



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
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AQUACULTURE DEVELOPMENT  
PROGRAM  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
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MEMORANDUM

To: Genevieve Salmonson, Director  
Office of Environmental Quality Control

From: Dean Y. Uchida, Administrator *[Signature]*  
Land Division, Department of Land and Natural Resources

Subject: Final Environmental Assessment (EA)/Finding of No  
Significant Impact (FONSI) for Limahuli Garden Lo'i  
Restoration Project at Haena, Kauai, TMK parcels 5-9-03:  
39 & 41)

The Department of Land and Natural Resources has reviewed the comments received during the 30-day public comment period that began on March 23, 1998 for the subject project. We have determined that this project will not have significant environmental effects, and have therefore issued a FONSI. Please publish this notice in the June 23, 1999 OEQC Environmental Notice.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final EA for the project. The summary for this project has not changed from that noted in the Publication Form for the draft EA. Please contact Tom Eisen of our Land Divisions's Planning Branch at 587-0439 if you have any questions.

Enclosures

c: Ben Welborn

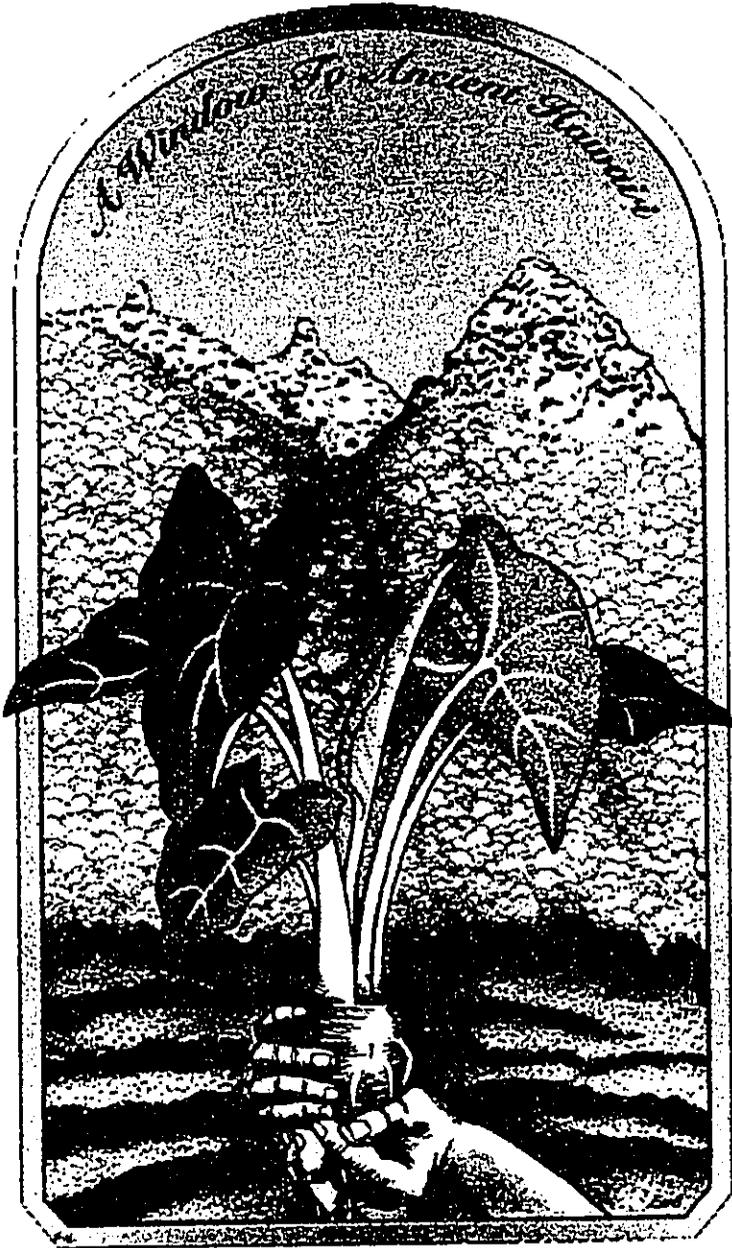
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**FILE COPY**

**FINAL ENVIRONMENTAL ASSESSMENT**



RECEIVED  
DIVISION OF  
LAND MANAGEMENT  
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**Limahuli Garden Lo'i Restoration Project**

May, 1999

**FINAL ENVIRONMENTAL ASSESSMENT**  
**Of The**  
**National Tropical Botanical Garden's**  
**Limahuli Garden Lo'i Restoration Project**  
**May 27, 1999**

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## LIST OF EXHIBITS

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| Exhibit 1 | Location Map                                      |
| Exhibit 2 | Tax Map Key (TMK)                                 |
| Exhibit 3 | Site Map  |
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| Exhibit 5 | USGS Contour Map                                  |
| Exhibit 6 | Vehicular Access Location Map & Preliminary Plans |
| Exhibit 7 | Photos  |

## APPENDICES

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| Appendix 1 | Draft Environmental Assessment Comments & Responses                            |
| Appendix 2 | Biological Survey of Lots 106 and 107  |
| Appendix 3 | National Resources Conservation Service<br>Preliminary Technical Determination |
| Appendix 4 | Stream Channel Alteration and Diversion Works Permit                           |
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| Appendix 6 | Special Management Area Minor Permit – SMA(M) #99-27                           |

## LIMAHULI GARDEN LO'I RESORATION PROJECT

**OWNER:** National Tropical Botanical Garden (NTBG)

**APPLICANT:** Limahuli Garden of the  
National Tropical Botanical Garden (NTBG)

Contact Personnel for this SMA:  
Chipper Wichman, Director Limahuli Garden  
Ben Welborn, Project Coordinator

**ADDRESS:** Post Office Box 808  
Hanalei, HI 96714

**PHONE:** Chipper Wichman: (808) 826-5547  
Ben Welborn: (808) 826-1079

**FAX:** (808) 826-4759

**TAX MAP KEY:** Lot # 106 (05-09-03: 39)  
Lot # 107 (05-09-03: 41)

### LAND USE / ZONING

**ZONING:** Conservation/Open

**STATE LAND USE:** Conservation

**GENERAL PLAN:** Open

**CURRENT LAND USE:** None

**COSTAL ZONE MANAGEMENT:** Special Management Area Minor Permit  
SMA (M) -99-27

This Environmental Assessment addresses the potential impacts associated with the actions of the proposed National Tropical Botanical Garden's (NTBG) *Limahuli Garden Lo'i Restoration Project*.

**1. Project Applicant:**

National Tropical Botanical Garden  
Limahuli Garden  
Post Office Box 808  
Hanalei, Kaua'i, Hawai'i 96714  
Phone: (808) 826-5547  
Owner of Lots #106 and #107

**Organizational Representative:**

Chipper Wichman  
Director - Limahuli Garden and Preserve  
National Tropical Botanical Garden  
P.O. Box 808  
Hanalei, HI 96714

Phone: (808) 826-5547  
FAX: (808) 826-4759  
Email: wichman@ntbg.org

**Project Contact:**

Ben Welborn  
Lo'i Restoration Project Coordinator  
P.O. Box 808  
Hanalei, HI 96714

Phone: (808) 826-1079  
FAX: (808) 826-4759  
Email: welborn@aloha.net

**2. Approving Agency:**

Department of Land and Natural Resources (DLNR) of the State of Hawaii.

**3. Determination**

A Finding Of No Significant Impact (FONSI) is anticipated for the proposed action.

- See section 10 for a summary of anticipated determination

**4. Agencies Consulted in Environmental Assessment Process:**

- See section 6 for a description of the affected environment.

In preparation of this Environmental Assessment (EA), and in compliance with section 11-200-9 of the State of Hawai'i, Department of Health's Administrative Rules, the following government agencies, professionals, and community groups were consulted for their recommendations and concerns regarding the procedures and objectives of the proposed Limahuli Garden Lo'i Restoration Project.

Responses to the Pre-Assessment Consultation Process are documented in Appendix 5.

**STATE GOVERNMENT**

Mr. Ralston Nagata

Administrator, DLNR  
Division of State Parks

Mr. William Devick

Administrator, DLNR  
Division of Aquatic Resources

Mr. Don Hibbard

Director, Historic Preservation Program  
DLNR, State Historic Preservation Div.

Gary Gill

Deputy Director for Environmental Health  
State Department of Health

Mr. Michael G. Buck

Administrator, DLNR  
Division of Forestry and Wildlife

**FEDERAL GOVERNMENT**

Mr. John Schlegel

Soil Conservationist  
U.S. Department of Agriculture  
Natural Resource Conservation Service

Mr. Robert P. Smith

Regional Manager  
U.S. Department of the Interior  
Fish and Wildlife Services

**COUNTY GOVERNMENT**

Mr. Dee Crowell

Planning Director  
County of Kaua'i Planning Department

**OFFICE OF HAWAIIAN AFFAIRS**

Mr. Randall Ogata

Administrator  
Office of Hawaiian Affairs

**UNIVERSITY OF HAWAII**

Mr. Mike Kido

Aquatic Biologist / Program Administrator  
University of Hawai'i (UH)  
Hawai'i Stream Research Center

**PRIVATE SECTOR**

Mrs. Diane Daniells

Chair, Board of Directors  
Hanalei Community Association

Ms. Judy Dalton

Chairperson  
Kaua'i Group of the Hawai'i Chapters  
The Sierra Club

Mr. Raymond Chuan

President  
Limu Coalition

Jeff Chandler

Hui Ho'omalua I Ka 'Aina

Ken Carlson

President  
1000 Friends of Kaua'i

Ms. Mary Moore

Private Landowner  
Lots 108 and 105

## 5. Project Characteristics -- General Description:

The applicants request a permit for the restoration of the ancient Hawaiian *lo`i kalo* (irrigated taro terraces) that are located on the elevated portions of lots 106 & 107 (Exhibits 1, 2, 3, & 7; Appendices 2 & 3).

In brief, this action will allow the NTBG to restore, catalogue, protect, and preserve the natural and cultural resources that currently exist in a degraded condition upon the lands of the proposed project area. Restoration will effectively recreate a "living" cultural resource, producing opportunities for both educational use and scientific research.

### I. Technical Characteristics

Technically this action will allow the NTBG to:

- A. Physically restore the ancient *lo`i kalo* located on the terraced portions of lots 106 & 107 (Exhibit 3), thereby renewing their cultural, historical, archaeological, agricultural, and scenic values.
- B. Clear the proposed project area on lots 106 & 107 of introduced vegetation.
- C. Conduct a complete **Archaeological Inventory Survey** of the cultural and historic resources of the area in compliance with the guidelines of the State Historic Preservation Division (SHPD). This will allow the NTBG to stabilize, identify, catalogue, preserve and study the many archaeological resources on lots 106 & 107, utilizing these resources as educational and scientific tools. The archaeological inventory survey will include subsurface testing in various locations that are to be identified throughout the project area. The survey will also include a cross-sectional analysis of some of the *lo`i* walls and *`auwai* (irrigation channels), and a radiocarbon dating of excavated materials to develop a time frame for the history of the area.
- D. Restore water flow to the ancient *lo`i* on Lots 106 and 107 by utilizing an existing, permitted water supply source located within the grounds of Limahuli Garden (Appendix 4). This action **will not** involve any additional stream diversion or increase the use demand upon waters of Limahuli Stream.
- E. Maintain for the purposes of research and education an additional natural area of approximately 3.69 acres.
- F. Cultivate and preserve a germ plasm collection of Hawaiian taro cultivars within the restored *lo`i*. In the early 1900's, ethnobotanists recorded as many as 300 such named cultivars of taro in Hawai`i, yet today only about 100 of these are still known to exist. These rare taro cultivars are currently being preserved in a few eclectic collections. Over the next few years, Limahuli Garden's goal is to restore the ancient *lo`i* on lots 106 & 107, re-establish a constant flow of water through the *`auwai* and terraces, and then collect and grow as many of these unique plants as possible.
- G. Extend the positive influence and conservation activities of the NTBG and Limahuli Garden by adding to the 1,000 acres currently under protection within the *ahupua`a* (ancient Hawaiian land division) of Ha`ena. The NTBG is attempting to

incrementally expand upon a holistic model of the ancient ahupua`a through the creation of cooperative partnerships with various government agencies, other non-profit entities, and community groups. Hopefully, these efforts will eventually renew and preserve components of the entire ahupua`a watershed from the mountains to the sea.

- H. Construct a vehicular access for the Lo`i Restoration Project (Exhibit 6).
- I. Manage the proposed Lo`i Restoration Project in a manner which is consistent with the rest of Limahuli Garden, in a way that is most beneficial to the environment, by reducing erosion and removing the alien plants which have come to dominate the area. Actively preserve traditional Hawaiian ethnobotanical plants in areas naturally suited to their cultivation.

## **II. Economic Characteristics**

The stated goals of the proposed Lo`i Restoration Project do not include economic objectives, therefore measurable economic characteristics of the project will be negligible. Nevertheless, those economic impacts that do result because of project implementation will be of an overwhelmingly positive nature.

Temporary employment positions will be created for the task of lo`i restoration -- a labor-intensive effort which is to be funded primarily by grant moneys from charitable organizations. These employment positions will be targeted for qualified local residents of Hawaiian ancestry with traditional ties to the Halelea district of Kaua`i, who exhibit an interest in culturally significant work. Other employment/economic roles that may be created by the project may include educational, scientific, archeological, and interpretive staff.

On a broader scale, the project will rejuvenate important cultural resources on the island of Kaua`i. Furthermore, the creation of a germ plasm collection of taro cultivars is likely to create a resource, which may be called upon by commercial taro farmers. Therefore secondary agricultural/economic benefits may result in the future.

## **III. Social Characteristics**

The proposed action would have the following social characteristics:

- A. On-site educational opportunities will be an integral objective of the proposed Lo`i Restoration Project. These educational opportunities will serve to increase the public's awareness of the fragility of our natural and cultural resources, stressing the importance of preservation of these resources for future generations. It is hoped that these programs will have far reaching impacts throughout Hawai`i.
- B. The hands-on restoration and cultivation of taro in traditional lo`i will empower local residents with a sense of community, cultural identity, pride, and resource stewardship. By seeking to employ Hawaiian residents, the project hopes to put indigenous people back in touch with their traditional roles in a sustainable agricultural society.
- C. The Lo`i Restoration Project will enhance Limahuli Garden and Preserve's efforts to utilize the ancient concept of an ahupua`a as a modern management tool. The ahupua`a management strategy offers a holistic model for addressing environmental, economic and social management concerns. In this way, the

traditional Hawaiian ahupua`a is interpreted as a contemporary model of a need-based, site-specific, community-driven environmental management plan, one which seeks foremost to sustain and utilize natural resources within a culturally significant context.

- D. The project hopes to create successful programs and models which can then be replicated in other communities around the State of Hawai`i.

#### **IV. Environmental Characteristics**

Environmental characteristics include the following:

- A. An additional 3.69 acres of land in Limahuli Valley in the Halelea district of Kaua`i has been recently acquired by Limahuli Garden, it is the intent of the NTBG to restore and protect this land indefinitely from adverse usage.
- B. The proposed action will be managed for the protection of ethnobotanical resources, specifically the project seeks to create and maintain a germ plasm collection of rare and endangered Hawaiian taro cultivars.
- C. The archaeological sites located within the proposed project area will be stabilized, identified, catalogued, restored, protected, and studied as a part of an archaeological inventory survey, which will be conducted in compliance with SHPD guidelines. This will add to our limited knowledge about the colonization and utilization of this area by the ancient Hawaiian people.
- D. The actual clearing, studying and restoration of the ancient lo`i will be done in a manner that will not negatively impact the natural and cultural resources of the area.
- E. Infrastructure to support the restoration and management of the lo`i will be constructed in a manner that will not negatively impact the natural and cultural resources of the area.
- F. The alien vegetation that has smothered the project area (Appendix 2) will be effectively eliminated.
- G. Scenic corridors will be maintained, and the project will act to preserve and perpetuate the natural beauty of this magnificent area.
- H. No new diversion of stream waters will be required as a result of this action. The pristine quality of the aquatic resources of Limahuli Stream will be preserved in an ongoing collaborative effort with the Hawaii Stream Research Center (HSRC). The HSRC and the NTBG will continue to monitor environmental impacts upon the aquatic resources of Limahuli Stream, effectively preserving the integrity of the aquatic habitat of the stream and managing the use of associated environments.
- I. Restoration of lo`i kalo will effectively create a new wetlands, thus creating ideal habitat for the endangered moorhen and Koloa Duck. Both of these waterbirds are at critically low numbers (NRCS, Appendix 5).

#### **V. Time Frame of Lo'i Restoration Project**

Once all of the necessary permits are obtained by the NTBG, physical restoration activities are expected to commence immediately. Optimistically, this would have *Phase 1* clearing activities beginning in the latter half of the 1999 calendar year. Once restoration commences, an 18 to 24 month work schedule is anticipated for the completion of restoration activities within each increment of the project.

When the lo'i kalo have been completely restored and irrigation water has been resupplied to the terraces, a germ plasm collection of Hawaiian taro cultivars will be obtained in a manner that prevents the introduction of diseases to the area. The kalo will then be planted, and ongoing horticultural and maintenance activities will commence.

#### **VI. Funding**

Funding for the activities of the Lo'i Restoration Project will be obtained primarily through the contributions of various charitable institutions. Currently the project has been awarded two initial grants, one from the Hewlett Foundation and one from the NRCS. The NTBG is a viable non-profit organization with a track record of successfully administered grants. Presently the NTBG has not been awarded any state or county funding to carry out the objectives of the project.

**6. Summary Description of the Affected Environment**

Refer to Exhibits 1-5 and 7; Appendices 2 and 3

**Zoning:** Conservation/Open  
**State Land Use:** Conservation (Limited Subzone)  
**County General Plan:** Open / Coastal Zone Management Area  
**Current Land Use:** None

**Land Parcel Location**

Island: Kaua'i                      District: Halelea                      County: Kaua'i

| <u>Lot Number</u> | <u>Tax Map Key</u> | <u>Area of Parcel (Acres)</u> | <u>Owners</u> |
|-------------------|--------------------|-------------------------------|---------------|
| 106               | 05-09-03 : 39      | 1.81                          | NTBG          |
| 107               | 05-09-03 : 41      | 1.88                          | NTBG          |

Lots 106 & 107 are located within the ahupua`a of Ha`ena on the North Shore of Kaua`i. Both lots share their uppermost boundary with Kuhio Highway. From this boundary, which is approximately 60 to 70 feet above sea level, the lots descend through the lo`i terraces reaching their lowest elevation of about 40 feet above sea level among the lower terraces. Although the terraces have been severely overgrown and damaged by non-native vegetation, they still characterize the underlying nature of the land. The terraces located on lots 106 & 107 are estimated to be approximately 700 years old. The archaeological inventory survey that is an element of this action will, among other things, attempt to determine a more definitive time frame for the history of the area.

In a recent field visit conducted by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), a Preliminary Technical Determination was made, stating that the rich topsoils of the project area are not of a "highly erodible" nature (Appendix 3). The same NRCS determination identified wetlands within areas adjacent to the terraced portions of lots 106 and 107. However, since the proposed activities of the project will only take place within the terraced or elevated portions of the properties, no negative impacts are anticipated to effect the identified wetland habitat. On the contrary, it is the opinion of the NRCS that this action will effectively create new wetland habitats and their benefits (NRCS Correspondence, Appendix 5).

A recent biological survey (Appendix 2) conducted by the NTBG, indicated that alien plants, many invasive, have come to dominate most of the identified project area. Today we find that the dominant plants in the area are primarily different guavas (*Psidium* spp.), java plum (*Syzygium cumini*), christmasberry tree (*Schinus terebinthifolius*), octopus tree (*Schefflera actinophylla*), autograph tree (*Clusia rosea*), hau (*Hibiscus tiliaceus*), and Mango (*Mangifera indica*). The biological survey identified only a few native species of plants within the proposed project area, none of which are endangered or threatened by extinction.

The project area is currently comprised of vacant, undeveloped land. Lot 106 & 107 have been unaltered since the arrival of Western influence in 1778. To the south, both lots share a boundary with Kuhio Highway, which itself forms a boundary with the Limahuli Valley Special Subzone of the Conservation District. To the west, a residential easement/access road (road "L", see Exhibits 2 & 3) separates lot 107 from the Limahuli Stream. Below Kuhio Highway, the stream forms a boundary between the residential land holdings and the Ha`ena State Park. To the North and East lie residential, private landholdings.

## **7 & 8. Identification and Summary of Major Impacts & Proposed Mitigation**

To more clearly define the nature of the proposed action, a *Technical Description of the Physical Restoration Process* has been excerpted from the Conservation District Use Application, Management Plan and included herein:

### **Lo'i Kalo Physical Restoration:**

The restoration of lo'i kalo will require an extensive physical development effort. This Environmental Assessment addresses the potential impacts and mitigative measures associated with the restoration process. Limahuli Garden will oversee this process, obtaining all necessary permits, coordinating work schedules, administering grant moneys, and hiring consultants as necessary. The Garden anticipates that grant moneys will provide for most of the expenses associated with the objectives of the project. In an effort to allow the community to become involved, the NTBГ will also make selected elements of this project available to the public for volunteer participation.

**Project Increments** -- Rather than restore lots 106 and 107 concurrently (Site Map, Exhibit 3), the NTBГ plans to divide the project into two separate increments. These increments, defined as Increments A & B, will correspond to Lots 107 & 106 respectively. The project phases that are outlined herein will occur sequentially within each increment, however the increments will not be otherwise correlated in time. Restoration will begin in Increment A, and increment B will commence when funding becomes available.

The Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD) has specific guidelines and requirements that the NTBГ will adhere to throughout the process of lo'i restoration in order to insure that the integrity of the archaeological resources in the project area are not degraded. The NTBГ has consulted with the SHPD in developing this 3 phase approach for the physical restoration of the lo'i kalo.

A description of the three restoration phases follows.

### **PHASE #1 -- CLEARING & BRUSH REMOVAL**

*Phase 1* will be characterized by the removal of the alien and introduced vegetation that exists within the proposed project area. This process will be accomplished by hand, aided only by the use of powered handtools such as chainsaws, weed eaters, brush cutters, and wood chippers. To minimize significant ground disturbances, and to avoid the possibility of degrading archaeological resources within the area, large machinery other than a wood chipper, will not be used in *Phases 1 or 2*. As a further safeguard, when it is deemed appropriate, large trees will be limbed by a qualified arborist, and when necessary the limbs will be lowered to the ground with a system of ropes and pulleys. Once limbs are removed, the trees will be stumped. It is important to note that **NO VEGETATION WILL BE UPROOTED DURING PHASE 1 OF THE RESTORATION PROCESS**. This will serve to protect the archaeological resources in the area so that a complete inventory of them can be conducted in *Phase 2*.

The organic detritus that is generated as a result of clearing activities will be composted within the project area. These composting activities will occur in designated locations that are to be established jointly by the NTBГ and the SHPD. This will accomplish two objectives. Foremost it will allow the NTBГ to clear the project area without hauling the debris out, thereby avoiding the possibility of damaging the as-yet-uninventoried archaeological resources. Secondly, composting the vegetation will return those nutrients locked up in the living organic matter to the soils of the project area.

After the completion of *Phase 1*, weedeating practices will continue throughout the project area, spanning all phases of the project time frame. This maintenance activity will keep new weedy growth down and facilitate archaeological work, allowing workers easy access to their tasks and work areas. Furthermore the NTBГ may elect to plant grass seed in certain areas where erosion could be a concern.

### **PHASE 2 -- ARCHAEOLOGICAL INVENTORY SURVEY**

*Phase 2* will commence **only** after those activities described in *Phase 1* above have been completed within each increment. *Phase 2* will entail a complete **archaeological inventory survey** of the historic resources within the project area in compliance with the established guidelines of the SHPD. Subsurface testing is a required component of this survey; therefore such tests will be conducted in selected sites throughout the project area. The archaeological inventory survey will include a cross-sectional analysis of selected rock walls & `auwai, as well as a radiocarbon dating of materials to more accurately determine the history of the resources.

Work in *Phase 2* will be administered under the direction of a qualified archaeologist whose credentials meet SHPD guidelines. Due to the extensive nature and requirements of the proposed Lo`i Restoration Project, and recognizing the valuable learning opportunity which it presents, the NTBГ plans to integrate educational opportunities for the community into the work required of the archaeological inventory survey. In this way, students and interested members of the community can learn and apply appropriate archaeological techniques in a unique hands-on learning environment.

### **PHASE 3 -- PHYSICAL RESTORATION OF LO`I**

It is anticipated that mechanized equipment will be used to carry out some of the work scheduled for *Phase 3*. Use of such equipment will be undertaken with great care so as to minimize the impacts upon archaeological resources of the area. Every effort will be made to protect the lo`i when machinery is moved from terrace to terrace within the project area. Protective measures may include the use of earthen ramps and/or the mounding over of rock walls with old tires to effectively create bridges over which the machinery can pass without damaging the terrace walls. At times it may be more appropriate to partially remove sections of some of the degraded rock walls, creating a safe avenue for the machinery to pass through. The activities of the project and the confined working environment will not merit the use of large equipment, a bobcat, a backhoe, and/or a very small excavator will be sufficient to tackle even the largest jobs.

The SHPD has reviewed the proposed use of machinery within the project area and has given the NTBГ the preliminary go-ahead on the methodology outlined above (See SHPD Correspondence, Appendix 5). As a safeguard in this process, the SHPD will be overseeing the activities of the NTBГ throughout the restoration process, and making recommendations as necessary to ensure the protection of the archaeological resources of the area.

The importance of the archaeological inventory survey conducted in *Phase 2* becomes very apparent in *Phase 3*. Due to the need to partially remove and subsequently reconstruct archaeological features, the maps generated by the survey will act as a blueprint, delineating a layout and defining the dimensions of the lo'i walls and auwai channels.

**Phase 3 of the Restoration Project can be subdivided into 4 distinct tasks as follows:**

**Task #1 -- Removal of the large root systems left intact during Phases 1 & 2.**

Currently, throughout the proposed project area, the root systems of introduced vegetation have grown into the ancient rock walls, eroding them and significantly degrading their condition (Exhibit 7). Therefore, in order to completely restore such rock walls, the root-bound sections of them will first have to be disassembled by hand to insure that the rocks are not crushed or damaged by the use of machinery. Once the rocks have been cleared of the immediate work zone, it will then be possible to effectively excavate the large root systems. Once removed, the roots will be cut into small sections and composted on site.

