mammalian Survey Results.....5
Avian Survey Result5
Discussion.....7
Recommendations8
Glossary.....9
Literature Cited.....10

Figures & Tables

Figure 1. Project Site.....4

Table 1. Avian Species Detected: Kūhiō Highway Improvement Project6

Introduction:

The Hawai'i State Department of Transportation, Highways Division (HDOT-HWY) is proposing to undertake highway improvements at four sites along Kūhiō Highway located between Lumaha'i Beach and Wainiha Bay on the north shore of the Island of Kaua'i (Figure 1). This report summarizes the findings of an ornithological and mammalian survey of the four specific sites and the general project area. Fieldwork was conducted on September 1st and 2nd, 2004.

The primary purpose of the survey was to determine if there were any federally listed endangered, threatened, proposed, or candidate avian or mammalian species on, or in the immediate vicinity of the four sites. Federal and State of Hawai'i listed species status follows (DLNR, 1998, Federal Register, 1999a, 1999b, 2001, 2002, 2004).

Avian phylogenetic order and nomenclature follows *The American Ornithologist's Union Checklist of North American Birds 7th Edition* (American Ornithologist's Union, 1998), and the 42nd through the 45th supplements to *Check-list of North American Birds* (American Ornithologist's Union, 2000; Banks et al., 2002, 2003, 2004). 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).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document which may be unfamiliar to the reader are included at the end of the narrative text on Page 10.

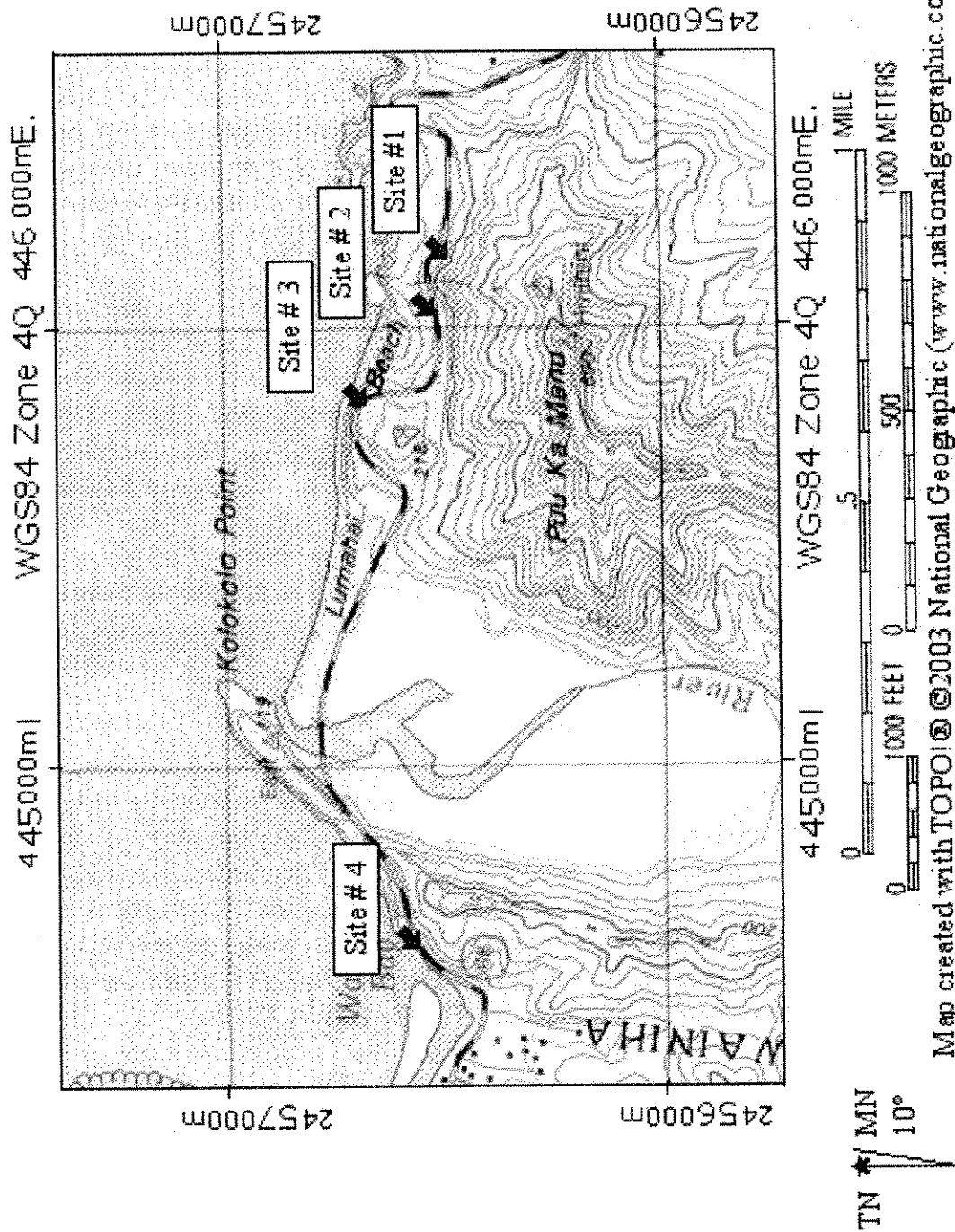
Project and Site Descriptions:

HDOT is planning on constructing improvements at four separate locations along Kūhiō Highway between Lumaha'i Beach and Wainiha Bay. They are planning on: (1) repairing the deteriorating concrete reinforced masonry (CRM) wall between milepost (MP) 5.008 and 5.03, (2) repair embankment erosion on the down-slope (*makai*) side of the road at MP 5.12 and repairs to the inlet/culvert at MP 5, (3) repair settlement in the roadway between the turnout at MP 5.32 and MP 5.355 and finally (4) repair the slide at the turn in the road above the Wainiha River at MP 6.116 (Figure 1).

The habitat present along this portion of Kūhiō Highway is comprised of a mix of alien and indigenous species including: 'uluhe (*Dicranopteris linearis*), *naupaka-kahakai* (*Scaevola sericea*), wedelia (*Wedelia trilobata*), *hala* (*Pandanus tectorius*), *ti* (*Cordyline fruticosa*), *hau* (*Hibiscus tiliaceus*), *koa haole* (*Leucaena leucocephala*), Chinese banyan (*Ficus microcarpa*), ironwood (*Casuarina equisetifolia*), coconut (*Cocos nucifera*), Java plum (*Syzygium cumini*), mango (*Mangifera indica*), avocado (*Persea americana*) and numerous other alien grasses and weedy species typically found in disturbed areas on Kaua'i.

Figure 1

Study Sites



Mammalian Survey Methods:

With the exception of the Hawaiian hoary bat (*Lasiurus cinereus semotus*), or 'āpe'ape'a as it is known locally, all terrestrial mammals found on the island of Kaua'i are alien species. 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 auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the project area. Visual and electronic scans, using a Broadband AnaBat II[®] ultrasonic bat detector were made for bats, during crepuscular periods on the evening of September 1st and the morning of September 2nd, 2004.

Avian Survey Methods:

Three avian count stations were sited within the project corridor. One each at MP 5, MP 5.35, and MP 6.2. Six-minute variable circular plot (VCP) counts were made at each station. Stations were each 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 early morning hours, the peak of daily bird activity. An additional two hours were spent on site on the evening of 1st and the morning of the 2nd of September, 2004, 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

Up to four Hawaiian hoary bats were recorded flying over the general project area on the night of September 1st, 2004. Tracks and sign of at least one domestic dog (*Canis f. familiaris*) was encountered at several locations along the roadway near MP 5.35.

Avian Survey Results

A total of 114 individual birds of 12 species, representing 11 separate families, were recorded during station counts (Table 1). All of the species detected during station counts are alien to the Hawaiian Islands (Table 1). Two additional species; Hawaiian Petrel (*Pterodroma sandwichensis*), or 'ua'u and Newell's Shearwater (*Puffinus auricularis newelli*), or 'a'o were seen and heard respectively as they flew inland over the general project site during crepuscular and nocturnal surveys. Both of these seabirds are listed as endangered and threatened respectively under both the federal and the State of Hawaii's endangered species programs (Federal Register 1999a, DLNR 1998).

