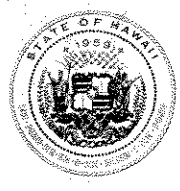


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JOHN WAIHEE
GOVERNOR

November 28, 1994

TO: Keith W. Ahue, Chairperson
Department of Land and Natural Resources

SUBJECT: Final EIS - Makiki-Tantalus State Park Master Plan and Makiki
Forestry Facilities

I am pleased to accept the Final Environmental Impact Statement for the Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes.

This environmental impact statement will be a useful tool in the process of deciding if the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under applicable laws and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the appropriate legislative bodies and governmental agencies to consider if the societal benefits justify the economic, social and environmental impacts which will likely occur. These impacts are adequately described in the statement which, together with the comments made by reviewers, provides useful analysis of the proposed action.

JOHN WAIHEE

c: Office of Environmental Quality Control

1994- Oahu - FEIS -
Makiki Tantalus

FILE COPY

*Final
Environmental Impact Statement*

**MAKIKI-TANTALUS STATE PARK
MASTER PLAN
&
MAKIKI FORESTRY FACILITIES**

**OA
524**

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
SEPTEMBER 1994

JOHN WAIHEE
GOVERNOR



BRIAN J. J. CHOY
Director

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185

Dear Participant:

Attached for your information is a Final Environmental Impact Statement which was prepared pursuant to the EIS law (Hawaii Revised Statutes, Chapter 343) and the EIS rules (Administrative Rules, Title 11, Chapter 200).

TITLE OF PROJECT: Final EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

LOCATION: ISLAND Oahu DISTRICT Honolulu

TAX MAP KEY NUMBERS: 2-5-19: 3, 4, & por. 8; 2-5-20: por. 4, 5, & 7

AGENCY ACTION: APPLICANT ACTION:

ACCEPTING AUTHORITY: John Waihee, Governor
ADDRESS: C/O Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

CONTACT: PHONE:

PROPOSING AGENCY OR APPLICANT: Department of Land and Natural Resources
ADDRESS: 1151 Punchbowl Street
Honolulu, Hawaii 96813
Attn: Bill Gorst

CONTACT: Bill Gorst, Division of State Parks PHONE: 587-0293

CONSULTANT: Michael S. Chu Land Architect
ADDRESS: 81 South Hotel Street Suite 312
Honolulu, Hawaii 96813

CONTACT: Michael S. Chu PHONE: 537-4674

If you no longer need this EIS, please return it to OEQC (please do not recycle document). Thank you for your participation in the Environmental Impact Statement process!

FINAL ENVIRONMENTAL IMPACT STATEMENT
for
MAKIKI-TANTALUS STATE PARK MASTER PLAN
AND MAKIKI FORESTRY FACILITIES

PROPOSING AGENCY: STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL
RESOURCES
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

Sept. 19, 1994
DATE APPROVED FOR PUBLICATION

RESPONSIBLE OFFICIAL:


KEITH AHE, DIRECTOR

CONTACT:

BILL GORST
DEPARTMENT OF LAND AND NATURAL
RESOURCES
DIVISION OF STATE PARKS
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813
587-0293

ACCEPTING AUTHORITY:

JOHN WAIHEE, GOVERNOR
STATE OF HAWAII

PREPARED BY:

MICHAEL S. CHU
LAND ARCHITECT
81 SOUTH HOTEL STREET SUITE 312
HONOLULU, HAWAII 96813
537-4674

THIS FINAL ENVIRONMENTAL IMPACT STATEMENT WAS PREPARED
PURSUANT TO CHAPTER 343, HAWAII REVISED STATUTES.

FINAL ENVIRONMENTAL IMPACT STATEMENT
for
MAKIKI-TANTALUS STATE PARK MASTER PLAN
AND MAKIKI FORESTRY FACILITIES

1. SUMMARY

Proposing Agency: Department of Land and Natural Resources (DLNR), State of Hawaii

Accepting Authority: Governor, State of Hawaii

Location: Makiki Valley and Puu Ualakaa, Honolulu, Hawaii

Tax Map Keys: 2-5-19: 3, 4, & por. 8; 2-5-20: por. 4, 5, 7

Proposed Action: The DLNR Division of State Parks is proposing designation and low-key improvements for an approximately 20 acre State park in Makiki Valley and an approximately 90 acre State park at Puu Ualakaa. One private parcel containing two houses will be acquired in Makiki Valley. The DLNR Division of Forestry and Wildlife (DOFAW) is proposing minor improvements mauka of the proposed State park in Makiki.

Objectives: Proposed park improvements will facilitate public picnicking, sightseeing, hiking, and meetings; accommodate interpretive and educational programs; and provide adequate facilities for Hawaii Nature Center. Proposed DOFAW improvements will provide adequate offices and storage for existing DOFAW staff.

Impacts: Beneficial impacts include increased passive recreational and educational uses of proposed parks. Adverse impacts include displacement of three families. They will be entitled to relocation benefits provided by State law.

Park use and Hawaii Nature Center programs will generate increased traffic on Makiki Heights Drive and Round Top Drive. However, this will not cause weekday rush-hour traffic congestion.

DLNR use of septic tanks and leaching fields in Makiki Valley and at Puu Ualakaa may cause a slight increase in nitrate levels in basal wells at the City Board of Water Supply (BWS) Beretania and Wilder Pump Stations. However, municipal drinking water will continue to meet all Federal, State, and BWS standards.

Proposed Mitigation: None of the foreseeable adverse impacts are significant. Hence, no special mitigation measures are proposed.

Alternatives: Alternatives considered and rejected include no action, relocation of DOFAW's facility within Makiki Valley,

relocation of DOFAW's facility out of Makiki Valley, expanded park boundaries, and a State park at Kalawahine Ridge.

Unresolved Issues:

Unresolved issues include funding of State park improvements and interpretive programs, relocation of DOFAW's Makiki facility, use of the historic Nutridge house, and sewer hookups for proposed parks.

Land Use Controls:

Proposed park and forestry improvements are located within the Conservation District and comply with the objective of the DLNR Conservation District Resource subzone. Required approvals include:

- Board of Land and Natural Resources (BLNR) approval of a Conservation District Use Permit for park master plans;
- set aside of State land for park use by Governor's Executive Order;
- BLNR lease of State land for continued Hawaii Nature Center operations; and
- Department of Health (DOH) approval of septic tanks and leaching fields for disposal of wastewater.

FINAL ENVIRONMENTAL IMPACT STATEMENT
for
MAKIKI-TANTALUS STATE PARK MASTER PLAN
AND MAKIKI FORESTRY FACILITIES

2. TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. Summary	1.1
2. Table of Contents	2.1
3. Purpose and Need for Action	3.1
4. Proposed Action	
4.1 Summary and Objectives	4.1
4.2 Location and Land Ownership	4.1
4.3 Technical Characteristics	4.2
4.4 Costs, Funding, Phasing, and Timing	4.5
4.5 Social Characteristics	4.6
4.6 Environmental Characteristics	4.6
4.7 Historic Perspective	4.6
5. Alternatives Considered	
5.1 No Action	5.1
5.2 Alternatives Proposed in Investigative Report	5.1
5.3 Relocation of DOFAW Makiki Facilities	5.1
5.4 Expanded Park Boundaries	5.1
5.5 State Park at Kalawahine Ridge	5.1
5.6 Use of Nutridge	5.2
6. Environmental Setting	
6.1 Physiography	6.1
6.2 Geology and Soils	6.1
6.3 Climate	6.1
6.4 Hydrology, Streams, and Groundwater	6.2
6.5 Natural Hazards	6.3
6.6 Flora and Fauna	6.3
6.7 Historic and Archaeological Resources	6.5
6.8 Land Use	6.6
6.9 Visual Resources	6.7
6.10 Public Recreation	6.7
6.11 Public Facilities, Utilities, and Services	6.9
7. Applicable Land Use Plans, Policies, and Controls	7.1

8.	Probable Environmental Impacts	
8.1	Construction Related Impacts	8.1
8.2	Ground Water and Streams	8.1
8.3	Flora and Fauna	8.1
8.4	Displacement of Residents	8.2
8.5	Education	8.2
8.6	Recreation	8.2
8.7	Traffic	8.3
8.8	Views	8.3
8.9	Historic and Archaeological Resources	8.4
8.10	Government Revenues and Expenditures	8.4
8.11	Population and Economic Growth	8.4
9.	Tradeoffs and Long Term Risks	9.1
10.	Irreversible Commitments	10.1
11.	Unavoidable Adverse Effects	11.1
12.	Mitigation Measures	12.1
13.	Unresolved Issues	13.1
14.	Consultation	
14.1	Parties Consulted for the Draft EIS	14.1
14.2	Parties Consulted for the Final EIS	14.2
15.	References	15.1
Appendices		
A.	Comments on the EIS Preparation Notice	A.1
B.	Archaeological Inventory Survey	B.1
C.	Comments on the Draft EIS	C.1
Exhibits		
1.	Location Map	4.8
2.	Proposed Park Boundaries	4.9
3.	Makiki Valley Improvement Area (Makai Portion)	4.10
4.	Makiki Valley Improvement Area (Mauka Portion)	4.11
5.	Puu Ualaka'a Improvement Area	4.12
6.	Site Plan for Second Puu Ualaka'a Lookout	4.13
7.	Makiki-Tantalus State Recreation Area	4.14
8.	Site Photographs in Makiki Valley	6.11
9.	Site Photographs in Makiki Valley	6.12
10.	Site Photographs at Round Top	6.13
11.	State Land Use District Boundaries	7.3

3. PURPOSE AND NEED FOR ACTION

The State Department of Land and Natural Resources (DLNR) Division of State Parks is proposing park improvements in Makiki Valley and at Puu Ualakaa to facilitate public picnicking, sightseeing, hiking, and meetings and accommodate interpretive and educational programs. These areas provide unique opportunities for informal recreational activities within a forested setting close to the center of urban Honolulu and easily accessible to Honolulu residents.

For over a decade, at the State's request, a nonprofit organization named Hawaii Nature Center has provided environmental education programs for elementary school children in Makiki Valley. Existing temporary facilities do not provide Hawaii Nature Center with enough office, interpretive, or sheltered meeting space.

The DLNR Division of Forestry and Wildlife (DOFAW) has offices and stores equipment in several old buildings and sheds in Makiki Valley. DOFAW needs a new building to replace delapidated structures and provide adequate office and storage space.

Formal creation of State parks in Makiki Valley and at Puu Ualakaa by Executive Order is needed to create more rational jurisdictional boundaries and division of responsibilities between DOFAW and the Division of State Parks. State forest reserves are under the jurisdiction of and usually managed by DOFAW, while State parks are under the jurisdiction of and usually managed by the Division of State Parks. However, currently,

- the Division of State Parks maintains improvements and landscaping within the forest reserve in Makiki Valley and at Puu Ualakaa State Wayside on Round Top;
- a historic property (Nutridge) formerly used for Hawaii's first macadamia nut plantation is within the forest reserve adjacent to Puu Ualakaa; and
- DOFAW no longer needs or wants to maintain parts of its Makiki facility including park-like grounds.

4. PROPOSED ACTION

4.1 Summary and Objectives

The Division of State Parks is proposing formal designation and improvements for an approximately 20 acre State park in Makiki Valley. DOFAW is proposing minor improvements for about one-half acre of adjacent DOFAW facilities. The Division of State Parks is also proposing formal designation and improvements for an approximately 90 acre State park at Puu Ualakaa.

The objective of proposed park improvements is to facilitate public picnicking, sightseeing, hiking, and meetings; accommodate interpretive and educational programs; and provide adequate facilities for Hawaii Nature Center. The objective of proposed DOFAW improvements is to provide adequate offices and storage for DOFAW staff.

4.2 Location and Land Ownership

The project area is a forested setting, close to the center of urban Honolulu and easily accessible to Honolulu residents. Nearby residential areas include suburbs in Makiki Heights, lower Round Top, and Manoa Valley and more densely populated neighborhoods at Makiki, Moiliili, and lower Punchbowl. Exhibit 1 shows the location of the project area relative to prominent Honolulu landmarks such as Punchbowl Crater, Punahou School, and major roadways. Exhibit 2 shows the approximate boundaries of proposed State parks and the location of DOFAW's Makiki facility.

Proposed State parks will mostly incorporate State owned lands now set aside by Executive Order or Proclamation as forest reserve. Forest reserves are under DOFAW's jurisdiction. (The makai gate to DOFAW's Makiki access road is about 5 feet within the forest reserve.) A little unencumbered State land bordering Makiki Heights Drive, now under the jurisdiction of the DLNR Division of Land Management (DLM), will also be included. Acquisition of one private parcel is also proposed in Makiki Valley.

Proposed park boundaries in Makiki Valley include:

- part of a forest reserve parcel identified by Tax Map Key: 2-5-19: por. 8,
- DLM parcels identified by Tax Map Key: 2-5-20: por. 4 & 5, and
- a private parcel identified by Tax Map Key: 2-5-20: 7.

Proposed DOFAW facility improvements will take place on part of a forest reserve parcel identified by Tax Map Key: 2-5-19: por. 8.

Proposed park boundaries at Puu Ualakaa include forest reserve parcels identified by Tax Map Key: 2-5-19: por. 3, 4, & por. 8. Although encircled by proposed park boundaries at Puu Ualakaa, a 0.09 acre parcel (Tax Map Key: 2-5-19: 11), set aside by Executive Order 1215 for City microwave transmitters, will not be included in the State park.

All State owned lands within proposed park boundaries and DOFAW's Makiki facility are within the "public land trust" as defined in Section 10-2, Hawaii Revised Statutes. Section 10-13.5, Hawaii Revised Statutes, provides that

Twenty per cent of all revenue derived from the public land trust shall be expended by the office [of Hawaiian affairs] for the betterment of the conditions of native Hawaiians.

4.3 Technical Characteristics

4.3.1 Land Acquisition and Designation of Park Boundaries

An 18,000 square foot private parcel abutting Makiki Heights Drive, identified by Tax Map Key: 2-5-20: 7, will be acquired. At least one Executive Order will be used to withdraw proposed park lands from the forest reserve. At least one Executive Order will be used to formally set State lands aside for park use.

4.3.2 Proposed Improvements in Makiki Valley

As shown in Exhibits 3 and 4, proposed park improvements in Makiki Valley include:

- developing a 4,000 square foot park headquarters (including offices and interpretive space) and a 6,500 square foot meeting facility north of a hair-pin turn on Makiki Heights Drive;
- developing a temporary park headquarters parking lot with temporary road access from DOFAW's access road;
- developing bus bays along the northwest side of DOFAW's access road;
- acquiring a private lot north of the Makiki Heights Drive hair-pin turn, removing two private houses, and developing a permanent parking lot along a new landscaped park access road from Makiki Heights Drive;
- replacing two Hawaii Nature Center trailers and a 1,690 square foot DLNR building leased by Hawaii Nature Center with a new 3,000 square foot interpretive center and offices;
- replacing the DOFAW Oahu District Forester's cottage and garage with a park rain shelter;
- replacing a rain shelter south of the hair-pin turn on Makiki Heights Drive with a comfort station and larger rain shelter;
- realigning the head of Kanealole Trail and developing pathways from Makiki Pumping Station, the new park headquarters, and Maunalaha Trail to Kanealole Trail; and
- providing various minor landscaping improvements and park amenities.

As shown in Figure 4, proposed DOFAW improvements in Makiki Valley include:

- reconfiguring the DOFAW nursery to allow Kanealole Trail to be realigned between the nursery and Makiki Stream; and
- replacing a delapidated DOFAW shed and woodshop with a 2,300 square foot DOFAW office building and converting offices in adjacent DOFAW buildings to storage.

4.3.3 Proposed Improvements at Puu Ualakaa

As shown in Exhibits 5 and 6, proposed park improvements at Puu Ualakaa include:

- renovating an existing free-standing garage at Nutridge for Hawaii Nature Center use and developing an adjacent comfort station;
- developing a new ridgeline trail connection between Nutridge and Ualakaa Trail;
- developing a new loop trail between Nutridge and Puu Ualakaa;
- developing a second Puu Ualakaa lookout shelter with access only from the new loop trail;
- constructing a second picnic shelter at Puu Ualakaa; and
- providing various minor landscaping improvements and park amenities.

4.3.4 Division of State Parks Programs and Staffing

The Division of State Parks will assume total responsibility for management of proposed State parks. The Division of State Parks may provide or contract for provision of interpretive programs. The nature of and funding for State interpretive programs is not resolved at this time. Since no overnight camping will be allowed within proposed State parks, they will be closed at night and no live-in custodian will be established.

By agreement with DOFAW and DLM, roving crews from the Division of State Parks currently maintain a grassy landscaped strip between Makiki Heights Drive and Makiki Stream (starting a few hundred feet mauka of the City BWS Makiki Pumping Station), about a half acre of landscaping and improvements used by Hawaii Nature Center next to DOFAW's Makiki facility, and landscaping and improvements at Puu Ualakaa State Wayside. Creation of formal State park boundaries encompassing a larger area will expand the State Parks Division's responsibilities and require at least one full-time groundskeeper.

4.3.5 Hawaii Nature Center Programs and Staffing

A nonprofit organization named Hawaii Nature Center currently provides environmental education/appreciation programs for elementary school children in Makiki Valley and at Puu Ualakaa State Wayside. In 1992, Hawaii Nature Center weekday morning programs served about 20,000 elementary school children. Ultimately, when park facilities and funding permit, Hawaii Nature Center staff would like to expand weekday morning programs to serve a maximum of 25,000 to 30,000 children each year.

On weekday afternoons and weekends, Hawaii Nature Center provides educational/recreational programs and activities in Makiki Valley and the vicinity for families and organized groups. In 1992, an estimated 17,500 people participated in Hawaii Nature Center afternoon and weekend programs, activities, and events in Makiki Valley (including about 5,000 people on weekday afternoons, about 7,500 people on weekends, and about 5,000 people in Hawaii Nature Center's annual one-day free special event.) Ultimately, when park facilities and funding permit, Hawaii Nature Center staff would like to expand weekday afternoon and weekend programs, activities, and events to serve a maximum of about 30,000 people per year in Makiki Valley.

Currently, Hawaii Nature Center has 12 full-time employees. On weekdays, 11 employees and 3 to 5 volunteers report to work in Makiki Valley. On weekends 2 employees and 2 to 5 volunteers report to work in Makiki Valley. Ultimately, if funds and facilities permit, Hawaii Nature Center would like 20 full-time employees at Makiki to expand staffing of both weekday and weekend programs at Makiki and provide administrative support for programs at other locations.

4.3.6 DOFAW Programs and Staffing

The proposed new DOFAW building will provide 12 offices, bathrooms, and showers for DOFAW foresters, botanists, wildlife biologists, and trail specialists and allow other DOFAW buildings in Makiki to be converted to storage. The additional space at DOFAW's new Makiki office will allow DOFAW staff to provide the same educational handouts, trail maps, public consultation, and permits at Makiki that are now only available at DOFAW's downtown offices. Otherwise no change is proposed in the number, nature, or responsibilities of DOFAW employees at Makiki. Currently, 7 DOFAW employees already have offices at Makiki, 6 DOFAW employees with offices in downtown Honolulu

primarily work out of Makiki, and 9 DOFAW employees who report to work at Makiki do not have or need offices. DOFAW now has no showers at Makiki.