**1.a. Construction of Vehicular Access onto Lot 107 (Increment A only).**

Concurrently, a vehicular access will be constructed for the project. *Phase 3* has been identified as the most reasonable time to finalize and implement construction plans for the appropriate location and layout of a driveway and parking area for the project. A preliminary location for the access has been identified, and a cost estimate has been prepared by Wagner Engineering (Exhibit 6). However the NTBG would like to retain the right to revise these drafts in order to incorporate into them the valuable information that will be compiled by the survey conducted in *Phase 2*.

**Task 2 -- Excavation of Lo'i & `Auwai.** An essential part of the restoration process will be to excavate the lo'i of the soils that have silted them in over the years. The lo'i will be reformed into earthen ponds that are capable of containing the water that is necessary for the cultivation of wetland taro. Similarly, the `auwai system must be excavated and restored.

**Task 3 -- Rock Wall Reconstruction.** Nearing the end of *Phase 3*, after the completion of those tasks that will require the use of mechanized equipment, work will commence to rebuild the rock walls that form the structural perimeter of the terraces. To oversee this task, which will be done entirely by hand, the NTBG will be employing the services and guidance of a qualified stone mason with a background in traditional Hawaiian rock wall construction. As much as possible, the NTBG will seek to use traditional techniques in restoring the rock walls. Recognizing the unique educational opportunity presented by this work, the NTBG plans to integrate programs for community participation into this phase of the project.

**Task 4 -- Reestablishment of Water Flow to the Project Area.** Following final reconstructive work, water will be supplied to the project area. The NTBG plans to utilize an existing, permitted source to supply water to the restored lo'i (Appendix 4). No new stream diversion will be required. The permitted water source that will be used, currently irrigates the lo'i kalo that are adjacent to the visitors center within the grounds of Limahuli Garden. At this time, the water leaving these terraces runs in an `auwai that descends through the Garden's property. This `auwai then connects into a larger `auwai system that runs along the border of Lot 107 and eventually reenters the stream near the river mouth. The NTBG intends to use the

water running through the `auwai on their property, pipe it under Kuhio Highway through an existing culvert, feed it into the restored lo`i, and then allow the water to rejoin the larger `auwai system at the lower border of the project area.

The NTBG is deeply concerned about the preservation of the aquatic resources within Limahuli Valley and will continue to collaborate with Mr. Mike Kido, of the U.H. Hawaii Stream Research Center to insure that the integrity of Limahuli Stream is not degraded.

### **Project Administration:**

As aforementioned, the project will fall under the administrative and financial management of the National Tropical Botanical Garden.

### **Management of the Resources once Restoration is Complete:**

Once the lo`i kalo have been restored, they will be planted with a diverse representation of taro cultivars. The lo`i kalo will be farmed and harvested in a manner that is consistent with traditional methods. The project will work closely with a local community group, the Hui Maka`ainana o Makana whose constituents are largely, but not exclusively of Hawaiian ancestry. In this way the project hopes to represent the traditional and contemporary values of the Hawaiian people.

In brief, the proposed Lo`i Restoration Project will result in three general classes of environmental action:

- I) Habitat Improvement & Archaeological Restoration of Lo`i
- II) The Construction of a Vehicular Access to the Project Area
- III) Managed Educational and Scientific Use of the Area once Restoration is Complete.

The following sections will describe all of the potential impacts associated with these three general classes of action for the proposed project. Following each impact, there will be a short discussion on how each can be avoided, and/or how impacts can be mitigated if not avoided.

### **#I. Habitat Improvement**

The improvement of the habitat in the proposed Lo`i Restoration Project will follow the general Management Guidelines for Limahuli Garden and could result in the following impacts:

- A. The removal of introduced vegetation.** This is a **positive impact** that will allow the area to be utilized exclusively for the cultivation of a germ plasm collection of Hawaiian taro cultivars. A recent biological survey conducted of the proposed project area did not identify any vegetation that are endangered or threatened by extinction (Appendix 2).
- B. Increased stabilization of the archaeological sites.** This is an entirely **positive impact** as evidenced by the ongoing Habitat Improvement and Archaeological Preservation Programs of Limahuli Garden. Several significant archaeological features are located within the proposed project area (Exhibit 7). Similar features have been identified by archaeologists from Bishop Museum who performed a surface survey and mapping of the archaeological sites in the Limahuli area in 1990 (Patolo and Cleghorn). At that time, the archaeologists recommended the removal of the alien vegetation growing on, over, and in these archaeological sites in order to stabilize them, and prevent further destruction of the sites.

A complete archaeological inventory survey will be conducted within the proposed project area prior to the commencement of any restoration activities that will physically alter the current condition of the archaeological resources. Any negative impact upon archaeological sites that could result from the removal of the alien vegetation will be avoided by first identifying and mapping these resources. Much of the work required of the action will be undertaken by hand to prevent the destruction or degradation of the archaeological resources.

- C. Impacts Associated With the Use of Mechanized equipment.** A backhoe, a bobcat, and/or a small excavator will be used in *Phase 3* of the restoration process for the removal of some of the larger root systems, and for the excavation of the soils that have silted in the lo'i and 'auwai over the course of time. Machinery will also be required for the construction of a vehicular access to the proposed project area. It is recognized that use of these machines will have the potential to create a negative impact in the following ways:
- a. Indiscriminate use of these machines could result in the destruction of, or damage to, archaeological features. The NTBG recognizes the potential damage that these machines could do, and will therefore carefully control their use. To avoid all negative impacts, the NTBG will be conducting a complete **archaeological inventory survey** of the historic resources within the project area during *Phase 2* of the restoration process. This survey will be administered in compliance with the established guidelines of the SHPD and will **precede** the use of any mechanized equipment, which could negatively impact the resources. Following the survey, *Phase 3* activities will commence during which time every effort will be made to protect the archaeological resources of the area when machinery is moved from terrace to terrace. Protective measures may include the use of earthen ramps and/or the mounding over of rock walls with old tires to effectively create bridges over which the machinery can pass without damaging the terrace walls. At times it may be more appropriate to partially remove sections of some of the degraded rock walls, thereby creating a safe avenue for the machinery to pass through.
  - b. The use of these machines will cause an increase in the noise level of the area. This is an unavoidable impact. Fortunately, this is expected to be a short-term impact. One **mitigative** measure that will help to lessen the impact of noise generated by these machines, is that their use will be restricted to the normal working hours from 8:00 AM to 5:00 PM.
- D. An increased scenic value.** Clearly, the removal of the alien vegetation and restoration of the lo'i will have a significant **positive impact** upon the scenic value of Limahuli Valley.
- E. Soil erosion.** Removal of the existing introduced vegetation could cause soil erosion. Eroded soil could wash down into the nearby Limahuli stream and adversely affect the balance of the aquatic ecosystem. However, the likelihood of this happening is relatively small due to the terraced nature of the land. The terraces are a very effective ancient modification of the topography to prevent soil erosion

In order to avoid the potential negative impacts associated with erosion, the NTBG's staff will establish a ground cover of grass immediately after clearing an area where erosion could be a concern. Management of Limahuli Garden in the past has indicated that slopes of the type located in the affected area can be cleared and grassed without suffering soil erosion.

- F. Accidental injury to native vegetation.** A recent biological survey (Appendix 2) conducted by the NTBG, indicated that alien plants, many invasive, have come to dominate most of the identified project area. Today we find that the dominant plants in the area are primarily different guavas (*Psidium* spp.), java plum (*Syzygium cumini*), christmasberry tree (*Schinus terebinthifolius*), octopus tree (*Schefflera actinophylla*), autograph tree (*Clusia rosea*), hau (*Hibiscus tiliaceus*), and Mango (*Mangifera indica*). The biological survey identified only a few native species of plants within the proposed project area, none of which are endangered or threatened by extinction. As such the EA concludes that there will be **no significant negative impact** upon the native vegetation within the project area as a result of this action.
- G. Displaced organisms.** Birds, insects, and other organisms will be displaced from their homes. Although this impact cannot be avoided, it will be **mitigated** by clearing the project area in two separate increments, Increment A & B, corresponding to lots 107 & 106 respectively. Thus, this action is expected to have **no significant negative impact** since the birds, insects, and other organisms that will be displaced by the removal of the alien vegetation will not have far to go in order to relocate in a similar habitat.
- H. Impacts Upon the Aquatic Resources of Limahuli Stream.** The NTBG recognizes that the improvement of the existing habitat could affect the pristine condition of Limahuli Stream if not undertaken properly. Potential impacts that could result are:
- a. Soil erosion resulting from the removal of the alien vegetation could adversely affect the aquatic environment of Limahuli Stream. As discussed above, the NTBG will be planting grass seed in erosion prone areas to avoid any such impacts.
  - b. A significant new water diversion could stress the available resources within Limahuli Stream and upset the balance of the aquatic environment. However, no new stream diversion will be required as a result of the Lo'i Restoration Project. The NTBG plans to utilize an existing, permitted source to supply water to the restored lo'i (Appendix 4). The permitted water source that will be used, currently irrigates the lo'i kalo that are adjacent to the visitors center within the grounds of Limahuli Garden. At this time, the water leaving these terraces runs in an `auwai that descends through the Garden's property. This `auwai then connects into a larger `auwai system that runs along the border of the Garden's property, eventually reentering the stream near the river mouth. The NTBG intends to use the water running through the `auwai on their property, pipe it under Kuhio Highway through an existing culvert, feed it into the restored lo'i, and then allow the water to rejoin the larger `auwai system at the lower border of the project area.
- In an established partnership with the Hawaii Stream Research Center, the NTBG will continue to monitor the qualitative and quantitative parameters of the Limahuli Stream environment. In this way, any negative impacts associated with the various project activities undertaken by Limahuli Garden will become readily apparent, triggering immediate action to eliminate or mitigate such impacts.
- I. Noise** The NTBG recognizes that the increased use of chainsaws and maintenance equipment will generate an increase in noise. However, the use of such equipment will be largely confined to the working hours between 8:00 AM and 5:00 PM. Furthermore, noise-generating activities will be very minimal after the initial stages of habitat improvement; therefore no long-term effects are foreseeable. Thus the NTBG anticipates **no significant impact** with regard to noise.

- J. **Air Quality** The NTBG recognizes the importance of maintaining good air quality in the general vicinity of the project area. The potential negative impact upon air quality that could result from the NTBG's improvement of the existing habitat might include the release of smoke into the air as a result of clearing and burning of organic matter. As discussed in the description of the project's physical restoration phases, the NTBG plans to mulch the organic matter that accumulates during the clearing activities of *Phase 1*. Therefore it will not be necessary to burn any organic matter, and **no significant negative impact** upon the air quality is expected.
- K. **Compatibility with the surrounding environment** The NTBG anticipates that any impact on the compatibility with the surrounding environment as a result of the proposed project will be beneficial due to the nature of the project.
- L. **Public services, economy and demography.** The NTBG anticipates that the proposed Lo'i Restoration Project will have **no significant impact** upon public services (provided by the State and/or County governments), the economy, or the demography of Kaua'i.

## **#II. Modest Infrastructural Improvements Associated with the Proposed Project**

The following infrastructural improvements are seeking permit approval, their impact and mitigation is discussed herein:

- A. **Construction of a Vehicular Access to the Project Site.** *Phase 3* has been identified as the most reasonable time to finalize and implement construction plans for the appropriate location and layout of a driveway and parking area for the project. A preliminary location for the access has been identified, and a cost estimate has been prepared by Wagner Engineering (Exhibit 6). However the NTBG would like to retain the right to revise these drafts in order to incorporate into them the valuable information that will be compiled by the archaeological inventory survey to be conducted in *Phase 2*. Location and construction of the access will be undertaken in a manner that minimizes significant ground disturbances and avoids negative impacts upon the archaeological resources of the area. The effects of soil erosion will be considered, and if merited portions of the access and/or parking area will be cemented to prevent negative erosive impacts. When construction plans are finalized in *Phase 3*, they will be submitted to the DLNR, the County of Kaua'i Planning Department, and the State Highways Division for review and final approval. In the interim time period, parking facilities within Limahuli Garden will be utilized for project activities.
- B. **Irrigation** to the proposed Lo'i Restoration Project site will be provided for by utilizing an existing, permitted supply source within Limahuli Garden (Appendix 4).

In this way, the project will in no way diminish the current flow rate of Limahuli Stream. No new stream diversions will result from this action as all waters to the lo'i will essentially be procured from the discharge waters of the Garden proper. **No negative impact** upon the established stream levels or aquatic environment of Limahuli Stream will result.

### **#III. Managed Educational and Scientific Use of the Area**

The underlying intent of the Lo'i Restoration Project is to recreate an archaeological, cultural, agricultural, and educational resource which can then be managed in a sustainable manner for perpetuity. The associated impacts of the management of the project will therefore be of an overwhelmingly positive nature. The lo'i, once restored, will be added to the existing programs of the NTBГ at Limahuli Garden. As such, established management and preservation guidelines will be applied in a manner that is consistent with current operational protocols.

Interpretive programs of the area will be coordinated with the objectives of various state agencies, specifically with those of the DLNR, Division of State Parks. The NTBГ will work with the Division of State Parks to assure that interpretive programs were well founded, and consistent with those of the state. Limahuli Garden hopes to play a facilitative role in the planning and implementation of objectives of the Ha'ena State Park.

The NTBГ realizes that it is important to keep a balance between the positive aspects of the managed use of this area and the potential negative impacts that could occur through its overuse. The following section discusses the possible impacts that could result from the managed educational and scientific use of the area:

- A. **Increased opportunities for education and research.** This is an entirely **positive impact** that will result from the use of the area for limited educational activities and future research projects.
- B. **Damage to archaeological sites.** The managed use of the Lo'i Restoration Project area is not anticipated to have any significant adverse impacts upon the archaeological sites located within it. Any impact that could occur will be **avoided** by identifying all features of archaeological significance and managing the area in a manner that is consistent with their preservation.
- C. **Sanitary Facilities** are currently provided for within Limahuli Garden. These facilities are within a reasonable walking distance from the proposed project site, and they have a capacity, which is capable of accommodating the foreseeable addition of personnel for the project area.
- D. **Compatibility with the surrounding environment.** The associated educational and scientific uses planned for the proposed project will be entirely compatible with the surrounding environment. Rather than detract from the surroundings, the restoration of the lo'i will reconstruct a cultural segment of the environment, creating a living resource.
- E. **Public services.** The use of the project area for limited educational activities and research is not anticipated to have a significant impact upon any public services provided by the State and/or County governments.

## 9. Alternatives Considered

As a part of the EA process, the NTBG considered several different alternatives and methodologies in order to carry out the objectives of the Lo'i Restoration Project, including the increased use of heavy equipment. The Early Consultation Process was used to reveal the concerns of various agencies and to subsequently modify implementation guidelines for the project. Correspondence with the SHPD has played a significant role in the development of appropriate methods for archaeological restoration. Similarly, other agency recommendations have been incorporated into the development of this Final EA.

Thus, the final outcome of this process is that the described project is the most desirable alternative. The NTBG feels that the **positive impacts** of the Lo'i Restoration Project far outweigh the potential for negative impacts which could result from this action.

## 10. Determination

This determination is to be made by the accepting agency, in this case, the DLNR. This Final Environmental Assessment clearly indicates that **no significant negative impacts** will occur as a result of the implementation of project objectives. Furthermore, the findings of this EA evidence an overwhelming **positive impact** upon the environment affected by the proposed project, and as such do not warrant the preparation of an Environmental Impact Statement. In the upcoming review process, we (the applicant) will do our best to incorporate agency and public concerns into management plans for the project. Furthermore, it is the applicant's opinion that, in view of the determinations discussed below under "**Reasons And Findings Supporting Determination**", the DLNR, as the accepting agency, should make the determination that no EIS is required for the proposed action. Thus, in compliance with HRS 343 11-200-11, a **Finding of No Significant Impact (FONSI)** should be filed with the Office of Environmental Quality Control (OEQC).

## 11. Reasons and findings supporting determination:

### A. Reasons:

The preservation of archaeological and cultural resources that are unique to the Hawaiian Islands is self-justifying. Without direct human intervention, restoration and care, the lo'i kalo on lots 106 and 107 will continue to decline due to the invasive effects of alien vegetation. Therefore passive preservation is not an alternative in this case.

Furthermore, once a species is gone, it is gone forever. The attainable goals and objectives of this proposed action have the potential to play an important role in saving the ever-increasing number of threatened and endangered plant species in the Hawaiian Islands, specifically, in this case, protecting a variety of taro cultivars. The activities of Limahuli Garden will continue to provide a valuable opportunity for humans to become responsible stewards of Hawai'i's natural resources by using our knowledge and abilities to help stabilize Hawai'i's diminishing number of native plant species.

Not only will this project provide increased protection for the natural and cultural resources of Hawai'i, but it will also provide increased educational and research opportunities without having a negative impact upon the environment.

**B. Findings:**

After considering all of the phases and implications of the proposed project (its major impacts, how these impacts will either be avoided or mitigated, and the benefits that will result from the proposed action), the following determinations were made. These determinations are based on HRS 343 §11-200-12, and fully support, the determination of a Negative Declaration for the proposed action.

It has been determined that:

- 1) The proposed action will not involve an irrevocable commitment to loss or destruction of any natural or cultural resources. Rather, it will enhance the protection and value of said resources in the Conservation District.
- 2) The proposed action will not curtail the range of beneficial uses of the environment. Rather the proposed action will create more opportunities for the public to use and appreciate the restored resources within the proposed project area.
- 3) The proposed action will not conflict with the State's long-term goals or guidelines as expressed in Chapter 344, HRS. Rather, the proposed action will enhance the State's ability to fulfill its proclaimed objectives of the Conservation District by providing effective protection and prudent use of Hawai'i's unique, fragile, and significant environmental and natural resources; protection for rare or endangered species and habitats native to Hawai'i; and effective protection and management of Hawai'i's open and natural areas (State Conservation Lands Plan).
- 4) The proposed action will not have a significant negative impact upon the economic or social welfare of the community or State. Rather, it will have a small, yet positive impact on both the economy and our society.
- 5) The proposed action will not adversely affect the health and welfare of the public. Rather, it will provide educational opportunities to the public that may arguably improve their physical and mental condition.
- 6) The proposed action will not create substantial secondary effects, such as population changes, nor will it place increased demands upon infrastructure (i.e., roads, water, electricity, telephone, etc.).
- 7) The proposed action will not involve a substantial degradation of environmental quality. Rather it will have a positive cumulative effect upon the environment. This will be achieved through the fulfillment of the long-term objective of providing an improved habitat for native species. Furthermore, the archaeological resources within the project area will be identified, cataloged, restored, protected, and studied.
- 8) The proposed action will not have a cumulative effect which is greater than the sum of its parts, nor will it commit or involve the State's resources in unforeseeable larger actions.
- 9) The proposed action will not negatively affect a rare, threatened, or endangered species or its habitat (Appendix 2). Rather, it will provide increased protection and care for the Hawai'i's rare, threatened, or endangered species and their habitats.
- 10) The proposed action will not negatively affect the long-term quality of the air or water or the ambient noise levels of the area. As indicated on page 14 of this Final EA, only short term increases in ambient noise levels are anticipated during the initial clearing of the alien vegetation from the site. Once the terraces are restored there will be no increase in the ambient noise levels of the area. Also, as indicated on pages 16-17, the water and air quality of the area will be in no way diminished.

- 11) The proposed action will not negatively affect or suffer damage by being located in an environmentally sensitive area. As the preceding EA shows, the restoration of the ancient *lo'i kalo* terraces which exist on the property will in no way negatively impact the area and the fact that these ancient terraces still exist in relatively good condition is evidence that tsunamis and floods which have affected other parts of Ha'ena over the last two hundred years have not damaged or destroyed the project area.
- 12) The proposed action will not negatively affect scenic vistas and viewplains, rather it will improve the viewplain along Kuhio Highway by creating a cultural landscape of restored *lo'i kalo*.
- 13) The proposed action clearly does not require substantial energy consumption. As clearly described in the Final EA, the only "energy" used for the project will be the small amounts of energy required to operate the tools used to restore the ancient terraces. Virtually no "energy" will be required to perpetuate the project in the future.

12. **Agencies To Be Consulted In the Preparation of EIS, If Applicable.**

Due to the anticipation of FONSI determination this section is not applicable at this time.

13. **List Of All Permits and Approvals Required**

- A) Conservation District Use Permit - State of Hawai'i
- B) Special Management Area Minor Permit - County of Kaua'i  
SMA (M) -99-27
- C) Management Plan (CDUA) - State of Hawai'i

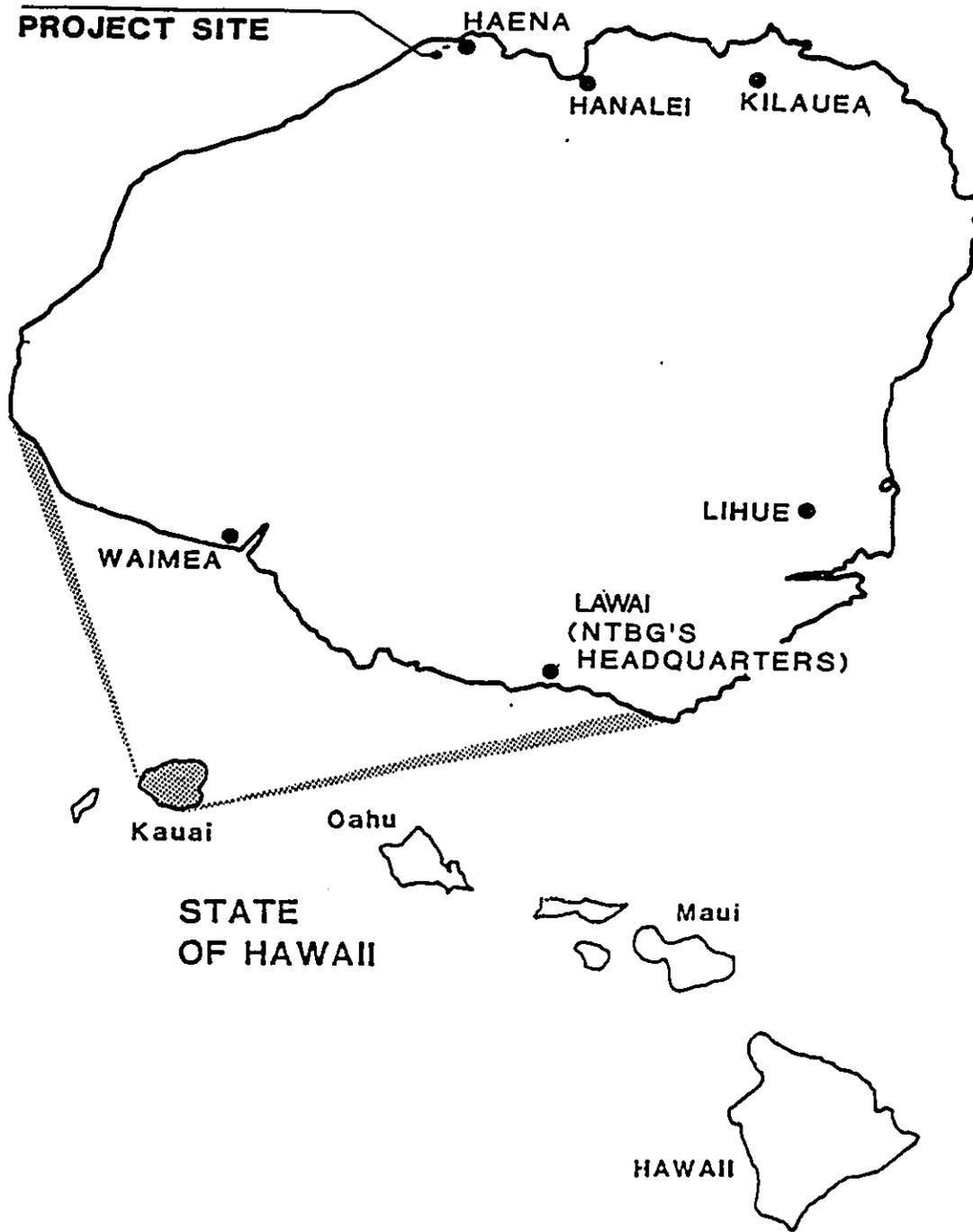
14. **Responses to the Pre-Assessment Consultation Process**

See Appendix 5

**EXHIBITS**

# ISLAND OF KAUAI

**LO'I RESTORATION  
PROJECT SITE**

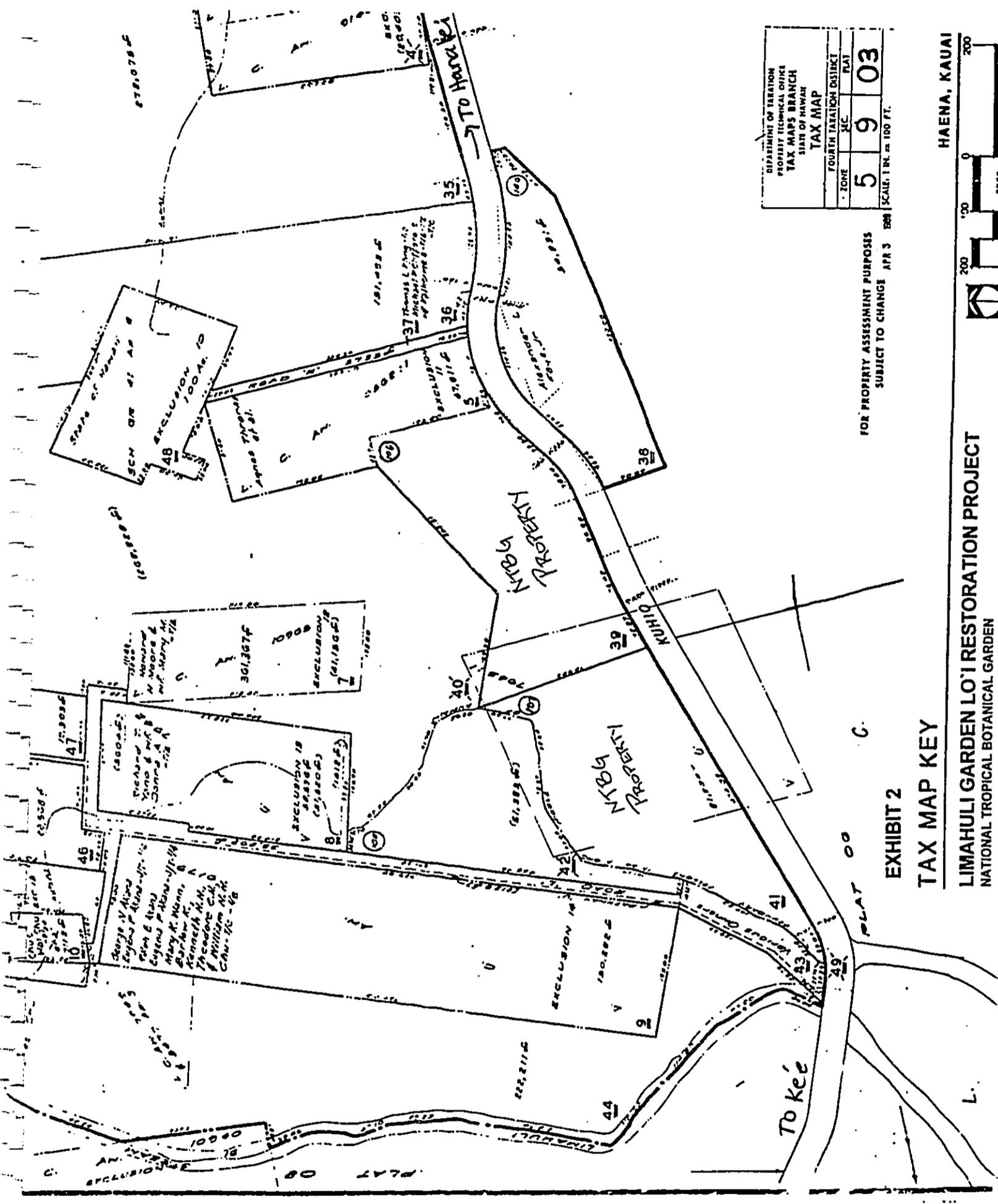


**EXHIBIT 1  
LOCATION MAP**

**LIMAHULI GARDEN LO'I RESTORATION PROJECT  
NATIONAL TROPICAL BOTANICAL GARDEN**



HAENA, KAUAI



|  |      |   |      |
|--|------|---|------|
| DEPARTMENT OF TERRITORY<br>PROPERTY TECHNICAL OFFICE<br>TAX MAPS BRANCH<br>STATE OF HAWAII |      |   |      |
| TAX MAP  |      |   |      |
| FOURTH TERRITORY DISTRICT  | PLAT |   |      |
| ZONE   | SIC  | 5 | 9 03 |
| SCALE: 1 IN. = 100 FT.   |      |   |      |