Table 1.

Avian Species Detected: Kūhiō Highway Improvement Project

Common Name	Scientific Name	ST	RA
PHEASANTS & ALLIES – Phasianidae			
Red Junglefowl	<i>Gallus gallus</i>	A	2.00
PETRELS & SHEARWATERS - Procellariidae			
Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	EE	IN
Newell's Shearwater	<i>Puffinus auricularis newelli</i>	TS	IN
PIGEONS & DOVES - Columbidae			
Spotted Dove	<i>Streptopelia chinensis</i>	A	1.33
Zebra Dove	<i>Geopelia striata</i>	A	2.33
OLD WORLD WARBLERS – Sylviidae			
Japanese Bush-Warbler	<i>Cettia diphone</i>	A	0.67
THRUSHES - Turdidae			
White-rumped Shama	<i>Copsychus malabaricus indicus</i>	A	0.67
BABLERS - Timaliidae			
Hwamei	<i>Garrulax canorus</i>	A	1.33
WHITE-EYES – Zosteropidae			
Japanese White-Eye	<i>Zosterops japonicus</i>	A	11.67
STARLINGS – Sturnidae			
Common Myna	<i>Acridotheres tristis</i>	A	1.33
EMBERIZIDS – Emberizidae			
Red-crested Cardinal	<i>Paroaria coronata</i>	A	1.33
SALTATORS, CARDINALS & ALLIES – Cardinalidae			
Northern Cardinal	<i>Cardinalis cardinalis</i>	A	2.00
CARDULINE FINCHES & ALLIES – Fringillidae			
House Finch	<i>Carpodacus mexicanus frontalis</i>	A	13.00
WAXBILLS & ALLIES – Estrildidae			
Nutmeg Mannikin	<i>Lonchura punctulata topela</i>	A	2.33

Key to Table 1.

- ST Status
- A Alien species
- EE Endangered endemic species
- TS Threatened endemic sub-species
- RA Relative Abundance = Number of birds detected divided by the number of count stations (3)
- IN Incidental observation, seen or heard at times other than during VCP counts

Avian diversity and densities were relatively low. Two species, Japanese White-eye (*Zosterops japonicus*) and House Finch (*Carpodacus m. mexicanus*) accounted for 65% of the total of all birds recorded during station counts. The most common avian species detected was the House Finch, which accounted for 34% of the total number individual birds recorded. We recorded an average of 38 birds per station count.

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 of north and east Kaua'i (David, 1995, 1998, 1999, 2001, 2002, 2003a, 2003b, 2004). That endangered Hawaiian hoary bats were detected during this survey was not surprising; Hawaiian hoary bats are regularly seen in and around both Lumaha'i and Wainiha Valleys as well as most of the lowland areas on the Island of Kaua'i (Tomich, 1986; David, 1995, 1999, 2001, 2002, 2003, 2004; R. David, pers. obs. 1980-2004). It is highly unlikely that the construction of any of the proposed improvements would have any impact, deleterious or otherwise on this endemic species.

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 found within the project area. 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 ecosystems and their dependant faunal components.

The findings of the avian survey are consistent with the findings of other recent surveys conducted within the lowland areas of north and east Kaua'i (David, 1995, 1998, 1999, 2001, 2002, 2003a, 2003b, 2004; Day and Cooper, 1999, 2001; Day et al., 2000, 2001, 2002). That we detected both the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened Newell's Shearwater (*Puffinus auricularis newelli*) flying over the project area on their way inland to their nesting colonies was to have been expected. Both of these species are pelagic seabirds which do not return to their breeding colonies until late April. Both species cross the northern, eastern and southern coastline of Kaua'i across a broad front and in relatively large numbers during the breeding season, and both have regularly been recorded over-flying the general project area and other areas

on the north and east shores of Kaua'i (Cooper and Day, 1995, 1998; Day and Cooper, 1995, 1999, 2001; Day et al., 2000, 2001; David 2002, 2003a, 2003b; Morgan et al., 2003; White et al., 2004).

The primary cause of mortality in both these species is thought to be predation by alien mammalian species at the nesting colonies (Telfer et al., 1987; Ainley et al. 2001, Cooper and Day 1995, 1998; Day and Cooper 1997; Day et al., 2003; Hue et al., 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Telfer et al., 1987; Ainley et al., 1995, 1997, 1998, 2001; Cooper and Day 1995, 1998; Day and Cooper 1997; Day et al. 2003). There is no suitable nesting habitat for either of these listed seabird species within or close to the project site.

Recommendations

To reduce the possibility that nocturnally flying Hawaiian Petrels and Newell's Shearwaters may be disoriented and collide with man-made structures, it is recommended that any external lighting be shielded (Reed et al. 1985, Telfer et al., 1987). Although no permanent lights i.e., street lights, are planned in conjunction with this project, nighttime construction may be required if it is necessary to close both lanes of the roadway simultaneously during construction activities. Nighttime construction would require the use of unshielded lights during the hours of darkness. Therefore, it is recommended that nighttime construction be allowed between January and July, and prohibited between August and December. This mitigation would minimize the threat of disorientation and downing of both species, especially fledgling birds which are at particular risk during the fledging period which is concentrated between mid-August and mid-December each year.

To maintain the water quality in near-shore waters that support listed aquatic reptiles and mammals it is imperative that any spoil created by construction activity not be allowed to enter near-shore waters below the construction sites. It is recommended that Best Management Practices be developed and implemented during the construction phase of this project to ensure that construction spoils, and any petroleum, oils and lubricant spills which may be associated with construction equipment does not enter the ocean.

Glossary:

Alien - Introduced to Hawai'i by humans.

Crepuscular – Twilight hours either in the evening or the morning.

Endemic – Native and unique to the Hawaiian Islands.

Endangered – Listed and protected under the ESA as an endangered species.

Indigenous - Native to Hawai'i, but also found elsewhere naturally.

Volant – Flying, capable of flight - as in flying insect.

Threatened - Listed and protected under the ESA as a threatened species.

CRM - Concrete reinforced masonry, as in a retaining wall,

DLNR – Hawaii State Department of Land & Natural resources.

ESA - Federal Endangered Species Act of 1973, as amended.

MP – Mile Post.

VCP – Variable Circular Plot, method of censusing birds.

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APPENDIX C
Cultural Impact Assessment



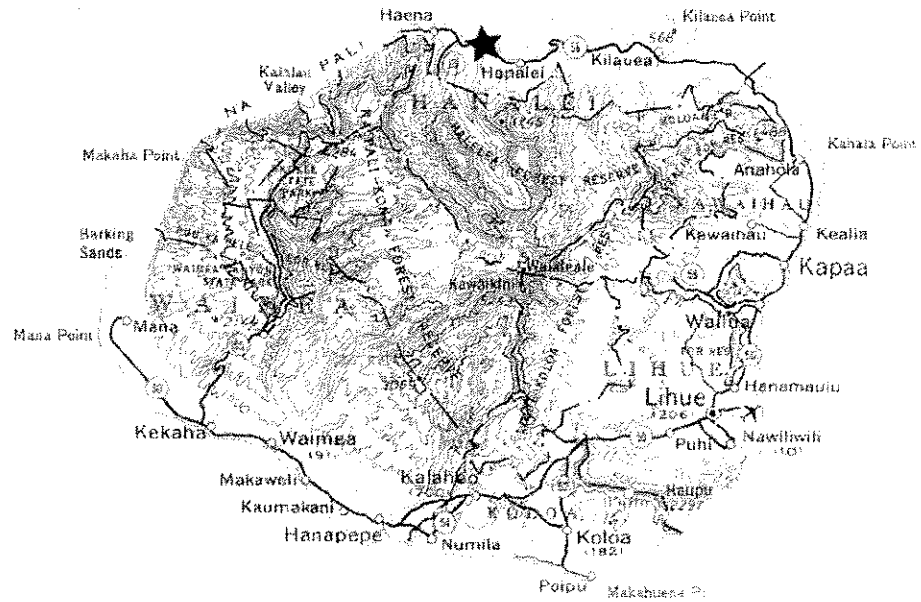
Pacific
Legacy

Incorporated

CULTURAL
RESOURCES
CONSULTANTS

**CULTURAL IMPACT ASSESSMENT
FOR THE KUHIO HIGHWAY
IMPROVEMENTS, BETWEEN
LUMAHAI AND WAINIHA,
ISLAND OF KAUAI, HAWAII**

Prepared By:
Pacific Legacy, Inc.