To reduce commuting to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles and some supplies and equipment closer to where they are used. (This already is the practice with DOFAW's bulldozer, but DOFAW must truck-in diesel fuel for the bulldozer.) About 18 DOFAW employees show up to work in Makiki Valley before 7:00 a.m. Most then drive DOFAW vehicles to other work sites. DOFAW currently parks 10 pickup trucks, 6 4-wheel drive passenger vehicles, 2 small utility trailers, and 1 large flat-bed trailer at its Makiki facility. Vehicle maintenance and fueling is handled by private contract offsite.

4.4 Costs, Funding, Phasing, and Timing

Proposed park improvements are not currently funded. The first priority for State park improvements is \$0.55 million for a Makiki park headquarters, temporary parking lot, and temporary access road. Total costs of constructing proposed park improvements in Makiki are currently estimated at about \$2.2 million. In addition, acquisition of one private parcel in Makiki Valley will cost at least \$1.27 million (the appraised value of land and improvements for 1993 City property taxes). Total costs of constructing proposed park improvements at Puu Ualakaa are currently estimated at about \$0.2 million.

Proposed DOFAW improvements in Makiki are already funded. The Legislature appropriated \$300,000 in 1991 for replacement of a DOFAW shed and wood shop with a new DOFAW office building. Additional funds may be requested in FY 1994-95 for air conditioning and/or paved parking. Other minor DOFAW improvements can be funded with DOFAW's operating budget.

Construction of DOFAW's new office building will begin in 1994. Other proposed improvements will be built over a period of years at irregular intervals as funds become available. Recommended phasing of park improvements is as follows.

Phase 1

Makiki Valley	develop 4,000 sf park headquarters, temporary access road, and temporary parking lot
Makiki Valley	replace HNC trailers and building leased by HNC with 3,000 sf interpretive center and offices
Makiki Valley	develop bus bays
Makiki Valley	replace rain shelter and add comfort station
Makiki Valley	develop 6,500 square foot meeting facility

Phase 2

Makiki Valley	realign Kanealole Trail and develop pathways from Makiki Pumping Station and the new park headquarters
Makiki Valley	acquire private lot and remove 2 houses; develop permanent access road and parking lot
Puu Ualakaa	repair existing picnic shelter and develop new picnic shelter

Phase 3

Puu Ualakaa	renovate Nutridge garage for HNC use and add comfort station
Puu Ualakaa	develop loop trail, second lookout shelter, and new connection to Ualakaa trail
Makiki Valley	replace Oahu Forester's house and garage with rain shelter

In Phase 2, development of a new park access road from Makiki Heights Drive is contingent upon acquisition of one private parcel. The house and garage used by the Oahu District Forester in Makiki Valley will not be replaced with a park rain shelter until after his retirement. This may not take place for several years and is shown in Phase 3.

4.5 Social Characteristics

The house and garage used by the Oahu District Forester in Makiki Valley will not be replaced with park facilities until after his retirement. Proposed State acquisition of an 18,000 square foot private parcel in Makiki Valley will displace three families residing in two houses. One house is occupied by the owner and tenants, and one house is occupied by tenants.

At this time, no new use is proposed of the historic Nutridge house within the proposed park boundaries at Puu Ualakaa. The DLNR Division of State Parks has deferred any decision on future public use/management of the Nutridge house until a list of suitable options can be developed as part of an ongoing study of public use of the Makiki-Tantalus area. Until future uses are resolved, the existing occupant will be allowed to reside in and maintain the Nutridge house and grounds.

4.6 Environmental Characteristics

No water development, alteration of stream channels, or filling of wetlands is proposed. Wastewater from existing DLNR and private toilets in upper Makiki Valley and at Round Top is disposed of in cesspools. Wastewater from proposed new comfort stations and DLNR buildings with toilets will be disposed of with septic tanks and leaching fields. The Division of State Parks will determine the need to extend gravity sewer lines to proposed parks when facilities are developed.

4.7 Historic Perspective

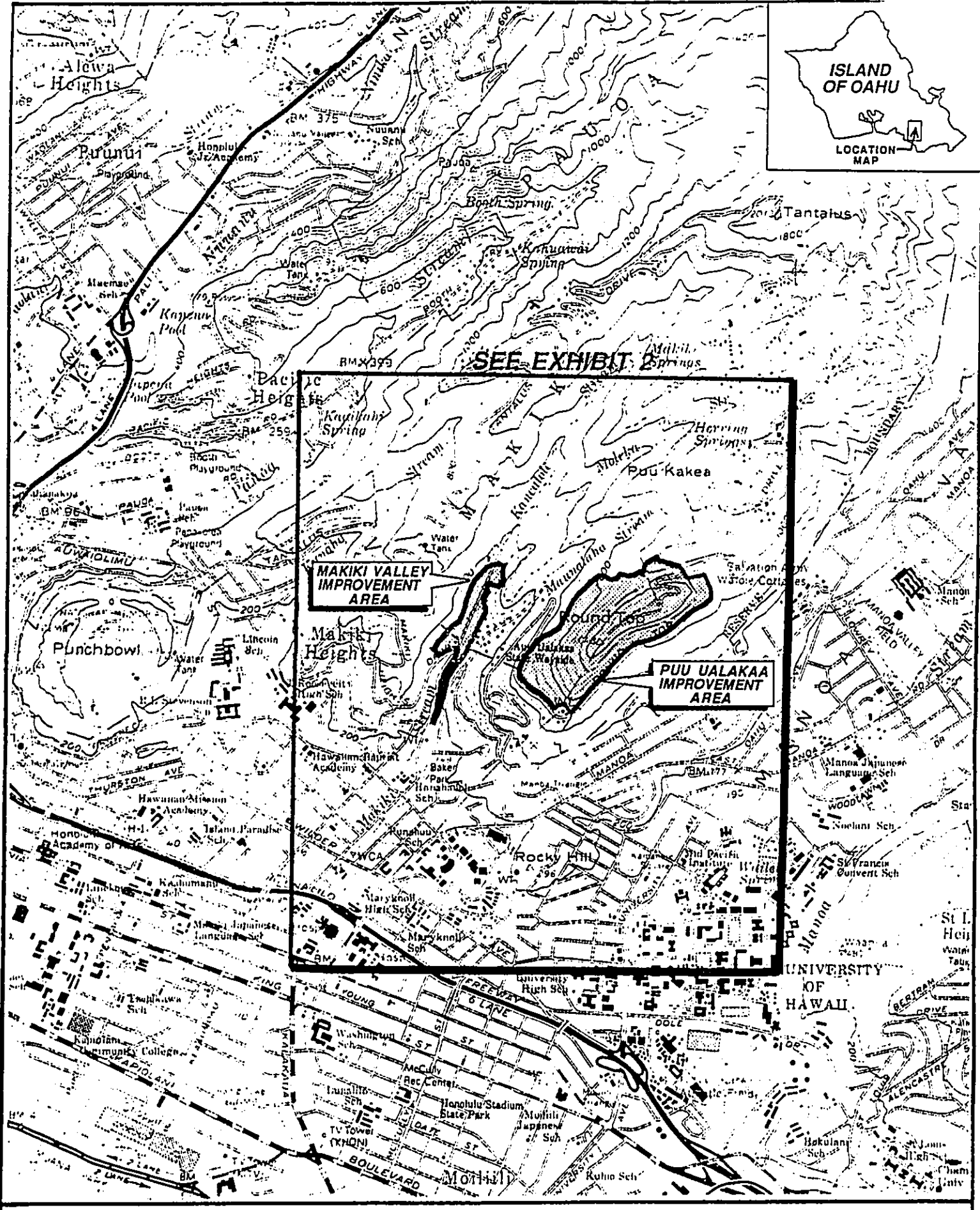
Forestry facilities in Makiki Valley date back to the early 1900s when the first territorial forester established a nursery for reforestation of Honolulu's hillsides. At one time or another, the predecessors of several DLNR divisions built workshops or storage buildings in Makiki Valley. Existing park-like improvements at Puu Ualakaa State Wayside were constructed in the 1950s. Beginning in the 1920s, an adjacent State parcel was used for Hawaii's first macadamia nut plantation (Nutridge). The historic Nutridge house was also built in the 1920s.

In 1970, the State Legislature appropriated funds, which lapsed, for a Makiki-Tantalus State Park. In 1976, the former DLNR Division of State Parks, Outdoor Recreation and Historic Sites hired Tongg Associates to prepare a plan for recreational use and improvement within a study area consisting of Tantalus, Makiki Valley, and Round Top. For purposes of this plan, the 2075 acre study area was called the "Makiki-Tantalus State Recreation Area" (Exhibit 7). The uncompleted 1977 Tongg Associates plan recommended relocation of non-recreational uses from Makiki Valley and Nutridge, development of an

environmental education center in Makiki Valley, and development of an extensive network of trails, clearings, and parking to accommodate hiking, picnicking, day camping, and scenic outlooks.

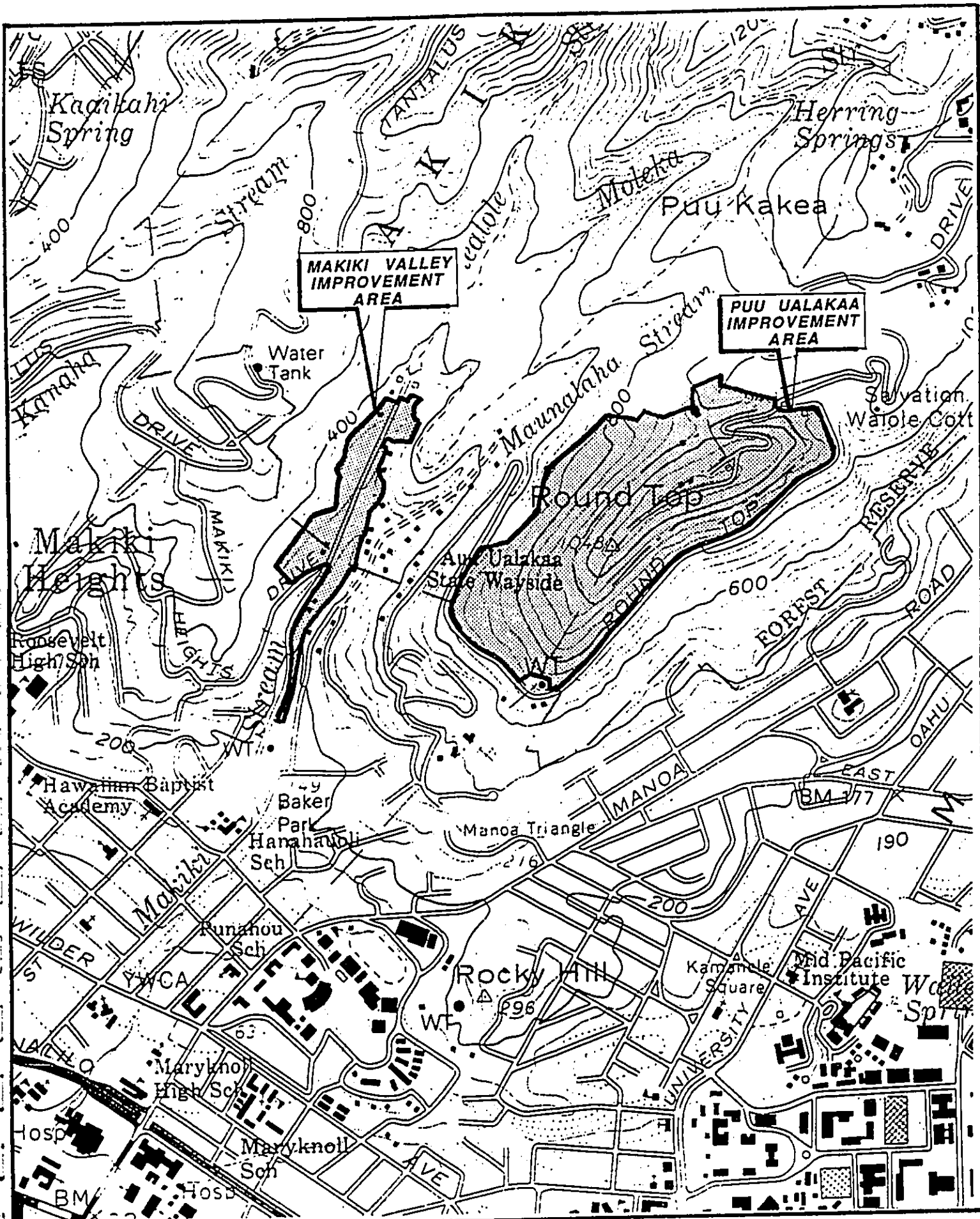
In 1991, the DLNR Division of State Parks hired Michael S. Chu Land Architect to review implementation of the 1977 Tongg Associates' "Preliminary Draft Report, Makiki-Tantalus State Recreation Area", solicit input from the public and an advisory committee, and make recommendations. The consultant's findings and recommendations were presented in a report titled "Final Investigative Report Makiki-Tantalus State Recreational Area Phase 1". At its May 22, 1992, meeting, the State Board of Land and Natural Resources (BLNR) selected the general boundaries and concepts for State parks in Makiki and at Puu Ualakaa from alternatives presented in the consultant's report.

Preliminary master plans for park and DOFAW improvements were presented in the April 1993 EIS Preparation Notice. To address concerns raised in public comments, revised plans were presented in the Draft EIS for further public review.



LOCATION MAP
 Scale: 1" = 2000'

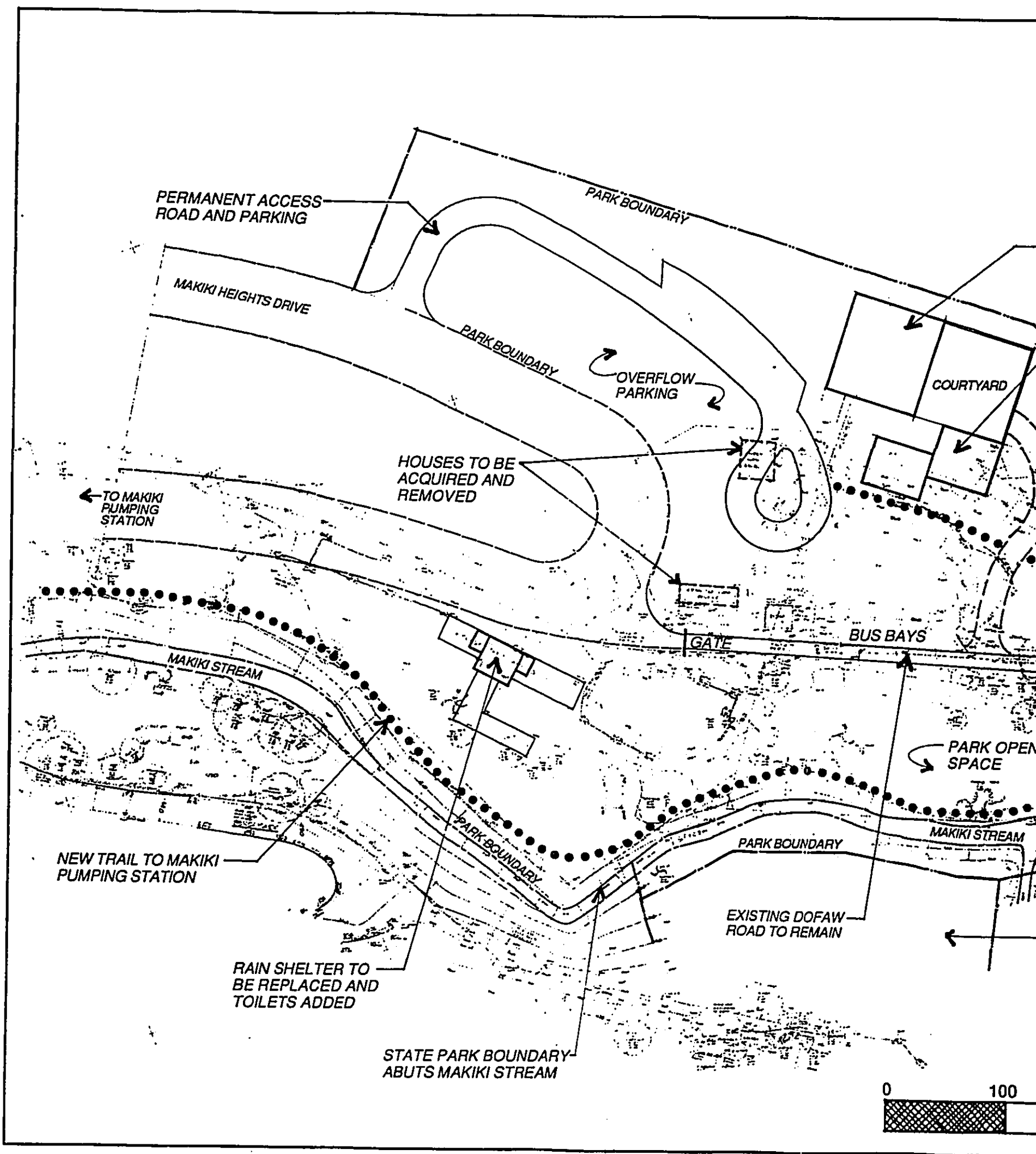
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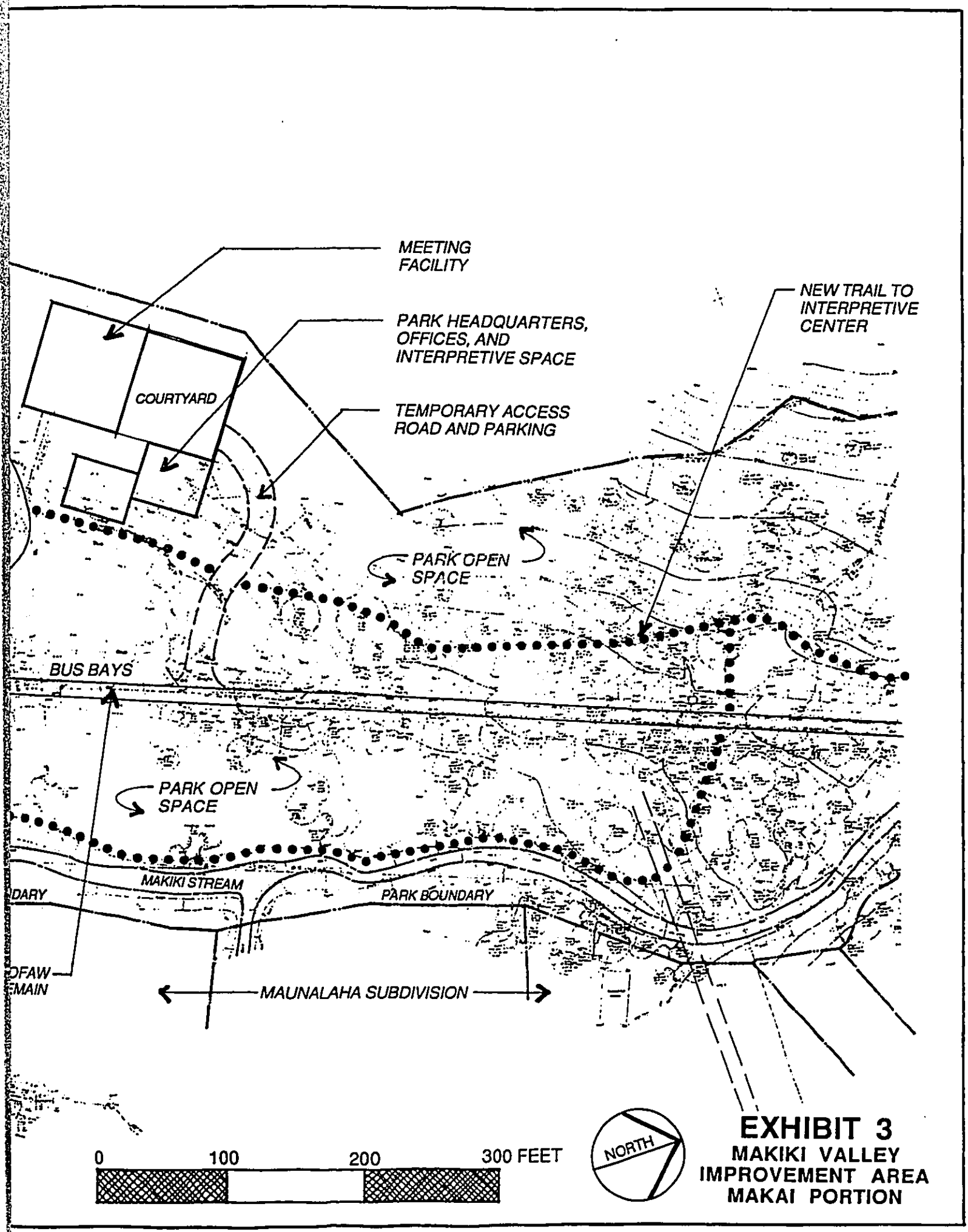