FOR PROPERTY ASSESSMENT PURPOSES  
SUBJECT TO CHANGE APR 3 1988

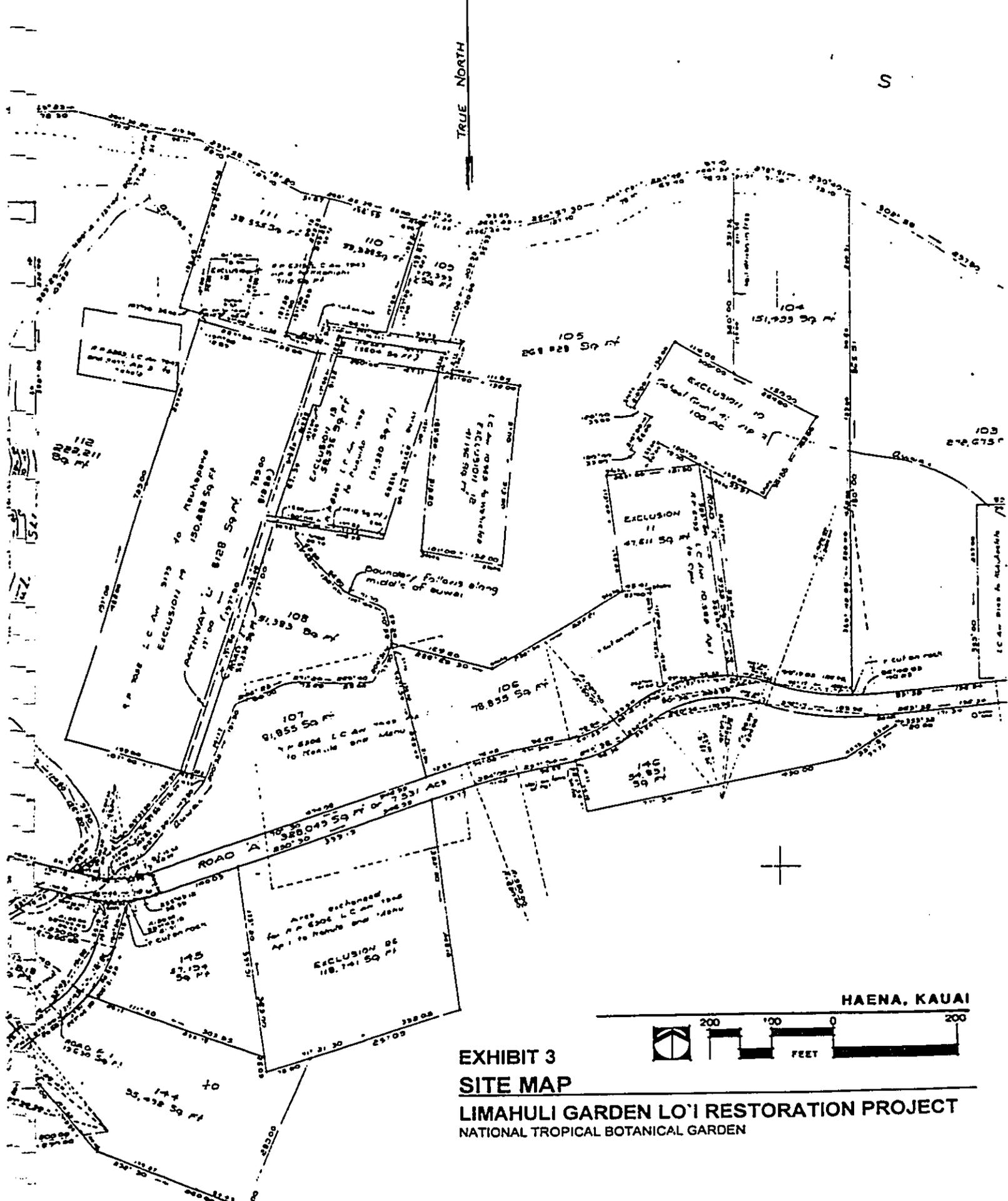
EXHIBIT 2  
TAX MAP KEY



LIMAHULI GARDEN LO'I RESTORATION PROJECT  
NATIONAL TROPICAL BOTANICAL GARDEN

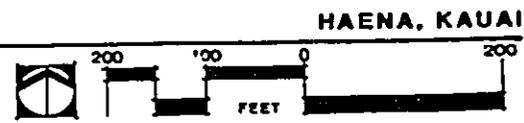
S

TRUE NORTH

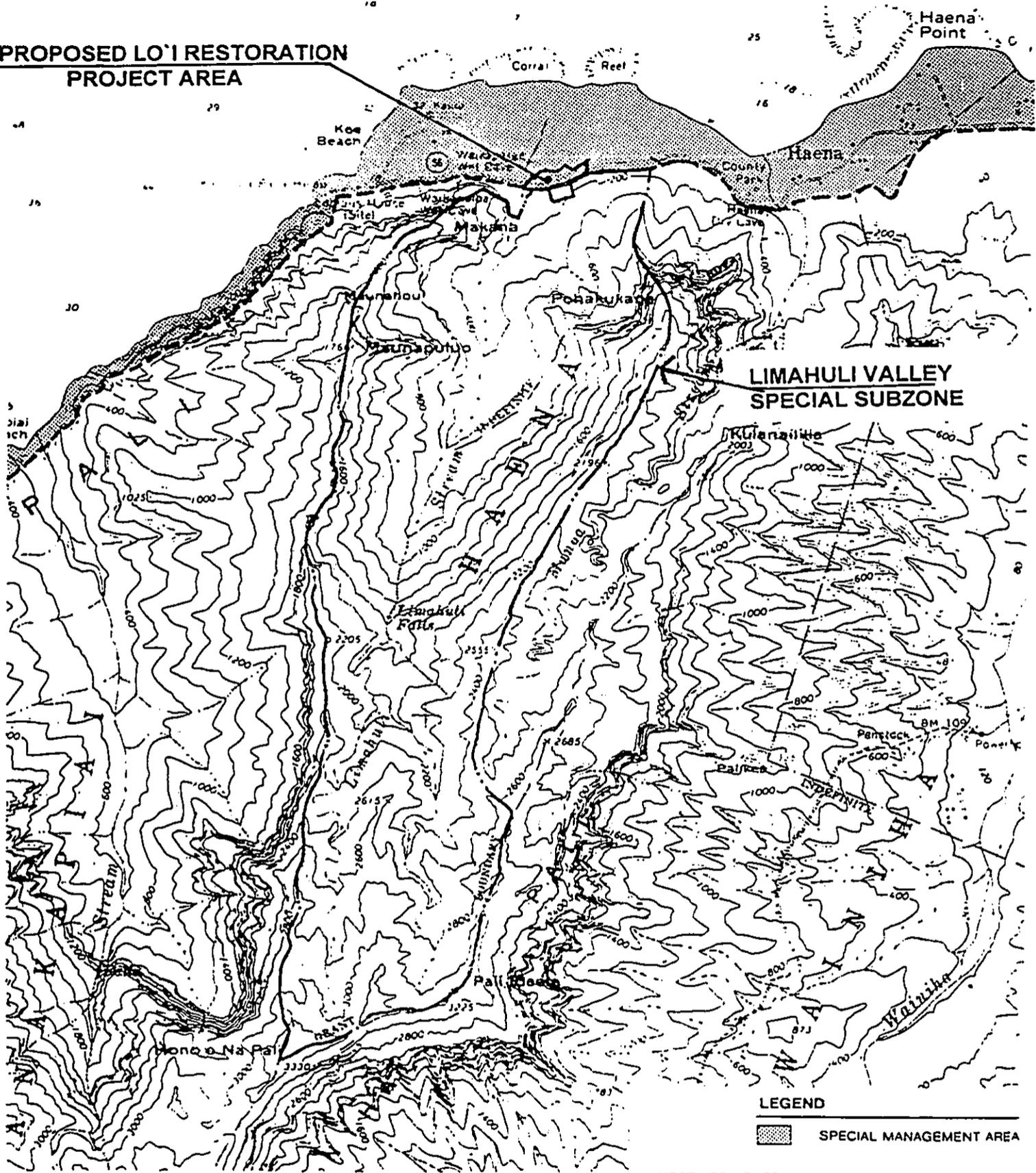


**EXHIBIT 3  
SITE MAP**

**LIMAHULI GARDEN LO'I RESTORATION PROJECT  
NATIONAL TROPICAL BOTANICAL GARDEN**



**PROPOSED LO'I RESTORATION  
PROJECT AREA**



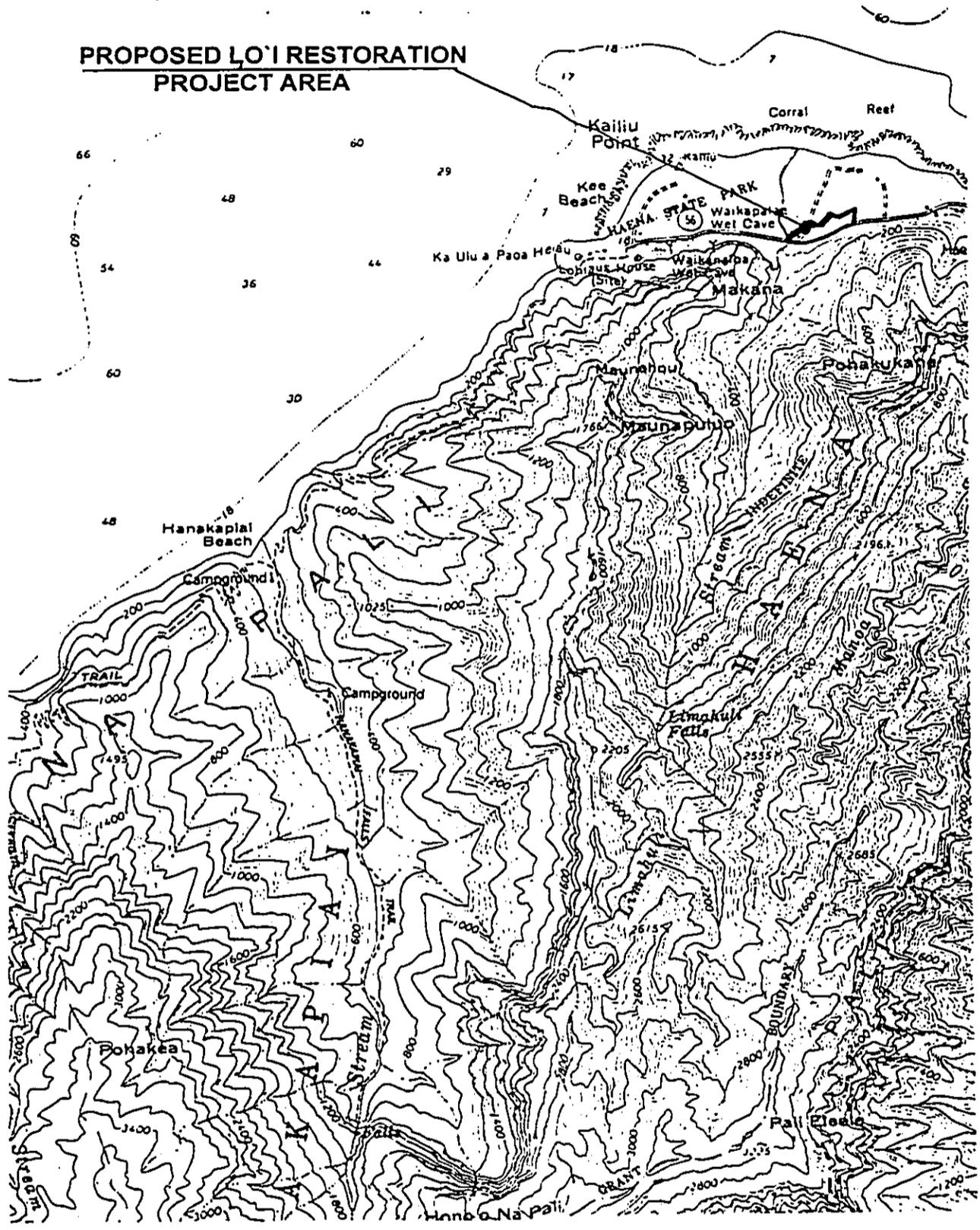
**EXHIBIT 4**  
**KAUAI COUNTY SPECIAL MANAGEMENT AREA**  
**LIMAHULI GARDEN LO'I RESTORATION PROJECT**  
NATIONAL TROPICAL BOTANICAL GARDEN

SOURCE: COUNTY OF KAUAI, SPECIAL MANAGEMENT AREA MAP OF HANAIEI, ADOPTED 11/26/75

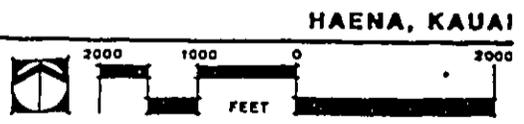
HAENA, KAUAI



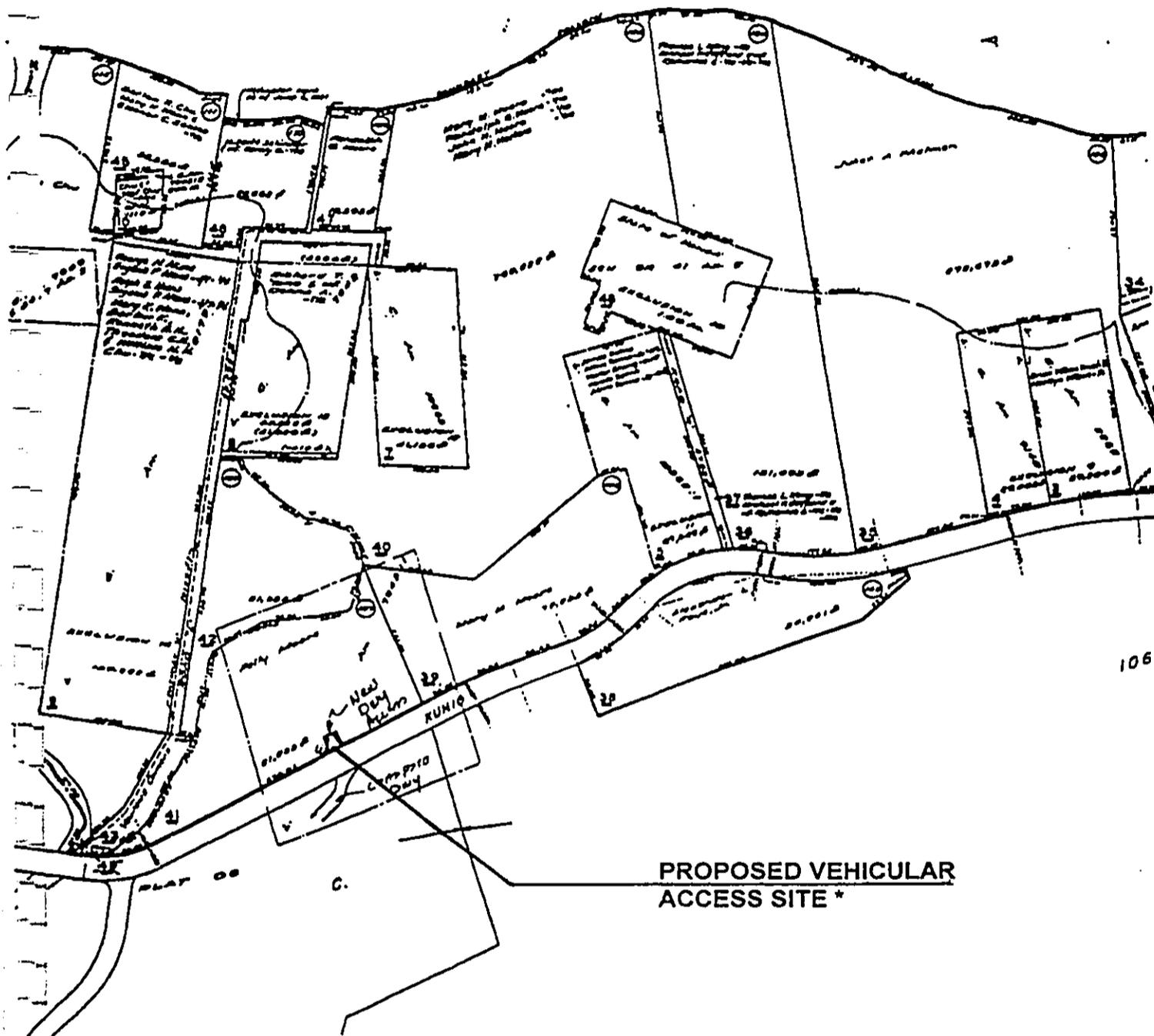
**PROPOSED LO'I RESTORATION  
PROJECT AREA**



**EXHIBIT 5**  
**USGS CONTOUR MAP**  
**LIMAHULI GARDEN LO'I RESTORATION PROJECT**  
NATIONAL TROPICAL BOTANICAL GARDEN

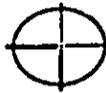


HAENA, KAUAI



**EXHIBIT 6**  
**LOCATION MAP FOR VEHICULAR ACCESS\***  
**LIMAHULI GARDEN LO'I RESTORATION PROJECT**  
**NATIONAL TROPICAL BOTANICAL GARDEN**

\* Location is tentative, pending SHPD approval during Phase 2 of Restoration Activities



**Wagner Engineering Services, Inc.**

*Box 851 Hanalei, HI 96714 808-826-7258 FAX: 808-826-7745*

February 13, 1997

National Tropical Botanical Gardens-Limahuli  
P.O. Box 753  
Hanalei, Kauai, Hawaii 96714

Attn: Chipper Wichman

**Project: 1369**

**Subject: Driveway Access-Lot 107, Haena-Kauai Public Land Trust,  
Haena, Kauai, Hawaii TMK: 5-9-03:41**

Chipper;

After visiting the site, I recommend the best driveway access directly onto Kuhio Highway to be located just opposite the new Canaparo driveway. This location will provide the safest sight distances and most reasonable grade transition.

I estimate the engineering and construction costs for a driveway approach entry at this location to be \$5,000.00.

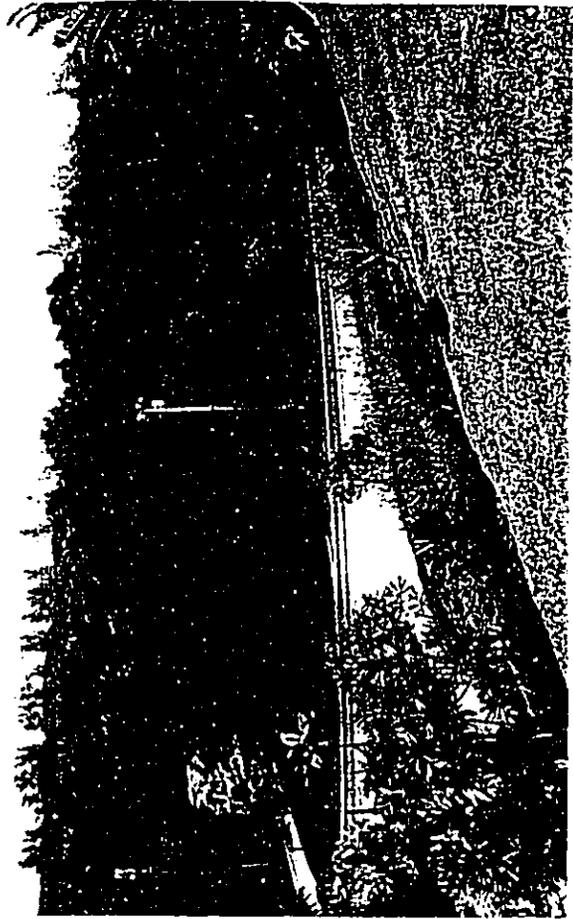
Feel free to contact me should you have any questions.

Sincerely,

Ronald J. Wagner P.E., L.S.

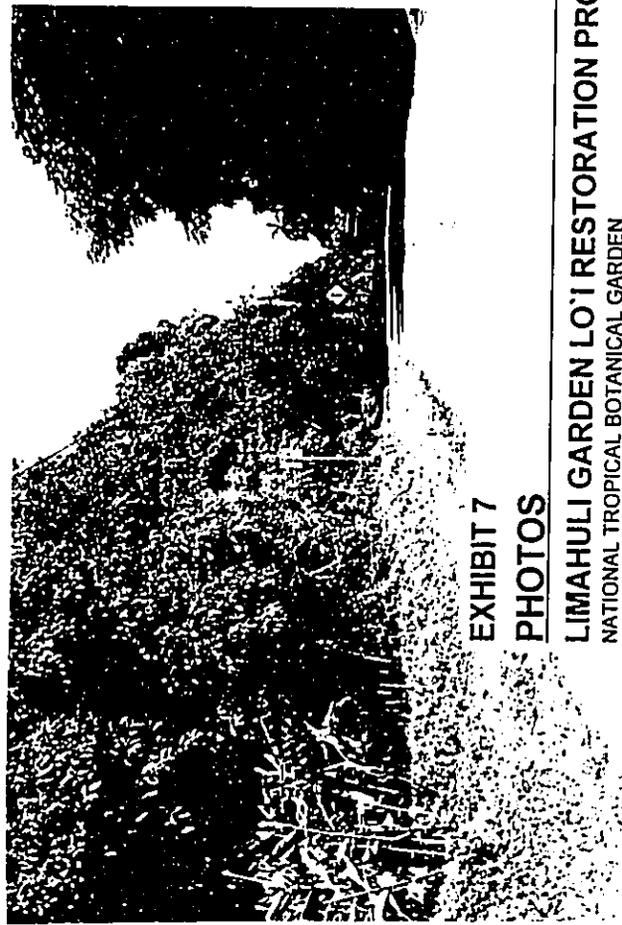
cc: Jim Chilcoat

EXHIBIT 6 - PAGE # 2



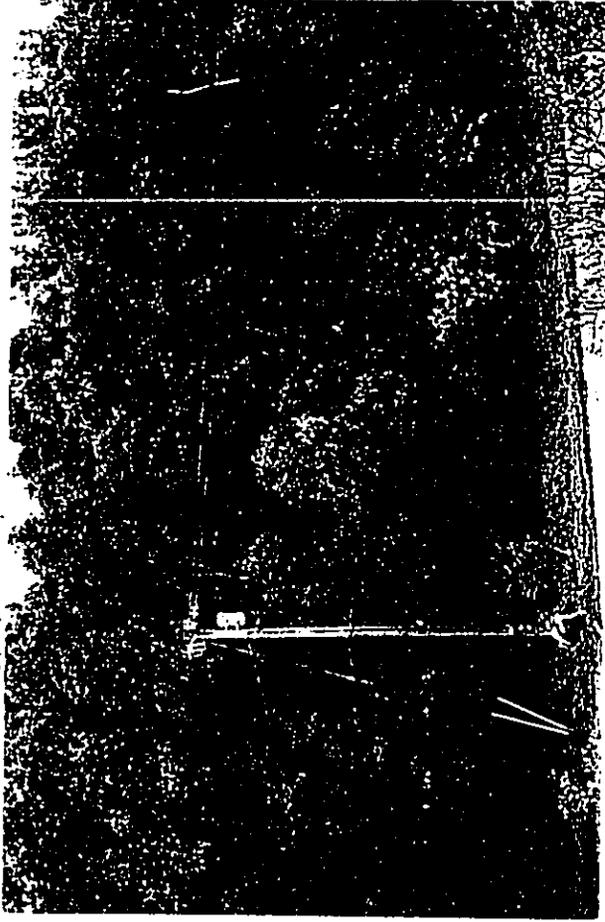
View across Kuhio Highway to the corner of lot 107 (taken from within the grounds of Limahuli Garden).

Looking eastward along Kuhio Highway with lots 106 and 107 filling the left side of the frame.