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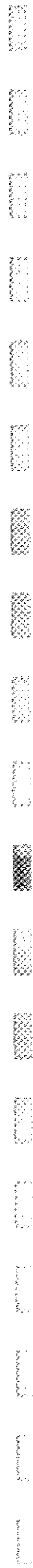
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ABSTRACT

Pacific Legacy, Inc. under contract to EKNA Services, Inc. at the request of the Kaua'i District Office Highways Division, Hawai'i Department of Transportation, completed a cultural impact assessment of the proposed project, in the vicinity of Makahoa Point to Wainiha on the Island of Kaua'i, Hawai'i. The study focused on the traditional practices that have and continue to be conducted by Native Hawaiians.

The purpose of this investigation was to investigate the Kuhio Highway project area for possible traditional practices that would be disturbed by the proposed highway improvements. Five interviews were conducted by Pacific Legacy, Inc., Jessica A. Ah Sam, B.A. in November 2004. Each interviewee signed a release form authorizing Pacific Legacy, Inc. to use the information gathered in those interviews for this report. All interviews were conducted in an informal setting and were not tape recorded.

The results of this study indicate that gathering, hunting, and fishing continue to be conducted by Native Hawaiians in the proposed project area. Plants collected on the *makai* edge of the highway may be impacted by construction activities. It is unknown at this time if these same plants are also located on the *mauka* edge of the highway. It is recommended that the *mauka* side of the highway be examined by a botanist to see if these medicinal plants are present

ACKNOWLEDGEMENTS

We would like to thank the individuals who allowed us to infringe upon their time in order to conduct this study. First, a big mahalo to the Waipā Foundation in Hanalei, especially Stacy Sproat-Beck and her parents, Uncle David and Auntie Linda Sproat. Without their support and influence the community may not have been so open to sharing their stories. We would also like to thank Jeff Chandler and his sister Lehela Chandler for pointing us in the right direction. Thank you to La France of the Office of Hawaiian Affairs for her list of contacts. Thank you to Auntie Violet Goetta and Auntie Kalahū for sharing their family history.

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 Description of the Project.....	1
2.0 METHODS.....	3
2.1 Contacts.....	3
2.2 Knowledgeable Cultural Practitioners.....	4
3.0 RESULTS.....	6
3.1 Territorial Respect.....	6
3.2 Gathering Practices.....	6
3.3 Hunting and Fishing.....	8
4.0 SUMMARY AND DISCUSSION.....	10
5.0 REFERENCES.....	11
APPENDIX A.....	12

LIST OF FIGURES

Figure 1. Project Location Map of Kuhio Highway in the vicinity from Lumahai to Wainiha.	2
Figure 2. Blue Porterweed located at mile marker 5.0.....	7
Figure 3. <i>O`lauki</i> located at mile marker 5.0.....	7
Figure 4. Entrance of the "old road".....	8
Figure 5. Beginning of a fishing trail at mile marker 5.4.....	9

*Frontis Piece: Island of Kauai with project area marked.



1.0 INTRODUCTION

Pacific Legacy, Inc. under contract to EKNA Services, Inc. at the request of the Kauai District Office of the Hawaii Department of Transportation, Highways Division, conducted a cultural impact assessment of the region from Lumahai to Wainiha, Island of Kaua'i, Hawai'i. This study focused on identifying the traditional practices that have or continue to be conducted by Native Hawaiians that could be disturbed in the proposed project (Figure 1).

To gather information on the tangible beliefs and traditions associated with the proposed project area, interviews with traditional cultural practitioners, knowledgeable in matters regarding the areas adjacent to Kuhio Highway, between Lumahai and Wainiha, were conducted.

1.1 DESCRIPTION OF THE PROJECT

The current conditions of the highway in this vicinity are a two lane highway, one lane in each direction. The width is approximately 20 feet with little or no shoulder. The highway was originally constructed by the County of Kauai by cutting into the hillside. Currently, the State is responsible for operations and maintenance as part of the State highway system (Kwock Associates, Inc., 2000). Both sides of the highway including the downhill slope are covered by light to moderate vegetation and trees. The proposed project will involve providing a new roadway surface and shoulders for the three problematic sections of the highway.

The proposed project area is located on the north coast of the island of Kauai, Hawaii. The proposed improvements to Kuhio Highway are being considered from Makahoa Point to Wainiha. Three possible sites have been identified in this area as having problems with longitudinal and fatigue cracking of the asphaltic concrete (AC) surface, depressions in the AC, and damage to cement rubble masonry wall adjacent to the roadway.

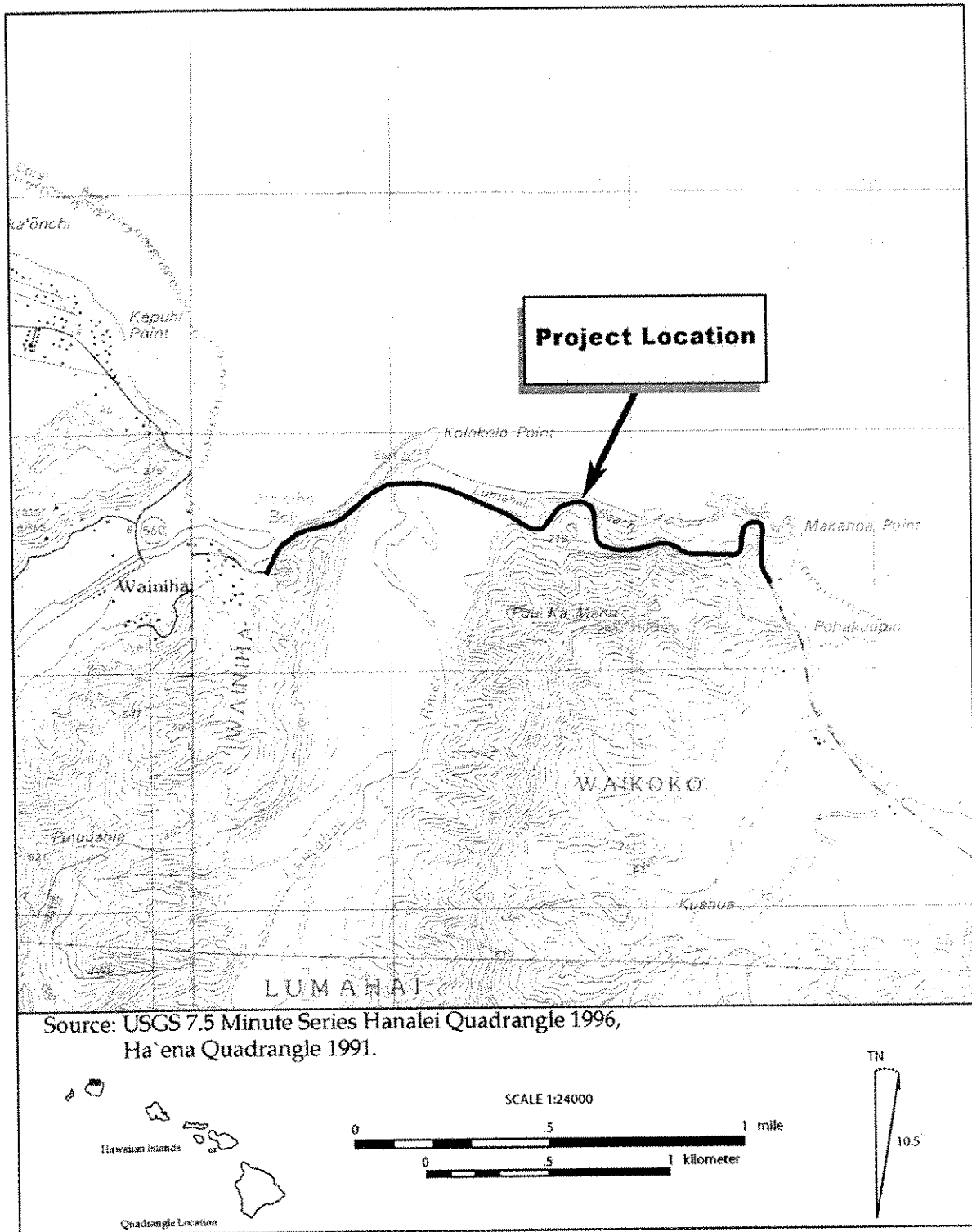


Figure 1. Project Location Map of Kuhio Highway in the vicinity from Lumahai to Wainiha.