PROPOSED PARK BOUNDARIES

EXHIBIT 2

Scale: 1" = 1000'





MEETING FACILITY

PARK HEADQUARTERS, OFFICES, AND INTERPRETIVE SPACE

COURTYARD

TEMPORARY ACCESS ROAD AND PARKING

NEW TRAIL TO INTERPRETIVE CENTER

PARK OPEN SPACE

BUS BAYS

PARK OPEN SPACE

MAKIKI STREAM

PARK BOUNDARY

DARY

OFAW MAIN

MAUNALAHA SUBDIVISION

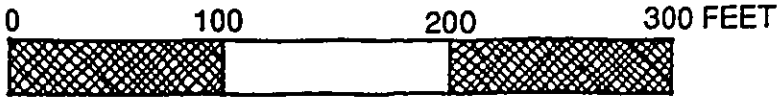
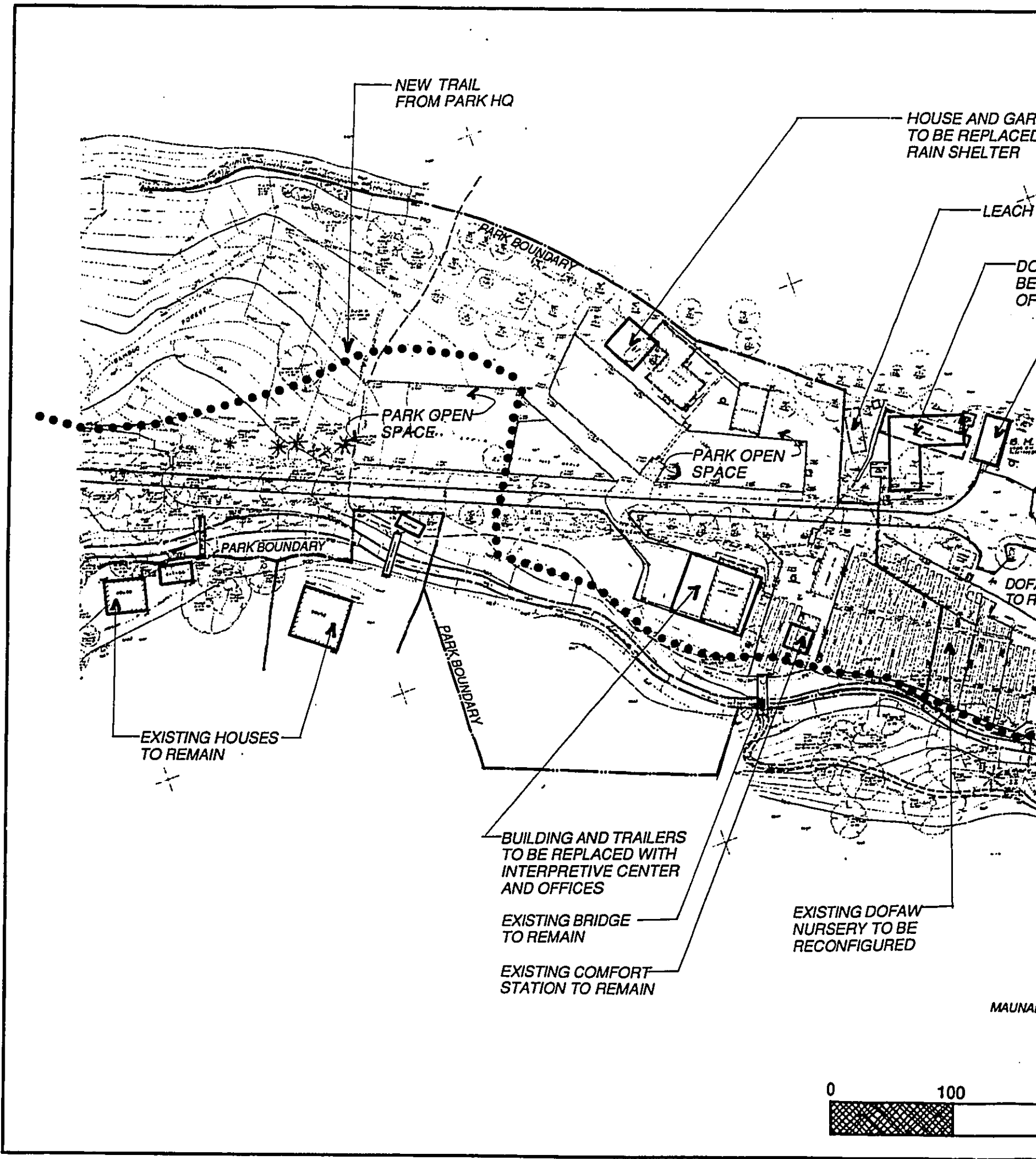


EXHIBIT 3
MAKIKI VALLEY
IMPROVEMENT AREA
MAKAI PORTION



HOUSE AND GARAGE
TO BE REPLACED WITH
RAIN SHELTER

LEACH FIELD

DOFAW SHEDS TO
BE REPLACED WITH
OFFICE BUILDING

EXISTING DOFAW
SHEDS TO REMAIN

DOFAW FACILITY
TO REMAIN

EXISTING CHLORINATOR
BUILDING TO REMAIN

KANEALOLE TRAIL

KANEALOLE STREAM

EXISTING DOFAW
NURSERY TO BE
RECONFIGURED

MAUNALAHA TRAIL

MOLEKA STREAM

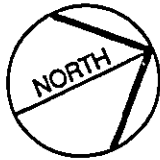
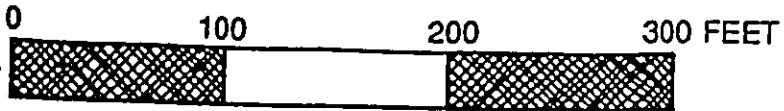
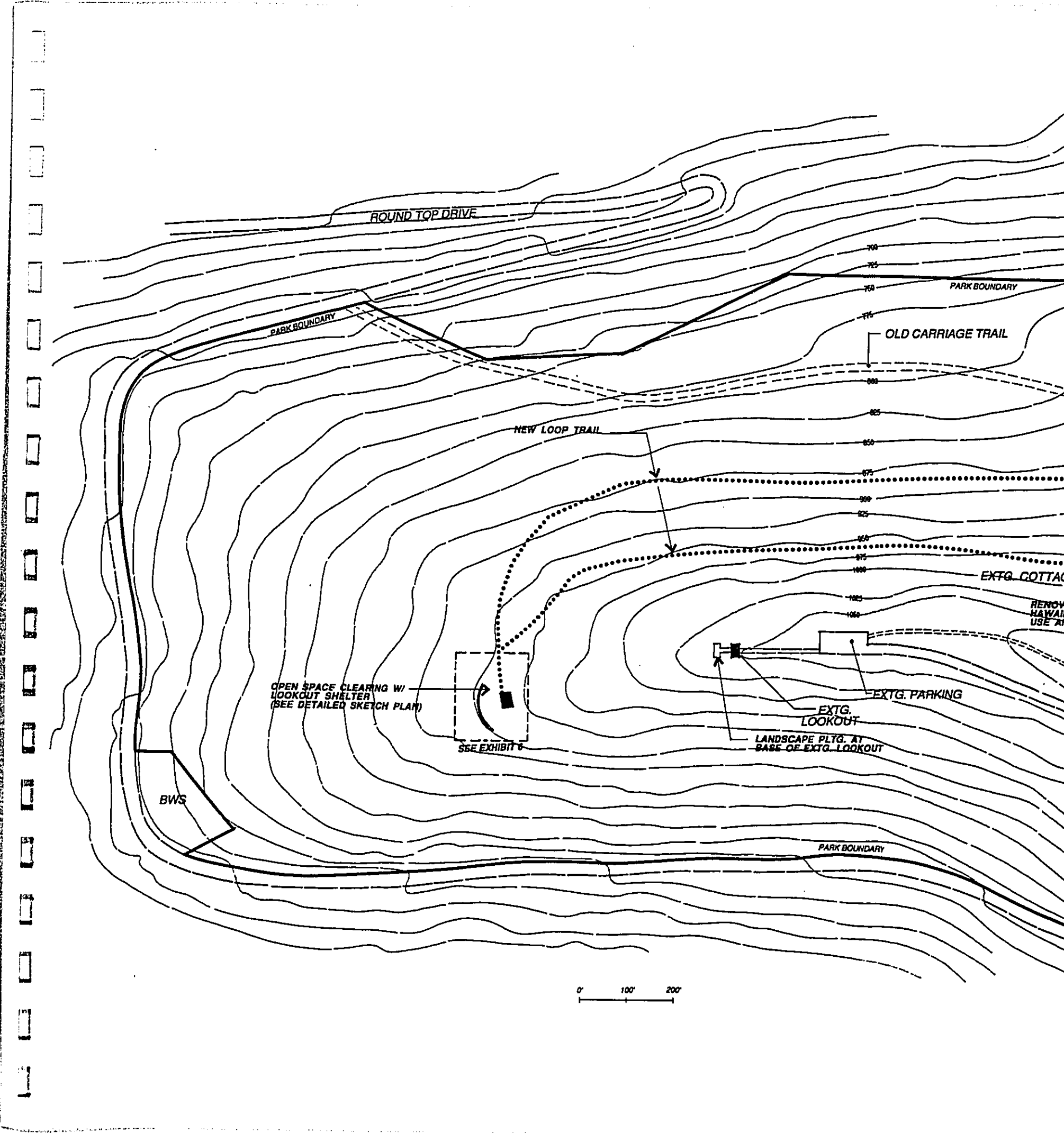


EXHIBIT 4
MAKIKI VALLEY
IMPROVEMENT AREA
MAUKA PORTION



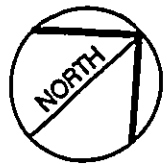
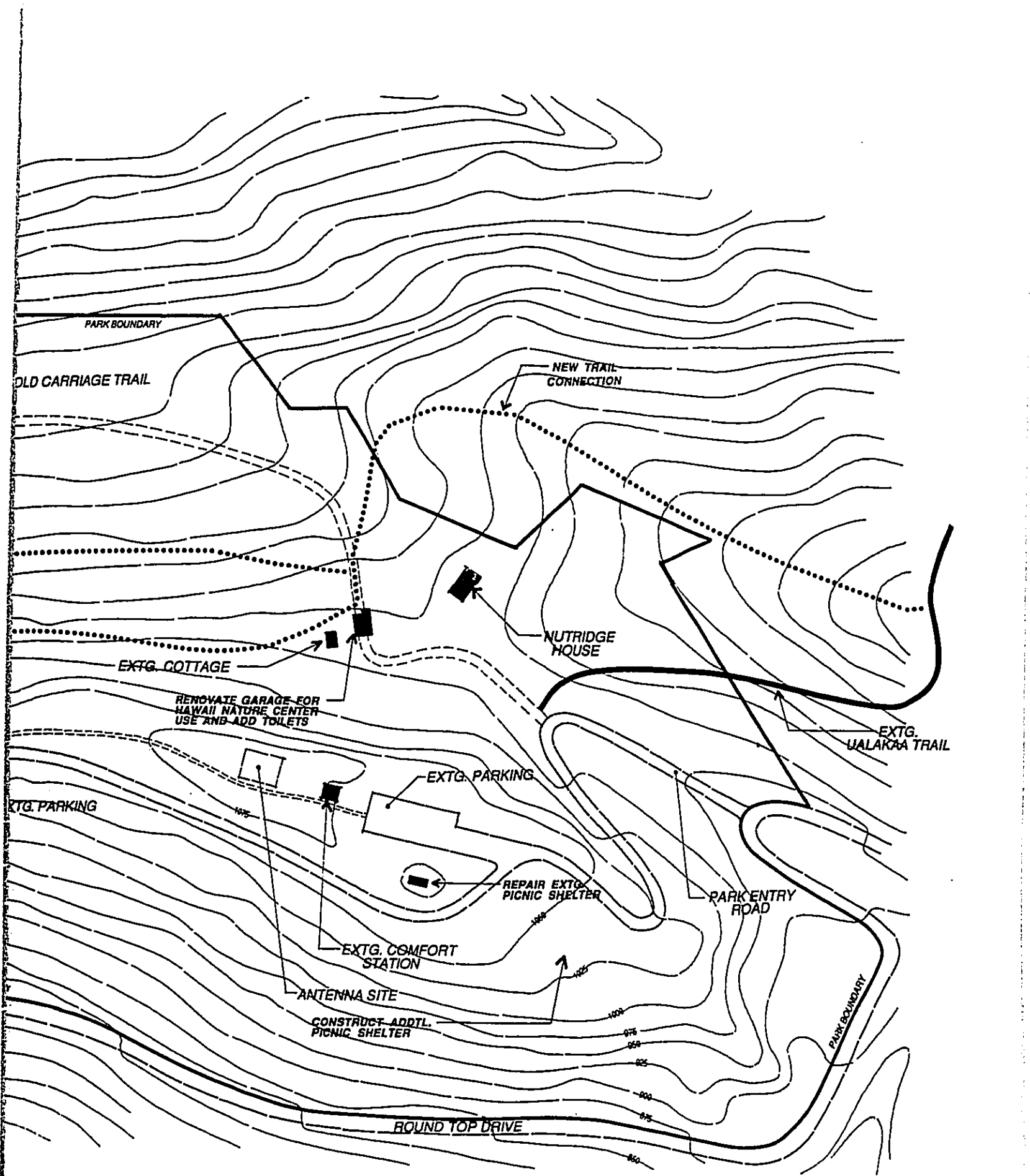
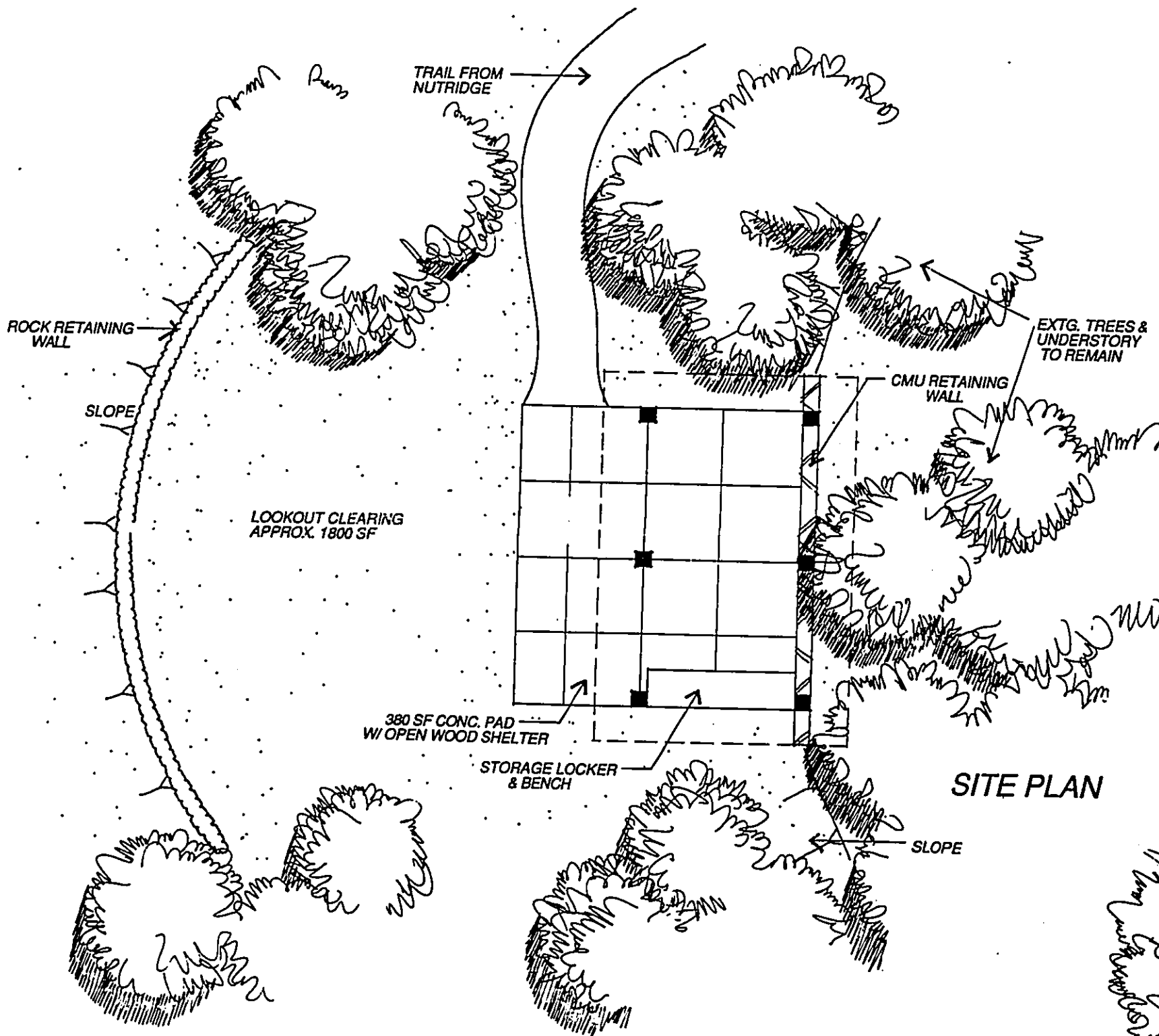
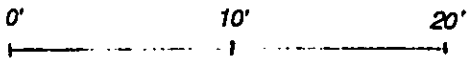