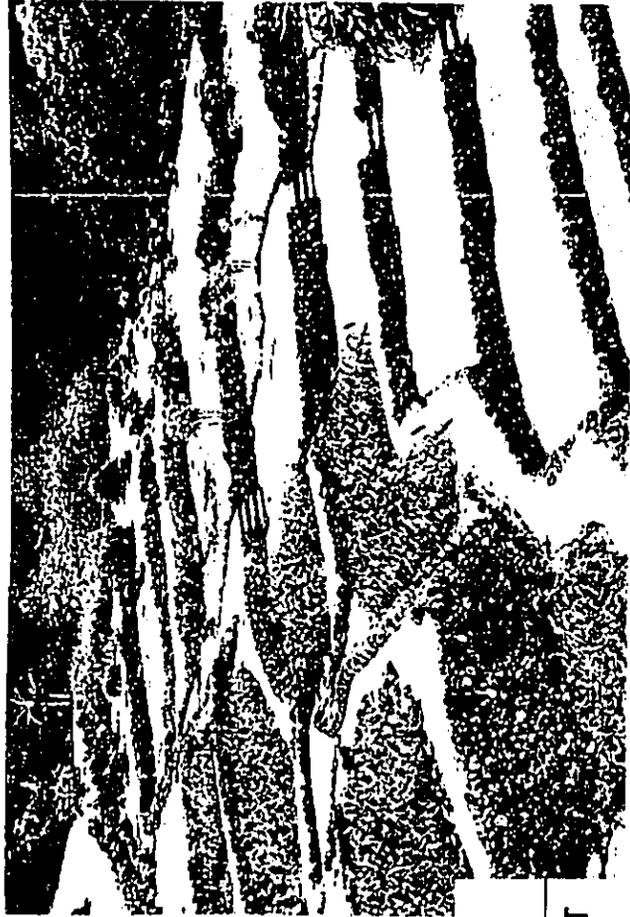
**EXHIBIT 7  
PHOTOS**

**LIMAHULI GARDEN LO'I RESTORATION PROJECT**  
NATIONAL TROPICAL BOTANICAL GARDEN



A representation of the dense canopy of introduced vegetation that currently characterizes the project area.

An example of restored lo'i kalo within the grounds of Limahuli Garden.





A series of overgrown terraces. Note the large mango tree (*Mangifera indica*) at right.



Lo'i walls being invaded by the root systems of octopus trees (*Schefflera actinophylla*).

Lo'i wall that has been severely degraded by the root systems of introduced vegetation.



A reasonably intact rock wall standing approximately four feet high that is located within lot 107 of the project area. Human intervention is clearly needed to preserve the integrity of such resources.



**APPENDIX 1**

**DRAFT ENVIRONMENTAL ASSESSMENT  
COMMENTS AND RESPONSES**



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
P.O. BOX 821  
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT  
PROGRAM  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
LAND DIVISION  
STATE PARKS  
WATER RESOURCE MANAGEMENT

Ref:PB:THE

APR 28 1999

File: CDUA KA-2927

Mr. Chipper Wichman, Director  
Limahuli Gardens  
P.O. Box 808  
Hanalei, Hawaii 96714

Attention: Ben Welborn

Dear Mr. Wichman:

SUBJECT: Draft Environmental Assessment (EA) for Limahuli Garden  
Lo'i Restoration Project, Haena, Kauai

Enclosed for your consideration and use are copies of comments that we received regarding the subject draft EA. As you may know, pursuant to the rules for EAs (Section 11-200-9.1, Hawaii Administrative Rules), all comments submitted during the public comment period, which ended April 23, 1999, need to be adequately addressed in the Final EA for the project.

Please submit six paper copies of the Final EA to us as soon as possible, but at least 60 days prior to your Conservation District Use Application's (CDUA) 180-day expiration date of September 3, 1999. Otherwise, we may not be able to complete our processing of your CDUA, and negative action by the Board of Land and Natural Resources may result. Also include an Office of Environmental Quality Control (OEQC) Publication Form for the Final EA, and if the project summary has changed, a new summary on a diskette. We also request that you include the digital file for the entire CDUA with the Final EA on a diskette (preferably in Word Perfect 6.1) with your submittal.

Please keep us informed of the status of this project, and feel free to contact Tom Eisen of our Planning Branch at 587-0439 should you have any questions.

Sincerely,

  
DEAN Y. UCHIDA, Administrator  
Land Division

enclosures

cc: Kauai Board member  
OEQC



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 6<sup>th</sup>, 1999

Dean Y. Uchida, Administrator  
Department of Land and Natural Resources  
Land Division's Planning Branch  
P.O. Box 621  
Honolulu, HI 96809

**Re: Limahuli Garden Lo'i Restoration Project**  
**CDUA KA-2927B**

Dear Mr. Uchida,

Thank you for forwarding the comments that were received regarding the draft EA for the Limahuli Garden Lo'i Restoration Project. We are responding to all of the comments and suggestions contained in those correspondences, and will be including a copy of each with the filing of our final EA.

I am providing Mr. Tim Johns with a copy of the Special Management Area Minor Permit, SMA (M) 99-27 that was issued for the project by the County of Kauai's Planning Department. A copy of the SMA permit will also be filed with the final EA.

Once again, thank you for facilitating the review process of our CDUA. If you have any questions or comments, please contact Ben Welborn, Lo'i Restoration Project Coordinator at (808) 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621  
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT  
PROGRAM  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
LAND DIVISION  
STATE PARKS  
WATER RESOURCE MANAGEMENT

Ref.:PB:SL

MAR 10 1999

File No.:KA-2927B  
Acceptance Date:3/3/99  
180-Day Exp. Date:9/3/99

Mr. Chipper Wichman, Director  
Limahuli Garden and Preserve  
National Tropical Botanical Garden  
P.O. Box 808  
Hanalei, Hawaii 96714

Dear Mr. Wichman:

NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL DETERMINATION  
Conservation District Use Application #KA-2927B  
(Board Permit)

This acknowledges the receipt and acceptance for processing your application for the Limahuli Garden Lo'i Restoration Project at Haena, Kauai (TMKs:5-9-03:39&41)

After reviewing the application, we find that:

1. The proposed project is considered an-identified use in the Conservation District, Limited Subzone pursuant to Section 13-5-23(L-2) of the Hawaii Administrative Rules;
2. No public hearing pursuant to Section 183C, Hawaii Revised Statutes (HRS), will be required in that the use is not identified as a commercial use; and
3. In conformance with Title 11, Chapter 200, of the Hawaii Administrative Rules, a finding of no significant impact (FONSI) to the environment is anticipated.

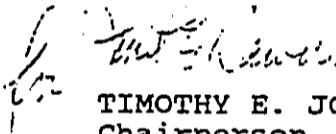
As the applicant, please be advised that it will be your responsibility to comply with the provisions of Section 205A, Hawaii Revised Statutes, relating to Coastal Zone Management (Special Management Area) requirements.

Negative action as required by law, on your application by the Board of Land and Natural Resources can be expected should you fail to obtain from the County thirty (30) days prior to the 180-day expiration date, as noted on the first page of this notice, one of the following:

1. A determination that the proposed development is outside the Special Management Area (SMA);
2. A determination that the proposed development is exempt from the provisions of the county ordinance and/or regulation specific to Section 205A-29(b), HRS; OR
3. A Special Management Area (SMA) permit for the proposed development.

Pending action on the application by the Chairperson of the Board of Land and Natural Resources in the near future, your cooperation and early response to the matters presented herein will be appreciated. Should you have any questions, please contact Sam Lemmo of our Land Division's Planning Branch, at 587-0381.

Aloha,

  
TIMOTHY E. JOHNS  
Chairperson

cc: Kauai Board Member  
Kauai Land Agent  
DAR/DOFAW/HPD/CWRM/Engineering/DOCARE  
County of Kauai  
    Planning Department  
    Department of Public Works  
    Department of Water Supply  
DOH/OHA/DOT  
U.S. Army Corps of Engineers  
U.S. Fish and Wildlife Service  
NTBG



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 7<sup>th</sup>, 1999

Mr. Timothy E. Johns, Chairperson  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, HI 96809

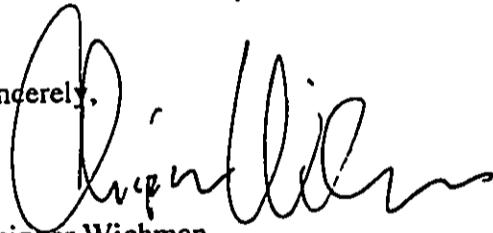
**Re: Limahuli Garden Lo'i Restoration Project (CDUA # KA-2927B)**  
**Special Management Area Permit Requirement**

Dear Mr. Johns,

Enclosed you will find a copy of a Special Management Area Minor Permit, SMA (M) -99-27 issued by the County of Kauai's Planning Department for the proposed Limahuli Garden Lo'i Restoration Project. A copy of the SMA Permit will also be filed with the Final Environmental Assessment for the project.

Thank you for your assistance, and that of your staff in the development and review of our CDUA.

Sincerely,

  
Chipper Wichman  
Director, Limahuli Garden

State of Hawaii  
Department of Land and Natural Resources  
Division of Conservation and Resources Enforcement

April 26, 1999

MEMORANDUM

TO: Dean Uchida, Administrator  
Land Division

FROM: Patricia Edwards, Acting Investigator *PE*  
Division of Conservation and Resources Enforcement

SUBJECT: Site Visit/Field Inspection Report 2927B-KA

RECEIVED  
DIVISION OF  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
APR 27 3 38 PM '99

1. CASE DATA

- a. FILE NO: 2927B-KA
- b. INITIATOR: NATIONAL TROPICAL BOTANICAL GARDEN
- c. LOCATION: TMK:(4)5-9-03:39/41 HAENA, KAUAI
- d. SUMMARY: RESTORATION OF AN ANCIENT LI'I KALO LOCATED ON LOTS 106 AND 107 WITHIN THE HALELEA DISTRICT OF HAENA

2. FINDINGS

- a. Site visit/inspection conducted on 03/22/99 by DOCARE Officer Milton Ching. There was no indication that any project work had been undertaken as of this date.
- b. There was no indication of any discrepancy in the applicant's description of the site conditions/situation.
- c. Nothing was noted that might be a bar to approval of the applicant's proposal.



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 6<sup>th</sup>, 1999

Patricia Edwards  
Acting Investigator  
Department of Land and Natural Resources  
Division of Conservation and Resources Enforcement  
P.O. Box 621  
Honolulu, HI 96809

Re: Limahuli Garden Lo'i Restoration Project  
Conservation District Use Application # KA-2927B

Dear Ms. Edwards,

This is to acknowledge and thank you for the assistance of your staff in conducting a **Site Visit** and in the preparation of a **Field Inspection Report** for the proposed Limahuli Garden Lo'i Restoration Project. Particularly, we wish to thank DOCARE officer Milton Ching for his inspection on March 22<sup>nd</sup>, 1999.

A copy of the **Site Visit / Field Inspection Report** will be included as an exhibit in the final Environmental Assessment for the project.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

## Division of Forestry & Wildlife

1151 Punchbowl Street, Rm. 325 • Honolulu, HI 96813 • (808) 587-0166 • Fax: (808) 587-0160

March 12, 1999

### MEMORANDUM

TO: Sam Lemmo, Planner  
Land Division

THRU: Dean Uchida, Administrator  
Land Division

FROM: Michael G. Buck, Administrator  
Division of Forestry and Wildlife

SUBJECT: CDUA - KA-2927B Limahuli Garden Lo'i project at Haena, Kauai  
(TMK:5-9-03:39&41) by National Tropical Botanical Garden (NTBG).



RECEIVED  
DIVISION OF  
LAND MANAGEMENT  
MAR 16 3 32 PM '99

We have reviewed this CDUA, KA-2927B application with respect to its impacts on DOFAW's natural resources management programs and endangered species in particular. The property that is being developed is in the Limited subzone of the State Conservation District. The NTBG's Lo'i project at their Limahuli Garden will greatly enhance the natural beauty of the area including restoring culturally significant resources that presently exist in a degraded condition.. Considering the positive nature of this project, DOFAW has no objections to this proposal.

C: Kauai DOFAW Branch



**NATIONAL TROPICAL BOTANICAL GARDEN**

CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 6<sup>th</sup>, 1999

Michael G. Buck  
Department of Land and Natural Resources  
Division of Forestry and Wildlife  
1151 Punchbowl Street, Rm. 325  
Honolulu, HI 96813

Re: Limahuli Garden Lo'i Restoration Project  
Conservation District Use Application # KA-2927B

Dear Mr. Buck,  
*Mike*

Thank you for reviewing the CDUA for the Limahuli Garden Lo'i Restoration Project. We sincerely appreciate your support and insight in the development of this action. A copy of your letter dated March 12<sup>th</sup>, 1999 will be included in the submission of a final EA for the project.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Land Division  
Planning and Technical Services Branch  
Honolulu, Hawaii

MAR 10 1999

SUSPENSE DATE: 21 Days

MEMORANDUM

TO: Aquatic Resources, Oahu District Land Agent, Historic Preservation, Division of Forestry and Wildlife, State Parks, Commission on Water Resources Management, ~~Engineering Branch~~, Conservation and Resources Enforcement

FROM: Dean Uchida, Administrator  
Land Division *[Signature]*

SUBJECT: REQUEST FOR COMMENTS Conservation District Use Application KA-2927B for the Limahuli garden Lo'i Project at Haena, Kauai

APPLICANT: National Tropical Botanical Garden

AGENT: Chipper Wichman

TMKS: 5-9-03:39&41

LOCATION: Haena, Kauai

PUBLIC HEARING: YES  NO

Please contact Sam Lemmo at 587-0381, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Attachment(s)

(X) COMMENTS ATTACHED

Signed: *[Signature]*  
ANDREW M. MONDEN, Chief Engineer

Date: 3/30/99

MAR 30 11 03 AM '99

RECEIVED  
DIVISION OF  
LAND MANAGEMENT

11 10:22

ENGINEERING BRANCH

COMMENTS

We suggest that the proposed project be done according to the Special Flood Hazard Area Regulations of the Kauai County Code.

For your information; the southwestern portion of the proposed project site, according to FEMA Community Panel Map No. 150002 0030 C, is located in Zone A. Zone A is an area located within the 100-year flood plain with no base flood elevations determined. The remainder of the site is located in Zone X. This is an area determined to be outside the 500-year flood plain.



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 6<sup>th</sup>, 1999

Andrew M. Monden, Chief Engineer  
Department of Land and Natural Resources  
Engineering Branch  
P.O. Box 621  
Honolulu, HI 96809

Dear Mr. Monden,

Thank you for taking the time to review the CDUA for the proposed Limahuli Garden Lo'i Restoration Project. Per your suggestion we have contacted the Department of Public Works of the County of Kaua'i to determine what measures, if any, are necessary for the proposed action to be in accord with the Special Flood Hazard Area Regulations of the Kaua'i County Code.

The proposed action does not include the construction or placement of any structures, and/or the raising of ground elevations within either of the designated FEMA flood zones that characterize the project area. The action is therefore compliant with the Special Flood Hazard Area Regulations of the County of Kaua'i.

Once again, thank you for your time and suggestions.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

STATE OF HAWAII  
 DEPARTMENT OF LAND AND NATURAL RESOURCES  
 Land Division  
 Planning and Technical Services Branch  
 Honolulu, Hawaii

MAR 10 1999

| DIVISION OF AQUATIC RESOURCES |  |
|-------------------------------|--|
| DIRECTOR                      | Suspense Date                            |
| COM FISHERIES                 | Draft Reply <input type="checkbox"/>     |
| AO REC/FNV                    | Reply Direct <input type="checkbox"/>    |
| AO REC/IN                     | Comments <input type="checkbox"/>        |
| STATE SVCS                    | Information <input type="checkbox"/>     |
| FISH DEV                      | Comp Act & File <input type="checkbox"/> |
| STATISTICS                    | Return to:                               |
| AFRC                          | Copies to:                               |
| EDUCATION                     | Remarks:                                 |
| SECRETARY                     |  |
| OFFICE                        |  |
| FILE NO.                      | 99-1490                                  |
| DATE                          | 25                                       |

SUSPENSE DATE: 21 Days

3/31

MEMORANDUM

TO: Aquatic Resources, Oahu District Land Agent, Historic Preservation, Division of Forestry and Wildlife, State Parks, Commission on Water Resources Management, Engineering Branch, Conservation and Resources Enforcement

FROM: Dean Uchida, Administrator  
 Land Division

*Uchida*

SUBJECT: REQUEST FOR COMMENTS Conservation District Use Application KA-2927B for the Limahuli garden Lo'i Project at Haena, Kauai

APPLICANT: National Tropical Botanical Garden

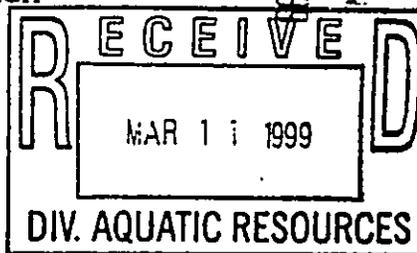
AGENT: Chipper Wichman

TMKS: 5-9-03:39&41

LOCATION: Haena, Kauai

PUBLIC HEARING: YES \_\_\_ NO X

RECEIVED  
 DIVISION OF  
 LAND MANAGEMENT  
 MAR 30 10 42 AM '99



Please contact Sam Lemmo at 587-0381, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Attachment(s)

*No additional comments*

*D. Uchida*  
 3/29/99

TO: ADMINISTRATOR  
 \_\_\_\_\_ ASS'T. ADMIN.  
 \_\_\_\_\_ DEV. BR.  
PLAN BR.  
 \_\_\_\_\_ RES. MGT. BR.  
 \_\_\_\_\_ PROJ. CONTROL  
 \_\_\_\_\_ SW. REC. PLAN.  
 \_\_\_\_\_ CLERICAL STAFF  
 \_\_\_\_\_ ADMIN. ASST.  
 \_\_\_\_\_ INTERP. BR.

FOR: \_\_\_\_\_ CIRCULATE/POST/STAFF  
 \_\_\_\_\_ COMMENTS & REC.  
 \_\_\_\_\_ DRAFT REPLY  
 \_\_\_\_\_ FILE  
 \_\_\_\_\_ FOLLOW UP  
 \_\_\_\_\_ P. 15H (DUE \_\_\_\_\_)  
 \_\_\_\_\_ SEE ME  
 \_\_\_\_\_ SEND COPY TO: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF LAND AND NATURAL RESOURCES  
 Land Division  
 Planning and Technical Services Branch  
 Honolulu, Hawaii

MAR 10 1999

SUSPENSE DATE: 21 Days

MEMORANDUM

~~TO:~~ Aquatic Resources, Oahu District Land Agent, Historic  
 Preservation, Division of Forestry and Wildlife, ~~State~~  
 Parks, Commission on Water Resources Management,  
 Engineering Branch, Conservation and Resources  
 Enforcement

~~FROM:~~ Dean Uchida, Administrator *J. Uchida*  
 Land Division

SUBJECT: REQUEST FOR COMMENTS Conservation District Use  
 Application KA-2927B for the Limahuli garden Lo  
 Project at Haena, Kauai

APPLICANT: National Tropical Botanical Garden

AGENT: Chipper Wichman

TMKs: 5-9-03:39&41

LOCATION: Haena, Kauai

PUBLIC HEARING: YES \_\_\_ NO X

Please contact Sam Lemmo at 587-0381, should you have any  
 questions on this matter.

If no response is received by the suspense date, we will assume  
 there are no comments. The suspense date starts from the date  
 stamp.

Attachment(s)

MAR 10 10 54 AM '99  
 RECEIVED  
 DIVISION OF  
 LAND MANAGEMENT

PHONE (808) 594-1808

FAX (808) 594-1085



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

April 29, 1999

Mr. Dean Uchida, Administrator  
Land Division  
Hawaii Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96813

PA#222

Re: Conservation District Use Application (KA-2927B for the Limahuli Garden, Lo'i Restoration Project, Haena, Kauai, TMKs: 5-9-02:39 & 41  
TMK: 5-9-6:39 & 41

Dear Mr. Uchida:

Thank you for the opportunity to review the Conservation District Use Application for Limahuli Garden's proposed Lo'i restoration project. At this time, we have no concerns with the project as outlined.

If you have any questions, or need to forward any additional information, please contact Lynn Lee, HIS Planner at 594-1936.

Sincerely

Colin Kippen  
Deputy Administrator

C. Sebastian Aloit  
Land and Natural Resources Division Office

cc: Board of Trustees  
Kauai Community Affairs Office

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DIVISION OF  
LAND MANAGEMENT  
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**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 26<sup>th</sup>, 1999

Colin Kippen, Deputy Administrator  
C. Sebastian Aloat, Land and Natural Resources Division Officer  
State of Hawaii, Office of Hawaiian Affairs  
711 Kapi`olani Boulevard, Suite 500  
Honolulu, HI 96813

**Re: Limahuli Garden Lo`i Restoration Project**  
**Conservation District Use Application # KA-2927B**

Dear Mr. Kippen and Mr. Aloat,

Thank you for taking the time to review the Conservation District Use Application for the Limahuli Garden Lo`i Restoration Project. We sincerely appreciate your support in the development of this action. A copy of your letter dated April 29<sup>th</sup>, 1999 will be included in the submission of a final EA for the project.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII

LAND DIVISION



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION  
Kakuhihewa Building, Room 555  
801 Kamohala Boulevard  
Kapolei, Hawaii 98707

TIMOTHY E. JOHNS, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES  
JANET E. KAWELO

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

April 1, 1999

MEMORANDUM

LOG NO: 23151 ✓  
DOC NO: 9903NM19

TO: Dean Uchida, Administrator  
Land Division

FROM: Don Hibbard, Administrator  
State Historic Preservation Division *DH*

SUBJECT: Historic Preservation Review -- Request for Comments on  
CDUA KA-2927B for , Limahuli Garden Lo'i Project (Chipper Wichman)  
TMK:5-9-03: 39 & 41 - Haena, Halelea, Kauai

National Tropical Botanical Gardens (NTBG) plans to restore lo'i on two lots (106 and 107) on lands recently acquired by NTBG. We have been working with the applicant to address our concerns. The plans discuss a phased approach with various tasks for each phase. If this plan is followed, the lo'i restoration can easily be accomplished with "no adverse effect" to significant historic sites. We accept the plan as submitted with this CDUA.

If you have any questions, please call Nancy McMahon 742-7033.

NM:amk

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DIVISION OF  
LAND MANAGEMENT  
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**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 6<sup>th</sup>, 1999

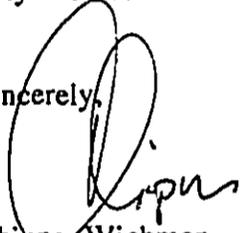
Don Hibbard, Administrator  
Department of Land and Natural Resources  
State Historic Preservation Division  
Kakuihewa Building, Room 555  
601 Kamokila Blvd.  
Kapolei, HI 96707

Re: Limahuli Garden Lo'i Restoration Project  
Conservation District Use Application KA - 2927B

Dear Mr. Hibbard,

Thank you for your review and acceptance of the CDUA for the Limahuli Garden Lo'i Restoration Project. We appreciate the assistance of your staff in the development of a phased approach for the proposed action. We will continue to work with Nancy McMahon throughout the various phases of project implementation to assure that historical preservation concerns are appropriately addressed.

Sincerely,

  
Chipper Wichman  
Director, Limahuli Garden

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



TIMOTHY E. JOHNS  
CHAIRPERSON  
BRUCE S. ANDERSON  
RICHARD H. COX  
ROBERT G. GIRALD  
DAVID A. NOBRIGA  
HERBERT M. RICHARDS, JR.  
EDWIN T. SAKODA  
ACTING DEPUTY DIRECTOR

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P.O. BOX 621  
HONOLULU, HAWAII 96809

MAR 22 1999

TO: Mr. Dean Y. Uchida, Administrator  
Land Division  
FROM: *Edwin T. Sakoda*  
Edwin T. Sakoda, Acting Deputy Director  
Commission on Water Resource Management

SUBJECT: Request for Comments - CDUA, National Tropical Botanical Garden, Limalu  
Gardens Lo'i Restoration Project

FILE NO.: KA-2927B

Thank you for the opportunity to review the subject document. Our comments related to water resources are as follows:

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas which are important for the maintenance of streams and the replenishment of aquifers.

We have no objections to the proposed project provided that the irrigation system for the proposed lo'i restoration conforms to the Stream Channel Alteration and Stream Diversion Works permits and Interim Instream Flow Standard amendment approved by the Commission on July 19, 1995 (SCAP-KA-155). A copy of Commission approval is attached for your files.

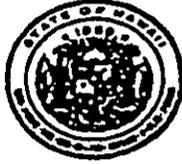
Thank you for allowing us to review and comment on this Conservation District Use Application. If there are any questions, please contact David Higa at extension 70249.

DH:fc

Attachment

MAR 23 3 07 PM '99  
RECEIVED  
DIVISION OF  
LAND MANAGEMENT

BENJAMIN J. CA'ETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P. O. BOX 821  
HONOLULU, HAWAII 96809  
SEP - 7 1995

MICHAEL D. WILSON  
CHAIRPERSON  
ROBERT G. GIRALD  
DAVID A. NOBREGA  
LAWRENCE H. MACE  
RICHARD H. COX  
HERBERT M. RICHARDS, JR.  
RAE M. LOUI, P.E.  
DEPUTY

REF:CWRM-SS

Mr. Charles R. Wichman, Jr., Assistant Director  
National Tropical Botanical Garden  
P.O. Box 808  
Hanalei, Hawaii 96714

Dear Mr. Wichman:

Your petition to amend the interim instream flow standard for Limahuli Stream and your applications for stream channel alteration and diversion works permits for a diversion structure on Limahuli Stream, Hanalei, Kauai, were approved by the Commission on Water Resource Management (Commission) on July 19, 1995.

The Commission approved the petition to amend the interim instream flow standard subject to the following conditions:

1. The petitioner shall gauge Limahuli stream in a manner acceptable to the Commission. The recorded streamflow data shall be reported to the Commission at regular time intervals acceptable to the Commission.
2. The petitioner shall conduct stream monitoring and research programs acceptable to the Division of Aquatic Resources.
3. The Commission reserves the right to require the petitioner to construct a water storage facility of appropriate capacity to store stream water during periods normal or high flows for use during periods of low streamflows.

A stream channel alteration and stream diversion works permits are issued herewith. Please note the conditions under which the permit is issued. If these conditions meet with your approval, please sign the permit, return one copy to the Commission, and retain a copy for your records. Also enclosed are copies of forms to report the initiation and completion of construction work.

If you have any questions concerning this permit, please contact Rae M. Loui, Deputy Director, at 587-0214.

Aloha,

A handwritten signature in cursive script, appearing to read "Michael D. Wilson".