2.0 METHODS

An attempt was made to contact various people knowledgeable about traditional cultural practices that may have been or currently conducted by Native Hawaiians in this portion of Northern Kauai and knowledgeable about the history of Kuhio Highway in the proposed project area. The people contacted are currently cultural practitioners, defined as people who conduct traditional Native Hawaiian cultural practices ranging from farming and fishing to *hula* (dance) and *la'au lapa'au* (medicine).

Informal interviews were conducted with all the practitioners. During the interviews, the interviewees were not disrupted from their busy schedules; instead they were accompanied throughout their normal daily jobs, such as, picking *ulu* (breadfruit) from the trees, pounding *poi* (taro) and mowing the lawn. Questions were prepared before each "talk-story" session, however the interviewee would commonly continue at their own pace, sharing what was most important to them.

2.1 CONTACTS

Contact information for the cultural impact assessment interviews began with an initial contact list; that expanded with recommendations from people on the original list, such as the expanded list received from OHA representative Le France Kapaka-Arboleda. Attempts were made to reach each individual listed and communication logs were kept for each individual (See Appendix A). The following people were contacted.

Lance Foster is a representative of The Office of Hawaiian Affairs, O'ahu Division. He suggested contacting the Kaua'i Office of Hawaiian Affairs, La France Kapaka-Arboleda.

La France Kapaka-Arboleda is a representative of The Office of Hawaiian Affairs, Kaua'i Division. Le France suggested contacting Auntie Violet Goetta.

Chipper Wichman is the grandson of Juliet Wichman, founder of Limahuli Gardens. Chipper managed Limahuli Gardens until recently when he took the position of Head of the National Botanical Gardens. Mr. Wichman was not familiar with traditional cultural practices in the Lumahai to Wainiha vicinity, instead he was more knowledgeable about Limahuli and Ha'ena Valley and did not feel his information was relevant.

Naomi Yokotake is a cultural practitioner in Hanalei. She was contacted via telephone but did not respond.

Rodney Haraguchi is head of the Taro Growers Association in Hanalei. A message was left with his secretary but he did not respond.

Verdelle Lum is a member and organizer for the Waioli Hui'ia Mission Church. During a visit to her church office hours she suggesting contacting the Waipā Foundation.

Representative Hermina Morita is the Kaua`i Island Representative. Representative Morita did not respond to email or phone messages.

Nancy McMahon is an archaeologist with State Historic Preservation Division on Kaua`i. She suggested contacting the Chandler Family.

Stacy Sproat-Beck is Executive Director of the Waipā Foundation in Hanalei. She contacted Jeff Chandler for me and suggested talking to her parents, David and Linda Sproat.

2.2 KNOWLEDGEABLE CULTURAL PRACTITIONERS

After consulting with the individuals listed in Section 2.1, the following cultural practitioners were contacted:

Jeff Chandler is family member of the long-time *kama a`ina* Chandler family. His family has lived and worked in the proposed project area for "plenty generations." He is a member of the Waipā Foundation. He is a strong activist for Hawaiians in the project Hanalei area and surrounding vicinity. He is familiar with Kuhio Highway and uses many of the plants and trails that run along the highway. He did not agree to be tape-recorded however he was willing to walk the highway and locate designated trails and plants. He offered many recommendations and alternatives to the road improvements.

David Sproat is the father of the executive director of the Waipā Foundation. He lends his assistance to the foundation. He was able to give insight into his use of the land when accompanied by *kupuna* (elder) from the area but because he did not live in the Lumahai to Wainiha vicinity he explained the territorial respect for land and gathering practices. He did not agree to a tape-recorded interview. He suggested speaking to his wife, Linda Sproat.

Linda Sproat is from a lineage that begins in Kaua`i starting in 12th century. Her ancestors came from Tahiti by canoe and landed in Kalalau on the Na Pali Coast. Her family's long and continued history stretched from Kalalau - Na Pali Coast to Kalihiwai Bay. She was able to tell of her ancestor's movement eastward and family knowledge of trails and fishing spots. She also suggested speaking to a 94 year old *kupuna*, Mama Ouye. She allowed the interview to be tape-recorded; however, there were technical difficulties preventing a successful recording.

Emma "Mama" Ouye is a 94 year old *kupuna* who has lived in the Hanalei area and has a "sharp memory." Several tries were made to meet with Mama O`i through her grandson Bruce, but her schedule did not permit the time.

Violet Goetta is a member of the Waipā Foundation and is a cultural practitioner in the area. Ms. Goetta gave an informal interview while pounding *poi* at the foundation weekly poi pounding function for the community. She frequently assist in the burial council of Kaua`i in making burial decisions on the land because of her knowledge of history of property ownership. Ms. Goetta and her children use the medicinal plants off of Kuhio Highway to treat their illnesses.

Auntie Kalahū is a member of the Waipā Foundation, cultural practitioner, and local taro farmer. She is an avid hiker and has used many of the trails off of Kuhio Highway for gathering rocks for *poi* pounders. Her grandmother shared many legends to her which she shared during an informal interview while pounding *poi* at the Waipā Foundation.

A listing and dates of the interviews is provided in Appendix A, Communication Logs.

3.0 RESULTS

Information from the interviews revealed extensive native gathering usage in the proposed project area. It also shed light on the legends of ancestors that protect the area. Each of the interviews stressed the importance of having permission from *kupuna* to extract resources from the land without harm to oneself.

3.1 TERRITORIAL RESPECT

The importance of territorial space to Native Hawaiians is based on respect. Each area of land contains specific resources for a particular area. It is common courtesy to have permission to gather these resources if you are not from the area.

David Sproat was the first to approach the subject of territorial respect for the *a`ina* (land). During the interview he stressed that his experience with gathering and exploring the area were very limited. It was only when he was invited and accompanied by *kupuna* of that *a`ina* that he felt comfortable fishing, hunting pigs, and gathering medicinal plants.

Even *kupuna* such as Auntie Kalahū, told me of a lesson she learned when out gathering rocks that could be made into *poi* pounders. As a little girl, her grandmother took her on the same trail to gather. Later on, after her grandmother had passed away, she and little Rickie went to collect the rocks for pounders. She remembered the trail and scenery exactly. After making a pile of collected rocks, she and little Rickie left the pile to search for more stones. When they returned to the location where the stack of stones had been, they were gone. Auntie Kalahū knew she was not welcome in this area without her grandmother and the spirits had taken the stones back because she did not have permission to take them.

3.2 GATHERING PRACTICES

Two informants related the importance of the area for collecting plants for medicine and *hula* implements and accessories. These informants collected from the their family's land surrounding their homes.