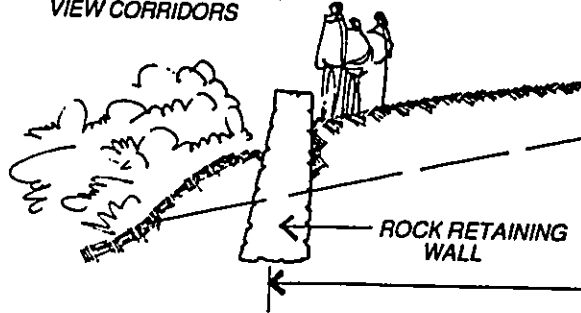
EXHIBIT 5
PUU UALAKAA
IMPROVEMENT AREA

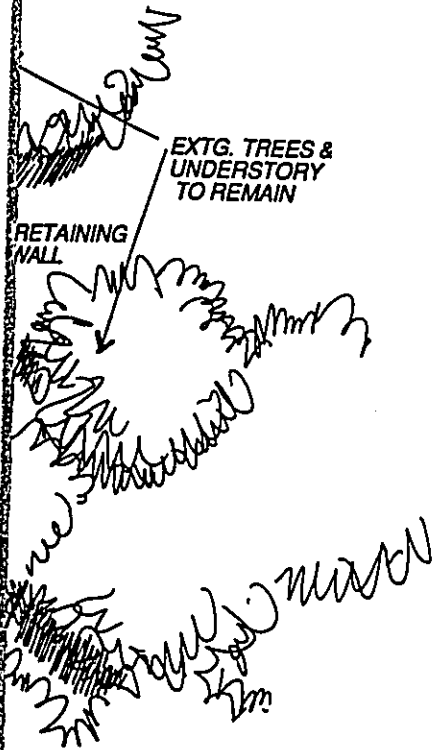


SITE PLAN



← SELECTIVE CLEARING OF EXTG. VEGETATION FOR VIEW CORRIDORS →



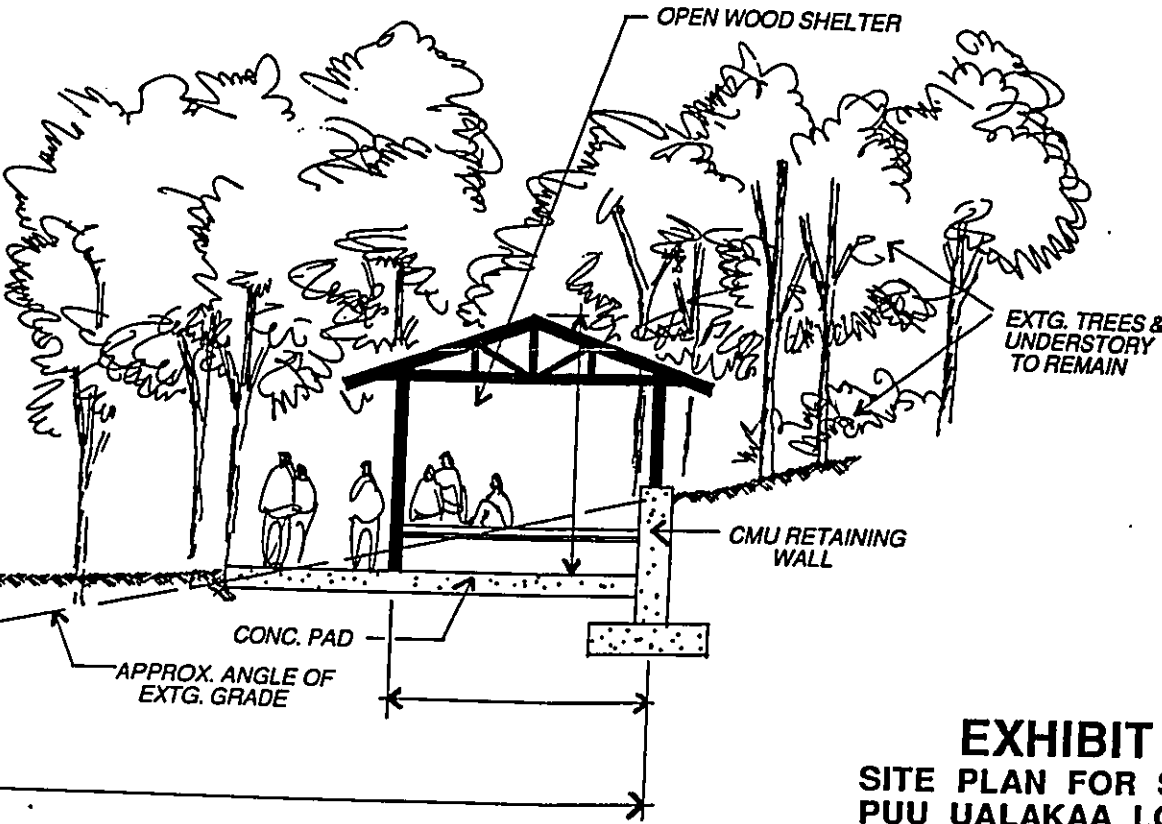


EXTG. TREES & UNDERSTORY TO REMAIN

RETAINING WALL

SITE PLAN

LOPE



OPEN WOOD SHELTER

EXTG. TREES & UNDERSTORY TO REMAIN

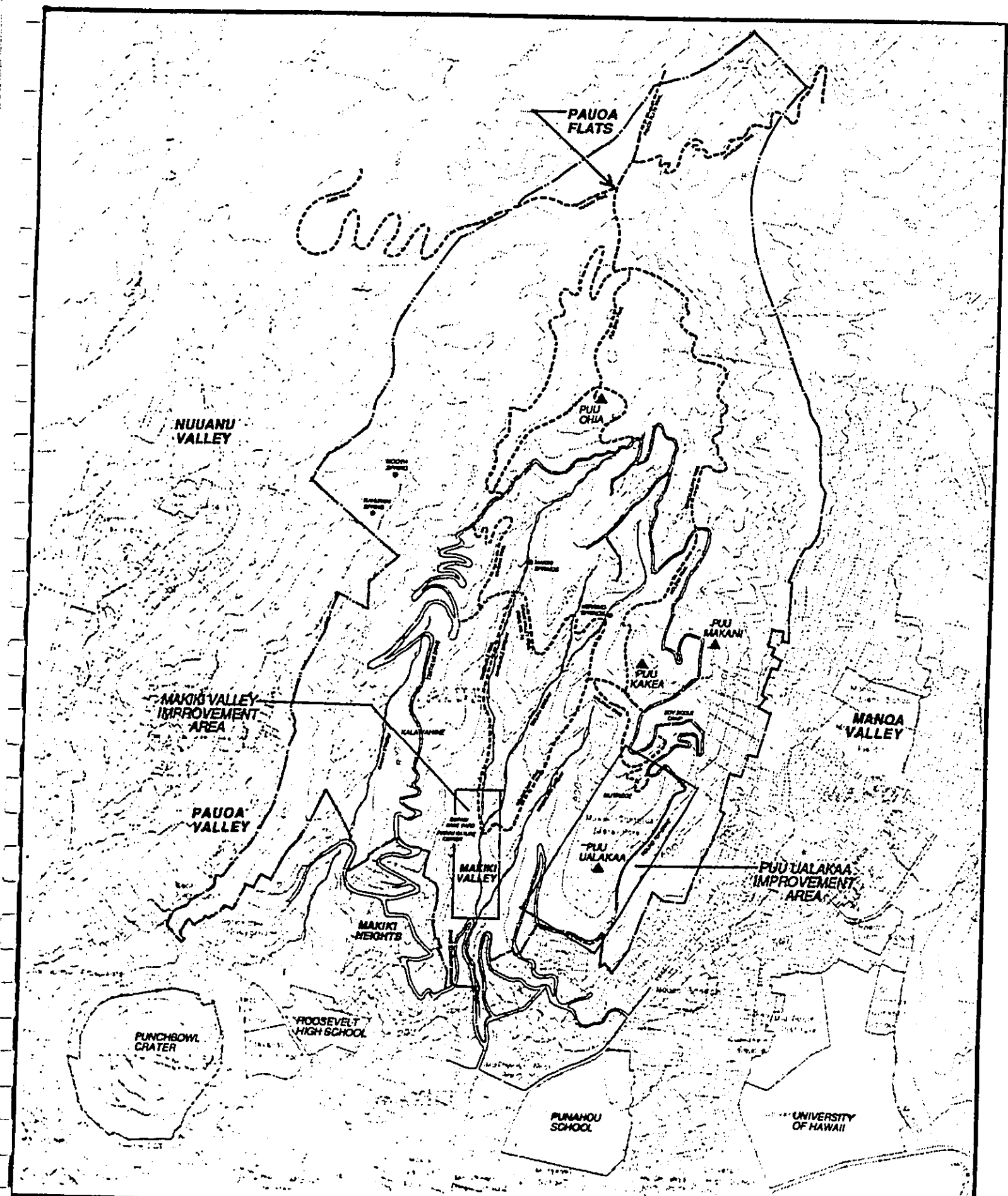
CMU RETAINING WALL

CONC. PAD

APPROX. ANGLE OF EXTG. GRADE

ROCK RETAINING WALL

EXHIBIT 6
SITE PLAN FOR SECOND
PUU UALAKAA LOOKOUT



**MAKIKI-TANTALUS
STATE RECREATION AREA**
Scale: 1" = 2000'

EXHIBIT 7

5. ALTERNATIVES CONSIDERED

5.1 No Action

Total inaction would be inappropriate. Park improvements are needed to facilitate public recreation and accommodate Hawaii Nature Center programs. DOFAW needs a new building to replace delapidated structures and provide adequate office and storage space.

5.2 Alternatives Proposed in Investigative Report

In 1991, the Division of State Parks hired Michael S. Chu Land Architect to review implementation of the 1977 Tongg Associates' "Preliminary Draft Report, Makiki-Tantalus State Recreation Area", solicit input from the public and an advisory committee, and make recommendations. The consultant's findings and recommendations were presented in a report titled "Final Investigative Report Makiki-Tantalus State Recreational Area Phase 1". At its May 22, 1992, meeting, the State Board of Land and Natural Resources (BLNR) selected the general boundaries and concepts for State parks from alternatives presented in the consultant's report. In Makiki Valley, the BLNR rejected both the alternative of providing park and Hawaii Nature Center facilities mauka of DOFAW's facility and the alternative of relocating DOFAW's facility next to Makiki Heights Drive. At Puu Ualakaa, the BLNR preferred to connect Ualakaa Trail to Nutridge with a new ridgeline trail.

5.3 Relocation of DOFAW Makiki Facilities

No site has been selected and no funds are available to totally relocate DOFAW's Makiki facility. While DOFAW needs to replace delapidated offices and sheds at Makiki, it does not plan to increase the number of employees who report to work there. In the short term, to reduce commuting to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles closer to where they are used. In the long term, DOFAW will reconsider the possibility of relocating its Makiki facility.

5.4 Expanded Park Boundaries

Proposed park boundaries will encompass substantial parts of DOFAW's existing Makiki facility. The DLNR Division of State Parks will consider further expansion of the proposed State park in Makiki if justified by increased public use.

5.5 State Park at Kalawahine Ridge

The DLNR decided that it would be inappropriate to designate a State park at Kalawahine Ridge because the advisory committee and general public opposed development of picnic tables and a comfort station. Less intensive improvements such as existing clearings can continue to be managed by DOFAW.

5.6 Use of Nutridge

The DLNR State Parks Division has retained the Hawaii Nature Center to identify a variety of program opportunities for the Makiki-Tantalus area. Facility needs associated with these opportunities will also be reviewed as part of the 21 month study, including potential interpretive uses for the Nutridge house. The DLNR has deferred any decision on future public use/management of the Nutridge house until a more complete list of suitable options can be considered.

6. ENVIRONMENTAL SETTING

6.1 Physiography

Makiki Valley is a narrow stream-cut valley bounded by steep hillsides. Two smaller tributary stream valleys branch off to the northeast. The Makiki Valley floor has a moderate slope from the BWS Makiki Pumping Station until about a quarter mile mauka of DOFAW's Makiki facility. Within proposed park boundaries, elevations range from about 160 feet (just mauka of Makiki Pumping Station) to about 340 feet (near the makai end of DOFAW's Makiki facility).

Puu Ualaka'a is a prominent, elongated outcrop on the Round Top ridgeline. Slopes are moderate to steep. Within proposed park boundaries, elevations range from about 625 feet (along Round Top Drive) to about 1075 feet (near the Puu Ualaka'a summit).

6.2 Geology and Soils

Honolulu is located on the eroded southern side of the extinct Koolau Volcano. Volcanic cinders and ash from geologically recent post-erosional eruptions (Honolulu volcanic series) have formed a number of Honolulu landmarks including Punchbowl, Round Top, and Diamond Head. Honolulu volcanics overlie the older Koolau lava flows in Makiki Valley and at Round Top. Weathered Honolulu volcanics have formed shallow, expansive, poorly-drained stony clay soils within lower Makiki Valley. Soils within proposed park boundaries at Puu Ualaka'a are mostly shallow, rocky, and well-drained.

Alluvial and marine sedimentary deposits (caprock) cover Honolulu's coastal plain. Makai of Makiki Valley and Round Top, between Punchbowl and Rocky Hill, caprock extends inland to about Wilder Avenue. Caprock is much less permeable than either Koolau lava flows or Honolulu volcanic series cinders or ash. Weathered Honolulu volcanics in upper Makiki Valley are also relatively impermeable.

6.3 Climate

Temperatures in the project area rarely exceed 90 degrees or drop below 50 degrees Fahrenheit. Daytime temperatures normally are in the 70s or 80s. Humidity is usually high. Moderate tradewinds from the northeast predominate. Moderate southerly winds most frequently occur between October and April. Makiki Valley is relatively sheltered while exposed ridgelines at Puu Ualaka'a are often exposed to strong gusts.

Most rain on Honolulu's coast results from a few large winter storm systems while more than half the rain around the Koolau summit results from the upward deflection of tradewinds by the Koolau mountains. Median annual rainfall increases from about 25" near Honolulu's coast to about 160" a half mile inland from the summit of Tantalus. Median annual rainfall is about 60" at DOFAW's Makiki facility and about 70" at Puu Ualaka'a.

6.4 Hydrology, Streams, and Groundwater

Between the Koolau crest and Honolulu's caprock, some rainfall becomes surface runoff, some is lost to evaporation or transpiration, some is perched in Honolulu volcanics, and some percolates into the Koolau lavas. Although complicated by volcanic geology, most ground water reaching leeward Koolau lavas eventually percolates or flows into a basal aquifer.

The dry weather flow of Makiki Stream and its tributaries primarily stems from rainfall perched in weathered Honolulu volcanics in upper Makiki Valley. The same is true for Makiki Springs and Herring Springs. In 1992, the City Board of Water Supply (BWS) diverted an average of about 0.23 million gallons per day (mgd) from Makiki Springs for public use. Because Makiki Springs is a shallow water source at risk of contamination, the BWS chlorinates spring water in a small building just mauka of DOFAW's Makiki forestry facility. The BWS used to divert an average of about 0.06 mgd from Herring Springs, but now allows the springs to discharge into Moleka Stream, a tributary of Makiki Stream.

Makiki Stream is perennial next to Hawaii Nature Center, but flows into its alluvial bed just outside the forest reserve. Stream flow reemerges makai of Wilder Avenue and is carried within concrete channels to the makai end of the Ala Wai Canal.

Honolulu's basal aquifer is recharged by percolation of rainfall between the Koolau crest and coastal caprock. Between the coast and a region surrounding the Koolau crest where dense rock inhibits lateral movement of ground water, fresh basal ground water floats on top of ocean water within the permeable Koolau flows. The highest basal water table is closest to the Koolau crest. Over a period of years, fresh water within Honolulu's basal aquifer moves from the mountains towards the ocean. The interface between fresh and salt water curves upwards along the coast where Honolulu's caprock confines the upward and seaward movement of fresh basal ground water.

The BWS pumps large quantities of potable ground water from Honolulu's basal aquifer for public use. Makai of proposed park boundaries, the BWS operates a battery of 9 basal wells at its Beretania Pump Station (at Alapai Street) and 4 basal wells at its Wilder Pump Station (just Diamond Head of Punahou School). In the same general region, four private wells (Pacific Club, Queen's Hospital, Kawaihao Church, and Punahou School) pump small quantities of basal ground water for domestic use.

Potentially, chemicals or wastewater placed onto or into the ground inland of Honolulu caprock may percolate into the basal aquifer. Inland of the caprock, as the BWS has recently found at Kunia, even ground application of agricultural fertilizer can result in significant nitrate concentrations within basal well water. BWS records suggest that cesspools used for suburban development in Honolulu's watershed during the first half of this century may have cumulatively caused a slight increase in nitrate concentrations in BWS Honolulu wells. However, the process has been arrested by State land use regulation, stringent BWS regulation of wastewater disposal, and incremental extension of City sewers into Honolulu's watershed. The BWS discontinued regulation of wastewater disposal a few years ago after the State Department of Health (DOH) adopted rules and policies requiring sewer hookups when available, banning new Oahu cesspools, restricting injections wells outside of coastal caprock, and only allowing a septic tank and leaching field for a lot within the former BWS No-Pass Zone if the lot were created prior to 1991.

Remaining cesspools and septic tanks at Tantalus, Makiki Heights, Makiki Valley, and Round Top have only minor impacts on nitrate concentrations in basal ground water. Section 11-200-3(b), DOH Administrative Rules, establishes "maximum contaminant levels" of 10 milligrams per liter (mg/l) for nitrogen in nitrates. By comparison, in July 1992, at its Beretania Pump Station, the BWS found nitrate nitrogen concentrations of 0.74 mg/l in "High Service" (higher pressure) wells and 0.59 mg/l in "Low Service" (lower pressure) wells. Similarly, in March 1992, the DOH found nitrate nitrogen concentrations of 0.84 mg/l at BWS Wilder Pump Station pump 1 (DOWALD No. 1849-15).

Nitrogen levels in BWS Beretania and Wilder wells will probably decline after the City Department of Public Works (DPW) implements a planned sewer improvement district to

eliminate about 300 cesspools on Makiki Heights and leeward Round Top (makai of Puu Ualakaa). While not yet budgeted, sewer improvements will probably be completed before the end of this decade. The sewer improvement district will not extend to proposed State parks in Makiki Valley and at Puu Ualakaa, DOFAW Makiki facilities, about 29 State lots leased to residents in the Maunalaha subdivision in Makiki Valley, the Boy Scouts' Camp Ehrhorn on Round Top, and about 130 privately owned residential lots along upper Tantalus and Round Top Drive.

6.5 Natural Hazards

The most significant natural hazard in the project area would be infectious agents (leptospirosis, giardia, and coliform bacteria), excreted by rats and feral animals, which have washed into streams. As is the case with all Oahu streams, there is a risk of human disease from drinking or allowing mucous membranes to come in contact with stream water.

The project area is not subject to flood, tsunami, subsidence, or earthquake hazard. Although no major hurricane has directly struck Oahu within recorded history, there is a slight risk of hurricane damage.