MICHAEL D. WILSON

Enclosures



State of Hawaii  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources  
Honolulu, Hawaii

## STREAM CHANNEL ALTERATION PERMIT

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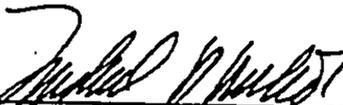
PERMIT NO: SCAP-KA-155                      EXPIRATION DATE: July 19, 1997  
APPLICANT: Mr. Charles R. Wichman, Assistant Director, National  
                 Tropical Botanical Garden  
PROJECT: Construction of a Diversion Works Structure, Limahuli Stream,  
                 Hanalei, Kauai, TMK 5-9-01:03

---

The permittee is hereby granted a permit to alter a stream channel and alter a diversion works in accordance with the specifications and plans contained in the application, subject to the following conditions and limitations:

1. The permit application and the staff submittal approved by the Commission at its meeting on July 19, 1995 shall be incorporated herein by reference.
2. The permittee shall comply with all other applicable statutes, ordinances, and regulations of the Federal, State, and County of Kauai governments.
3. The permittee, his successors, and his assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim for property damage, personal injury, or death arising out of any act or omission of the permittee or his successors, assigns, officers, employees, contractors, and agents under this permit or related to the granting of this permit.
4. The permittee shall notify the Commission, by letter, of the actual dates of project initiation and completion. Upon completion of the project the permittee shall submit a complete set of as-built plans to the Commission. Such plans shall indicate all fittings, materials, sizes, lengths, and invert elevations of intake and discharge points.
5. Before proceeding with any work authorized by the Commission, the permittee shall submit one set of the construction plan and specifications to the Commission for review as to consistency with the conditions of the permit and the declarations set forth in the permit application.
6. The permittee shall utilize appropriate erosion control measures during construction, and shall perform construction activities only during periods of low stream flow. The permittee shall prevent debris and construction materials, including cement, petroleum products, and other pollutants, from entering the stream. Wash and dust control water shall be properly disposed.

7. In the event that subsurface cultural remains such as artifacts, burials or deposits of shells or charcoal are encountered during excavation work, the permittee shall stop work in the area of the find and contact the Department's Historic Preservation Division (587-0045) immediately.
8. After construction of the diversion system, the permittee shall conduct measured flows of both discharge points. Such measured flows shall be accomplished with the assistance of a qualified engineer or hydrologist acceptable to the Commission. The engineer or hydrologist shall describe the appropriate settings of devices (valves, flow restrictors, etc.) which will produce a flow rate of 150 gallons per minute. The permittee shall notify the Commission one week prior to the date such measured flows will be taken.

  
\_\_\_\_\_  
MICHAEL D. WILSON, Chairperson  
Commission on Water Resource Management

Date: SEP - 7 1995

ACCEPTED:

\_\_\_\_\_  
Charles R. Wichman, National Tropical Botanical Garden

Date: \_\_\_\_\_



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 7<sup>th</sup>, 1999

Edwin T. Sakoda, Acting Deputy Director  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809

**Re: Limahuli Garden Lo`i Restoration Project**  
**Conservation District Use Application KA - 2927B**

Dear Mr. Sakoda,

Thank you for your review of the CDUA for the Limahuli Garden Lo`i Restoration Project.

As indicated in our CDUA, no new stream diversions or permits will be required as a result of the proposed action. Water to irrigate the project will be provided for from existing permitted sources.

In response to your comments, it is our intention that the irrigation system which is planned for the proposed project will utilize the existing Stream Channel Alteration and the Stream Diversion Works permits, as well as the Interim Instream Flow Standard amendment that were approved by the Commission on July 19<sup>th</sup>, 1995 (SCAP-KA-155).

A copy of your correspondence will be attached to the final Environmental Assessment. Thank you once again for your support and assistance.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

**DEPARTMENT OF WATER**  
County of Kauai

*"Water has no Substitute - Conserve It"*

March 15, 1999

MAR 19 3 50 PM '99

RECEIVED  
COUNTY OF KAUAI  
DEPARTMENT OF WATER

Mr. Dean Y. Uchida, Administrator  
Land Division  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, Hawaii 96809

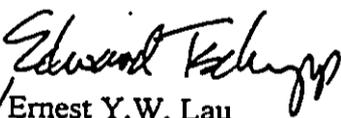
Dear Mr. Uchida:

SUBJECT: Conservation District Use Permit Application, File No. KA-2927B, Limahuli  
Garden Lo'i Restoration Project at Haena, Kauai, Hawaii  
(TMKs: 5-9-03:39 &41)

We have no objections to this Conservation District Use Permit Application provided the applicant is made aware that any request for County water meter service will be dependent on the adequacy of the source, storage and transmission facilities existing at that time.

Should you have any questions, please feel free to call me or Gregg Fujikawa of my staff at 245-5416.

Sincerely,

  
for Ernest Y.W. Lau  
Manager and Chief Engineer

GF

A:/CDUAKA-2927B|limahuliGardenLoiRestorationProj



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 4<sup>th</sup>, 1999

Ernest Y. W. Lau  
Manager and Chief Engineer  
Department of Water, County of Kaua'i  
P.O. Box 1706  
Lihue, HI 96766-5706

Re: Limahuli Garden Lo'i Restoration Project  
Conservation District Use Application KA-2927B

Dear Mr. Lau,

Thank you for your review and acceptance of the Conservation District Use Application for the proposed Limahuli Garden Lo'i Restoration Project. We understand that any future request for County water meter service will be dependent on the adequacy of the source, storage and transmission facilities existing at the time of such request.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Pacific Islands Ecoregion  
300 Ala Moana Blvd, Rm 3-122  
Box 50088  
Honolulu, HI 96850

MAR 19 1999

In Reply Refer To: CAW

Dean Y. Uchida  
Administrator  
State of Hawaii  
Department of Land and Natural Resources  
Division of Land Management  
P.O. Box 621  
Honoulu, Hawaii 96809

MAR 22 8 58 AM '99  
RECEIVED  
DIVISION OF  
LAND MANAGEMENT

Re: File No. KA-2927B, Conservation District Use Application, for the Limahuli Garden Lo'i Restoration Project at Haena, Hawaii (TMKs: 5-9-03:39&41)

Dear Mr. Uchida:

The U.S. Fish and Wildlife Service (Service) has reviewed the application for a Conservation District Use Permit for the Limahuli Garden Lo'i Restoration Project at Haena, Hawaii. The applicant is the Limahuli Garden and Preserve, National Tropical Botanical Garden. The Service offers the following comments for your consideration.

The proposed project involves site preparation (*i.e.*, clearing of vegetation, grading, and excavating) and construction of taro lo'i in 3.1 acres of uplands and 0.6 acres of wetlands. Because the proposed project will include working in a designated wetland, we recommend that the applicant contact the U.S. Army Corps of Engineers at 808/438-9258 to determine what permits may be required to complete the proposed project.

Based on our review of information contained in the proposed project application and our files, we believe that the proposed project will not diminish the current water quality and flood storage values associated with these wetlands. In addition, we believe that the proposed project will enhance the wildlife value of these wetlands by providing shallow water/mudflat habitat for four federally endangered Hawaiian waterbirds: the Hawaiian coot or 'Alae ke'o ke'o (*Fulica americana alai*), the Hawaiian stilt or Ae'o (*Himantopus mexicanus knudseni*), the Hawaiian common moorhen or 'Alae 'ula (*Gallinula chloropus sandvicensis*), and the Hawaiian duck or Koloa maoli (*Anas wyvilliana*). Therefore, the Service has determined that no significant adverse impacts to fish and wildlife resources are expected to result from the proposed project and the Service will not object to permit issuance.

Conservation District Use Application  
Lo'i Restoration Project  
Limahuli Garden, Haena, Hawaii  
Page 2 of 2

The Service appreciates the opportunity to comment on the proposed project. If you have any questions regarding these comments, please contact Fish and Wildlife Biologist Christine Willis by telephone at 808/541-3441 or by facsimile transmission at 808/541-3470.

Sincerely,



Donald Palawski  
Acting Field Supervisor  
Pacific Islands Fish and Wildlife Office

cc: NMFS, Honolulu  
DLNR, Hawaii  
CWB, Hawaii  
CZM, Hawaii  
EPA, Hawaii



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 25<sup>th</sup>, 1999

Donald Palawski, Acting Field Supervisor  
U.S. Fish and Wildlife Service  
Pacific Islands Ecoregion  
300 Ala Moana Blvd., Rm. 3-122  
Box 50088  
Honolulu, HI 96850

**Re: Limahuli Garden Lo`i Restoration Project**  
**Conservation District Use Application KA-2927B**

Dear Mr. Palawski,

Thank you for taking the time to review and comment upon the CDUA for the proposed Limahuli Garden Lo`i Restoration Project located in Ha`ena, Kaua`i (TMKs 5-9-03: 39 & 41). Your expressed concern about site preparation and construction of taro lo`i within 0.6 acres of the designated wetlands should be alleviated by the knowledge that no restoration activities are proposed within any of the designated wetland areas on lots 106 & 107 (refer to CDUA pg. 10, paragraph 3). Lo`i restoration activities (as defined in the CDUA) are only proposed for the 3.1 acres of "uplands" on lots 106 & 107.

A site survey conducted by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) confirms that the scope and location of proposed activities will not occur within any of the wetland areas so designated on either of lots 106 or 107. For further information regarding this determination, please contact John Schlegel of the NRCS at (808) 245-6513 on Kaua`i. Refer also to the attached correspondence from Ronald A. Peyton of the NRCS.

The Department of the Army was contacted in response to your recommendation that a determination be made regarding a DA permit for the proposed action. Mr. George P. Young, P.E., Chief of the Regulatory Branch of the Department of the Army has issued a jurisdictional determination that the proposed project will not impact waters of the United States and will therefore not require a DA permit (see attached correspondence).

Thank you once again for your time and assistance in this environmental review process. If you have any further questions, please contact Ben Welborn, Lo`i Restoration Project Coordinator at (808) 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

Attachments: 2 Pages



United States  
Department of  
Agriculture

Natural  
Resources  
Conservation  
Service

4334 Rice St.  
Room 104  
Lihue, Hawaii  
96766-1801

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

May 10, 1999

NTBG - Limahuli Garden  
Mr. Chipper Wichman, Director  
P.O. Box 808  
Hanalei, HI 96714

Dear Chipper:

This note is to clarify the assistance NRCS is providing you in regards the planned Wildlife Habitat Incentive Program (WHIP) cost share contract to renovate about two acres of old taro lois on your new property makai of the highway.

Jon Schlegel performed a wetland determination on this parcel and coordinated with Nancy McMahon on a SHPO review of the ancient rock terrace system.

Renovation work on the rock terrace walls will most likely require an approved SHPO restoration plan.

In my opinion, the manual brush clearing and manual loi reconstruction on the upland portions of the terraces will not require any special permits and should be able to start right now. These upland terraces are not presently wetlands and no planned work will impact existing wetlands in the immediate vicinity; thus, neither a "Minimal Effects Wetland Determination" or a Corp of Engineers "General Permit GP 95-003 For Taro Loi Restoration In The State of Hawaii" are required. The planned site preparation is exempt from the county "Grading Ordinance" due to your East Kauai SWCD approved Conservation Plan and your county granted Agricultural Exemption to the grading ordinance, as long as you follow your conservation plan.

If during any activities such as construction of: the access road, irrigation pipeline, or clearing and shaping the lois any archaeological evidence is discovered SHPO should be notified and work should cease until a qualified evaluation can be performed.

We look forward to working with you in carrying out the specific items of this contract and will work closely with you to provide site specific conservation practice job sheets, engineering surveys, and recommended operation & maintenance instructions.

Sincerely,

A handwritten signature in cursive script that reads "Ronald A. Peyton".

Ronald A. Peyton  
District Conservationist

#filecode UNIX: /usr/peyton/word/LETTERSout/NTBGLima2.doc (so 5/10/99)

The Natural Resources Conservation Service works hand-in-hand with  
the American people to conserve natural resources on private lands.

AN EQUAL OPPORTUNITY EMPLOYER



DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, HONOLULU  
FORT SHAFTER, HAWAII 96858-5440

REPLY TO  
ATTENTION OF

March 23, 1999

Civil Works Branch

RECEIVED  
DIVISION OF  
LAND MANAGEMENT  
MAR 24 9 16 AM '99

Mr. Dean Y. Uchida, Administrator  
State of Hawaii  
Department of Land Natural Resources  
Division of Land Management  
Land Division  
PO Box 621  
Honolulu, Hawaii 96809

Dear Mr. Uchida:

Thank you for the opportunity to review and comment on the Conservation District Use Application (KA-2927B) for the Limahuli Garden Lei Restoration Project at Haena, Kauai (TMKs 5-9-3: 39 and 41). The following comments are provided in accordance with U.S. Army Corps of Engineers, Honolulu District authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Based on the information provided, a DA permit may be required for the project. For further information, please contact Mr. Peter Galloway of our Regulatory Section staff at 438-9258 and refer to file number 990000229.

b. According to the enclosed Federal Emergency Management Agency's Flood Insurance Rate Map, panel number 150002 0030.C (dated March 4, 1987), the project site is located in Zone X (unshaded; areas determined to be outside of the 500-year floodplain). For further information regarding the flood zone designation, please contact Ms. Jessie Dobinchick of our Planning-Engineering Section staff at 438-8876.

Sincerely,

Paul Mizue, P.E.  
Chief, Civil Works Branch

Enclosure

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

KAUAI COUNTY,  
HAWAII

PANEL 30 OF 225  
(SEE MAP INDEX FOR PANELS NOT PRINTED)



PANEL LOCATION  
COMMUNITY-PANEL NUMBER  
150002 0030 C

MAP REVISED:  
MARCH 4, 1987



Federal Emergency Management Agency

LEGEND

**SPECIAL FLOOD HAZARD AREAS INUNDED BY 100-YEAR FLOOD**

- ZONE A** No base flood elevations determined.
- ZONE AE** Base flood elevations determined.
- ZONE AH** Flood areas of 1 to 2 feet (average area of ponding); base flood elevations determined.
- ZONE AO** Flood areas of 1 to 3 feet (average area flow on normal channel); average depths determined. For areas of storage for flooding, see also ZONE A.
- ZONE ASB** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- ZONE V** Coastal flood with velocity hazard (wave surge); no base flood elevations determined.
- ZONE VE** Coastal flood with velocity hazard (wave surge); base flood elevations determined.

**FLOODWAY AREAS IN ZONE AE**

- OTHER FLOOD AREAS**
- ZONE X** Areas of 100-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 2 square miles; and areas protected by levees from 100-year flood.

- OTHER AREAS**
- ZONE X** Areas determined to be outside 100-year flood plain.
- ZONE D** Areas in which flood hazards are undetermined.

- Flood Boundary
- - - Floodway Boundary
- - - Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Site Flood Elevations Within Special Flood Hazard Zones.
- 513 — Base Flood Elevation Line; Elevation in Feet\*
- (EL 987) — Cross Section Line
- RM7x — Base Flood Elevation in Feet Where Uniform Within Zone\*
- Elevation Reference Mark

\*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all diastrophic features outside Special Flood Hazard Areas. Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency. Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report. Coastal base flood elevations apply only landward of the shoreline. Elevation reference marks are described in the Flood Insurance Study Report. For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

County of Kauai Department of Public Works, 4396 Rice Street, Lihue, Hawaii, 96766 (Map available for reference only, not for distribution)

INITIAL IDENTIFICATION:  
DECEMBER 20, 1974

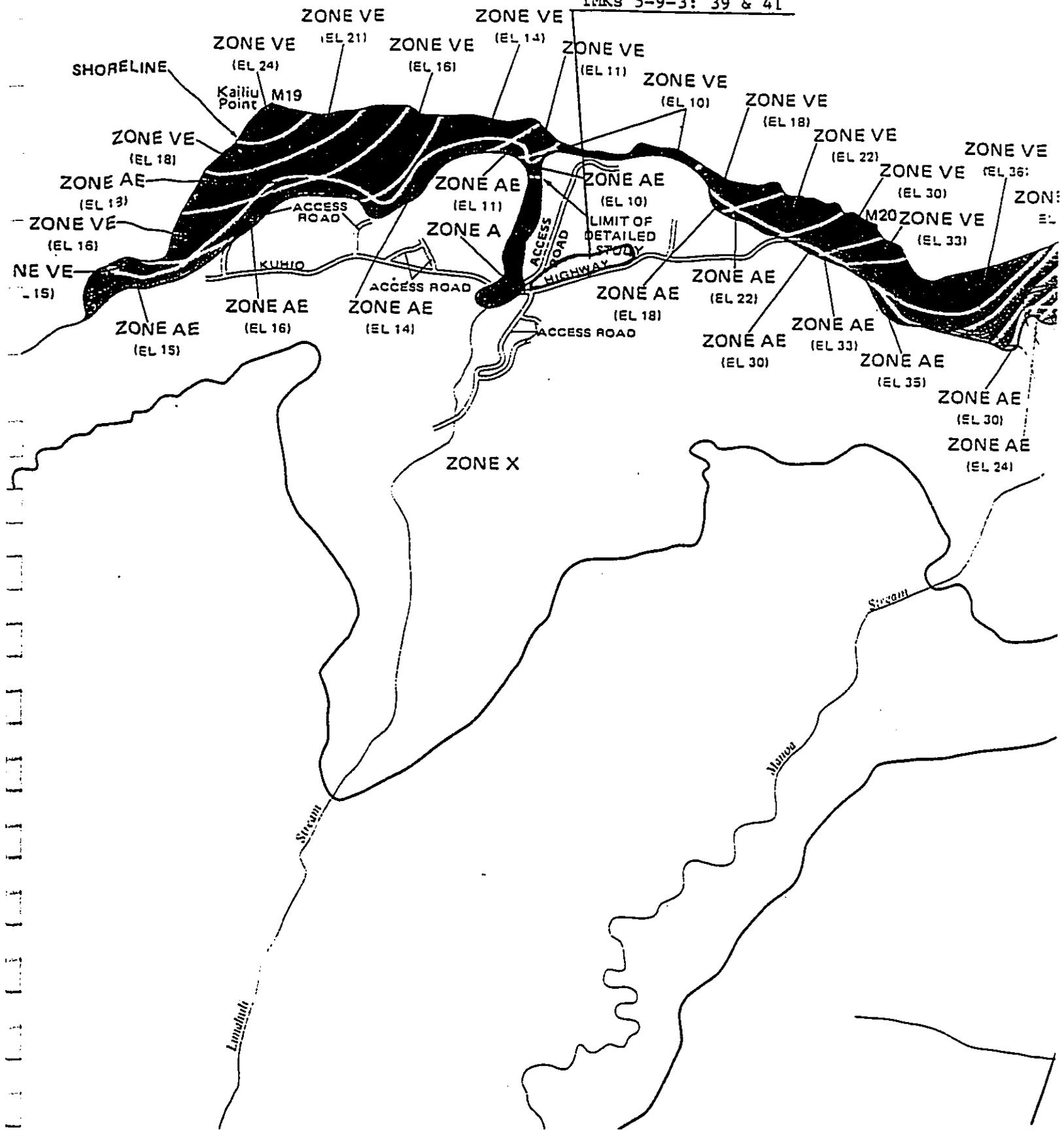
FLOOD HAZARD BOUNDARY MAP REVISIONS:  
DECEMBER 20, 1977

FLOOD INSURANCE RATE MAP EFFECTIVE:  
NOVEMBER 4, 1981

FLOOD INSURANCE RATE MAP REVISIONS:  
Map revised March 4, 1987 to change flood plain boundaries, zone designations, base flood elevations, corporate limits, scale, cultural features, or map format.

CUSTOMER COPY

Approximate Location  
TMKs 5-9-3: 39 & 41





**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 25, 1999

Paul Mizue, P.E.  
Chief, Civil Works Branch  
Department of the Army  
U.S. Army Engineering District, Honolulu  
Fort Shafter, HI 96858-5440

**Re: Limahuli Garden Lo'i Restoration Project, File # 990000229**  
**Conservation District Use Application KA - 2927B**

Dear Mr. Mizue,

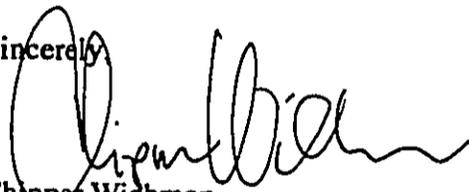
Thank you for taking the time to review and comment upon the Conservation District Use Application, KA - 2927 B for the Limahuli Garden Lo'i Restoration Project located in Ha'ena, Kaua'i (TMKs 5-9-3: 39 & 41). In response to your comments regarding flood hazard information and the issuance of a Department of the Army (DA) permit, the following information is provided:

**1) FEMA Flood Zone Determination** - Per your recommendation, I have contacted Ms. Jessie Dobinchick regarding the flood zone designation of the proposed project area. Ms. Dobinchick confirmed that the proposed project lies within Zone X (those areas determined to be outside of the 500-year floodplain). The proposed action will not include the construction or placement of any structures, and/or the raising of ground elevations. Therefore, the proposed project satisfies all FEMA requirements.

**2) DA Permit** - Per your request, we have contacted Mr. Peter Galloway of your Regulatory Section Staff for a DA jurisdictional determination for the Limahuli Garden Lo'i Restoration Project. Due to the fact that the project will not involve any work in wetlands, or in any other waters of the United States (see CDUA pg. 10, paragraph 3), Mr. George P. Young has determined that the proposed project will not impact waters of the U.S. and will therefore not require a DA permit (see attached correspondence). Also attached hereto is a correspondence from Mr. Ronald A. Peyton, District Conservationist for the USDA, Natural Resources Conservation Service, which further clarifies the absence of wetlands within the proposed project area.

Thank you once again for your assistance. If you have any questions, please call Ben Welborn, Lo'i Restoration Project Coordinator at (808) 826-1679.

Sincerely,



Chipper Wichman  
Director, Limahuli Garden

Attachments: 2 Pages



DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
FORT SHAFTER, HAWAII 96858-5440

REPLY TO  
ATTENTION OF

May 18, 1999

Regulatory Branch

Mr. Chipper Wickman  
Director  
Limahuli Garden  
P.O. Box 808  
Hanalei, Hawaii 96714

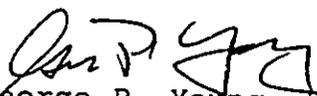
Dear Mr. Wickman:

This responds to your request for a Department of the Army (DA) jurisdictional determination for the Limahulu Garden Lo'i Restoration Project at Haena, Kauai (TMK 5-9-3: 39, 41).

Our review of the Conservation District Use Application for this project suggested that a DA permit might be required (letter dated March 23, 1999). However, you recently explained in a telephone conversation with Mr. Peter Galloway of my staff that the project will not involve any work in wetlands or other waters of the U.S. Based on this additional information, I have determined that the proposed project will not impact waters of the U.S. and will not require a DA permit.

If you have any further questions regarding this determination, please contact Peter Galloway at (808) 438-9258 ext. 15 and refer to file number 990000229.

Sincerely,

  
George P. Young, P.E.  
Chief, Regulatory Branch

Copies Furnished:

Clean Water Branch, State of Hawaii Department of Health,  
P.O. Box 3378, Honolulu, HI 96801-3386  
State of Hawaii, Department of Land and Natural Resources,  
Commission on Water Resource Management, P.O. Box 621,  
Honolulu, HI 96809  
Mr. George Kalisik, Kauai Department of Planning, 4280 Rice  
Street, Lihue, HI 96766



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 25, 1999

George P. Young, P.E.  
Chief, Regulatory Branch  
Department of the Army  
U.S. Army Engineering District, Honolulu  
Fort Shafter, HI 96858-5440

**Re: Limahuli Garden Lo'i Restoration Project**  
**Conservation District Use Application KA - 2927B**  
**File # 990000229**

Dear Mr. Young,

Thank you for issuing a Department of the Army (DA) jurisdictional determination for the Limahuli Garden Lo'i Restoration Project located in Ha'ena, Kaua'i (TMKs 5-9-3: 39 & 41). Based upon the information which I shared with Mr. Peter Galloway in a recent telephone conversation, you have determined that the proposed project will not impact waters of the United States and will therefore not require a DA permit. An acknowledgement of your determination will be attached in a correspondence to Mr. Paul Mizue, Chief of the Civil Works Branch of the Department of the Army. Your determination will also be attached in an appendix of the Final Environmental Assessment for the proposed project.

Thank you once again for your assistance. If you have any further questions, please contact Ben Welborn, Lo'i Restoration Project Coordinator at (808) 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

MARYANNE W. KUSAKA  
MAYOR



PLANNING DEPARTMENT

DEE M. CROWELL  
PLANNING DIRECTOR  
SHEILAH N. MIYAKE  
DEPUTY PLANNING DIRECTOR  
TELEPHONE (808) 241-6677  
FAX (808) 241-6699

April 23, 1999

Chipper Wickman  
Limahuli Garden, NTBG  
P. O. Box 808  
Hanalei, HI 96714

Subject: Special Management Area Minor Permit SMA(M)-99-27  
Restoration of kalo loi  
TMK:5-9-03:39 & 41  
Hanalei, Kauai

Based on the information submitted, we have completed our review and assessment of the subject proposal and hereby issue a Special Management Area Minor Permit authorizing, as represented, restoration of kalo loi including construction of an access drive and parking area, and excavation of an auwai and loi.

Approval of the application is subject to the following conditions:

1. The applicant shall comply with the requirements of the State Highways Division regarding the proposed access drive from Kuhio Highway.
2. The applicant shall coordinate the restoration project with the State Historic Preservation Division (SHPD), and the Kauai Historic Preservation Review Commission (KHPRC). The applicant shall resolve with SHPD and KHPRC, recommendations regarding alternative methods of tree removal and sub surface testing in selected undisturbed areas.

Also be informed that other permits or conditions from other agencies may be required. The applicant is responsible for resolving those conditions with the other respective agency(ies).

  
Dee M. Crowell  
Planning Director

c: Historic Preservation Division  
DOT - Highways Division

Kapule Building • 4444 Rice Street, Suite 473 • Lihu'e, Kaua'i, Hawai'i 96766  
AN EQUAL OPPORTUNITY EMPLOYER



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 6<sup>th</sup>, 1999

Dee M. Crowell, Planning Director  
County of Kaua'i Planning Department  
4444 Rice Street, Suite 473  
Lihue, HI 96766

Re: Limahuli Garden Lo'i Restoration Project  
SMA (M) -99-27

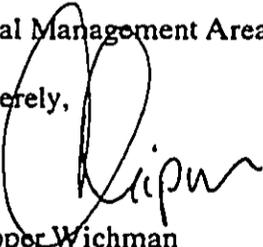
Dear Mr. Crowell,

Thank you for your review of the SMA Minor Permit Assessment Application for the Limahuli Garden Lo'i Restoration Project. We understand that the approval of the application and the issuance of the SMA (M) Permit # 99-27 are subject to the following conditions:

1. The NTBG shall comply with the requirements of the State Highways Division regarding the proposed construction of an access drive from Kuhio Highway. We have contacted Steven Kyono of the State Highways Division (see attached document) to acknowledge receipt of his letter addressed to the County of Kaua'i Planning Department (dated March 17, 1999).
2. The NTBG shall coordinate the Lo'i Restoration Project with the State Historic Preservation Division (SHPD) and the Kaua'i Historic Preservation Review Commission (KHPRC). Throughout the proposed phased-approach of project implementation, the NTBG shall seek resolution with the SHPD and the KHPRC regarding:
  - a) the consideration and utilization of alternative methods of mature tree removal;
  - b) the correct and consistent use of terminology relevant to the project regarding "restoration" vs. "repair", "reconstruction", or "rehabilitation" as defined by the National Park Service;
  - c) and, that sufficient sub-surface testing be conducted in selected undisturbed areas throughout the project site.