Jeff Chandler provides medicine to his family from the Blue Porterweed (*Stachytarpheta Jamaicensis*) that lines Kuhio Highway at mile marker 5.0 (Figure 2). Mr. Chandler pointed out the reduced amount of Blue Porterweed left as a product of the highway projects in the past. This is his primary access to medicine and has been for generations of his family. Like Violet Goetta's children, the blue weed is a substitute for penicillin. The blue weed can be chewed up and made into a paste to cover cuts and heal wounds. Mr. Chandler pointed out several other plants such as the *O`lauki* (*Chamaecrista Nictitans*) (Figure 3), *honohono* (*Commelina diffusa*), and tea leaves. When Linda Sproat was younger she used the Lumahai to Wainiha area for gathering for *hula* utensils and accessories for *hula* performances. She does not see many of these plants anymore when she visits the area, nor does she feel comfortable gathering in the Lumahai area because she now resides in Kalihiwai and it would be disrespectful to the Lumahai to Wainiha area to collect here.



Figure 2. Blue Porterweed located at mile marker 5.0.



Figure 3. *O`lauki* located at mile marker 5.0.

3.3 HUNTING AND FISHING

Hunting and fishing is a primary means of food for local families, such as the Chandlers. The Chandler family hunts pigs and fishes off Kuhio Highway in the Lumahai and Wainiha vicinity. Along with the *poi* they receive from the Wāipa Foundation each Thursday, the meals at home are complimented with the hunted pig, and fish caught off the shore line below Kuhio Highway.

The "old road" now serves as the entrance to various pig hunting trails on the *mauka* side Kuhio Highway, approximately mile marker 6.2 (Figure 4). Jeff Chandler pointed this entrance out, which was open and visible far back. Upon driving the Kuhio Highway three days later, debris had been dumped in front of the entrance. Jeff mentioned the locals concerns, over tourists venturing off Kuhio Highway on to the trails because the access was very visible and worn-in.

Mr. Chandler is knowledgeable on the hunting and fishing trails because he and his extended family still used them. All the fishing trails began at the edge of Kuhio Highway and steeply lead down to the ocean (Figure 5). Jeff had just been down picking *Opihi* a few days before. He uses visual references points such as breaks in the cement masonry wall to locate the trails.

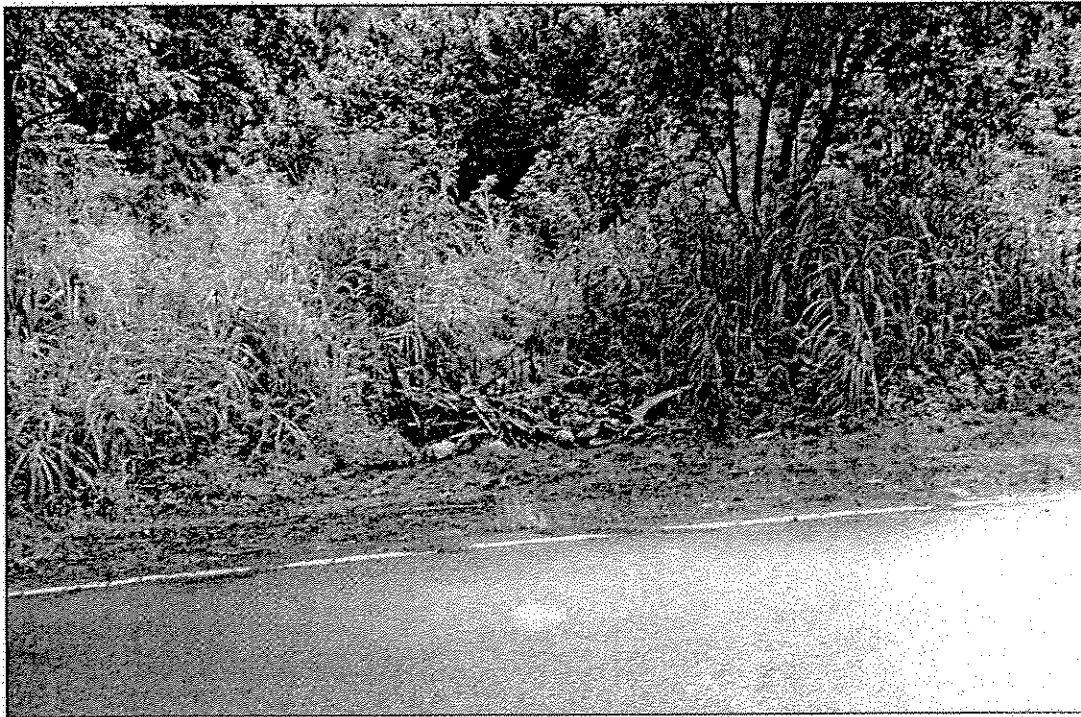


Figure 4. Entrance of the "old road".



Figure 5. Beginning of a fishing trail at mile marker 5.4.

4.0 SUMMARY AND DISCUSSION

The purpose of this cultural impact assessment was to determine what traditional practices have, or continue to have, taken place in the vicinity of Makahoa Point to Wainiha. Five interviews were conducted with cultural practitioners of the area and they agreed to allow the information compiled during the interviews for the purpose of this project.

The results of this study show that gathering, hunting, and fishing continue to be conducted by Native Hawaiians in the proposed project area, specifically off the *mauka* (mountain) and *makai* (ocean) sides of the highway. The cultural impact assessment conducted by Pacific Legacy determined that the trails and gathered plants will be impacted, if the proposed project requires the plants to be removed from the *makai* edge of the highway. However, the *mauka* side of Kuhio Highway has not been assessed to determine if the same medicinal plants gathered from the *makai* side are present on the opposite site. It is recommended that a botanist examine the *mauka* boundary of Kuhio Highway for the presence of these gathered plants. Since no construction work will take place on the *mauka* side of the highway, if the medicinal plants are present there, then this resource would still be available to Native practitioners.

No previous archaeological investigations have been recorded on the hunting and fishing trails mentioned. These trails will not be impacted and will remain accessible with the proposed project construction.

5.0 REFERENCES

Kwock Associates, Inc.

2000 Engineering Report for Kuhio Highway, Vicinity of Wainiha and Lumahai.
Prepared for Kauai District Office, Highways Division, Department of
Transportation, State of Hawaii.



APPENDIX A
PACIFIC LEGACY, INC.
Communication Logs



PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Jeff Chandler Contact's Phone Number and email: 826-6295

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/08/2004	2:02pm		Left a message requesting to speak to Jeff regarding traditional native Hawaiian practices.
11/15/2004	7:00pm	Spoke to Linda Chandler. She said Jeff would like to talk and she took my number.	
11/16/2004	11:30am	Jeff and I sat down and went over the maps and project plans. He did not want to be taped recorded. We went on a drive down Kuhio Hwy. and stopped at the gathering places and trail entrances.	

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Lance Foster, OHA Contact's Phone Number and email: 594-1904

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
10/11/2004	1:20pm	After requesting contacts for the project interviews, Lance referred me to La France (808) 241-3390 for more contacts.	

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Violet Goetta Contact's Phone Number and email: _____

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/18/2004	9:00am	I met Auntie Vi at the Waipā Foundation Poi pounding. Her family has lived in the area for many generations and her children use the area.	

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Rodney Haruguchi Contact's Phone Number and email: H323-3565 W826-6202

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/08/2004	8:35am		Left a message w/ secretary.

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Ulu Hashimoto Contact's Phone Number and email: 808-826-0330

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/08/2004	2:12pm		Left a message asking for info on traditional Hawaiian cultural practices.

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Auntie Kalahu Contact's Phone Number and email: _____

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/18/2004	11:00am	Auntie Kalahu was introduced to me at poi pounding by Stacey Sproat. She is a 74 yr old <i>kupuna</i> and taro farmer.	

**PACIFIC LEGACY
COMMUNICATION LOG**

Project Name and Number: Kuhio Hwy 1204.01

Contact: La France Kapaka-Arboleda, OHA Contact's Phone Number and email:241-3390

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
10/12/2004	10:00am	Requested a list of contacts for the CIA. La France took my email and phone number and said she would send them to me.	
11/10/2004	9:15am	I still have not gotten a response from La France.	
11/17/2004	9:30am	I went to the OHA office in Lihue but the office was closed.	Left a message for La France letting her know I came by and to return my call.
11/17/2004	2:00pm	La France returned my call. She suggested I talk to Auntie Violet Goetta.	