6.6 Flora and Fauna

According to The Nature Conservancy of Hawaii's "Hawaii Heritage Program, Natural Diversity Data Base", there are no records of any rare or endangered species or natural native ecosystems in the vicinity of proposed park boundaries or DOFAW's Makiki facility. The prehistoric native forests and grasslands which once covered Makiki Valley and Round Top have been completely destroyed by fires, land clearing for farming, sandalwood harvesting, wood harvesting for fuel and building materials, livestock grazing, feral animals, and the spread of introduced plant species. Loss of habitat, avian malaria, and predation by rats and feral animals have eliminated most native bird species within proposed park boundaries. As a result of competition and predation by introduced stream fauna, interrupted flow makai of the forest reserve, and channelization of lower stream reaches, native fish are rarely found within streams in Makiki Valley. Loss of habitat and predation by introduced insect species have eliminated most native insects within proposed park boundaries. Mosquitoes, which are not native to Hawaii, are a common nuisance throughout the forest reserve.

Vegetation in lower Makiki Valley and at Round Top primarily results from either a territorial government reforestation program with non-native trees which began in the early 1900s, public and private landscaping improvements, or invasion of aggressive introduced species. Proposed park areas are heavily vegetated with mature trees and undergrowth, but parts have been cleared and maintained as grassy open spaces. Common introduced species including haole koa, Christmas berry, guava, albizzia, bamboo, African tulip, octopus tree, kukui, Chinese banyan, Norfolk Island pine, Guinea grass, hau, and ironwood dominate uncultivated areas within proposed park boundaries. Park boundaries at Round Top also encompass areas reforested with Norfolk Island pine and an abandoned, overgrown macadamia nut orchard.

The most common introduced bird species within proposed park boundaries include Shama Thrush, White Eye, two species of Bulbuls, two species of Cardinals, two species of Sparrows, and two species of Mynah. The endemic Oahu 'Amakihi (Hemignathus chloris) and the migratory, indigenous Koa (Pluvialis dominica) are also common. The endemic Pueo (Asio flammeus sandwichensis) and the endemic Oahu 'Elepaio (Chasiempis sandwichensis gayi) have been occasionally seen in the vicinity of Puu Ualakaa.

Apart from birds, other common animals in the forest reserve include rats, mice, mongooses, feral cats, and feral pigs. None of these species is native to Hawaii.

Guppies, swordtails, mollies, and crayfish are common in streams within Makiki Valley. The endemic mountain shrimp (*Atyoida bisulcata*) is uncommon and indigenous 'o'opu (*Awaous guamensis*) are rarely found. Unlike introduced species in Makiki Stream, which complete their life cycle in fresh water, hatchlings from all native fish and crustaceans cannot survive without spending several months within the ocean.

6.7 Historic and Archaeological Resources

By the late 1800s, most trees had been stripped from Honolulu's hillsides. Beginning in the early 1900s, the first territorial forester, Ralph S., Hosmer, used Makiki Valley for the Territory of Hawaii's first tree nursery. The rows of concrete slabs beneath and makai of DOFAW's present Makiki nursery were used as potting benches. Although the property has remained in use as a staging area for reforestation and trail maintenance, no remaining State structure in Makiki Valley qualifies for listing on either the State or National Register of Historic Places.

Within proposed State park boundaries at Puu Ualakaa, the Ernest Shelton Van Tassel Residence (3280 Round Top Drive) and the 22 acre parcel on which it is located (Tax Map Key: 2-5 -19: 4) are listed on both the State and National Register of Historic Places. The property is popularly known as Nutridge because it was used for Hawaii's first commercial macadamia nut plantation. Van Tassel first planted macadamia nuts at Nutridge in 1921, and the next year formed the Hawaiian Macadamia Nut Company Limited. In 1927, the Territory of Hawaii granted Van Tassel a 50 year lease for Nutridge. Macadamia nuts were cultivated there until about 1967.

In 1925, Van Tassel commissioned architect Hart Wood to design a residence at Nutridge. The one-story wood dwelling is considered a significant example of Wood's residential designs, and its double-pitched hipped roof would become a common feature in "Hawaiian style" architecture. Other structures on the property (including a partially enclosed garage, a workers' cottage, and macadamia flumes) are not architecturally significant.

The Nutridge residence and other structures on the property eventually fell into disrepair, and much of the macadamia plantation became overgrown with brush. In 1980, a Honolulu businessman named Rick Ralston offered to restore the Nutridge residence at his own expense if the DLNR granted a five-year non-bid lease. After some public controversy, in March 1981, the BLNR authorized a three-year lease for the house, the garage, and 20,000 square feet of yard. However, the lease was not executed until December 1983. Since that time the Nutridge house has been authentically restored and adjoining landscaping has been mowed and trimmed to restore views of Honolulu from the house. After his lease expired at the end of 1986, Rick Ralston was granted Revocable Permit 6610 and continues to reside at and maintain the Nutridge house and adjoining grounds. Either the DLNR or Ralston have the option of cancelling this Revocable Permit on one month notice.

An archaeological inventory survey has been conducted for this EIS. The full inventory survey and consultation with the State Historic Preservation Office are documented in Appendix B. Abandoned agricultural terraces are present along Makiki Stream and on the slopes northwest of DOFAW's access road, but not within the area where new park or forestry structures are proposed. There are no known archaeological resources within proposed park boundaries at Puu Ualakaa.

6.8 Land Use

6.8.1 Makiki Valley

The proposed State park in Makiki Valley abuts the City BWS Makiki Pumping Station and adjoining Archie Baker Park, Makiki Heights Drive, a few private houses on Makiki Heights Drive, and a few private houses in the 29-lot Maunalaha subdivision. Apart from these improvements, park boundaries and DOFAW's Makiki facility are surrounded by undeveloped forested State lands.

Within proposed park boundaries, beginning a few hundred feet mauka of Makiki Pumping Station, a grassy landscaped strip extends about 1200 feet along the southeast side of Makiki Heights Drive past a hair-pin turn. An existing paved DOFAW access road extends about 1800 feet inland from the Makiki Heights Drive hair-pin turn to the head of Kanealole Trail. Photos of some existing improvements along the DOFAW access road are shown in Exhibits 8 and 9. Proceeding from its makai end, existing improvements along the southeast side of the DOFAW access road include:

- a rain shelter just south of the DOFAW road/Makiki Heights Drive intersection;
- a strip of landscaped picnic area between the DOFAW road and Makiki Stream;
- two private bridges across Makiki Stream, one with an abutting private garage, each providing access to a private house on a State lot in the Maunalaha subdivision;
- a complex consisting of a small paved parking lot, a building with attached rain shelter leased to Hawaii Nature Center, two Hawaii Nature Center trailers, a comfort station, and a bridge across Makiki Stream at the head of Maunalaha Trail;
- rows of concrete slabs formerly used for a nursery by the Territory of Hawaii and now used as a parking lot;
- DOFAW's existing nursery; and
- a small DOFAW storage building.

Proceeding from its makai end, existing improvements along the northwest side of the DOFAW Makiki access road include:

- two two-story private houses on a private lot just north of the DOFAW road/Makiki Heights Drive intersection;
- a terraced, grassy picnic area;
- a cottage, garage, and yard assigned to the Oahu District Forester;
- a DOFAW complex including 2 sheds, a wood shop, and an office/storage building; and
- a small BWS chlorinator building.

6.8.2 Puu Ualakaa

The proposed park at Puu Ualakaa surrounds a microwave transmitter complex and abuts a BWS reservoir and adjacent City civil defense sirens, Round Top Drive, a few private houses makai of Round Top Drive, and several popular Round Top Drive lookouts. Apart from these improvements, park boundaries are surrounded by undeveloped forested State lands. Photos of some existing improvements at Puu Ualakaa State Wayside and Nutridge are shown in Exhibit 10. Existing improvements at Puu Ualakaa State Wayside include:

- landscaped grounds;
- a paved access road and two parking lots;
- City and State microwave transmitters;
- a comfort station, water tank, picnic shelter, and lookout pavilion; and
- the Ualakaa Trail head and an unnamed connecting trail from the lookout pavilion;

Existing improvements at Nutridge include:

- fenced landscaped grounds and unpaved access roads;
- a restored historic house and a detached garage under Revocable Permit to Rick Ralston; and
- a vacant house and a small shack.

6.9 Visual Resources

The makai end of the proposed park in Makiki Valley provides a scenic view for drivers and recreational bicyclists on Makiki Heights Drive. The landscaped entrance to Puu Ualakaa State Wayside, including about a mile of roadside landscaping maintained at Rick Ralston's expense, is a scenic amenity for drivers and bicyclists on Round Top Drive. From more distant viewpoints on public roads, the tree canopy and brush within proposed parks blends into the surrounding forest reserve.

Views from the proposed park in Makiki Valley are primarily of lush vegetation, with a few visual intrusions from houses and buildings. Removal of vegetation within the park potentially could open views of surrounding forested hillsides. The existing lookout at Puu Ualakaa State Wayside and the Nutridge house have spectacular panoramic views of leeward Oahu. If obstructing vegetation were cleared, additional view sites could be provided from the makai slopes of Puu Ualakaa and Nutridge.

6.10 Public Recreation

For over a decade, on weekday mornings, a nonprofit organization named Hawaii Nature Center has taught elementary school children about natural processes and had them explore wildlife, streams, and trails within and adjacent to the proposed parks. Hawaii Nature Center programs are intended to create a personal experience between children and the natural environment in an effort to develop values and attitudes which will lead to wise stewardship of natural resources. Hawaii Nature Center also provides programs, activities, and events for families and organized groups on weekday afternoons and weekends.

On schooldays from about 9 a.m. to 1 p.m., Hawaii Nature Center provides environmental education/appreciation programs for about 120 (two busloads of) elementary school children five days a week in Makiki Valley and about 60 (1 busload) three days a week at Puu Ualakaa State Wayside. About half as many children participate in Hawaii Nature Center programs on a typical summer week as on a typical school week. Ultimately, when park facilities and funding permit, then Hawaii Nature Center would like to provide programs for a maximum of 120 to 180 children every weekday morning in Makiki Valley and for 60 children every weekday morning at Puu Ualakaa/Nutridge.

On afternoons and weekends, Hawaii Nature Center provides educational/recreational events and activities including guided hikes for families and organized groups. In 1992, an estimated 5,000 people participated in Nature Center weekday afternoon programs and activities, and an estimated 7,500 people participated in Nature Center weekend programs

and activities. In addition, once a year, about 5,000 people participate in a free Nature Center special event in Makiki Valley. On a typical weekend morning, Hawaii Nature Center programs generate 10 to 20 parked cars in Makiki Valley. If a guided hike is scheduled, then another 10 to 20 parked cars might result. On a few weekends a special event might result in another 10 to 20 parked cars in Makiki Valley.

On schooldays, apart from participants in Hawaii Nature Center programs, Nature Center staff now typically observe between 5 to 20 cars parked at any one time along the DOFAW Makiki access road. Summer weekday parking is a little higher. These cars are mostly driven by picnickers; some are owned by Maunaloa subdivision residents and their friends; and a few are driven by hikers. On weekends, apart from participants in Hawaii Nature Center programs, Nature Center staff now typically observe 10 to 50 cars parked at any one time along the DOFAW Makiki access road. About two-thirds are driven by picnickers and about one-third are driven by hikers.

Apart from participants in Hawaii Nature Center programs, there is a continuous stream of local and tourist sightseers at Puu Ualakaa State Wayside. At any one time on weekdays, there are normally a few cars and 1 tourist mini-bus in Puu Ualakaa parking lots. Typically less than 10 to 15 cars park at Puu Ualakaa State Wayside at any one time on weekends.

A November 1989 random-digit telephone survey of 232 Oahu households, conducted for DLNR's 1990 Recreational Functional Plan, found that on a typical weekend about 2% of all Oahu residents went hiking on a trail. By comparison, on a typical weekend, about 1% of Oahu residents went boating, 1% went paddling, 1% went diving, 1% swam at public pools, 1% camped overnight, 2% golfed, 2% fished at the shoreline, 3% played field games, 3% played court games, 4% went bicycling, 8% went walking or jogging, and 15% went swimming or sunbathing at the beach.

Roughly one-third of the Oahu residents who went hiking did so on trails in the region between Tripler Hospital and Wilhemina Rise. By comparison, the 18 miles of forest reserve trails that DOFAW maintains between Nuuanu and Saint Louis Heights amount to about 29% of the total length of trails maintained by DOFAW on Oahu.

An August 1989 survey of departing tourists, conducted for DLNR's 1990 Recreational Functional Plan, found that about 16% hiked on a trail and that an average of about 4% hiked on any day. On Oahu roughly one-third of visitors hiked on trails in the region between Tripler Hospital and Wilhemina Rise.

To accommodate heavy use, DOFAW forestry work crews refurbish trails in the Makiki-Tantalus system four times per year. Siting of DOFAW's facility in Makiki Valley results in better than usual maintenance of these trails. After DOFAW's forestry work crews complete their assignments, if they have extra time, they "brush" the trails in the Makiki-Tantalus system.

6.11 Public Facilities, Utilities, and Services

City bus service is not provided to Makiki Valley or Round Top. The two-lane two-way City-maintained Makiki Heights Drive provides vehicular access to Makiki Valley and the two-lane two-way City-maintained Round Top Drive provides vehicular access to Puu Ualakaa and Nutridge. Because traffic is usually light, the City Department of Transportation Services (DTS) has not taken traffic counts on either road. Peak makai-bound traffic on these roads occurs on weekday mornings between 7:15 and 8:15 a.m. There is relatively little mauka-bound traffic at this hour. Peak mauka-bound traffic occurs on weekday afternoons between 4:30 and 5:30 p.m.

Round Top Drive merges into Makai Street south of the BWS Makiki Pumping Station. The makai end of Makiki Heights Drive has a stop sign at its intersection with Makiki Street, about 100 yards mauka of the signalized Makiki Street/Nehoa Street intersection. On Monday, October 4, 1993, DTS traffic counters recorded 330 makai-bound vehicles on Makiki Street entering the Nehoa Street intersection between 7:15 and 8:15 a.m. On the same day at the same location, DTS traffic counters recorded 158 makai-bound vehicles between 4:30 and 5:30 p.m. (Mauka-bound traffic counts were not taken.)

A private elementary school, Hanahauoli School, abuts the west side of Makiki Street and the mauka side of Nehoa Street. On school days, vehicular access to Hanahauoli is from Makiki Heights Drive and egress is to Makiki Street. Hanahauoli School estimates that 150 drivers drop off students between 7 and 8 a.m. on weekday mornings and pick up students between 2 and 3 p.m. on weekday afternoons. Traffic congestion on Makiki Street at Hanahauoli School is worst on weekday mornings because of makai-bound traffic from suburbs on Makiki Heights and Round Top and because Punahou School students park their cars along Makiki Street and Makiki Heights Drive.

Makiki Valley is served by BWS waterlines and overhead electrical and telephone lines. DLNR pumps water from the BWS system to Puu Ualakaa and Nutridge. Puu Ualakaa and Nutridge are served by overhead electrical and telephone lines. The Division of State Parks provides trash pick-up for the facilities it maintains.

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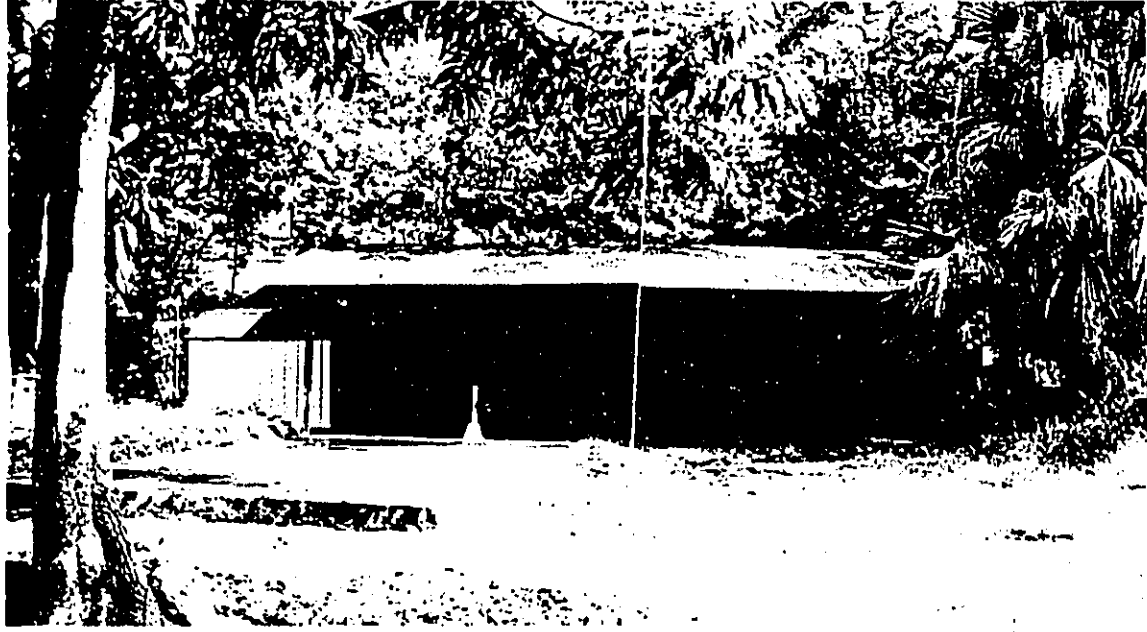
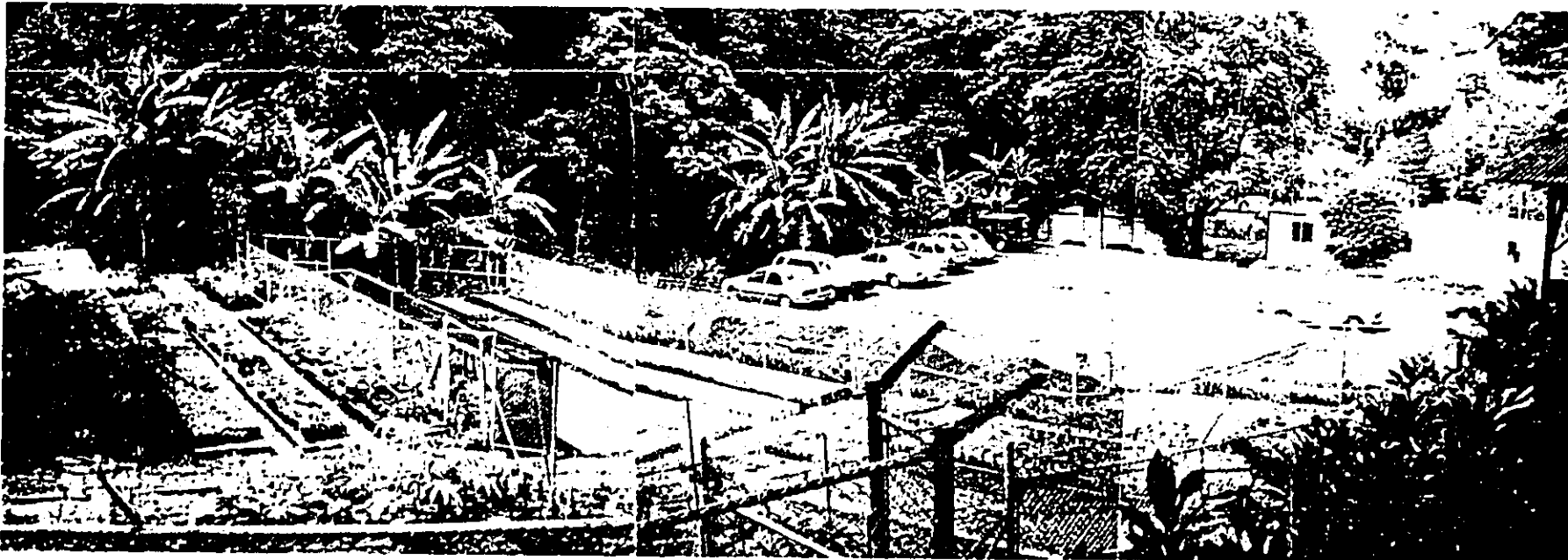