Once again, thank you for the issuance of a Special Management Area Permit for this action.

Sincerely,

  
Chipper Wichman  
Director, Limahuli Garden

State of Hawaii  
Highways Division  
3060 Eiwa Street, Room 205  
Lihue, Kauai, Hawaii 95766  
Phone: (808) 274-3111 Fax: (808) 274-3116

99 MAR 19 11 11  
PLANNING DEPT.

## MEMORANDUM

HWY-KE 4.990307

Date: March 17, 1999

**To:** Mr. Dee Crowell, Director  
Planning Department  
County of Kauai

**From:** Steven Kyono   
District Engineer

**Subject:** Minor Special Management Area Use Permit SMA(m)-99-27  
Limahuli Garden of the NTBG

Review of the subject Minor SMA permit application has been completed and we have the following comments:

1. PART B. Page 6, Task #1, 1.a-Construction of Vehicular Access onto Lot 107 (Increment A only)

Prior to design and construction of the new vehicular access from Kuhio Highway, the applicant shall submit a request for an "Access Permitted" opening to Kuhio Highway. A metes and bounds survey map delineating the exact location of the requested driveway opening shall accompany the request. Also, available sight distances, horizontal & vertical, shall be shown on the map. The metes & bounds map and sight distances shall be certified by a Hawaii licensed surveyor. The applicant is advised to submit his request for an "Access Permitted" opening to the State Highways Division, as soon as possible, since it may take some time to review/approve the request.

2. PART B. Page 8, Item (3)

Amend the last sentence of Item (3) to read "At that time, prior to construction of the access, plans will be submitted to the DLNR, the Kaua'i Planning Department, and the State Highways Division for review and approval."

Mr. Dee Crowell, Director  
Page 2  
March 17, 1999

HWY-KE 4.990307

Note: No construction within the State Highway Right of Way shall commence unless a "Permit to Perform Work Upon the State Highway" has been issued to the applicant/contractor. No permit will be issued unless the State Highways Division's Right of Way Branch has approved the "Access Permitted" opening.

If you have any questions, please call Steve Morikawa at 274-3118

SM:es



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

May 6<sup>th</sup>, 1999

Steven Kyono, District Engineer  
State of Hawaii, Highways Division  
3060 Eiwa Street, Room 205  
Lihue, HI 96766

Re: Limahuli Gardens Lo'i Restoration Project, SMA (M)-99-27

Dear Mr. ~~Kyono~~,  
*Steve*

Thank you for taking the time to review our SMA permit application. Mr. Dee Crowell of the County of Kaua'i Planning Department has forwarded us your comments regarding State Highways requirements for the proposed action.

Prior to the design and construction of the new vehicular access to the project from Kuhio Highway, we shall submit a request for an "Access Permitted" opening from Kuhio Highway. A metes and bounds survey map delineating the exact location of the proposed driveway opening shall accompany our request. Available sight distances, horizontal and vertical, shall be shown on the map. We understand that the metes and bounds map, as well as all sight distances need to be certified by a Hawaii licensed surveyor.

We expect to be able to submit this request for an "Access Permitted" opening after the completion of the Archaeological Inventory Survey described in *Phase 2* of the SMA permit application. We anticipate completion of the required archaeological work and subsequent submittal of our request to your department some time within the next 12 to 18 months.

Your comments have been noted and will be placed on file with the SMA Minor Permit # 99-27. Similarly, the Conservation District Use Application and/or the Final Environmental Assessment will be amended prior to filing to include appropriate language with regard to State Highways Division requirements.

Thank you once again for your review and support of our project.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

c: Dee Crowell, Planning Department, County of Kaua'i

**APPENDIX 2**

**BIOLOGICAL SURVEY  
OF LOTS 106 & 107**

## National Tropical Botanical Garden Limahuli Garden

### Vegetation Survey of Lots 106 and 107, Limahuli Valley, Haena, Kauai, Hawaii

Survey date : January 28, 1999

Surveyor : David Bender, NTBG, Limahuli Garden

Location : 3.9 Arces below Kuhio Hwy, Limahuli Valley, Haena, Kauai

Latitude / Longitude, 22 Deg, 13.57 N, 159 Deg, 34.20 W

### Taxa observed on Lots 106 and 107, Limahuli Valley, Kauai, Hawaii

| Taxon                                     | Family         | Common Name       | Status      |
|---|----------------|-------------------|-------------|
| <b>Alien Dominated Lowland Wet Forest</b> |                |                   |             |
| <b>Canopy Species</b>                     |                |                   |             |
| <i>Aleurites moluccana</i>                | Eupobiaceae    | kukui             | Polyn intro |
| <i>Archontophoenix alexandrae</i>         | Arecaceae      |                   | alien       |
| <i>Calophyllum inophyllum</i>             | Clusiaceae     | kamani            | Polyn intro |
| <i>Canavalia cathartica</i>               | Fabaceae       | maunaloa          | alien       |
| <i>Casuarina equisetifolia</i>            | Casuarinaceae  | ironwood          | alien       |
| <i>Clusea rosea</i>                       | Clusiaceae     | autograph tree    | alien       |
| <i>Epipremnum pinnatum</i> cv 'Aureum'    | Araceae        | golden pothos     | alien       |
| <i>Ficus microcarpa</i>                   | Moraceae       | Chinese banyan    | alien       |
| <i>Hibiscus tiliaceus</i>                 | Malvaceae      | hau               | Polyn intro |
| <i>Mangifera indica</i>                   | Anacardiaceae  | mango             | Polyn intro |
| <i>Morinda citrifolia</i>                 | Rubiaceae      | noni              | Polyn intro |
| <i>Pandanus tectorius</i>                 | Pandanaceae    | hala              | indigenous  |
| <i>Passiflora suberosa</i>                | Passifloraceae | wild passionfruit | alien       |
| <i>Psidium guajava</i>                    | Myrtaceae      | guava             | Polyn intro |
| <i>Schefflera actinophylla</i>            | Araliaceae     | umbrella tree     | alien       |
| <i>Spathodea campanulata</i>              | Bignoniaceae   | African tulip     | alien       |
| <i>Syzigium cumini</i>                    | Myrtaceae      | Java plum         | alien       |
| <i>Terminalia catappa</i>                 | Combretaceae   | Indian almond     | alien       |

| Taxon                           | Family           | Common Name      | Status      |
|---------------------------------|------------------|------------------|-------------|
| <b>Understory Species</b>       |                  |                  |             |
| <i>Brachiaria mutica</i>        | Poaceae          | California grass | alien       |
| <i>Cassia alata</i>             | Fabaceae         | candlebush       | alien       |
| <i>Clerodendrum philippinum</i> | Verbenaceae      | pikake wauke     | alien       |
| <i>Clidemia hirta</i>           | Melastomataceae  | Koster's curse   | alien       |
| <i>Coix lachryma-jobi</i>       | Poaceae          | Job's tears      | alien       |
| <i>Commelina diffusa</i>        | Commelinaceae    | honohono         | alien       |
| <i>Cordyline fruticosa</i>      | Agavaceae        | ti               | Polyn intro |
| <i>Costus speciosus</i>         | Costaceae        | spiral flag      | alien       |
| <i>Crocasmia crocosmiifolia</i> | Iridaceae        | montbrettia      | alien       |
| <i>Cyclosorus interrupta</i>    | Thelypteridaceae | neke             | indigenous  |
| <i>Heliconia sp.</i>            | Heliconiaceae    | lobster claws    | alien       |
| <i>Ludwigia octovalvis</i>      | Onagraceae       | primrose willow  | alien       |
| <i>Ludwigia palustris</i>       | Onagraceae       | marsh purslane   | alien       |
| <i>Oplismenus hirtellus</i>     | Poaceae          | basket grass     | alien       |
| <i>Pluchea carolinensis</i>     | Asteraceae       | sourbush         | alien       |
| <i>Wedelia trilobata</i>        | Asteraceae       | wedelia          | alien       |

## Freshwater Swamp

### Canopy Species

|                                |               |          |             |
|--------------------------------|---------------|----------|-------------|
| <i>Hibiscus tiliaceus</i>      | Malvaceae     | hau      | Polyn intro |
| <i>Casuarina equisetifolia</i> | Casuarinaceae | ironwood | alien       |

### Understory Species

|                                 |                  |                 |            |
|---------------------------------|------------------|-----------------|------------|
| <i>Commelina diffusa</i>        | Commelinaceae    | honohono        | alien      |
| <i>Cyclosorus interruptus</i>   | Thelypteridaceae | neke            | indigenous |
| <i>Hydrocotyle verticillata</i> | Apiaceae         | marsh pennywort | alien      |
| <i>Ludwigia octovalvis</i>      | Onagraceae       | primrose willow | alien      |

## Freshwater Marsh

### Canopy Species

none

### Understory Species

|                                       |                  |                  |            |
|---------------------------------------|------------------|------------------|------------|
| <i>Brachiaria mutica</i>              | Poaceae          | California grass | alien      |
| <i>Commelina diffusa</i>              | Commelinaceae    | honohono         | alien      |
| <i>Cyclosorus interruptus</i>         | Thelypteridaceae | neke             | indigenous |
| <i>Cyperus alternifolia</i>           | Cyperaceae       | cyperus          | alien      |
| <i>Ludwigia palustris</i>             | Onagraceae       | marsh purslane   | alien      |
| <i>Mimosa invisa</i>                  | Fabaceae         | sensitive plant  | alien      |
| <i>Scirpus lacustris ssp. validus</i> | Cyperaceae       | great bullrush   | indigenous |

**APPENDIX 3**

**NATURAL RESOURCES CONSERVATION SERVICE  
PRELIMINARY TECHNICAL DETERMINATION**

**JANUARY 12, 1999**

January 12, 1999

NTBG-Limahuli  
P.O. Box 340  
Lawaii, HI 96765

Dear NTBG-Limahuli:

PRELIMINARY TECHNICAL DETERMINATION

Enclosed is your preliminary Highly Erodible Land and Wetland Determination, Form NRCS-CPA-026E, for your farm. This preliminary technical determination is part of the conservation provisions of the Food Security Act of 1985, as amended by the Food Agriculture, Conservation and Trade Act of 1990, and the Federal Agriculture Improvement and Reform Act of 1996, and was made in response to your application for USDA program benefits.

As of the date of this letter, this preliminary technical determination notifies you that:

- ✓ Field number(s) [3] contains a wetland. Contact this office at (808) 245-6513 if you have any questions. If you plan to conduct land clearing, filling, leveling or dredging; or maintain, improve, or install a drainage system, you should notify this office well in advance of your plan to alter a wet area so the alteration can be done with full knowledge of its potential effect on your USDA program eligibility.
- ✓ None of the fields are considered highly erodible land.

As of January 16, 1996, the U.S. Department of Agriculture has initiated a major revision to the appeal process within the Department. The revised process implements statutory changes in agency appeal authorities that were set forth in the Federal Crop Insurance Reform and Department of Agriculture Reorganization Act of 1994.

Under the new appeals and mediation process, your preliminary technical determination will become final within thirty (30) days of the date of this letter unless you request either or both of the following options:

- 1) A Field Visit. A field visit to the site will be made by our office to review with you the basis for our preliminary technical determination, answer any questions you have concerning the determination, and to gather additional information from you concerning the preliminary technical determination. At the option of the East Kauai Soil and Water Conservation District, a district representative will also attend the field visit.
- 2) Mediation. Mediation will be used in an attempt to settle your concerns with the preliminary technical determination. A trained, impartial person (a neutral

mediator) will help us to look at mutual problems, identify and consider options, and determine if we can agree on a solution.

Unlike an appeal, mediation is private, confidential, and informal. The mediator will help us work together to evaluate the information in your case and to identify alternatives that will assist us in resolving the dispute.

The mediator has no decision making authority. Unlike the appeal process, a mediator cannot decide what is "right" or "make" anyone do anything. If the mediation is successful, the mediator may help us to reach an agreement and document that solution in writing. If an agreement is not reached, the mediation process is closed and you may continue to pursue your appeal through your Farm Service Agency County Committee.

If you choose to use mediation, NRCS will pay up to \$1000 of appropriate and reasonable costs associated with each mediation process.

If you do not agree with the preliminary technical determination and you are interested in a field visit and/or mediation, please notify me in writing within thirty (30) days of the date of this letter. Your letter should be faxed or mailed to:

FAX Number: (808) 246-4639  
Address: Lihue Field Office  
USDA Natural Resources Conservation Service  
4334 Rice St. Rm 104  
Lihue, HI 96766

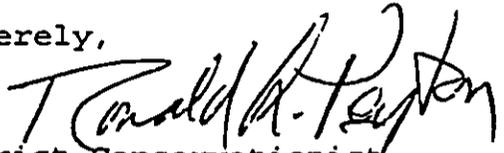
A final technical determination will be made and issued thirty (30) days after the date of this preliminary technical determination if a field visit or mediation is not requested within this period. If a field visit is requested, the final technical determination will be made within thirty (30) days of the field visit. If mediation is requested, the final technical determination will be made within thirty (30) days of the completion of mediation.

Once the technical determination is final, you may appeal the technical determination to the Farm Service Agency (FSA) County Committee. Appeals to the county committee must be submitted in writing to the address below within thirty (30) days of the date of the final technical determination.

Farm Service Agency County Committee  
4334 Rice St., Rm 103  
Lihue, HI 96766

If you are the owner of this tract of land and have a tenant, I urge you to discuss this letter and accompanying Form NRCS-CPA-026E with your tenant. Likewise, if you are the tenant of this tract of land, I urge you to discuss this letter with your landlord.

Sincerely,



District Conservationist

Encl.: Form NRCS-CPA-026E

c: FSA County Committee  
COE

Chief of Operations Branch  
US Army Corps of Engineers  
Pacific Ocean Division  
Operations Division (CEPOD-CO-O)  
Fort Shafter, HI 96858

HIGHLY ERODIBLE LAND AND WETLAND  
 CONSERVATION DETERMINATION

Name: NTBGLimahuli Tract: NTBGLim Farm: 120  
 County: Kauai County Request Date: FSA Farm No.: 120

Section I - Highly Erodible Land

Fields in this section have undergone a determination of whether they were highly erodible land (HEL) or not; fields for which an HEL Determination has not been completed are not listed. In order to be eligible for USDA benefits, a person must be using an approved conservation system on all HEL.

| Field | HEL (Y/N) | Sodbusted (Y/N) | Acres | Determination Date |
|-------|-----------|-----------------|-------|--------------------|
| 3     | N         | N               | 3.7   | 01/11/99           |

Section II - Wetlands

Fields in this section have had wetland determinations completed. See the Wetlands Explanation section for additional information regarding allowable activities under the wetland conservation provisions of the Farm Bill and Section 404 of the Clean Water Act.

| Field | Wetland Label | Acres | Determination Date | Certification Date |
|-------|---------------|-------|--------------------|--------------------|
| 3     | W             | 0.6   | 01/11/99           | 01/11/99           |
| 3     | NW            | 3.1   | 01/11/99           | 01/11/99           |

Wetlands Explanation

| Wetland Label | Explanatory Comments   |
|---------------|--|
| NW            | Non-wetland;<br>Description: An area that does not meet wetland criteria under natural conditions or wetlands that were converted prior to 12/23/85, not cropped prior to 12/23/85, does not meet wetland criteria, and has not been abandoned; Authorized cropping: No Restrictions; Authorized Maintenance: No restrictions unless the manipulation would convert adjacent wetland labels. |

HIGHLY ERODIBLE LAND AND WETLAND  
CONSERVATION DETERMINATION

Name: NTBGLimahuli Tract: NTBGLim Farm: 120  
County: Kauai County Request Date: FSA Farm No.: 120

Wetlands Explanation

| Wetland Label | Explanatory Comments   |
|---------------|--|
| W             | Wetland;<br>Description: An area that meets the wetland criteria including wetland farmed under natural conditions. Includes abandoned wetland resulting from abandonment of other wetland labels; Authorized Cropping: May be farmed under natural conditions without removal of woody vegetation; Authorized Maintenance: At level needed to maintain original system on related farmed wetland, farmed wetland pasture, and prior converted cropland. Must not convert additional wetlands or exceed "original scope and effect"; If you plan to clear, drain, fill, level or manipulate these areas contact NRCS* and COE**. |

\* Natural Resources Conservation Service  
\*\* Corps of Engineers

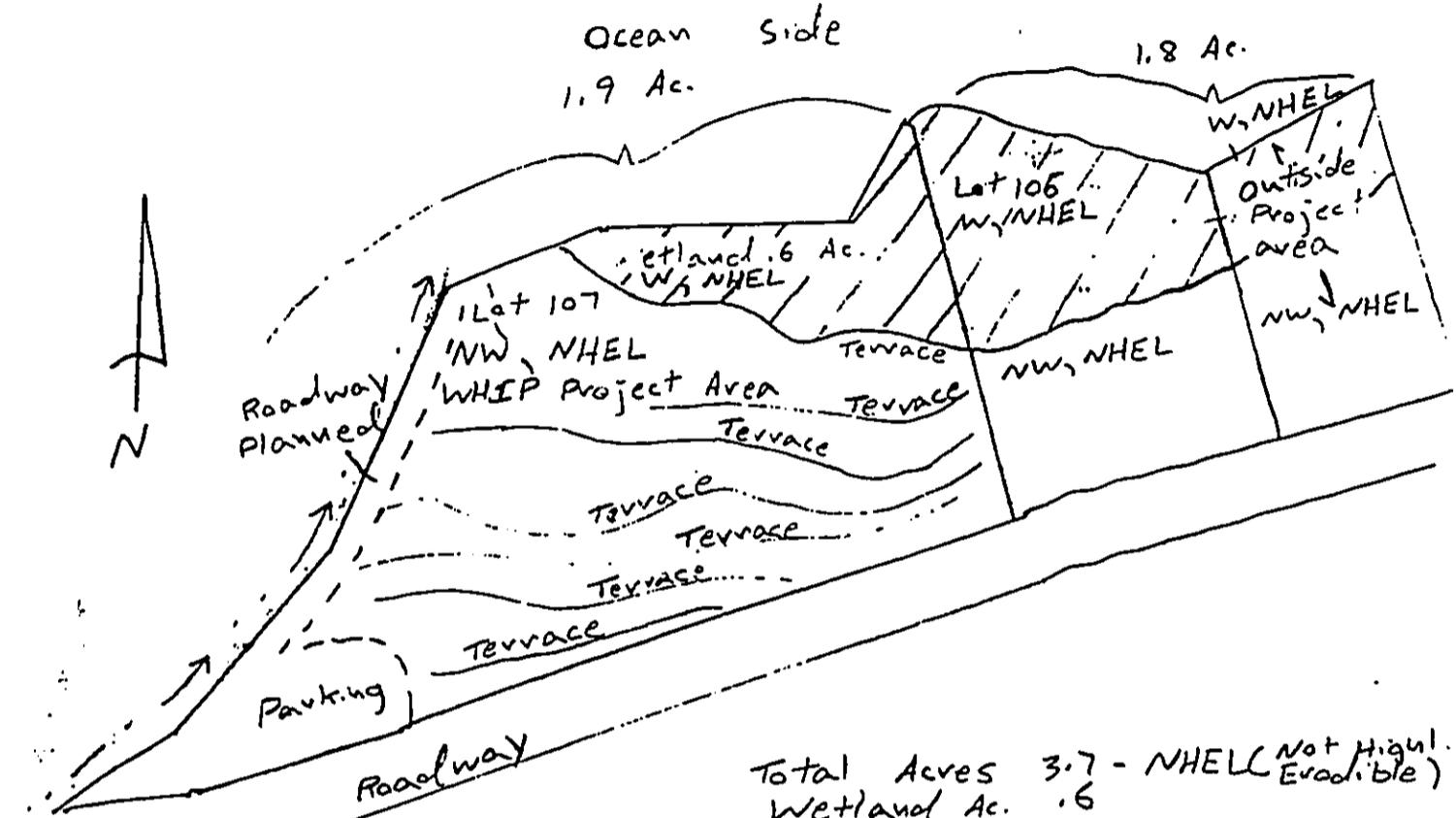
Remarks  
Field# 3 is in the WHIP program & is Not Highly Erodible Land. North part of field was determined wetland & a minimal effect letter will be drafted & submitted to FWS along w/other taro grower letters. Field is planned for Endangered Waterbird habitat & wetland taro production. An onsite visit, soil survey & 1992 aerial photos were used.

I certify that the above determinations are correct and were conducted in accordance with policies and procedures contained in the National Food Security Act Manual.

Signature Designated Conservationist Date  
Ron Peyton *Ronald A. Peyton* Jan 11, 1999

All USDA programs and services are available without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Hawaii  
 JS 1/11/98  
 Wetland, NHEL plan map  
 Field #3 consists of lots 107 & 106



Total Acres 3.7 - NHEL (Not High Erodible)  
 Wetland Ac. .6  
 NHEL Ac. - 3.1  
 Terraces Approximate  
 - Terrace Areas denote planned wetland restoration work.  
 Under WHIP Program, 2.1 acres

**APPENDIX 4**

**STREAM CHANNEL ALTERATION AND DIVERSION  
WORKS PERMITS**

**STATE OF HAWAII**

**Department Of Land And Natural Resources  
Commission On Water Resource Management**

ENAMIN J. CAYETANO  
Governor of Hawaii



Chairperson  
MICHAEL D. WILSON  
Board of Land and Natural Resources

Deputy Director  
GILBERT COLOMA-AGARAN

Aquaculture Development  
Aquatic Resources  
Boating and Ocean Recreation  
Bureau of Conveyances  
Conservation and Environmental Affairs  
Conservation and Resources Enforcement  
Forestry and Wildlife  
Historic Preservation  
Land Management  
State Parks  
Water and Land Development

REF:OCEA:CT

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. Box 621  
Honolulu, Hawaii 96809

FILE NO.: KA-2656

Mr. Charles R. Wichman, Jr.  
Assistant Director  
Limahuli Gardens and Preserve  
P.O. Box 808  
Hanalei, Kauai, Hawaii 96714

JUN 29 1995

Dear Mr. Wichman:

SUBJECT: Request to Amend Conditions of Approval to Install a  
New Water Transmission Line for Irrigational Purposes  
at Limahuli Gardens, Haena, Kauai

Thank you for your May 19, 1995, letter regarding the subject matter. In our August 10, 1994, letter to you, we approved the installation of a three-inch above-ground irrigation line at Limahuli Gardens subject to ten conditions. At that time, we determined that the installation of a transmission line is an incidental change pursuant to Condition 7 of Conservation District Use Permit KA-2656.

Subsequent to our August 10, 1994, approval, you met with staff from the Commission on Water Resource Management, Division of Aquatic Resources, and the Division of State Parks to discuss your proposal. As a result of this meeting, you are now seeking to change the conditions contained in our August 1994 approval letter.

We routed your request to the Commission on Water Resource Management, Division of Aquatic Resources, and the Division of State Parks for their review. Comments received from these divisions indicate that they have no objections to the proposed changes. Additionally, we find that amending the conditions is an incidental change pursuant to Condition 7 of Conservation District Use Permit KA-2656. Therefore, your request to change the conditions is approved as follows:

1. The applicant shall discontinue the use of one of its existing registered stream diversions that currently employs two (2) four-inch pipes to continually divert approximately 200 gpm from the stream for irrigation of 10'i kalo.

2. The primary function of the proposed new stream diversion is to replace the discontinued diversion and supply the lo'i kalo with water. A secondary function is to supply water to the upper grounds of the Garden for use in irrigating plantings.
3. The proposed transmission system shall be lengthened and modified so that diverted water will be able to reach the auwai feeding the lo'i kalo and so that in-pipe water velocity and flow do not exceed the capacity of the three-inch High Density Polyethylene Pipe (HDPE) as well as keep the divertable capacity at about 150 GPM. This shall be accomplished by installing an in-line flow meter that will monitor the discharge rate and allow the applicant to know exactly how much water the diversion is removing from the stream.

Additionally, the applicant shall increase the length of the main transmission line by about 500 feet and install in-line restrictors or valves (if necessary) to reduce the in-pipe water velocity and maintain the total discharge rate at about 150 GPM or less. Under no conditions shall the flow exceed 200 GPM.

4. The applicant shall work with the Division of Aquatic Resources (DAR) to establish stream monitoring and research programs that will benefit the applicant's and DAR's research objectives. The applicant shall implement a monitoring program, acceptable to DAR, for stream biota and habitat quality.
5. The applicant shall submit an annual report to the Department's Division of Aquatic Resources showing daily stream flow and diversion rates, once the diversion system is in place.
6. The applicant shall obtain approvals from the Commission on Water Resource Management before proceeding with construction work.
7. Pursuant to condition 2 of CBUP KA-2656, the applicant shall comply with all applicable Department of Health (DOH) Administrative Rules. (See DOH's comments dated August 25, 1993: "(t)he irrigation system shall meet the requirements of Hawaii Administrative Rules, Title 11, Chapter 11-21, "Cross-connection and Backflow Control."")

Mr. C. Wichman, Jr.

-3-

FILE NO.: KA-2656

8. The submission of construction plans pursuant to Condition 23 of CDUP KA-2656.
9. Compliance with Condition 14 of CDUP KA-2656.
10. Compliance with other applicable conditions of CDUP KA-2656.
11. The effective date of these changes shall be the date the Commission on Water Resource Management approves the permits and amendment to the interim instream flow standard (SCAP-KA-155).

Please acknowledge receipt of this permit, with the above noted conditions, in the space provided below. Please sign two copies. Retain one and return the other to this Department within thirty (30) days.

Thank you for your cooperation in this matter. Please feel free to call Cathy Tilton at our Office of Conservation and Environmental Affairs at 537-0377, should you have any questions.

Alcha,

*Michael D. Wilson*  
MICHAEL D. WILSON

Receipt acknowledged

*[Signature]*  
Applicant's Signature

Date

July 7, 1995

ENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P. O. BOX 621  
HONOLULU, HAWAII 96809

MICHAEL D. WILSON  
CHAIRPERSON  
ROBERT G. GIRALDO  
DAVID A. NOBRIGA  
LAWRENCE H. MIKE  
RICHARD H. COX  
HERBERT M. RICHARDS, JR.  
RAE M. LOUI, P.E.  
DEPUTY

REF:CWRM-SS

SEP - 7 1995

Mr. Charles R. Wichman, Jr., Assistant Director  
National Tropical Botanical Garden  
P.O. Box 808  
Hanalei, Hawaii 96714

Dear Mr. Wichman:

Your petition to amend the interim instream flow standard for Limahuli Stream and your applications for stream channel alteration and diversion works permits for a diversion structure on Limahuli Stream, Hanalei, Kauai, were approved by the Commission on Water Resource Management (Commission) on July 19, 1995.