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Verdelle Lum Contact's Phone Number and email: W826-6253

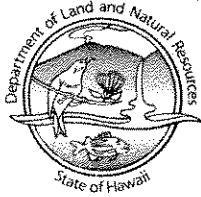
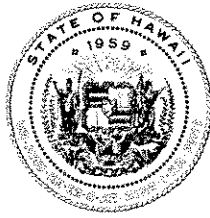
Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/08/2004	8:40am		Left a message w/ machine.
11/16/2004	10:00am	I wet to the Waioli Church and Verdelle directed me to Waipa Foundation.	

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED

APR 10 2006



EKNA SERVICES, INC.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

April 4, 2006

Ms. Elaine E. Tamaye
EKNA Services, Inc.
615 Piikoi Street, Suite 300
Honolulu, Hawai'i 96816-3139

LOG NO: 2006. 0931
DOC NO: 0603NM41
Archaeology

Dear Ms. Tamaye:

**SUBJECT: Chapter 6E-8 Historic Preservation Review (State/DOT/Highways) –
DEA for Kuhio Highway Retaining Walls at Lumbhai and Wainiha
Hanalei District, Island of Kaua'i
TMK: (4) 4-8-003:019**

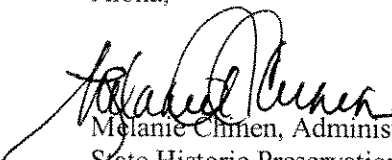
The aforementioned project consists of repairing 900-feet of Kuhio Highway on the north shore of Kaua'i. The project consists on rebuilt road sections, railing reinforcement with rock veneer and a keystone retaining wall for embankment protection. All work is within the State Highway right-of-way.

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: *Archaeological monitoring has taken place in this same area for highway guardrail and shoulder repairs. No historic properties or burials were found. Letter dated March 8, 2006, to Hal Hammatt, CSH (LOG NO: 2006.0852, DOC NO: 0603NM28)*

In the event that 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 State Historic Preservation Division, Kaua'i Section, needs to be contacted immediately at (808) 742-7033.

Aloha,


Melanie Chinen, Administrator
State Historic Preservation Division

NM:dlb

cc: Steven Kyono, Kauai District Engineer, DOT, Kaua'i Division, 1720 Haleukana St., Lihue, HI 96766



EKNA Services, Inc.

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and
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96814-3139

Telephone:
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Facsimile:
(808) 593-8555

CN 2367-01F#

June 7, 2006

State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Attn: Ms. Melanie Chinen
Administrator

Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

Dear Ms. Chinen:

On behalf of the State of Hawaii, Department of Transportation, Highways Division, we thank you for your comments of April 4, 2006 regarding the subject project. We note your determination that "no historic properties will be affected" by the project. In the event that historic resources, including human skeletal remains, are identified during the construction activities, all work will cease in the immediate vicinity of the find, the find will be protected from additional disturbance, and the State Historic Preservation Division, Kauai Section, will be contacted immediately.

Thank you for participating in the environmental review process. Your comments will be included in the Final Environmental Assessment to be prepared for the project.

Very truly yours,

Elaine E. Tamaye
President
EKNA Services, Inc.

Cc: Steven Kyono, HWY-K
George Nishimura, NKOS

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF FORESTRY AND WILDLIFE

1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

March 10, 2006

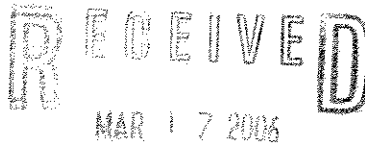
PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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DEPUTY DIRECTOR FOR LAND

DEAN NAKANO, Acting
DEPUTY DIRECTOR FOR
THE COMMISSION ON
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BOATING AND OCEAN RECREATION
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CONSERVATION AND COASTAL LANDS
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RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE
COMMISSION
LAND MANAGEMENT
STATE PARKS

Ms. Elaine E. Tamaye
President
EKNA Services, Inc.
615 Piikoi Street, Suite 300
Honolulu, Hawaii 96814-8551




EKNA SERVICES, INC.

Dear Ms. Tamaye:

Subject: Draft Environmental Assessment, Kuhio Highway Retaining Walls at
Lumahai and Wainiha, Island of Kauai, Hawaii.

We appreciate the opportunity to comment on your subject request. Department of Land and Natural Resources, Division of Forestry and Wildlife has no objections to repairing 900 feet of Kuhio Highway as it will not impact any of our management programs. No further consultation is needed from DOFAW. Thank you for the opportunity to comment on your project.

Sincerely yours,


Paul J. Conry
Administrator



EKNA Services, Inc.

CN 2367-01F#

June 7, 2006

State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street
Honolulu, Hawaii 96813

Attn: Paul Conry
Administrator

Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

Dear Mr. Conry:

On behalf of the State of Hawaii, Department of Transportation, Highways Division, we thank you for your comments of March 10, 2006 regarding the subject project. We understand that you have no objections to the proposed project and that no further consultation is needed from your office.

Thank you for participating in the environmental review process. Your comments will be included in the Final Environmental Assessment to be prepared for the project.

Very truly yours,

Elaine E. Tamaye
President
EKNA Services, Inc.

Cc: Steven Kyono, HWY-K
George Nishimura, NKOS

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LINDA LINGLE
GOVERNOR OF HAWAII



2367
D.EI

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

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

RECEIVED

APR 03 2006

EKNA SERVICES, INC.

April 4, 2006

Brennon Morioka
Department of Transportation
Highways Division
869 Punchbowl Street
Honolulu, HI 96813

Attn: Steve Kyono

Dear Mr. Morioka:

Subject: Draft environmental assessment (EA)
Kuhio Highway Retaining Walls at Lumahai and Wainiha

We have the following comments to offer:

Agency and community consultation: Document your contacts with the State Historic Preservation Division of DLNR regarding its approval of this project. If any correspondence has been received, include copies in the final EA. Also document contacts made with any other agencies or organizations during the preconsultation period and include copies of any correspondence in the final EA.

Exhibits 5 and 15: What are the differences between these two exhibits? Addition of titles to these attachments would also be helpful.

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

Sincerely,

A handwritten signature in cursive script that reads "Genevieve Salmonson".

GENEVIEVE SALMONSON
Director

c: Elaine Tamaye, EKNA Services



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(808) 593-8551

CN 2367-01F#

June 7, 2006

State of Hawaii
Office of Environmental Quality Control
235 South Beretanina Street, Suite 702
Honolulu, Hawaii 96813

Attn: Ms. Genevieve Salmonson
Director

Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

Dear Ms. Salmonson:

On behalf of the State of Hawaii, Department of Transportation, Highways Division, we thank you for your comments of April 4, 2006 regarding the subject project. We offer the following response to your comments:

- Agency and community consultation: Correspondence with the State Historic Preservation Division of DLNR will be included in the final EA. They have rendered a determination that "no historic properties will be affected" by the project.
- Exhibit 5 shows the proposed new wall alignment within the project limits. Exhibit 15 is the topographic survey of the project area that documents the existing features, such as the deteriorated CRM wall and other guardrails, that will be replaced by the new railings. Titles will be added to these Exhibits to provide clarification.

Thank you for participating in the environmental review process. Your comments will be included in the Final Environmental Assessment to be prepared for the project.

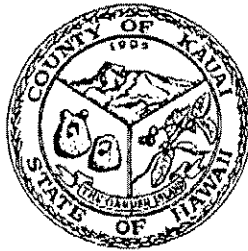
Very truly yours,

Elaine E. Tamaye
President
EKNA Services, Inc.

Cc: Steven Kyono, HWY-K
George Nishimura, NKOS

KY
E:ET

BRYAN J. BAPTISTE
MAYOR



IAN K. COSTA
DIRECTOR OF PLANNING

GARY K. HEU
ADMINISTRATIVE ASSISTANT

MYLES S. HIRONAKA
DEPUTY DIRECTOR OF PLANNING

COUNTY OF KAUA'I
PLANNING DEPARTMENT
4444 RICE STREET
KAPULE BUILDING, SUITE A473
LIHU'E, KAUA'I, HAWAII 96766-1326

TEL (808) 241-6677 FAX (808) 241-6699

April 27, 2006

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MAY 02 2006

MEMORANDUM

EKNA SERVICES, INC.