PHOTO A



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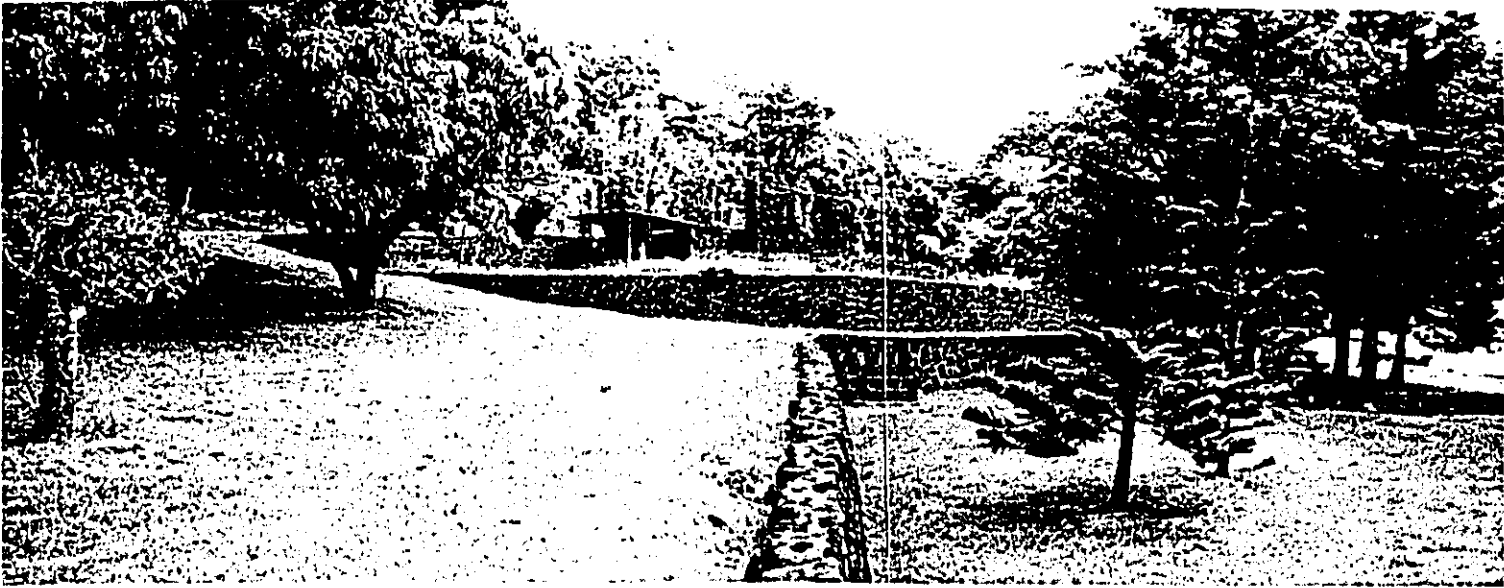


PHOTO B



PHOTO C

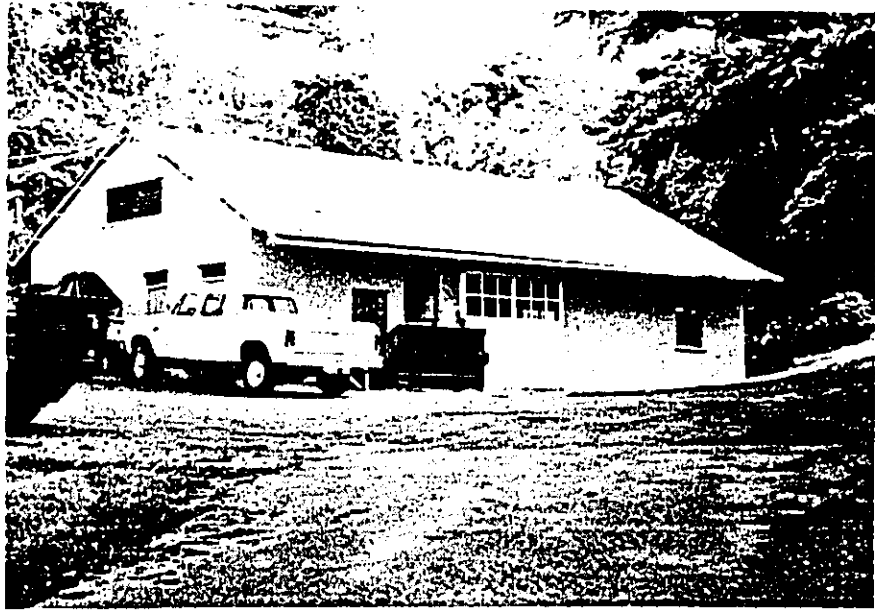


PHOTO D



PHOTO E

PHOTO A, Makiki Valley
Rain shelter south of Makiki Heights Drive
hair-pin turn to be replaced and toilets added.

PHOTO B, Makiki Valley
Terraced picnic area northwest of DOFAW access road to
become part of State park.

PHOTO C, Makiki Valley
DOFAW shed and woodshop on left to be replaced with
DOFAW office building. DOFAW office building on right
to be converted to storage.

PHOTO D, Makiki Valley
DOFAW shed at mauka end of valley to remain.

PHOTO E, Makiki Valley
DOFAW nursery on left to be reconfigured. Concrete
slab parking lot, comfort station, and trailer site to
become part of State park.

EXHIBIT 8
SITE PHOTOGRAPHS
IN MAKIKI VALLEY

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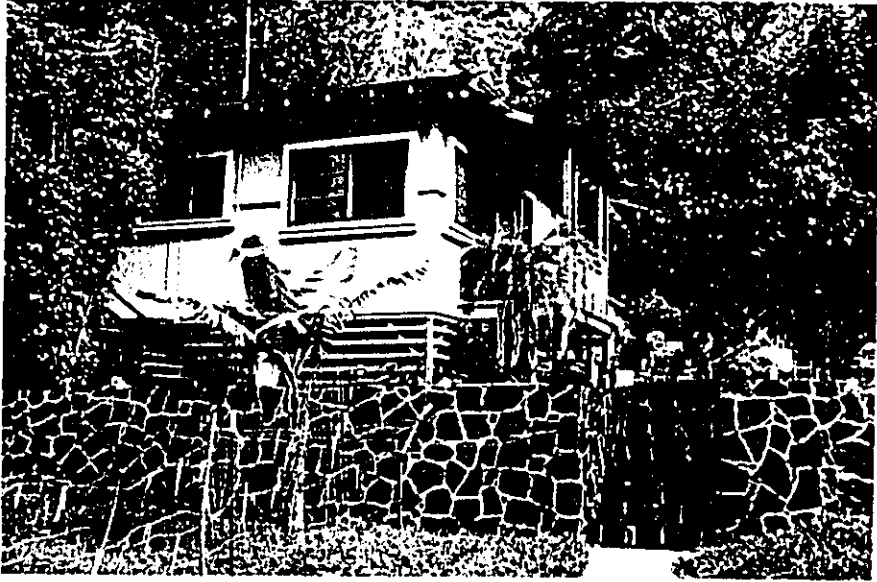
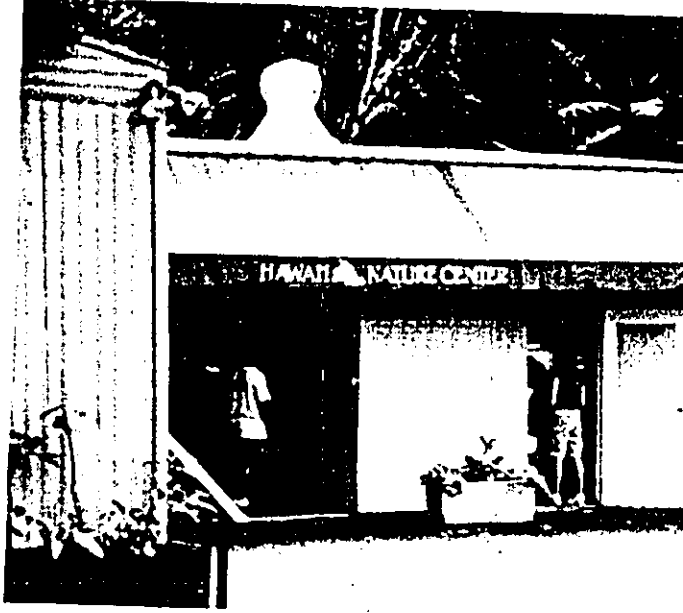


PHOTO F



RECEIVED AS FOLLOWS

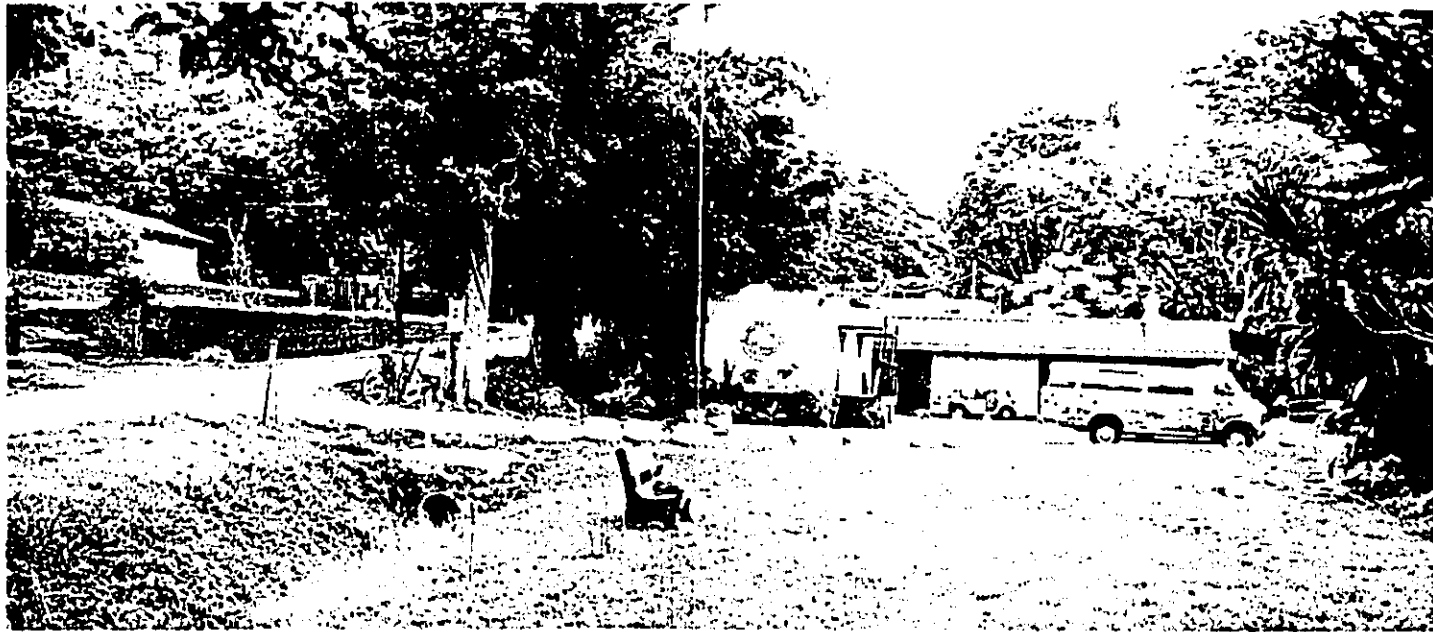


PHOTO G



PHOTO H



PHOTO I

*PHOTO F, Makiki Valley
Oahu District Forester's cottage to be replaced with rain shelter and become part of State park.*

*PHOTO G, Makiki Valley
DLNR building leased by Hawaii Nature Center and two HNC trailers to be replaced with interpretive center and offices.*

*PHOTO H, Makiki Valley
Close-up of HNC facilities to be replaced.*

*PHOTO I, Makiki Valley
DOFAW access road to remain.*

*PHOTO J, Makiki Valley
One of two private houses to be acquired and replaced with a landscaped park parking lot and access road from Makiki Height Drive.*



PHOTO J

**EXHIBIT 9
SITE PHOTOGRAPHS
IN MAKIKI VALLEY**

RECEIVED AS FOLLOWS

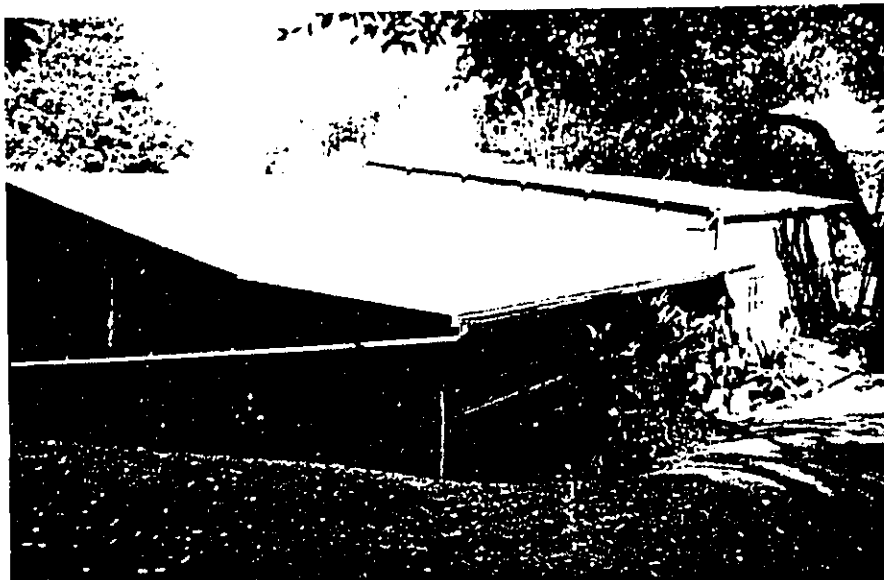


PHOTO K

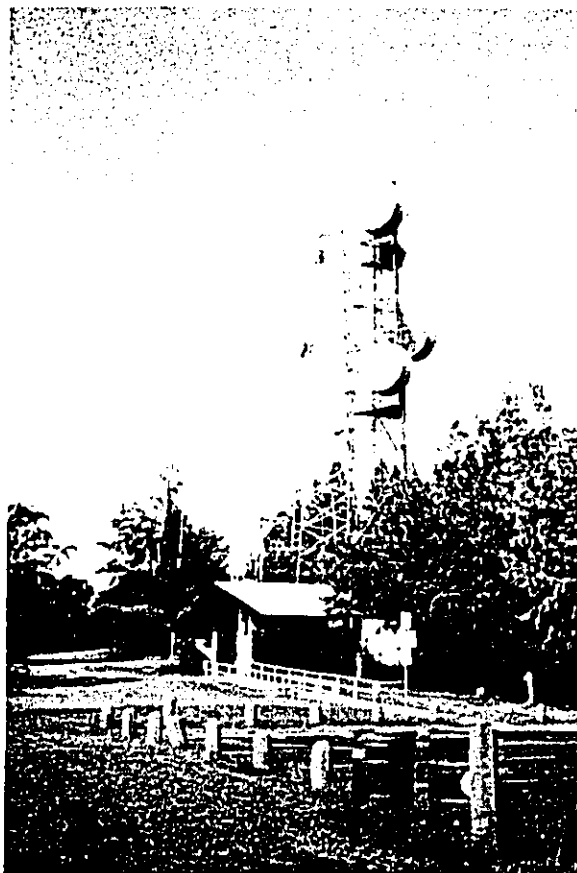


PHOTO L



PHOTO M

*PHOTO K, Nutridge
Garage to be renovated for Hawaii Nature Center
use and toilets added.*

*PHOTO L, Puu Ualaka
Parking lot, passive open space, and comfort
station to become part of State park. Microwave
antennae site behind comfort station will not be
included in the park.*

*PHOTO M, Nutridge
Old worker's cottage to remain.*

**EXHIBIT 10
SITE PHOTOGRAPHS
AT ROUND TOP**

7. APPLICABLE LAND USE PLANS, POLICIES, AND CONTROLS

Proposed State park boundaries and DOFAW's Makiki facility are:

- classified within the Conservation District by the State Land Use Commission;
- designated within the Resource subzone by the State Board of Land and Natural Resources (BLNR);
- mostly designated within the State forest reserve by the Governor;
- located above an Underground Source of Drinking Water (USDW) inland of the State Department of Health (DOH) Underground Injection Control (UIC) No-Pass Line;
- located within the City Board of Water Supply (BWS) No-Pass Zone within the critical wastewater disposal area (CWDA) determined by the DOH Oahu Wastewater Advisory Committee;
- designated within Zone X, outside the 100-year floodplain, on a Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM);
- located outside of the City's Special Management Area;
- designated Preservation on the City's Development Plan (DP) Land Use Map;
- zoned within the City's P-1 Restricted Preservation District;
- located in the vicinity of a City sewer improvement district planned within six years on the City's DP Public Facilities Map;
- located, in part, next to a hair-pin turn on Makiki Heights Drive planned for widening and realignment on a City Department of Transportation Service (DTS) Planning Area Map.

The Conservation District boundary is shown in Exhibit 11. Existing and proposed park and forestry improvements comply with the objective of the Conservation District Resource subzone. Under Section 13-2-13(b), DLNR Conservation District Rules, the Resource subzone incorporates lands suitable for parks, forestry, and outdoor recreation. Pursuant to Section 13-2-13(a), DLNR Conservation District Rules,

The objective of this subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those area.

Existing improvements within proposed park boundaries and DOFAW's Makiki facility mostly predate State law which established the Conservation District. In August 1986, the BLNR granted a Conservation District Use Permit (CDUP) authorizing Hawaii Nature Center improvement, use, and 10-year lease for a 25,550 square foot portion of Tax Map Key: 2-5-19: 8. (The lease subsequently executed only included a former DLNR shop/storage building with attached lanai.)

In general, an applicant must file a Conservation District Use Application (CDUA) and the BLNR must grant a CDUP before an applicant can legally undertake permanent improvements in the Conservation District. However, the BLNR no longer requires DLNR divisions to file a CDUA for DLNR funded projects which have been approved by the BLNR. Since both public and private actions will be involved, the Division of State Parks will file a CDUA for proposed park master plans. No CDUA will be required for proposed DOFAW improvements.