The Commission approved the petition to amend the interim instream flow standard subject to the following conditions:

1. The petitioner shall gauge Limahuli stream in a manner acceptable to the Commission. The recorded streamflow data shall be reported to the Commission at regular time intervals acceptable to the Commission.
2. The petitioner shall conduct stream monitoring and research programs acceptable to the Division of Aquatic Resources.
3. The Commission reserves the right to require the petitioner to construct a water storage facility of appropriate capacity to store stream water during periods normal or high flows for use during periods of low streamflows.

A stream channel alteration and stream diversion works permits are issued herewith. Please note the conditions under which the permit is issued. If these conditions meet with your approval, please sign the permit, return one copy to the Commission, and retain a copy for your records. Also enclosed are copies of forms to report the initiation and completion of construction work.

If you have any questions concerning this permit, please contact Rae M. Loui, Deputy Director, at 587-0214.

Aloha,

MICHAEL D. WILSON

Enclosures

**APPENDIX 5**

**RESPONSES TO THE PRE-ASSESSMENT  
CONSULTATION PROCESS**



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

January 13th, 1999

Agency Administrator  
Agency Description  
Address

SAMPLE LETTER  
PRE-ASSESSMENT CONSULTATION  
SENT TO LISTED AGENCIES + GROUPS

Dear Mr./Ms.,

I am writing to inform you that Limahuli Garden is currently undertaking the initial steps in the required permitting process for the development of a new conservation project within a Limited Subzone of the Conservation District located in Ha'ena, Kauai. As its name suggests, the proposed *Limahuli Garden Lo'i Restoration Project* will attempt to restore the ancient *lo'i kalo* (irrigated taro terraces) on lots 106 & 107 (TMK # 05-09-06-39 and 05-09-06-41 respectively) to a state which closely approximates their condition prior to the initial contact with Western civilization in 1778. In this regard, the project not only seeks to restore the aesthetic character of the *lo'i*, but their functional capacity as well.

In the early 1900's, ethnobotanists recorded as many as 300 named cultivars of taro in Hawai'i, yet today only about 100 of these are still known to exist. These rare taro cultivars are currently being preserved in a few eclectic collections. Over the next few years, Limahuli Garden's goal is to restore the ancient *lo'i* system on Lots 106 and 107 and establish a permanent collection of as many of these unique plants as possible. The restoration project will create a living cultural resource, one that is capable of producing sustainable yields in taro, while at the same time preserving a germ plasm collection of this culturally significant plant. It is further hoped that the project will create a model for *lo'i* restoration which can then be transferred to other communities throughout Hawaii.

The *Lo'i* Restoration Project will be executed under the established managerial structure of Limahuli Garden, which is one of five gardens and three preserves that make up the National Tropical Botanical Garden (NTBG). Chartered in 1964 by the United States Congress, the NTBG is the only nationally-chartered tropical botanical garden in the United States. As a privately-funded non-profit organization the NTBG is dependent upon private donations and grants from charitable institutions for the success of its work. Within the structure of the NTBG, the mission of Limahuli Garden is to preserve, protect, and perpetuate natural and cultural resources, with a specific focus being placed upon those resources that are unique as being endemic or indigenous to the Hawaiian Islands. Without direct human intervention and care, many of these unique resources face a certain degradation and eventual loss. The Garden is dedicated to not only the preserving these unique resources but also to using them for education, scientific research, and community based resource management purposes.

In accordance with state and county requirements, an Environmental Assessments (EA) is being prepared to identify and mitigate any and all environmental impacts that may be associated with the development of the project's objectives. The EA will be submitted along with a Conservation District Use Application (CDUA) and a Management Plan to the Office of Environmental Quality Control (OEQC). These documents will then be posted to the OEQC Bulletin (most likely in late February or early March) where they will be subject to public scrutiny and response. The State Department of Land and Natural Resources has jurisdiction over the CDUA process, and as such they will act as the approving agency in this process. Coinciding with the state's regulatory process, a Special Management Area (SMA) Permit will be submitted to the planning department of the Kauai County government. SMA Permits are required of all projects that fall within the Hawaii Coastal Zone Management Area. Public hearings will most likely be called for by both state and county agencies, hearing dates will be posted in the local newspaper.

It is the responsibility of the permit applicant, in this case, that of Limahuli Garden, to solicit consultation from agencies with jurisdiction or expertise with regard to the proposed project, as well as from citizen groups and individuals within the relevant community. If you have any input, or would like to be provided with additional information about the *Limahuli Garden Lo'i Restoration Project* then please contact Ben Welborn at the address given below. Limahuli Garden will exercise due diligence in responding to your concerns, and if warranted additional measures will be incorporated into the development of the project's objectives. We appreciate your interest in this project, and in the time you take to express your concerns or support for what we are doing to protect our natural and cultural resources. As our state motto expresses so eloquently, *Ua Mau Ka Ea O Ka 'Aina I Ka Pono* the life of our land is preserved and perpetuated in righteousness. We look forward to hearing from you soon.

Aloha a hui hou,

Chipper Wichman, Director  
Limahuli Garden and Preserve

**CONTACT PERSON FOR THIS PROJECT:**

Ben Welborn  
Lo'i Restoration Project  
Limahuli Garden  
P.O. Box 808  
Hanalei, HI 96714  
Phone # (808) 826-1079  
Email: welborn@aloha.net

**Identification of Agencies Consulted in Making Assessment:**

In preparation of this CDUA and in compliance with section 11-200-9 of the State Department of Health's Administrative Rules, the following government agencies and professionals were consulted for their input and advice on the development of objectives and methods for the proposed Limahuli Garden Lo'i Restoration Project.

**STATE GOVERNMENT**

|                     |   |
|---------------------|---|
| Mr. Ralston Nagata  | Administrator, DLNR   |
| Mr. William Devick  | Administrator, DLNR<br>Division of Aquatic Resources                              |
| Mr. Don Hibbard     | Director, Historic Preservation Program<br>DLNR, State Historic Preservation Div. |
| Mr. Gary Gill       | Deputy Director for Environmental Health<br>State Department of Health            |
| Mr. Michael G. Buck | DLNR, Division of Forestry and Wildlife   |
| Mr. Gary Gill       | Interim Director<br>Office of Environmental Quality Control                       |

**FEDERAL GOVERNMENT**

|                     |   |
|---------------------|---|
| Mr. John Schlegel   | U.S. Department of Agriculture<br>Natural Resource Conservation Service         |
| Mr. Robert P. Smith | Regional Manager, U.S. Department of the Interior<br>Fish and Wildlife Services |

**COUNTY GOVERNMENT**

|                 |                                     |
|-----------------|-------------------------------------|
| Mr. Dee Crowell | County of Kauai Planning Department |
|-----------------|-------------------------------------|

**OFFICE OF HAWAIIAN AFFAIRS**

|                   |   |
|-------------------|---|
| Mr. Randall Ogata | Administrator, Office of Hawaiian Affairs |
|-------------------|---|

**UNIVERSITY OF HAWAII**

|               |                                     |
|---------------|-------------------------------------|
| Mr. Mike Kido | U.H., Hawaii Stream Research Center |
|---------------|-------------------------------------|

**PRIVATE SECTOR**

|                     |  |
|---------------------|--|
| Mrs. Diane Daniells | Chair, Board of Directors<br>Hanalei Community Association         |
| Ms. Judy Dalton     | Chairperson, Kauai Group of the Hawaii Chapters<br>The Sierra Club |
| Mr. Raymond Chuan   | Limu Coalition   |
| Mr. Jeff Chandler   | Hui Ho'omalua I Ka `Aina   |
| Mr. Ken Carlson     | President, 1000 Friends of Kauai                                   |
| Ms. Mary Moore      | Private Landowner, Lots 108 & 105                                  |

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS  
P. O. BOX 621  
HONOLULU, HAWAII 96809

JAN 25 1999

CHAIRPERSON  
MICHAEL D. WILSON  
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR  
GILBERT S. COLOMA-AGARAN

AQUACULTURE DEVELOPMENT  
PROGRAM  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
CONSERVATION AND  
ENVIRONMENTAL AFFAIRS  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

Mr. Chipper Wichman, Director  
Attention: Mr. Ben Welborn  
Limahuli Garden and Preserve  
National Tropical Botanical Garden  
Post Office Box 808  
Hanalei, Kauai, Hawaii 96714

Dear Mr. Wichman,

Limahuli Garden's Lo'i Restoration Project

Thank you for your letter of January 13, 1999 requesting early review of Limahuli Garden's Lo'i Restoration Project. Our understanding of the project, at this time, is that Limahuli Gardens intends to restore lo'i kalo on lots 106 and 107 to the condition likely to have been present prior to 1778, bringing back the aesthetic character and functional capacity of the lo'i. The lo'i will be used to establish a permanent collection of rare and unique taro cultivars, and thereby preserving a germ plasm collection as well.

The Division of State Parks commends Limahuli Gardens for this undertaking. As you are aware, State Parks is preparing a draft conceptual plan and EIS for Ha'ena State Park. The plan calls for restoration of the lo'i within the park, interpretation of the lo'i (the restoration process, the growing, harvesting and use of kalo and the cultural practices associated with the lo'i), as well as the natural and cultural history of Ha'ena State Park. Within a relatively short period, after completing the conceptual plan and EIS, and after obtaining approvals and permits, State Parks intends to undertake the restoration work, bringing the Ha'ena State Park lo'i back into production.

State Parks has special concerns regarding your project because both projects are similar, are in close proximity to each other, and will utilize the same source of water - Limahuli Stream. With this in mind, we maintain that the EIS for the Limahuli Lo'i Restoration Project should address the following areas:

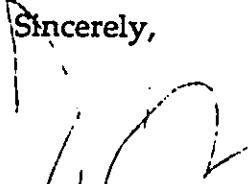
- Water. The equitable sharing of water from Limahuli Stream to supply both Limahuli Gardens lo'i and the restored lo'i within Ha'ena State Park will

need to be addressed. Will the Limahuli Garden Lo'i Restoration Project require an additional allocation of water from Limahuli Stream? It may be wise to prepare a "Water Budget" for the entire Limahuli Stream system, estimating all lo'i water requirements, including the water requirements for un-restored lo'i, such as those within Ha'ena State Park.

- Agricultural Disease and Pests. What is the proper procedure for preventing the introduction of disease and agricultural pests, when cultivars are brought in from other sites?
- Lo'i Restoration Plan. Will the EIS include a discussion of the historical aspects of the lo'i, and the approach and process for lo'i restoration?
- Potential Duplication of Interpretive Programs. Will the EIS contain a discussion of the Limahuli Garden's interpretive program? Close coordination between the Garden and State Parks on interpretive programs is essential to minimize duplication and insure that each program complements the other for greater public benefit.

In your letter, you indicated that additional information on the Lo'i Restoration project is available. Could you please provide a copy of the available information for State Parks' staff review? State Parks is keenly interested in your project. We look forward to working closely with you in the future.

Sincerely,

  
RALSTON H. NAGATA  
Administrator

c: Mr. Wayne Souza, State Parks Kauai District Superintendent



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. Ralston Nagata, Administrator  
DLNR, Division of State Parks  
P.O. Box 621  
Honolulu, HI 96809

Dear Ralston,

Thank you for your rapid response to our request for an early review of the Limahuli Garden Lo'i Restoration Project. Your concerns and suggestions will be addressed in the Environmental Assessment and/or in the Conservation District Use Application that we are currently preparing for the project. Specifically, we will include a discussion of the following topics, which you indicated in your correspondence:

1. Water Allocation – the NTBG plans to use an existing permitted source to supply water to the restored lo'i, therefore no new stream diversion will be required. Your suggestion that a water budget be developed for the entire Limahuli Stream seems wise. Perhaps this could be a collaborative effort between the DLNR, the University of Hawai'i, and the NTBG as a part of the Ha'ena State Park Master Plan.
2. Agricultural diseases and pests – Limahuli Garden will employ the best technologies and methodologies available to prevent the introduction of unwanted diseases and pests.
3. Lo'i restoration plan – we are collaborating with the DLNR, State Historic Preservation Division to develop a sound process for lo'i restoration. This collaborative effort will continue throughout the various phases of project implementation to ensure the integrity of the natural and cultural resources of the area.
4. Interpretive Programs – as in the past, we will work with the Division of State Parks to assure that our interpretive programs are well founded, and consistent with those developed by your staff. In this regard, if you have any interpretive programs that are currently being undertaken, please have the appropriate person contact me so that we can begin to coordinate our objectives.

As a requirement of the State Environmental Review Process, additional information will be provided to your office as it is prepared. The CDUA, and an accompanying Management Plan that we are preparing, are expected to be filed sometime in mid to late February.

Once again, we appreciate your valuable insight, and we look forward to working closely with the DLNR, Division of State Parks to assure a high level of compatibility and cooperation for our concurrent objectives. Thus far it has been a pleasure working with your staff – Sherrie Samuels and Martha Yent in the development of a Master Plan for the Ha'ena State Park. If you have any further questions, you may also contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 821  
HONOLULU, HAWAII 96809

February 2, 1999

Mr. Chipper Wichman  
Director, Limahuli Garden and Preserve  
National Tropical Botanical Garden  
P.O. Box 808  
Hanalei, Hawaii 96714

*Chipper*  
Dear Mr. Wichman,

I would like to reiterate in writing my verbal support for the Limahuli Garden Lo'i Restoration Project.

The project nicely parallels the stream monitoring activity we have been funding, and hope to continue supporting, in Limahuli Stream. In addition to your stated goals of producing sustainable yields of rare taro cultivars and preserving a germ plasm collection, your proposed project will help further test our hypothesis that traditional taro culture is fully compatible with the maintenance of a quality stream environment.

The Restoration Project certainly is consistent with the mission of Limahuli Garden and deserves special commendation for its foresight.

Sincerely,

*William S. Devick*  
William S. Devick  
Acting Administrator  
Division of Aquatic Resources

MICHAEL D. WILSON  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR  
GILBERT S. COLOMA-AGARAN

AQUACULTURE DEVELOPMENT  
PROGRAM  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
CONSERVATION AND  
ENVIRONMENTAL AFFAIRS  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION PROGRAM  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. William S. Devick, Administrator  
DLNR, Division of Aquatic Resources  
P.O. Box 621  
Honolulu, HI 96808

Subject: Limahuli Garden Lo'i Restoration Project

Dear Mr. Devick,

I am writing to you to formally acknowledge and thank you for your early review and support of the Limahuli Garden Lo'i Restoration Project.

As a requirement of the State Environmental Review Process, additional information will be provided to your office as it is prepared. The CDUA and an accompanying Management Plan that we are preparing for the project are expected to be available sometime in mid to late February, these documents will relate comprehensive information about the proposed action.

Once again, we appreciate your valuable insight. We look forward to working with the DLNR, Division of Aquatic Resources to ensure a consistency of objectives. If you have any questions, please do not hesitate to contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION  
Kakuhihewa Building, Room 555  
601 Kamohala Boulevard  
Kapolei, Hawaii 98707

MICHAEL D. WILSON, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES  
GILBERT COLOMA-AGARAN  
TIMOTHY E. JOHNS

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

February 10, 1999

Mr. Ben Welborn  
Limahuli Garden and Preserve,  
Lo'i Restoration Project  
P.O. Box 808  
Hanalei, Hawaii 96714

LOG NO: 22997 ✓  
DOC NO: 9902NM02

Mr. Welborn:

**SUBJECT: Historic Preservation Review --Early Review of the  
Limahuli Gardens Lo'i Restoration Project, Limahuli, Haena, Kauai**

We received a January 12, 1999, letter from Chipper Wichman on the National Tropical Botanical Gardens (NTBG) plans to restore lo'i on two lots (106 and 107) on lands recently acquired by NTBG.

Your plans discuss a three phased approach. The first phase is to hand clear the area so that phase two, the archaeological inventory survey can take place. This seems very reasonable. The survey should map the lo'i and describe surface features and architecture, trench across several lo'i walls and adjacent soils to document building phases and attempt to obtain charcoal for radiocarbon dating, and trench across the auwai to document building phases and attempt to obtain charcoal for radiocarbon dating. A report of findings then must be submitted and approved by our office. Once an adequate survey is completed, phase three (the lo'i restoration) can follow with "no adverse effect" to significant historic sites.

From discussion with Chipper, phase three will be completed in four tasks. The first task is to remove the large root systems left by intact vegetation. A vehicular access will be built at this time. Task two will be excavation of the lo'i and 'auwai. Task three is the actual rock wall reconstruction of the terraces. Task four is the establishment of the water flow.

B. Welborn  
Page 2

We can agree with your plan as it has been presented to our staff. Prior to the archaeological survey, however, we want to review and approve the scope of work, to ensure that documentation of the lo'i will be adequate. If you have any questions please call Nancy McMahon at 742-7033.

Aloha,



DON HIBBARD, Administrator  
State Historic Preservation Division

NM:amk



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 23, 1999

Mr. Don Hibbard, Director  
DLNR, Historic Preservation Division  
Kakuhihewa Building, Room 555  
601 Kamokila Blvd.  
Kapolei, HI 96707

Subject: Limahuli Garden Lo'i Restoration Project

Dear Mr. <sup>Don</sup>Hibbard,

I am writing to you today to formally acknowledge and thank you for the support that you expressed in your letter dated February 10<sup>th</sup>, 1999 for the proposed Limahuli Garden Lo'i Restoration Project. I also want to thank your staff members, particularly Nancy McMahon and Ross Cordy, for their assistance in helping the NTBG to develop a sound physical restoration process for the proposed action. We look forward to working with your staff during project implementation to ensure that our actions are consistent with the guidelines of the SHPD.

In your letter, you made it clear that two reviews and approvals by the SHPD will be required as an element of the restoration process. Prior to the archaeological inventory survey we will contact Nancy McMahon to review and approve the scope of the work to be undertaken, this will ensure that documentation of the lo'i will be adequate. A second review or "report of findings" will also be required following the completion of the archaeological inventory survey, this report must be submitted and approved by your office before *Phase 3* - physical restoration of the lo'i kalo can commence.

Once again, thank you for your support and assistance. We expect to file a CDUA and a Draft EA for the project in late February. If you have any questions, please do not hesitate to contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Ms. Nancy McMahon & Dr. Ross Cordy - via fax @  
Department of Land & Natural Resources  
State Historic Preservation Division

742-7329  
692-8020

4 pages  
total

Subject: Limahuli Garden Lo'i Restoration Project

Dear Nancy & Ross,

This correspondence is being sent to you to solicit a formal review and acceptance of the restoration process that is outlined herein for the Limahuli Garden Lo'i Restoration Project.

The accompanying outline of the restoration phases has been amended to include the following recommendations of the SHPD:

1. The Archaeological Inventory Survey will include cross-sections of walls and `auwai.
2. Composting of organic materials within the project area will occur only in designated locations that are to be established jointly by the NTBG and the SHPD.
3. Dating of the project area will be conducted as an element of the Archaeological Inventory Survey.

In the Draft EA and the CUA that we are preparing for the project, I would like to formally acknowledge the NTBG's effort to collaborate with the SHPD in developing these guidelines for restoration.

If you have any questions or informational needs with regards to the project, please contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079. We look forward to working with you in preserving these important cultural resources. Thank you very much for your help.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

## **Limahuli Garden Lo`i Restoration Project**

### **A Technical Description of the Physical Restoration Process (Excerpted from the Management Plan)**

#### **Lo`i Kalo -- Physical Restoration:**

The restoration of lo`i kalo (irrigated taro terraces) will require an extensive physical effort. The accompanying Environmental Assessment (EA) that is an element of the Conservation District Use Application (CDUA, addresses potential impacts and mitigative measures associated with the restoration process. The National Tropical Botanical Garden's (NTBG) Limahuli Garden will oversee this process, obtaining all necessary permits, coordinating work schedules, administering grant moneys, and hiring consultants as necessary. The Garden anticipates that grant moneys will provide for most of the expenses associated with the objectives of the project. In an effort to allow the community to become involved, the NTBG also intends to make selected elements of this project available to the public for volunteer participation.

**Project Increments** -- Rather than restore lots 106 and 107 concurrently, the NTBG plans to divide the project into two separate increments. The increments, defined as Increment A & B, will correspond to Lots 107 & 106 respectively. The project phases being outlined in this draft will occur sequentially within each increment. Increment A will begin first, and increment B will commence when funding becomes available.

To insure the integrity of the archaeological resources in the project area, The Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD) has specific guidelines and requirements that the NTBG will adhere to throughout the process of lo`i restoration. In consultation with the SHPD, the NTBG has developed a 3 phase approach for the physical restoration of the lo`i kalo.

A description of the three restoration phases follows.

#### **PHASE #1 -- CLEARING & BRUSH REMOVAL**

*Phase 1* will be characterized by the removal of the alien and introduced vegetation that exists within the proposed project area. As discussed in the accompanying EA, this process will be accomplished by hand, aided only by the use of powered handtools such as chainsaws, weed eaters, brush cutters, and wood chippers. To minimize significant ground disturbances and to avoid the possibility of degrading archaeological resources within the area, large machinery other than a wood chipper, will not be used in *Phases 1 or 2*. As a further safeguard, when it is deemed appropriate, large trees will be limbed by a qualified arborist, and when necessary the limbs will be lowered to the ground with a system of ropes and pulleys. Once limbs are removed, the trees will be stumped. It is important to note that **NO VEGETATION WILL BE UPROOTED DURING PHASE 1 OF THE RESTORATION PROCESS**. This will serve to protect the archaeological resources in the area so that a complete inventory of them can be conducted in *Phase 2*.

The organic detritus that is generated as a result of clearing activities will be composted within the project area. These composting activities will occur only in designated locations that are to be established jointly by the NTBG and the SHPD. This will accomplish two objectives: foremost it will allow the NTBG to clear the project area without hauling the debris out, thereby avoiding the possibility of damaging the as-yet-uninventoried archaeological resources; secondly, composting

the vegetation will return those nutrients locked up in the living organic matter to the soils of the project area.

After the completion of *Phase 1*, weedeating practices will continue throughout the project area, spanning all phases of the project time frame. This maintenance activity will keep new weedy growth down and facilitate archaeological work, allowing workers easy access to their tasks and work areas. Furthermore, as addressed in the accompanying EA, the NTBG may elect to plant grass seed in certain areas where erosion could be a concern.

## **PHASE 2 -- ARCHAEOLOGICAL INVENTORY SURVEY**

*Phase 2* will commence **only** after those activities described in *Phase 1* above have been completed within each increment. *Phase 2* will entail a complete **archaeological inventory survey** of the historic resources within the project area in compliance with the established guidelines of the SHPD. Subsurface testing is a required component of this survey; therefore such tests will be conducted in selected sites throughout the project area. The archaeological inventory survey will include cross-sectional analysis of walls & `auwai, and a dating of resources within the project area.

Work in *Phase 2* will be administered under the direction of a qualified archaeologist whose credentials meet SHPD guidelines. Due to the extensive nature and requirements of the proposed Lo'i Restoration Project, and recognizing the valuable learning opportunity which it presents, the NTBG plans to integrate educational opportunities for the community into the work required of the archaeological inventory survey. In this way, students and interested members of the community can learn and apply appropriate archaeological techniques in a unique hands-on learning environment.

## **PHASE 3 -- PHYSICAL RESTORATION OF LO'I**

It is anticipated that mechanized equipment will be used to carry out some of the work scheduled for *Phase 3*. Use of such equipment will be undertaken with great care so as to minimize the impacts to archaeological resources, every effort will be made to protect the lo'i when machinery is moved from terrace to terrace within the project area. Protective measures may include the use of earthen ramps and/or the mounding over of rock walls with old tires to effectively create bridges over which the machinery can pass without damaging the terrace walls. At times it may be more appropriate to partially remove sections of some of the degraded rock walls, thereby creating a safe avenue for the machinery to pass through. The activities of the project and the confined working environment will not merit the use of large equipment, a bobcat, a backhoe, and/or a very small excavator will be sufficient to tackle even the largest jobs.

The importance of the archaeological inventory survey conducted in *Phase 2* becomes very apparent in *Phase 3*. Due to the need to partially remove and subsequently reconstruct archaeological features, the maps generated by the survey will act as a blueprint, delineating a layout and defining the dimensions of the lo'i walls and `auwai channels.

*Phase 3* of the Restoration Project can be subdivided into 4 distinct tasks as follows:

### **Task #1 -- Removal of the large root systems left intact during *Phases 1 & 2*.**

Currently, throughout the proposed project area, the root systems of introduced vegetation have grown into the ancient rock walls, eroding them and significantly degrading their condition (see photos in Exhibit 6). Therefore, in order to completely restore such rock walls, the root-bound sections of them will first have to be disassembled by hand to insure that the rocks are not crushed or damaged by the use of machinery. Once the rocks have been cleared of the immediate work zone, it will then be possible to effectively excavate the

large root systems. Once removed, the roots will be cut into small sections and composted on site.

**1.a. Construction of Vehicular Access onto Lot 107 (Increment A only).**

Concurrently, a vehicular access will be constructed for the project. *Phase 3* has been identified as the most reasonable time to finalize and implement construction plans for the appropriate location and layout of a driveway and parking area for the project. A preliminary location for the access has been identified, and a cost estimate has been prepared by Wagner Engineering (see Exhibit 7). However the NTBG would like to retain the right to revise these drafts in order to incorporate the valuable information that will be compiled by the survey conducted in *Phase 2*.

**Task 2 -- Excavation of Lo'i & `Auwai.** An essential part of the restoration process will be to excavate the lo'i of the soils that have silted them in over the years. The lo'i will be reformed into earthen ponds that are capable of containing the water that is necessary for the cultivation of wetland taro. Similarly, the `auwai system must be excavated and restored.

**Task 3 -- Rock Wall Reconstruction.** Nearing the end of *Phase 3*, after the completion of those tasks that will require the use of mechanized equipment, work will commence to rebuild the rock walls that form the structural perimeter of the terraces. To oversee this task, which will be done entirely by hand, the NTBG will be employing the services and guidance of a qualified stone mason with a background in traditional Hawaiian rock wall construction. As much as possible, the NTBG will seek to use traditional techniques in restoring the rock walls. Recognizing the unique educational opportunity presented by this work, the NTBG plans to integrate programs for community participation in this phase of the project.