To: Steven Kyono,
Kauai District Engineer

From: Ian K. Costa,
Director of Planning

Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

DOT-Highways Division intends to undertake repair of approximately 900 feet of Kuhio Highway (Route 560) in the vicinity of Lumahai on the north shore of Kauai. This distressed section of the highway exhibits erosion damage of the makai edge of the highway embankment, cracking of the highway pavement and damage to the existing CRM walls. This roadway section will be rebuilt using reinforced concrete overlain with asphalt paving, railings of reinforced concrete with rock veneer, and a Keystone retaining wall system for the embankment protection.

Section 1-H(2) of the Special Management Area Rules and Regulations of the County of Kauai, as amended, reflects the following:

"Development" does not include the following:

- (2) Repair or maintenance of roads and highways within existing rights-of-way.

Therefore, the proposed project is exempt from the requirements of the SMA.

The project is necessary for public health, safety, and welfare, and has been designed with community input. We concur that, based on the DEA, a Finding of No Significant Impact, is warranted.

Should there be any questions relative to the above, please contact planner Michael Laurita at 241-6677.



EKNA Services, Inc.

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(808) 593-8551

CN 2367-01F#

June 7, 2006

County of Kauai
Planning Department
4444 Rice Street, Suite A473
Lihue, Kauai, Hawaii 96766

Attn: Ian K. Costa
Director of Planning

Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

Dear Mr. Costa:

On behalf of the State of Hawaii, Department of Transportation, Highways Division, we thank you for your comments of April 27, 2006 regarding the subject project. We understand that you have determined the proposed project to be exempt from the requirements of the SMA.

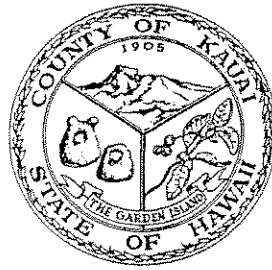
Thank you for participating in the environmental review process. Your comments will be included in the Final Environmental Assessment to be prepared for the project.

Very truly yours,

Elaine E. Tamaye
President
EKNA Services, Inc.

Cc: Steven Kyono, HWY-K
George Nishimura, NKOS

BRYAN J. BAPTISTE
MAYOR



GARY K. HEU
ADMINISTRATIVE ASSISTANT

2367-01F#
K8
E:ET
elattact

DONALD M. FUJIMOTO
COUNTY ENGINEER
TELEPHONE 241-6600

LADYE H. MARTIN
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6600

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

RECEIVED
MAR 16 2006

March 14, 2006

EKNA SERVICES, INC.

State of Hawai'i
Department of Transportation
Highways Division, Kauai District
1720 Haleukana Street
Lihu'e, HI 96766

ATTENTION: MR. STEVEN KYONO, KAUA'I DISTRICT ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KUHIO HIGHWAY RETAINING WALLS AT LUMAHAI AND WAINIHA
ISLAND OF KAUA'I, HAWAII PW 3.06.075

We reviewed the subject draft environmental assessment. We offer the following comments:

- The project can be exempted from the County's Sediment and Erosion Control Ordinance No. 808 under section 22-7.6 (a) so long as the work is in a public street, right of way or in an isolated, self contained Government controlled area. Although the work can be exempted, the borrow site is not exempted and a grading permit may be required for the borrow site. If a grading permit is required the borrow site will need to comply with the County's Sediment and Erosion Control Ordinance No. 808. If the grading work is exempted, we expect the State to monitor its own grading activities and provide Best Management Practices (BMP's) at all times to the maximum extent practicable to prevent damage by sedimentation, erosion or dust to streams, watercourses, natural areas and the property of others.
- Based on the panel no. 35E of the Federal Insurance Rate Maps (FIRM) dated September 16, 2005, the project site is located within Zone X. Zone X is described as areas determined to be outside the 0.02% annual chance floodplain. The October 8, 2002 FIRM has been superceded by the September 16, 2005 FIRM. Although the FIRM has been revised, the flood zoning for the project still remains the same. We recommend that Section 2.12 of the draft EA be revised to show the date of the new FIRM. September 16, 2005 and at Figure 14 show the current FIRM mapping. For your convenience and use, we are enclosing a copy of the FIRM panel no. 35E for the project area.

State of Hawaii
Department of Transportation
Highways Division, Kaua'i District
March 14, 2006
(Page 2)

- A building permit is not required for the retaining wall. As such, we expect the State to provide construction management of the retaining wall and provide quality assurances.

We would like to thank you for this opportunity to provide our comments. Should you have any questions, please contact me at (808) 241-6498.

Very truly yours,



Wallace Kudo, P.E.
Chief, Engineering Division

CONCUR:



DONALD M. FUJIMOTO, P.E.
County Engineer

WK
Attachment

cc: Ms. Elaine Tamaye w/attachment
Building Division



EKNA Services, Inc.

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and
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Facsimile:
(808) 593-8551

CN 2367-01F#

June 7, 2006

County of Kauai
Department of Public Works
4444 Rice Street, Suite 275
Lihue, Kauai, Hawaii 96766-1340

Attn: Mr. Wallace Kudo, P.E.
Chief, Engineering Division

Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

Dear Mr. Kudo:

On behalf of the State of Hawaii, Department of Transportation, Highways Division, we thank you for your comments of March 14, 2006 regarding the subject project. We offer the following response to your comments:

- We understand that the project can be exempted from the County's Sediment and Erosion Control Ordinance No. 808 under section 22-7.6(a). All fill materials will be from existing quarries.
- We note that the Flood Insurance Rate Map (FIRM) has been revised September 16, 2005. While the flood zones remain unchanged from the prior map, we will include the currently effective map in the final EA.
- We understand that a building permit is not required for the retaining wall. The Highways Division will provide construction oversight for quality assurance.

Thank you for participating in the environmental review process. Your comments will be included in the Final Environmental Assessment to be prepared for the project.

Very truly yours,

Elaine E. Tamaye
President
EKNA Services, Inc.

Cc: Steven Kyono, HWY-K
George Nishimura, NKOS

Bryan J. Baptiste
Mayor

Robert Westerman
Fire Chief



COUNTY OF KAUAI
Fire Department
Mo'ikeha Building
4444 Rice Street, Suite 295
Lihue, Hawaii 96766

April 24, 2006

State of Hawaii
Department of Transportation
Highways Division, Kauai District
1720 Haleukana Street
Lihue, HI 96766
Attn: Mr. Steve Kyono, Kauai District Engineer

Re: Kuhio Highway Retaining Walls at Lumahai and Wainiha.

Mr. Kyono,

The Kauai Fire Department has reviewed the Draft Environmental Assessment you have submitted. We understand the need for road closures during the construction phase of this project but have to object on total closures.

During times when you are enforcing a total closure of the highway, there shall be availability of passage for emergency response vehicles. If this condition is unfeasible, other arrangements need to be made.

We look forward to your comments and response to the Prevention Bureau Captain with the appropriate actions.

If you have any questions you may call the Prevention Bureau at 241-6511.

David Bukoski
Prevention Captain

Robert Westerman
Fire Chief



EKNA Services, Inc.

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615 Piikoi Street
Suite 300
Honolulu, Hawaii
96814-3139

Telephone:
(808) 591-8553
Facsimile:
(808) 593-8551

CN 2367-01F#

June 7, 2006

County of Kauai
Fire Department
4444 Rice Street, Suite 295
Lihue, Kauai, Hawaii 96766

Attn: David Bukoski
Captain, Prevention Bureau

Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

Dear Captain Bukoski:

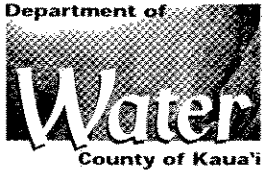
On behalf of the State of Hawaii, Department of Transportation, Highways Division, we thank you for your comments of April 24, 2006 regarding the subject project. We understand that you have concerns regarding access for emergency response vehicles during the construction phase of the project. On the occasions when both lanes of the road are required to be closed, the Highways Division will coordinate with police, fire and ambulance. As necessary, arrangements will be made to station emergency vehicles and equipment on the Haena-side of the closure.