Set aside of unencumbered State parcels for park use must be authorized by the BLNR and then formally established with a Governor's Executive Order. To become a State park, State forest reserve land must be subdivided as necessary by the BLNR, withdrawn from

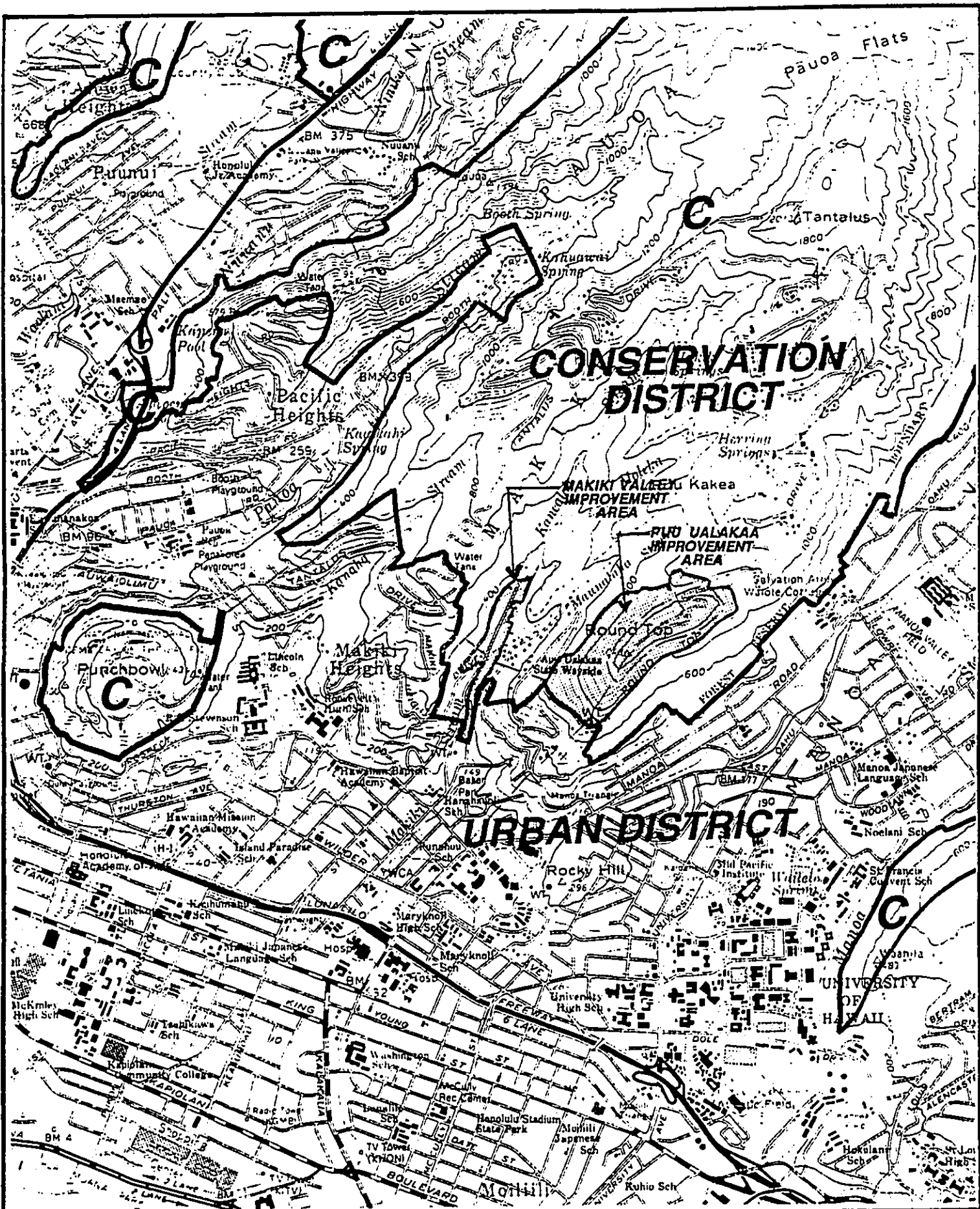
the forest reserve by Executive Order, and then set aside for park use by another Executive Order.

Hawaii Nature Center's current lease (GL S-88-01) will expire at the end of August 1996. Lease extensions or relocation/expansion of the area leased will require BLNR approval. Hawaii Nature Center use of other forest reserve lands requires a Special Use Permit pursuant to Section 13-104-20, DLNR Rules Regulating Activities within Forest Reserves. After proposed parks are established by Executive Order, Hawaii Nature Center use of park property not formally under lease will require a Special Use Permit pursuant to Section 13-146-54, Hawaii State Park System Rules.

Proposed new park and DOFAW septic tanks and leaching fields will comply with all DOH rules. Percolation of nitrates from shallow new leaching fields is unlikely to cause a significant adverse effect on basal ground water quality.

The proposed City sewer improvement district makai of proposed parks has not yet been funded, but probably will be completed before the end of this decade. Completion will reduce the cost of extending gravity sewer lines to DLNR facilities in Makiki and Puu Ualaka'a. The DLNR Division of State Parks will evaluate the costs and benefits of a sewer hookup for proposed State parks after the City improvement district is funded and underway.

In general, outside of Special Management Areas, State law provides that City plans and zoning do not regulate land use within the Conservation District. Regardless, proposed park and forestry improvements comply with the City Development Plan and City zoning. The new park entrance road proposed from Makiki Heights drive will comply with DTS sight-line requirements. Although DTS is unlikely to ever widen and realign Makiki Heights Drive, the park master plan also accommodates this DTS proposal.



**STATE LAND USE
DISTRICT BOUNDARIES**
Scale: 1" = 2000'

EXHIBIT 11

8. PROBABLE ENVIRONMENTAL IMPACTS

8.1 Construction Related Impacts

Construction of park headquarters in Makiki Valley and a second lookout at Puu Ualaka'a may require use of temporary access roads. Other sites where buildings are proposed are directly accessible from existing roads.

Proposed improvements will be constructed at irregular intervals over a period of years as funds become available. Given the small scale of proposed structures, no special measures will be necessary to control construction related impacts such as noise, dust, and erosion.

8.2 Ground Water and Streams

Proposed improvements will only require minor localized changes to existing drainage patterns. No storm drains, water development, or stream channel alterations are proposed. Hence ground water recharge and stream flow will not be affected.

DLNR use of septic tanks and leaching fields in Makiki Valley and at Puu Ualaka'a may slightly increase nitrate levels in basal wells at the BWS Beretania and Wilder Pump Stations. However, even over a period of years, the cumulative effect will probably not be measurable. Municipal drinking water will continue to exceed all Federal, State, and BWS standards. After the City implements a planned sewer improvement district to replace about 300 cesspools in Makiki Heights and lower Round Top, nitrate levels in BWS Beretania and Wilder wells will probably decline. After completion of this sewer improvement district, DLNR will consider extending sewer lines to proposed State parks in Makiki Valley and at Puu Ualaka'a.

Existing recreational/educational stream uses by the Hawaii Nature Center will slightly increase a few hundred feet mauka of the point where Makiki Stream flow goes underground. Stream contact with human skin potentially may result in human bacteria washing into the stream and slight risk of human exposure to leptospirosis. Health risks primarily stem from stream contact with open cuts or mucous membranes. The State DOH posts warning signs at popular "swimming holes" like Kapena Falls on Nuuanu Stream. At present, the DOH does not consider such risks to justify signs warning against wading in Makiki Stream.

8.3 Flora and Fauna

Apart from native plants in DOFAW's nursery, there are no rare or endangered species or intact native ecosystems within proposed park boundaries or DOFAW's Makiki facility. Proposed improvements and uses will not adversely affect any rare or unique species or ecosystem. Primarily common introduced species of plants will be removed to facilitate proposed improvements. The scale of development and the intensity of proposed uses are unlikely to significantly affect the types or abundance of birds, land animals, or stream fauna in the project area.

8.4 Displacement of Residents

Public acquisition of the lot identified by Tax Map Key: 2-5-20: 7 will displace the occupants of two houses. Currently, one family leases one house, and another family leases the downstairs portion of the other house. These families would be entitled to compensation for some relocation costs under Chapter 111, Hawaii Revised Statutes. Currently, one family occupying the upstairs portion of the second house owns the house

and a 50% share in a horizontal property regime encompassing the underlying lot. This family would be paid for the full market value of its property and would also be entitled to compensation for some relocation costs under Chapter 111.

8.5 Education

The DLNR Division of State Parks has not resolved the nature or extent of future State interpretive programs at proposed parks. Proposed State park plans for Makiki Valley and Puu Ualakaa have been consciously designed to facilitate Hawaii Nature Center operations. In addition, on weekdays, foresters, botanists, wildlife biologists, and trail specialists using DOFAW's new Makiki office will provide the same educational handouts, trail maps, public consultation, and permits that are now only available at DOFAW's downtown offices.

In 1992, about 37,500 people participated in Hawaii Nature Center programs within proposed park boundaries. Of these, about 20,000 were elementary school children bused on weekday mornings to Makiki Valley or Puu Ualakaa and about 17,500 were families and organized groups participating in afternoon and weekend activities, programs, and events in Makiki Valley. Assuming sufficient funds and facilities were available, Hawaii Nature Center staff would like to accommodate a maximum of 25,000 to 30,000 children/year in formal weekday school groups and a maximum of 30,000 others in afternoon and weekend programs.

8.6 Recreation

Apart from Hawaii Nature Center programs and events, informal public picnicking, parties, hiking, and meetings will slightly increase in Makiki Valley as a result of proposed improvements. Proposed improvements at Puu Ualakaa will primarily facilitate hiking and picnicking.

Every year, the Hawaii Nature Center will continue to take thousands of Oahu children on trails in Makiki and Tantalus. In theory, adults are more likely to enjoy hiking if they were exposed to and enjoyed hiking as a child. Hence, over the long term, the proportion of Oahu residents who hike may slightly increase. Over a period of years, the Makiki-Tantalus forest reserve trail system may become increasingly popular along with the two State parks. This could reduce the public's "wilderness experience".

8.7 Traffic

Makiki Heights Drive provides vehicular access to Makiki Valley and Round Top Drive provides vehicular access to Puu Ualakaa. Round Top Drive merges into Makai Street south of the BWS Makiki Pumping Station. The makai end of Makiki Heights Drive has a stop sign at its intersection with Makiki Street, about 100 yards mauka of the signalized Makiki Street/Nehoa Street intersection. A private elementary school, Hanahauoli School, abuts the west side of Makiki Street and the mauka side of Nehoa Street. On Monday, October 4, 1993, during the morning peak hour (between 7:15 and 8:15 a.m.), City DTS traffic counters recorded 330 makai-bound vehicles on Makiki Street entering the Nehoa Street intersection. On the same day at the same location, DTS traffic counters recorded 158 makai-bound vehicles between 4:30 and 5:30 p.m. (Mauka-bound traffic counts were not taken.)

Full implementation of Division of State Parks, Hawaii Nature Center, and DOFAW plans will not increase peak hour makai-bound traffic on weekday mornings, but could increase peak hour mauka-bound weekday morning traffic by 15 cars per hour on Makiki Heights

Drive and by 1 or 2 cars per hour on Round Top Drive. This will not result in traffic congestion on these streets or significantly aggravate existing traffic congestion on Makiki Street fronting Hanahauoli School.

Once a year, on a weekend, Hawaii Nature Center obtains a DLNR Special Use Permit and stages a large, free "special event". Such annual events will continue and may become increasingly popular in the future. At a typical "special event", Hawaii Nature Center staff estimate that 5,000 people show up in Makiki Valley over a 5 hour period and that 1,000 people are in the valley at any one time. At the last event, despite use of police to direct traffic and provision of other parking sites, Makiki Heights Drive was swamped with parked cars and drivers looking for parking. To date, Makiki Heights residents have been willing to tolerate the traffic congestion without complaint.

8.8 Views

New views of Honolulu will be opened from small clearings on the Puu Ualaka hillside. Proposed improvements in Makiki Valley and at Puu Ualaka will not result in adverse visual impacts. Significant natural features and land forms will not be altered, and no grading scars will be visible from public places. Only unobtrusive, low-rise structures will be constructed. Paved parking areas and new access roads will be landscaped.

8.9 Historic and Archaeological Resources

Clearing of trails through the brush on the Nutridge plantation grounds will not adversely affect the site's historic character. No actions are proposed at this time which might directly affect the historic Nutridge house.

Most proposed improvements will occur in areas that have been previously disturbed or cleared. Apart from removal of vegetation for trails, no development is proposed at any known archaeological site. Archaeological monitoring will be employed during removal of vegetation and grading where recommended by the State Historic Preservation Office.

8.10 Government Revenues and Expenditures

The only foreseeable State revenues which might be derived within proposed park boundaries is lease rent for private use of Nutridge (Tax Map Key: 2-5-19: 4). Long term use of Nutridge is an unresolved issue. Rick Ralston now pays \$655/month under Revocable Permit 6610 for residential use of 20,000 square feet including the restored Nutridge house. 80% of this rent is now deposited to the State General Fund and 20% is given to OHA.

After State lands in Makiki Valley and at Puu Ualakaa are set aside by Executive Order as State parks, 80% of any State revenues will be deposited into DLNR's Aina Hoomalu special fund. (OHA will continue to get 20% of revenues.) Pursuant to Section 184-32, Hawaii Revised Statutes, Aina Hoomalu funds are earmarked for interpretive displays, interpretive programs, and maintenance within State parks. Statewide Aina Hoomalu revenues total a little over \$1 million per year.

Operating costs of the DLNR Division of State Parks will have to increase by about \$50,000 per year to maintain all proposed park improvements. State funding for interpretive programs is not resolved at this time. DOFAW operating costs will remain about the same, but DOFAW staff will no longer need to mow lawns within the forest reserve in Makiki Valley.

The 1993 Hawaii Nature Center budget for Oahu operations is estimated at about \$600,000. Within the next decade, Hawaii Nature Center hopes to double their Oahu operating budget and secure stable sources of funding. Currently, about \$100,000 is a grant from the State Legislature and the remainder is raised with fundraisers, donations, and fees. The \$2/child fee for school groups to participate in Nature Center programs in Makiki Valley and at Puu Ualakaa only covers about one-fifth of the actual cost.

8.11 Population and Economic Growth

If funded with State revenues or grants from local philanthropies, then proposed improvements and programs will not induce population or economic growth or affect land use outside the immediate project area. At this time it is not possible to anticipate whether funds might be provided from out-of-State sources. Theoretically, a grant from an out-of-State source could allow a few more people to be employed and live in Hawaii than otherwise would be the case.

9. TRADEOFFS AND LONG TERM RISKS

Proposed actions do not involve tradeoff of long term productivity or future options to produce short term gains or avoid short term losses. Proposed actions also do not involve loss or investment of current resources to avert or insure coverage of future losses.

Proposed actions probably involve long term commitments to certain land uses. After State lands in Makiki Valley and at Puu Ualakaa are set aside by Executive Order for park use, they are unlikely to be used for other purposes. At least for the short term, after DOFAW is provided with new Makiki offices, DOFAW will not seek State funds to totally relocate its Makiki facility.

Proposed actions pose two minor long term environmental risks. Both risks potentially could be avoided.

First, DLNR use of septic tanks and leaching fields in Makiki Valley and at Puu Ualakaa may result in a slight increase in nitrate levels in basal wells at the BWS Beretania and Wilder Pump Stations. However, municipal drinking water will continue to meet all Federal, State, and BWS standards. After the City implements a planned sewer improvement district, the DLNR will have the option of extending sewer lines to proposed State parks in Makiki and at Puu Ualakaa.

Second, increases in recreational/educational stream contact may slightly increase risk of children contracting leptospirosis. The DOH does not consider such low-level risks to justify signs warning against wading in Makiki Stream.

10. IRREVERSIBLE COMMITMENTS

Proposed actions probably involve long term commitments to certain land uses. After State lands in Makiki Valley and at Puu Ualakaa are set aside by Executive Order for park use, they are unlikely to be used for other purposes. At least for the short term, after DOFAW is provided with new Makiki offices, DOFAW will not seek State funds to totally relocate its Makiki facility.

Proposed actions do not involve an irreversible commitment to loss or destruction of natural or cultural resources or to significant use of nonrenewable resources. Proposed actions in a sense are a commitment to several minor impacts and risks. As discussed below, all foreseeable adverse impacts are reversible.

DLNR use of septic tanks and leaching fields in Makiki Valley and at Puu Ualakaa may result in a slight increase in nitrate levels in basal wells at the BWS Beretania and Wilder Pump Stations. However, municipal drinking water will continue to meet all Federal, State, and BWS standards. After the City implements a planned sewer improvement district, the DLNR will have the option of extending sewer lines to proposed State parks in Makiki and at Puu Ualakaa.

Increases in recreational/educational stream contact may slightly increase risk of children contracting leptospirosis. The DOH could ban stream contact but does not consider such low-level risks to justify signs warning against wading in Makiki Stream.

Annual Hawaii Nature Center special events will probably become increasingly popular in the future. To date, Makiki Heights residents have been willing to tolerate the traffic congestion without complaint. Because a Special Use Permit is required for special events in a State Park, the Division of State Parks has the option of regulating the scale of Hawaii Nature Center events.

12. MITIGATION MEASURES

None of the foreseeable adverse impacts from proposed actions are significant. Hence, no special mitigation measures are proposed to reduce significant, unavoidable, adverse impacts to insignificant levels. Use of public land and facilities will be monitored in order to avoid unanticipated impacts.

13. UNRESOLVED ISSUES

Funding of State park improvements and State park interpretive programs is unresolved. Timing of State appropriations will be decided by the Legislature. Proposed park master plans will help to guide and prioritize appropriations.

Relocation of DOFAW's Makiki facility is unresolved. No site has been selected and no funds are available for this purpose. While DOFAW needs to replace delapidated offices and sheds at Makiki, it does not plan to increase the number of employees who report to work there. In the short-term, to reduce commuting to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles closer to where they are used. In the long term, DOFAW will reconsider the possibility of relocating its Makiki facility.

Future use of the historic Nutridge house is unresolved. However, actions proposed in this EIS will not foreclose any options. The DLNR Division of State Parks has retained the Hawaii Nature Center to identify a variety of program opportunities for the Makiki-Tantalus area. Facility needs associated with these opportunities will also be reviewed as part of the 21 month study, including potential interpretive uses for the Nutridge house. The DLNR will resolve future public use/management of the Nutridge house after a complete list of suitable options can be considered.

A sewer hookup for proposed State parks is unresolved. A City sewer improvement district proposed makai of proposed parks has not yet been funded. The Division of State Parks will evaluate the costs and benefits of extending a gravity sewer line to proposed State parks after the City improvement district is funded and underway.