**Task 4 -- Reestablishment of Water Flow to the Project Area.** Following final reconstructive work, water will be supplied to the project area, flooding the individual lo'i to a closely managed depth. The NTBG plans to utilize an existing, permitted source to supply water to the restored lo'i. No new stream diversion will be required. The permitted water source that will be used, currently irrigates the lo'i kalo that are adjacent to the visitors' center within the grounds of Limahuli Garden. At this time, the water leaving these terraces runs in an `auwai that descends through the Garden's property. This `auwai then connects into a larger `auwai system that runs along the border of the Garden's property, eventually reentering the stream near the river mouth. The NTBG intends to use the water running through the `auwai on their property, pipe it under Kuhio Highway through an existing culvert, feed it into the restored lo'i, and then allow the water to rejoin the larger `auwai system at the lower border of the project area.

The NTBG is deeply concerned about the preservation of the aquatic resources within Limahuli Valley and will continue to collaborate with Mr. Mike Kido, of the U.H. Hawaii Stream Research Center to insure that the integrity of Limahuli Stream is not degraded.

Once water is supplied to the lo'i, a representation of taro cultivars will be introduced, and ongoing cultivation will commence.

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



BRUCE S. ANDERSON, Ph.D., M.P.H.  
DIRECTOR OF HEALTH

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

In reply, please refer to:

February 4, 1999

epo

Mr. Chipper Wichman, Director  
Limahuli Garden and Preserve  
P. O. Box 808  
Hanalei, Hawaii 96714

Dear Mr. Wichman: 

Subject: Early Review of Limahuli Gardens Restoration Project

Thank you for your letter describing the restoration project for taro lo'i in Limahuli Garden. We encourage your efforts to manage the Limahuli Gardens resources in a manner that preserves biological diversity and is environmentally sound. We have no preliminary comments on the project at this time.

As you indicate, a number of environmental documents will be provided to support the project. Documents that require review by the Department of Health and activities that require permitting or certification by the Department will be processed by our staff in a timely and effective manner.

Sincerely,

  
GARY GILL  
Deputy Director for  
Environmental Health



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. Gary Gill  
Deputy Director for Environmental Health  
State of Hawai'i, Department of Health  
P.O. Box 3378  
Honolulu, HI 96801

Subject: Limahuli Garden Lo'i Restoration Project

Dear ~~Mr. Gill~~ <sup>Gary</sup> Gill,

I am writing to you to formally acknowledge and thank you for your early review and support of the Limahuli Garden Lo'i Restoration Project.

As a requirement of the State Environmental Review Process, additional information will be provided to your office as it is prepared. The CDUA and an accompanying Management Plan that we are preparing for the project are expected to be filed sometime in mid to late February, these documents will relate comprehensive information about the proposed action.

Once again, we appreciate your timely attention to this matter. If you have any questions, please do not hesitate to contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. Art Baucham  
State Department of Health  
P.O. Box 3378  
Honolulu, HI 96801

Re: Limahuli Garden Lo'i Restoration Project

Dear Mr. Baucham,

I am writing to you to acknowledge and document our phone conversation on January 25th, 1999, regarding the early consultation process for the Limahuli Garden Lo'i Restoration Project. In our conversation you expressed your general support for the proposed project on behalf of the State Department of Health. Furthermore, you expressed that you did not have any additional concerns with relevance to the project that you would like see addressed in the draft Environmental Assessment that is currently being prepared.

If any additional concerns or informational needs arise within your department regarding the project, please do not hesitate to contact me at 826-1079. Thank you for your timely attention to this matter.

Sincerely,

Ben Welborn  
Project Coordinator  
Limahuli Garden Lo'i Restoration Project



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. Michael G. Buck  
DLNR, Division of Forestry and Wildlife  
1151 Punchbowl Street  
Honolulu, HI 96813

Re: Limahuli Garden Lo'i Restoration Project

Dear Mr. Buck,

I am writing to you to acknowledge and document our phone conversation on January 27th, 1999, regarding the early consultation process for the Limahuli Garden Lo'i Restoration Project. In our conversation you expressed your general support for the proposed project on behalf of the DLNR, Division of Forestry and Wildlife. Furthermore, you expressed that you did not have any additional concerns with relevance to the Division of Forestry and Wildlife that you would like to have incorporated into the draft Environmental Assessment that is currently being prepared for the project.

If any additional concerns or informational needs arise within your department regarding the project, please do not hesitate to contact me at 826-1079. On behalf of Chipper Wichman and the NTBG, thank you for your timely attention to this matter.

Sincerely,

Ben Welborn  
Project Coordinator  
Limahuli Garden Lo'i Restoration Project

BENJAMIN J. CAYETANO  
GOVERNOR



STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
235 SOUTH BERETANIA STREET  
SUITE 702  
HONOLULU, HAWAII 96813  
TELEPHONE (808) 686-4186  
FACSIMILE (808) 686-4186

January 25, 1999

Mr. Chipper Wichman, Director  
National Tropical Botanical Garden  
Limahuli Gardens  
P.O. Box 808  
Hanalei, Hawai'i 96714

Dear Mr. Wichman:

In response to your January 13, 1999, letter seeking comments on your proposal to restore Limahuli Garden's lo'i kalo, we offer the following comments.

1. **MAPS AND PHOTOGRAPHS:** Please submit to the Department of Land and Natural Resources, for their inclusion in the environmental assessment for the project, topographic maps of the project site, and photographs.
2. **ENVIRONMENTAL ASSESSMENT CONTENT REQUIREMENTS:** Please find enclosed information (from pages 13-17 of *A Guidebook for the Hawaii State Environmental Review Process*, October 1997) on what needs to be included in an environmental assessment. Please submit the required information to the Department of Land and Natural Resources for their inclusion in the environmental assessment.
3. **BIOLOGICAL ASSESSMENT, CULTURAL IMPACT AND SHORELINE HARDENING GUIDELINES:** Please find enclosed, guidance on biological assessment, cultural impact assessment and shoreline hardening which may be appropriate for your project.

If there are any questions, please call Leslie Segundo at 586-4185. Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gary Gill".

for GARY GILL  
Interim Director

Enclosures

c: Mr. Ben Welborn, Limahuli Gardens



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. Gary Gill  
Interim Director  
Office of Environmental Quality Control  
235 S. Beretania Street, Suite 702  
Honolulu, HI 96813

Re: Limahuli Garden Lo'i Restoration Project

Dear Mr. Gill,

Thank you for your rapid response to our request for an early review of the Limahuli Garden Lo'i Restoration Project. Your concerns and suggestions will be addressed in the Environment Assessment that we are currently preparing for the project. Specifically, the EA will include and/or discuss the following items which you indicated in your correspondence: maps and photographs of the project site; a biological assessment of the site resources; and an assessment of the cultural impacts associated with project development. With regard to the last issue, we are currently working with the DLNR, State Historic Preservation Division to develop a restoration procedure that is consistent with their guidelines. An Archaeological Inventory Survey, will be conducted as a part of the restoration process.

Ben Welborn, project coordinator for the Lo'i Restoration Project has been in contact with your office through Leslie Segundo who was very helpful in answering some of our questions with regards to the OEQC protocols and requirements. If you have any questions, please contact Mr. Welborn at 826-1079.

Once again, we appreciate your valuable insight, and we look forward to working closely with your office to ensure that all concerns are addressed during the environmental review process, and throughout the stages of project implementation.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

United  
States  
Department  
of  
Agriculture



Natural  
Resources  
Conservation  
Service

---

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

134 Rice  
St.  
Room 104  
Lihue,  
Kauai  
96766-1801

February 2, 1999

Limahuli Garden & Preserve  
National Tropical Botanical Garden  
P.O. Box 808  
Hanalei, HI 96714

Attention Chipper Wichman, The Natural Resources Conservation Service fully supports and encourages your wetland restoration project to replant taro within the existing terraces. Our hope is that the restored taro loi will bring back wetland habitat for the endangered moorhen and Koloa Duck. Both of these waterbirds are at critically low numbers. The taro cultivars that are planning to be preserved & the education involved with these species are an added plus to the project.

Sincerely,

A handwritten signature in cursive script that reads "Jon Schlegel".

Jon Schlegel  
Soil Conservationist  
Lihue Field Office

CC: Ben Wellborn  
Karol Kawachi (NRCS Archaeologist)

---



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. Jon Schlegel  
USDA, Natural Resources Conservation Service  
4334 Rice St., Room 104  
Lihu'e, HI 96766-1801

Subject: Limahuli Garden Lo'i Restoration Project

Dear Mr. Schlegel,

I am writing to you to formally acknowledge and thank you for your early review and support of the Limahuli Garden Lo'i Restoration Project.

As a requirement of the State Environmental Review Process, additional information will be provided to your office as it is prepared. The CDUA and an accompanying Management Plan that we are preparing for the project are expected to be available sometime in mid to late February, these documents will relate comprehensive information about the proposed action.

Once again, we appreciate your valuable insight and support. We look forward to working with the NRCS to ensure a consistency of objectives. If you have any questions, please do not hesitate to contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Pacific Islands Ecoregion  
300 Ala Moana Blvd, Rm 3-122  
Box 50088  
Honolulu, HI 96850

FEB 22 1999

In Reply Refer To: CAW

Ben Welborn  
Limahuli Garden, Lo'i Restoration Project  
P.O. Box 808  
Hanalei, HI 96714

Re: Early Review of Taro Lo'i Restoration in Limahuli Garden, Haena, Kauai

Dear Mr. Welborn:

The U.S. Fish and Wildlife Service (Service) has reviewed the proposed project to restore 3.69 acres of taro lo'i in Limahuli, Hanalei, Kauai. The project sponsor is Limahuli Garden. This letter has been prepared under the authority of and in accordance with the National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.*; 83 Stat. 852], as amended, the Endangered Species Act of 1973 [16 U.S.C. 1531 *et seq.*; 87 Stat. 884], as amended, and other authorities mandating Department of the Interior concern for environmental values. Based on these authorities, the Service offers the following comments for your consideration.

The proposed project involves site preparation (*i.e.*, clearing of vegetation, grading, and excavating) and restoration of ancient lo'i kalo (irrigated taro terraces) in the uplands and degraded wetlands currently found at Limahuli Garden. The purpose of the proposed project is to restore the project site, as much as possible, back to pre-Western contact conditions. The site will then serve as a living cultural resource, which is capable of producing sustainable yields of taro and preserving a germ plasm of this culturally significant plant. It is hoped, that the proposed project will create a model for lo'i restoration that can be transferred to other communities throughout Hawaii.

Based on the information provided, our knowledge of the site, and the information in our files, we have determined that the proposed project site and/or adjacent properties may provide habitat for Hawaii's four federally endangered Hawaiian waterbirds: the Hawaiian coot or 'Alae ke'o ke'o (*Fulica alai*), the Hawaiian stilt or Ae'o (*Himantopus mexicanus knudseni*), the Hawaiian common moorhen or 'Alae 'ula (*Gallinula chloropus sandvicensis*), and the Hawaiian duck or Koloa maoli (*Anas wyvilliana*). Because of the limited information contained in the project description that was provided to us, the Service would like an opportunity to review the Draft Environmental Assessment. With more project information the Service will be able to provide more comprehensive technical assistance to ensure that adverse impacts to native species are either avoided or minimized. The Environmental Assessment should include more information about the current condition of the proposed project site (e.g., acreage of current wetlands on the proposed project site) and the source of water for the newly constructed taro lo'is.

Despite the presence of federally protected waterbirds, we do not believe that the proposed project will result in any adverse impacts. We base this determination on the Service's experience at Hanalei National Wildlife Refuge (Refuge) and the continuing success the Service has had increasing waterbird habitat through the construction of taro lo'is. While the benefits of wetland taro farming have been demonstrated in areas on the Refuge, many of the wetland taro lo'is off Refuge land have not provided the same level of benefits. The Service believes that the reason for increased wildlife use on the Refuge is due to existing conservation practices that reduce predation and nesting disturbances.

Therefore, the Service generally supports the conversion of degraded wetlands and uplands into wetland taro farming, and we recommend the following conservation measures be incorporated into the proposed project to ensure maximum benefits to wildlife.

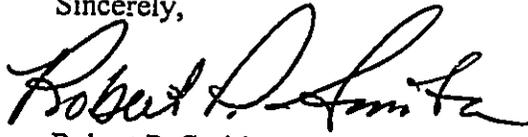
1. If possible, the taro fields should be left wet after harvesting for a least one month. This provides critical feeding areas for the endangered Hawaiian waterbirds (especially the Hawaiian stilt).
2. Hawaiian stilts prefer to build their nests on exposed mud flats or in the dirt on banks that have short or no vegetation. Tilled, dry fallow fields are also used for nesting. Stilts nest between March and August. If a field is left fallow during this period, the cooperators should check for any potential nests before tilling the paddies or filling the paddies with water. Several distinctive behaviors by adult birds can be observed when nests or young are in the area. Adult birds react to human disturbance or when nests or chicks are threatened by predators. Birds with nests and eggs typically move away from the nest and exhibit "broken wing" behavior as an attempt to distract a potential predator from the nest. Birds with young are more aggressive and will swoop down and sometimes come into physical contact with the person or predator. These behaviors are accompanied by continuous warning vocalizations by the adults.
3. Hawaiian ducks nest on the ground in grasses or other vegetation near water. They nest most frequently between December and May. Mowing the berm should be done prior to this period to prevent the accidental harassment of nesting birds.
4. The Hawaiian coot and the Hawaiian moorhen usually build floating nests of weeds and grasses in densely covered taro patches. Most of these birds nest between March and September. If a waterbird nest is found while harvesting taro, the plants supporting the nest should not be disturbed and a buffer of plants should be left around the nest. The buffer should be at least six feet in diameter.

5. Household pets and feral animals such as cats and dogs prey on waterbird eggs and young hatchlings. These animals should not be allowed in taro patches. Dogs especially, should be banned because they chase and harass birds to the point at which the birds will not return to the taro lo'i. Therefore, dogs should be prevented from entering the lo'i at any time through the use of fences or other restraints.

Finally, the Service fully supports the goals of Limahuli Garden to create a living cultural resource. We believe that incorporation of the above conservation measures will not deter from the goals of the project, but will enhance both the cultural and natural resource benefits of the proposed project. If the Service can provide any input or technical assistance in the planning and implementation of the conservation management program, please feel free to contact us.

The Service appreciates the opportunity to comment on the proposed project. If you have any questions regarding these comments, please contact Fish and Wildlife Biologist Christine Willis by telephone at 808/541-3441 or by facsimile transmission at 808/541-3470.

Sincerely,



Robert P. Smith  
Pacific Islands Manager



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 23, 1999

Mr. Robert P. Smith, Regional Manager  
United States Department of the Interior  
Fish and Wildlife Services  
300 Ala Moana Blvd., Rm. 3-122  
Box 50088  
Honolulu, HI 96850

Subject: Limahuli Garden Lo'i Restoration Project  
Refer To: CAW

Dear Mr. Smith,

I am writing to you today to formally acknowledge and thank you for the support that you expressed in your FAX transmittal dated February 22nd, 1999 for the proposed Limahuli Garden Lo'i Restoration Project. I also want to thank your staff members, particularly Christine Willis and Don Polowski for their assistance during the pre-assessment consultation process.

We expect to be filing a Conservation District Use Application (CDUA) and a Draft Environmental Assessment (EA) with the State Department of Land and Natural Resources (DLNR) before the end of February. Per your request, I will ask that the DLNR provide a copy of these documents to your office for review. The EA addresses your request for more information about the current condition of the proposed project site, and it identifies the source of water that is to be used for irrigation of the restored lo'i.

Once physical restoration of the lo'i is complete, Limahuli Garden will aspire to employ the conservation measures that you described in your response - specifically those measures that will facilitate the protection of a habitat for Hawaii's four federally endangered Hawaiian waterbirds. The NTBG will seek to manage the project in perpetuity to the greatest advantage of all resources and habitats associated with the action. As such the NTBG will be in contact with the U.S. Fish and Wildlife Service for guidance and information in the development of best management practices for the project after the lo'i have been restored.

Once again, on behalf of the National Tropical Botanical Garden and Limahuli Garden, thank you very much for your input and recommendations. If you have any questions, please do not hesitate to contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

PHONE (808) 594-1888

FAX (808) 594-1865



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

February 17, 1999

Mr. Chipper Wichman, Director  
Limahuli Garden and Preserve  
P.O. Box 808  
Hanalei, Kauai, Hawaii 96714

PCR #35

Re: Preliminary Comments, Limahuli Garden, Lo'i Restoration Project, Haena, Kauai,  
TMK: 5-9-6:39 & 41

Dear Mr. Wichman:

Thank you for the opportunity to review the preliminary plans for Limahuli Garden's proposed Lo'i restoration project. At this time, we have no concerns with the project outline. We look forward to reviewing your Environmental Assessment and Conservation District Use Application when they are completed.

If you have any questions, or need to forward any additional information, please contact Lynn Lee, EIS Planner at 594-1936.

Sincerely

Handwritten signature of Colin Kippen.

Colin Kippen  
Deputy Administrator

Handwritten signature of C. Sebastian Aloot.

C. Sebastian Aloot  
Land and Natural Resources Division Officer

cc: Board of Trustees  
Kauai Community Affairs Office



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 22, 1999

Mr. Colin Kippen & Mr. C. Sebastian Aloom  
State of Hawai'i  
Office of Hawaiian Affairs  
711 Kapi'olani Boulevard, Suite 500  
Honolulu, Hawai'i 96813

Subject: Limahuli Garden Lo'i Restoration Project

Dear Mr. Kippen & Mr. Aloom,

I am writing to you today to formally acknowledge and thank you for the support that you expressed on behalf of the Office of Hawaiian Affairs for the proposed Limahuli Garden Lo'i Restoration Project.

We expect to be filing a Draft Environmental Assessment and a Conservation District Use Application for the project sometime in late February. These documents will relate comprehensive information about the proposed action.

Once again, we appreciate your timely attention to this matter. If you have any questions regarding the development of the project, please do not hesitate to contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

**The Hanalei Community Association**

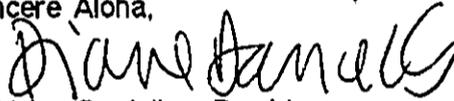
P.O. Box 789  
Hanalei, Hawaii 96714

To: Chipper Wichman, Director Limahuli Gardens  
From: Diane Daniells, President Hanalei Community Association  
January 26, 1999

Dear Friends at Limahuli Garden,

Thank you for letting the Hanalei Community Association review and comment on the Lo'i Restoration Project. Our next meeting will be held on Feb. 9, 1999 at which time those members present will be able to discuss their questions and concerns, if any. In the past the H.C.A. has supported the efforts of Limahuli Garden as they have been consistent with our goals of protecting and preserving the Historical and Natural beauty of the North Shore. We also support and encourage agricultural activities within the H.C.A. district. Knowing that Limahuli Garden has become a treasured resource within our community due to the efforts of the Director, staff and volunteers we don't anticipate any special concerns. Thank you again for providing us with the information and we will contact you soon with any comments.

With Sincere Aloha,



Diane Daniells, President  
Hanalei Community Association  
P.O. Box 789 Hanalei, HI 96714  
808 826-6133



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mrs. Diane Daniells, President  
Hanalei Community Association  
P.O. Box 789  
Hanalei, HI 96714

Re: Limahuli Garden Lo'i Restoration Project

Dear Mrs. Daniells,

Thank you for your letter dated January 26th, 1999, evidencing your early review of the objectives of the Limahuli Garden Lo'i Restoration Project. We appreciate the general support for the project that you expressed on behalf of the Hanalei Community Association. We will continue to do our part to keep you abreast of project developments as they pertain to the community.

If any additional concerns or informational needs arise within your organization regarding the project, please contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Thank you once again for your timely attention to this matter.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden



Kaua'i Group of the Hawai'i Chapter  
Post Office Box 3412  
Lihu'e, Kaua'i, Hawai'i 96766

January 24th, 1999

Chipper Wichman  
Director - Limahuli Garden and Preserve  
National Tropical Botanical Garden  
P.O. Box 808  
Hanalei, HI 96714  
Re: Lo'i Restoration Project Early Consultation

Dear Chipper,

On behalf of the Kaua'i Group of the Hawai'i Chapters of the Sierra Club, I want to thank you for including us in the preliminary review process for the proposed Limahuli Garden Lo'i Restoration Project.

In our January meeting, I shared your letter describing the project to the Executive Committee of the Kaua'i Group. After a brief discussion, we were in unanimous agreement to support the project objectives. It sounds like a wonderful new endeavor for the preservation of natural and cultural resources here on Kaua'i.

Please keep us abreast of relevant information and developments with regard to the project. If there is any way in which we can be of assistance or otherwise demonstrate our support, please do not hesitate to call upon us.

Sincerely,

A handwritten signature in cursive script that reads "Judy Dalton".

Judy Dalton  
Chair, Kaua'i Group  
Sierra Club



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Ms. Judy Dalton  
Chair, Kaua'i Group of the Hawai'i Chapter  
Sierra Club  
P. O. Box 3412  
Lihu'e, HI 96766

Re: Limahuli Garden Lo'i Restoration Project

Dear Ms. Dalton,

Thank you for your letter dated January 24th, 1999, evidencing your early review of the objectives of the Limahuli Garden Lo'i Restoration Project. We appreciate the general support for the project that you expressed on behalf of the Sierra Club. We will continue to do our part to keep you abreast of project developments as they pertain to the community.

If any additional concerns or informational needs arise within your organization regarding the project, please contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Thank you once again for your timely attention to this matter.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

## LIMU COALITION

P.O. Box 1183, Hanalei HI 96714  
808-826-6814; 826-6295; fax 826-1115  
chuan@aloha.net

January 22, 1999

Mr. Ben Welborn  
Limahuli Gardens, Lo'i Restoration Project  
P.O. Box 808  
Hanalei, HI 96714

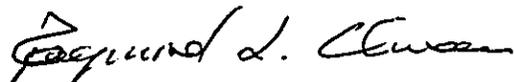
Dear Mr. Welborn:

As a community organization dedicated to the Preservation of the North Shore the Limu Coalition is gratified to have been consulted by you in the Pre-assessment Consultation phase in your preparation of an Environmental Assessment of the Limahuli Garden Lo'i Restoration Project.

We firmly believe that your goals of conservation, preservation and restoration of the ancient lo'i kalo in Haena comport with many of the same aspirations of our membership which comprises all segments of the populace, including, especially, the *kanaka maoli*. In recent years our members have become increasingly concerned with the physical/cultural degradation of the area leading to and including Ke'e. We therefore believe the efforts of Limahuli Garden in this restoration project can significantly help to reverse the debilitating process. Especially viewed against the magnificent record of achievement of Limahuli Garden during the past decade, we can see nothing but positive impacts on the natural and cultural environments of Haena and the North Shore of Kauai.

We thank you for this opportunity to be apprised of your plan and look forward to reviewing the forthcoming Environmental Assessment.

Mahalo, Aloha ahui hou,



Raymond L. Chuan, PhD  
President  
Limu Coalition



**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. Raymond L. Chuan, President  
Limu Coalition  
P.O. Box 1183  
Hanalei, HI 96714

Re: Limahuli Garden Lo'i Restoration Project

Dear Mr. Chuan,

Thank you for your letter dated January 22nd, 1999, evidencing your early review of the objectives of the Limahuli Garden Lo'i Restoration Project. We appreciate the general support for the project that you expressed on behalf of the Limu Coalition. We will continue to do our part to keep you abreast of project developments as they pertain to the community.

If any additional concerns or informational needs arise within your organization regarding the project, please contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Thank you once again for your timely attention to this matter.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

1000 Friends of Kauai • P.O. Box 99 • Hanalei, Kauai, Hawaii 96714

January 25, 1999

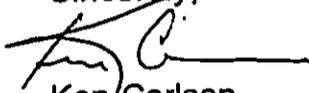
Chipper Wichman, Director  
Limahuli Garden and Preserve  
P.O. Box 808  
Hanalei, HI 96714

Re: Limahuli Garden's Lo'i Restoration Project

Dear Mr. Wichman,

The Lo'i Restoration Project is a wonderful idea. It represents the long standing philosophy of selfless preservation of the land that you stand for. We are proud to support this worthwhile expansion of Limahuli Garden towards becoming the premier example of lo'i restoration in Hawaii.

Sincerely,



Ken Carlson  
President

Preserve  
Our Islands





**NATIONAL TROPICAL BOTANICAL GARDEN**  
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANY

February 11, 1999

Mr. Ken Carlson, President  
1000 Friends of Kaua'i  
P.O. Box 99  
Hanalei, HI 96714

Re: Limahuli Garden Lo'i Restoration Project

Dear Mr. Carlson,

Thank you for your letter dated January 25th, 1999, evidencing your early review of the objectives of the Limahuli Garden Lo'i Restoration Project. We appreciate the general support for the project that you expressed on behalf of the *1000 Friends of Kaua'i*. We will continue to do our part to keep you abreast of project developments as they pertain to the community.

If any additional concerns or informational needs arise within your organization regarding the project, please contact Ben Welborn, Lo'i Restoration Project Coordinator at 826-1079.

Thank you once again for your timely attention to this matter.

Sincerely,

Chipper Wichman  
Director, Limahuli Garden

**APPENDIX 6**

**SPECIAL MANAGEMENT AREA MINOR PERMIT  
SMA(M) # 99-27**

MARYANNE W. KUSAKA  
MAYOR



PLANNING DEPARTMENT

DEE M. CROWELL  
PLANNING DIRECTOR  
SHEILAH N. MIYAKE  
DEPUTY PLANNING DIRECTOR  
TELEPHONE (808) 241-6677  
FAX (808) 241-6699

April 23, 1999

Chipper Wickman  
Limahuli Garden, NTBG  
P. O. Box 808  
Hanalei, HI 96714

Subject: Special Management Area Minor Permit SMA(M)-99-27  
Restoration of kalo loi  
TMK:5-9-03:39 & 41  
Hanalei, Kauai

Based on the information submitted, we have completed our review and assessment of the subject proposal and hereby issue a Special Management Area Minor Permit authorizing, as represented, restoration of kalo loi including construction of an access drive and parking area, and excavation of an auwai and loi.

Approval of the application is subject to the following conditions:

1. The applicant shall comply with the requirements of the State Highways Division regarding the proposed access drive from Kuhio Highway.
2. The applicant shall coordinate the restoration project with the State Historic Preservation Division (SHPD), and the Kauai Historic Preservation Review Commission (KHPRC). The applicant shall resolve with SHPD and KHPRC, recommendations regarding alternative methods of tree removal and sub surface testing in selected undisturbed areas.

Also be informed that other permits or conditions from other agencies may be required. The applicant is responsible for resolving those conditions with the other respective agency(ies).

Dee M. Crowell  
Planning Director

c: Historic Preservation Division  
DOT - Highways Division