Thank you for participating in the environmental review process. Your comments will be included in the Final Environmental Assessment to be prepared for the project.

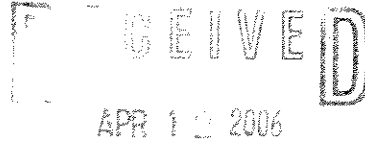
Very truly yours,

Elaine E. Tamaye
President
EKNA Services, Inc.

Cc: Steven Kyono, HWY-K
George Nishimura, NKOS



Water has no substitute.....Conserve it



EKNA SERVICES, INC.

April 11, 2006

Ms. Elaine E. Tamaye
EKNA Services, Inc.
615 Piikoi Street, suite 300
Honolulu, HI 96814-3139

Dear Ms. Tamaye:

Subject: Draft Environmental Assessment, Kuhio Highway Retaining Walls at Lumahai
and Wainiha, Island of Kauai

We have no objections to the subject Draft Environmental Assessment.

If you have any questions, please contact Mr. Edward Doi at (808) 245-5417.

Sincerely,

A handwritten signature in black ink, appearing to read "Gregg Fujikawa".

Gregg Fujikawa
Chief of Water Resources and Planning

ED:ml
26-120 Lumahai, Tamaye



EKNA Services, Inc.

Engineers
and
Environmental
Consultants

Engineering
Planning
Surveys
Computer
Modeling

615 Piikoi Street
Suite 300
Honolulu, Hawaii
96814-3139

Telephone:
(808) 591-8553
Facsimile:
(808) 593-8551

CN 2367-01F#

June 7, 2006

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

Attn: Gregg Fujikawa
Chief, Water Resources and Planning

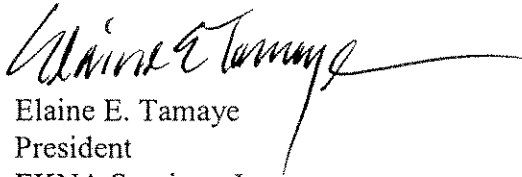
Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

Dear Mr. Fujikawa:

On behalf of the State of Hawaii, Department of Transportation, Highways Division, we thank you for your comments of April 11, 2006 regarding the subject project. We understand that you have no objections to the proposed project.

Thank you for participating in the environmental review process. Your comments will be included in the Final Environmental Assessment to be prepared for the project.

Very truly yours,



Elaine E. Tamaye
President
EKNA Services, Inc.

Cc: Steven Kyono, HWY-K
George Nishimura, NKOS

LINDA LINGLE
GOVERNOR
STATE OF HAWAII



MICAH A. KANE

BEVERLY HENDERSON

KATHAN CHURCH

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

March 15, 2006

To: Steven Kyono, Kauai District Engineer
Department of Transportation
Highways Division, Kauai District

From: Micah A. Kane, Chairman
Hawaiian Homes Commission

for

Daniel Lagodis

Subject: Draft Environmental Assessment for Kuhio Highway
Retaining Walls at Lumahai and Wainiha, Island of
Kauai, Hawaii

Thank you for the opportunity to comment on the draft environmental assessment for the Kuhio Highway Retaining Walls at Lumahai and Wainiha project on the island of Kauai. The Department of Hawaiian Home Lands has no comments to offer.

Should you have any questions, please call the Planning Office at 586-3836.



EKNA Services, Inc.

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CN 2367-01F#

June 7, 2006

State of Hawaii
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaii 96805

Attn: Mr. Micah Kane
Chairman, Hawaiian Homes Commission

Subject: Draft Environmental Assessment
Kuhio Highway Retaining Walls at Lumahai and Wainiha
Island of Kauai, Hawaii

Dear Mr. Kane:

On behalf of the State of Hawaii, Department of Transportation, Highways Division, we thank you for your comments of March 15, 2006 regarding the subject project. We understand that you have no comments to offer at this time.

Thank you for participating in the environmental review process. Your comments will be included in the Final Environmental Assessment to be prepared for the project.

Very truly yours,

Elaine E. Tamaye
President
EKNA Services, Inc.

Cc: Steven Kyono, HWY-K
George Nishimura, NKOS

**PACIFIC LEGACY
COMMUNICATION LOG**

Project Name and Number: Kuhio Hwy 1204.01

Contact: Nancy McMahon **Contact's Phone Number and email:** 808-652-1510

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
10/13/2004	12:53		Left a message explaining the purpose of my call and asked her for contacts. Left office number to be contacted.
10/13/2004	2:07		Nancy returned my message and left the names of several contacts for the area.

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Rep. Hermina Morita Contact's Phone Number and email: W586-8435
repmorita@Capitol.hawaii.gov

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/03/2004	10:35am		Emailed Rep. Morita asking for information on Kuhio Hwy for the CIA.
11/08/2004	8:30am		Left a message on the machine.

**PACIFIC LEGACY
COMMUNICATION LOG**

Project Name and Number: Kuhio Hwy 1204.01

Contact: Emma Ouye Contact's Phone Number and email: 639-4589

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/16/2004	3:00pm		Left a message with Bruce, her grandson requesting to meet with her.
11/17/2004	9:00am		Tried to reach Bruce again. Left message.
11/17/2004	12:30pm	Bruce said he would try to set up a time to meet with her.	
11/18/2004	9:00am	She would not be available because she was going to day care.	

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: David Sproat Contact's Phone Number and email: 828-1424 Cell 651-1364

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/08/2004	8:45am	Spoke to a family member who directed me their daughter (Stacy) and gave me David's cell number.	
11/16/2004	1:00pm	David gave me a brief history of his wife's family and told me he does not use the project area because it is not in his <i>aina</i> , but he goes with other kapuna from the area, when invited.	

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Linda Sproat Contact's Phone Number and email: 828-1424

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/16/2004	1:45pm	I went to Linda's home for an interview about her family's history and knowledge of the project area.	

**PACIFIC LEGACY
COMMUNICATION LOG**

Project Name and Number: Kuhio Hwy 1204.01

Contact: Stacy Sproat **Contact's Phone Number and email:** stacy_sproat@hotmail.com
Cell 639-1815 Work 826-9969

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/03/2004	10:30am		Emailed Stacy asking for information regarding Kuhio Hwy CIA. Email failed to go through to address.
11/08/2004	2:00pm	Stacy was able to give me a brief summary of the native gathering activities, fishing trails, and access to rivers in the Lumahai area but she referred me to Jeff Chandler.	
11/16/2004	11:30am	I met Stacy at Waipa and she introduced me to Jeff Chandler and her father David Sproat.	

**PACIFIC LEGACY
COMMUNICATION LOG**

Project Name and Number: Kuhio Hwy 1204.01

Contact: Chipper Wichman **Contact's Phone Number and email:** H-826-9147 W 332-7324 ext. 240

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/08/2004	8:30am		Was unable to leave a message.
11/10/2004	8:40am		Left a message on his work answering machine.
11/10/2004	8:41am		Left a message on his home phone.
11/16/2004	10:30am	Spoke to his wife Hauoli. She took my number and was going to try and schedule an appointment with him this week.	
11/18/2004	12:00pm	Chipper did not have information regarding the project area. He was more familiar with the adjacent valleys.	

PACIFIC LEGACY
COMMUNICATION LOG

Project Name and Number: Kuhio Hwy 1204.01

Contact: Naomi Yokotake Contact's Phone Number and email: 826-6991

Recorder: Jessica Ah Sam

DATE	TIME	DISCUSSION	MESSAGES
11/08/2004	8:30am		Left a message on home machine.

APPENDIX D

Coordination, Comment and Response Letters