14. CONSULTATION

14.1 Parties Consulted for the Draft EIS

Federal Agencies Sent the EIS Preparation Notice

U.S. Department of Agriculture Soil Conservation Service*

State Agencies Sent the EIS Preparation Notice

Department of Accounting and General Services
Department of Agriculture*
Department of Business, Economic Development & Tourism (DBEDT)
DBEDT Land Use Commission
Department of Education
Department of Hawaiian Home Lands
Department of Health (DOH)
DOH Office of Environmental Quality Control*
Department of Land and Natural Resources (DLNR)
DLNR Division of Forestry and Wildlife
DLNR Oahu Na Ala Hele Advisory Council*
Department of Transportation
Legislative Reference Bureau*
Office of the Governor Office of State Planning*

City Agencies Sent the EIS Preparation Notice

Board of Water Supply
Department of Housing and Community Development*
Department of Land Utilization*
Department of Public Works
Department of Transportation Services
Fire Department
Planning Department
Police Department
Neighborhood Board No. 10

Organizations Sent the EIS Preparation Notice

Hawaii Nature Center
Hawaiian Electric Company*
Hawaiian Telephone Company*
Hawaiian Ultra Running Team, Inc.
Makiki Community Association*
Maunaloa Valley Community Association
The Outdoor Circle
Sierra Club Hawaii Chapter, Oahu Group
Tantalus Community Association*

Individuals Sent the EIS Preparation Notice

Ms. Heidi Bornhorst*
Mr. Daniel Dinell
Senator Carol Fukunaga

Council Member Gary Gill*
Mr. Lorin T. Gill
Mr. A. I. Ho*
Senator Ann Kobayashi*
Mr. Albert Lono Lyman
Mr. David McFaul*
Mrs. Mary Jane McMurdo*
Council Member Andy Mirikitani*
Mrs. Lisa Moore*
Mr. Rick Ralston*
Mrs. Faith Roelofs*
Dr. Yoneo Sagawa
Representative Brian Taniguchi*
Mrs. Margaret S. Young

* No written comments concerning the EIS Preparation Notice.

14.2 Parties Consulted for the Final EIS

Federal Agencies Sent the Draft EIS

U.S. Army Support Command Hawaii*
U.S. Coast Guard 14th District*
U.S. Department of Agriculture Soil Conservation Service*
U.S. Department of the Interior (DOI) Fish and Wildlife Service
U.S. DOI Geological Survey
U.S. Environmental Protection Agency Region IX*
U.S. Naval Base Pearl Harbor*

State Agencies Sent the Draft EIS

Department of Accounting and General Services (DAGS)
Department of Agriculture*
Department of Budget & Finance Housing Finance & Development Corporation
Department of Business, Economic Development & Tourism (DBEDT)*
DBEDT Land Use Commission
DBEDT State Energy Office*
Department of Defense
Department of Education (DOE)*
Department of Hawaiian Home Lands*
Department of Health (DOH)*
DOH Office of Environmental Quality Control
Department of Land and Natural Resources (DLNR)*
DLNR Division of Forestry and Wildlife*
DLNR State Historic Preservation Office*
Department of Transportation
Office of the Governor Office of State Planning*
Office of Hawaii Affairs*
University of Hawaii (UH) Environmental Center
UH Water Resources Research Center*

City Agencies Sent the Draft EIS

Board of Water Supply
Building Department*
Department of Housing and Community Development
Department of Land Utilization*
Department of Parks and Recreation*
Department of Public Works
Department of Wastewater Management
Department of Transportation Services
Fire Department
Planning Department
Police Department*
Neighborhood Board No. 10*

Organizations Sent the Draft EIS

American Lung Association*
Hawaii Nature Center
Hawaiian Electric Company
Hawaiian Telephone Company*
Hawaiian Ultra Running Team, Inc.
Makiki Community Association*
Maunalaha Valley Community Association*
The Outdoor Circle*
Sierra Club Hawaii Chapter, Oahu Group*
Tantalus Community Association*

Individuals Sent the Draft EIS

Ms. Heidi Bornhorst*
Mr. Daniel Dinell*
Senator Carol Fukunaga*
Mr. Lorin T. Gill*
Mr. Albert Lono Lyman
Mr. Rick Ralston*
Ms. Faith Roelofs*
Dr. Yoneo Sagawa*
Mrs. Margaret S. Young

Libraries Sent the Draft EIS

DAGS State Archives*
DBEDT Library*
DOE Aina Haina Public Library*
DOE Hawaii State Library*
DOE Hilo Regional Library*
DOE Kahului Regional Library*
DOE Kaimuki Regional Library*
DOE Kaneohe Regional Library*
DOE Kauai Regional Library*
DOE Liliha Public Library*
DOE Manoa Public Library*
DOE McCully-Moiliili Public Library*
DOE Pearl City Regional Library*
Legislative Reference Bureau Library*
Municipal Reference and Records Center*
UH Hamilton Library*

News Media Sent the Draft EIS

Honolulu Star Bulletin*
Honolulu Advertiser*
Sun Press*

* No written comments concerning the Draft EIS.

15. REFERENCES

- State of Hawaii. 1993. Department of Business, Economic Development & Tourism. State of Hawaii Data Book 1992.
- State of Hawaii. 1990. Department of Land and Natural Resources. Recreational Functional Plan Technical Reference Document.
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- Roelofs, Faith. The Natural History of the Makiki Valley Loop Trail.
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- Federal Emergency Management Agency. 1987. Flood Insurance Rate Map Panel 120C.

APPENDIX A

**COMMENTS ON THE ENVIRONMENTAL IMPACT STATEMENT
PREPARATION NOTICE AND RESPONSES**

State Agencies Commenting on the EIS Preparation Notice

Department of Accounting and General Services
Department of Business, Economic Development & Tourism (DBEDT)
DBEDT Land Use Commission
Department of Education
Department of Hawaiian Home Lands
Department of Health
Department of Land and Natural Resources (DLNR)
DLNR Division of Forestry and Wildlife
Department of Transportation

City Agencies Commenting on the EIS Preparation Notice

Board of Water Supply
Department of Public Works
Department of Transportation Services
Fire Department
Planning Department
Police Department
Neighborhood Board No. 10

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Mr. Albert Lono Lyman
Dr. Yoneo Sagawa
Mrs. Margaret S. Young

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN



JOHN WAINEE
COMPTROLLER

ROBERT P. TAKUSHI
COMPTROLLER
LLOYD I. KUBASAKI
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P. O. BOX 111, HONOLULU, HAWAII 96810

LETTER NO (E) 11386-3

JUN 7 1993

Mr. Michael S. Chu
Land Architect
81 South Hotel Street
Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

Subject: Makiki-Tantalus State Recreation
Area Improvements
Environmental Impact Statement
Preparation Notice

Thank you for the opportunity to review the subject document. We have no comments to offer.

If there are any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

Gordon Matsuoka
GORDON MATSUOKA
State Public Works Engineer

RY:JY

October 5, 1993

Mr. Gordon Matsuoka, State Public Works Engineer
Department of Accounting and General Services
State of Hawaii
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Matsuoka:

Subject: Your Letter of June 7, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. The Department of Accounting and General Services will have additional opportunity for input as part of the EIS process.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

Michael S. Chu

JOHN WAIHE
Governor
MUII HANNEMANN
Chair
BARBARA ESM STANTON
Deputy, Dept. of
Economic Development
& Tourism
LAILAHE YOUNGHEA
Deputy, Dept. of

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

General Office: 215 South King Street, 21st Floor, Honolulu, Hawaii
Planning Office: P.O. Box 2340, Honolulu, Hawaii 96811 Telephone: (808) 546-2400 Fax: (808) 546-2277



ENTRALS UNIT
EXECUTIVE OFFICE



STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
Room 104, Old Federal Building
315 Merchant Street
Honolulu, Hawaii 96813
Telephone: 571-3422

May 18, 1993

Subject: Environmental Impact Statement Preparation
Notice for Improvements Within the
Makiki-Tantalus State Recreational Area

We have reviewed the subject Environmental Impact Statement
Preparation Notice (EISP/N) and have the following comments to
offer:

- 1) We note that Tax Map Keys for the respective project
sites, as depicted on Exhibit 1, should read as
follows:
Puu Ualakaa: THK: 2-5-19: por. 3; 4; and 11
Makiki Valley: THK: 2-5-19: por. 3
The tax map key listing on page 3 should be revised to
reflect that THK: 2-5-19: 11 is a part of the Puu
Ualakaa Improvement Area.
- 2) We confirm that the project sites are within the State
Land Use Conservation District.
- 3) We wish to note that all lands in the State are
classified into the four State Land Use Districts
pursuant to Chapter 205, HRS, and not both Chapters
183 and 205 as listed on page 16 of the EISP/N.
Chapter 18, HRS, addresses the Conservation District
which is administered by DLNR.

We have no further comments to offer at this time.

EU:LA:djk

June 4, 1993

Mr. Michael S. Chu
Land Architect
81 South Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

The Department of Business, Economic Development & Tourism is
pleased to submit the enclosed comments on the Environmental Impact
Statement Preparation Notice for Improvements Within the Makiki-
Tantalus State Recreation Area.

The comments were provided by the Land Use Commission.
Questions regarding these comments may be directed to Esther Ueda, LUC
Executive Officer, at 587-3826.

Thank you for the opportunity to comment.

Sincerely,

Muii Hannemann
Muii Hannemann

Enclosure

MICHAEL S. CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Ms. Esther Ueda, Executive Officer
Land Use Commission
State of Hawaii
335 Merchant Street, Room 104
Honolulu, Hawaii 96813

Dear Ms. Ueda:

Subject: Your Letter of May 18, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

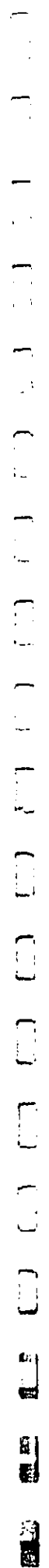
Thank you for taking the time to review the EIS Preparation Notice. Your
corrections will be incorporated in the EIS.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chiu



OFFICE OF THE SUPERINTENDENT



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

2393

CHARLES T. TOGUCHI - SUPERINTENDENT

June 7, 1993

OFFICE OF THE SUPERINTENDENT

MEMO TO: Honorable Keith W. Ahue, Chairperson
Department of Land and Natural Resources

FROM: Charles T. Toguchi, Superintendent *Amby*
Department of Education

SUBJECT: Environmental Impact Statement Preparation Notice
Makiki-Tantalus State Recreation Area

We have reviewed the subject assessment and have no comment on the proposed improvements within the Makiki-Tantalus State Recreation Area.

Thank you for the opportunity to respond.

CTT:hy

cc: A. Suga, OBS
E. Masagatani, HDO

RECEIVED
ASSISTANT
SUPERINTENDENT
OFFICE OF THE SUPERINTENDENT
DEPARTMENT OF EDUCATION
HONOLULU, HAWAII
JUN 10 1993
FOLLOW UP
FOR MORE INFORMATION
CALL ME
TELEPHONE

MICHAEL S. CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Dr. Charles T. Toguchi, Superintendent
Department of Education
State of Hawaii
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Mr. Johnson:

Subject: Your Memo of June 7, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice.
Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

Michael S. Chu

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

JOHN WARDEN
DEPARTMENT OF
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P O BOX 1079
HONOLULU, HAWAII 96813

MAY 28 1993

HONOLULU L. DRAKE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

MICHAEL S. CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Mrs. Hoaliku L. Drake, Chairman,
Hawaiian Homes Commission
Department of Hawaiian Home Lands
State of Hawaii
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Mrs. Drake:

Subject: Your Letter of May 28, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. Your Department will have additional opportunity for input as part of the EIS process.

The following responds to your specific comments:

- The EIS will estimate the cost of proposed improvements and indicate likely sources of funding.
- No light industrial activities (such as vehicle fueling or maintenance) which could contaminate ground water take place at DOFAW's Makiki facility. The facility is presently used for a nursery, offices, vehicle parking, and limited storage of equipment and supplies.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

Mr. Michael S. Chu, Land Architect
81 South Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

Subject: Environmental Impact Statement Preparation Notice
Makiki-Tantalus State Recreation Area Improvements

Thank you for providing a copy of the Final Environmental Assessment dated April 1993 for improvements to the Makiki-Tantalus State Recreation Area.

The environmental impact statement should include estimated costs for the improvements proposed and the likely sources of development funds.

Light-industrial type activities at the DOFAW baseyard in Makiki Valley should be closely monitored to assure no harmful infiltrates into artesian or other ground water areas from which domestic supplies are obtained.

If you have any questions regarding our comments, please call Joe Chu of our Planning Office at 586-3838.

Warmest aloha,

Hoaliku L. Drake, Chairman
Hawaiian Homes Commission

HLD:BH:JC:asy/2848.2L

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 312
HONOLULU, HAWAII 96813

IN REPLY, PLEASE REFER TO:

93-133/epo

October 5, 1993

Dr. John C. Lewin, M.D., Director of Health
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Dr. Lewin:

Subject: Your Letter of June 1, 1993 (93-133/epo), Commenting on
the EIS Preparation Notice for Improvements to the Makiki-
Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes will be made to the Master Plan because of concerns expressed by consulted parties. In particular, the EIS will address State Department of Health and City Board of Water Supply concerns with treatment and disposal of wastewater in Makiki-Tantalus State Recreation Area. Your Department will have additional opportunity for input as part of the EIS process.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu
Michael S. Chu

Mr. Michael S. Chu
Land Architect
81 South Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

Subject: Environmental Impact Statement Preparation Notice
for Improvements Within the Makiki-Tantalus
State Recreation Area

Thank you for allowing us to review and comment on the subject project. We do not have any comments to offer at this time.

Very truly yours,

John C. Lewin
JOHN C. LEWIN, M.D.
Director of Health



OFFICE AND COMMISSION
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
CHIEF OFFICER
DONALD W. HARRIS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 871
HONOLULU, HAWAII 96809

Mr. M. Chu -2- File No.: 93-603

REF: OCEA:SRK

Division of Aquatic Resources

The Division of Aquatic Resources (DAR) comments that from the information provided, it appears that the proposal is generally limited to the replacement and expansion of facilities housing DDFW and State Parks. These activities should not affect surface water biological resources. DAR suggests that in implementation of a management plan, priority should be given to protection and restoration of Hakiki Stream, which is already being used for educational purposes despite its degraded condition.

We have no other comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please feel free to call Steve Tagawa at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,

Keith W. Able
KEITH W. ABLE

FILE NO.: 93-603
DOC. NO.: 2941

JUN 18 1993

Mr. Michael S. Chu
81 South Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN):
Improvements within the Hakiki-Tantalus State Recreation Area,
Honolulu, Oahu, TPK: 2-5-19; par. 3 and 4

We have reviewed the EISPN information for the subject recreation area improvement project transmitted by your letter dated May 8, 1993, and have the following comments:

Office of Conservation and Environmental Affairs

The Office of Conservation and Environmental Affairs (OCEA) comments that according to their records, no Conservation District Use Permit (CDUP) was issued for the existing recreation area and suggest that page 17 in the Draft EIS indicate this condition. OCEA also suggests that a CDUP for the entire existing recreation area be pursued along with the proposed improvements.

Historic Preservation Division

The Historic Preservation Division comments that alterations to the Nutridge property is subject to Chapter 6E, HRS review.

Division of Land Management

The Division of Land Management comments that should there be any purchases of private lands for this recreational area, the State should be cautious of acquiring land that is contaminated with hazardous waste material.

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Honorable Keith Ahue
Chairperson, Board of Land and Natural Resources
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

Subject: Your Letter of June 18, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area (DLNR File 93-603, Doc. 2941)

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. The Department of Land and Natural Resources (DLNR) will have additional opportunity for input as part of the EIS process. The following responds to your specific comments:

- The DLNR Division of State Parks will file a Conservation District Use Application for the final Master Plan, CDUP OA-5/15/86-1886, approved August 22, 1986, authorized Hawaii Nature Center improvements to and 10-year lease for a 25,550 square foot portion of TMK: 2-5-19: 9. Otherwise, the EIS will note that proposed State park areas in Makiki Valley and Puu Ualakaa have not received a CDUP.
- The DLNR Historic Preservation Division will be consulted prior to any decision on future use of the Nutridge house.
- The houselot which is proposed for acquisition is not expected to be contaminated with hazardous wastes.
- The Management Plan does not propose any alteration or diversion of Makiki Stream, and the Hawaii Nature Center will continue to work with DLNR staff in managing educational uses of the stream.
- Restoration of the channelized lower reaches of the stream is outside the scope of the Master Plan.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chu

October 5, 1993
 Mr. Herbert Kikukawa, Oahu District Forester
 Division of Forestry and Wildlife
 Department of Land and Natural Resources
 State of Hawaii
 1151 Punchbowl Street
 Honolulu, Hawaii 96813

Dear Mr. Kikukawa:

Subject: Your Memo of May 24, 1993, Commenting on the EIS Preparation Notice for Improvements to the Makiki-Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. The Division of Forestry and Wildlife (DOFAW) will be asked for additional input as part of the EIS process.

The following responds to your specific comments:

- We have informed several consulted parties that neither the Master Plan nor the EIS are intended to address trails outside of proposed additions to the State park system.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu
 Michael S. Chu

WILLIAM W. PATY, CHAIRPERSON
 BOARD OF LAND AND NATURAL RESOURCES

DEPT. HEADS

JOHN P. REPPLE, JR.
 JOHN L. HALLISEY

AGRICULTURE DEVELOPMENT PROGRAM
 AQUATIC RESOURCES
 COUNCIL ON ENVIRONMENTAL AFFAIRS
 CONSERVATION AND RECREATION
 RESOURCES ENFORCEMENT
 FORESTRY AND WILDLIFE
 HISTORIC PRESERVATION
 PLANNING
 STATE PARKS
 WATER AND LAND DEVELOPMENT



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF FORESTRY AND WILDLIFE
 1151 PUNCHBOWL STREET
 HONOLULU, HAWAII 96813

May 24, 1993

MEMORANDUM

TO: Michael Chu
 FR: Herbert Kikukawa, DOFAW, Oahu District *HKB*
 RE: Makiki-Tantalus State Recreation Area Improvements

The Division of Forestry and Wildlife (DOFAW) - Oahu District, concurs with the proposed building construction, infrastructure improvements and circulation/parking improvements as they relate to the existing baseyard facilities in Makiki Valley and will continue to work on this project with all interested parties. DOFAW is the principal manager of the Honolulu Watershed Forest Reserve and its ancillary 18 mile trail system, therefore improvements to the DOFAW baseyard facility in Makiki Valley will facilitate management of the area. DOFAW will also continue to work with the Hawaii Nature Center in developing infrastructure for enhanced environmental interpretation of the Honolulu Forest Reserve and other select areas on Oahu. Any further trail construction in the project area should be coordinated with the DOFAW Na Ala Hele trail and access program.

cc: Curt Cottrell, NAH
 Michael Buck

JOHN WARD
GOVERNOR



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

MAY 25 1993

FIELD JOHNSON
DIRECTOR
DEPT. TRANSPORTATION
JOYCE T. O'NEILL
AL PANG
JEANNE K. SCHULTZ
CALVIN H. TSUDA

WE REPLY REFER TO

HWY-PS
2-6936

Mr. Michael S. Chu
Land Architect
81 South Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

Environmental Impact Statement Preparation Notice
Improvements within the Makiki-Tantalus
State Recreational Area, Oahu, Hawaii

Thank you for your letter of May 8, 1993, requesting our comments
on the subject project.

The proposed improvements within the Makiki-Tantalus State
Recreational Area will not adversely impact our State highway
facilities.

Sincerely,

[Signature]
Rex D. Johnson
Director of Transportation

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Mr. Rex D. Johnson, Director of Transportation
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Johnson:

Subject: Your Letter of May 25, 1993 (HWY-PS 2.6936),
Commenting on the EIS Preparation Notice for Improvements
to the Makiki-Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice.

Please feel free to call me if you have any questions.

Yours Truly,

[Signature]

Michael S. Chu



COOPY

NIKI HUI SUEHI
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • DESIGN SERVICES

Mr. Keith W. Ahue
Page 2
July 29, 1993

6. Board of Water Supply (BWS) approved backflow prevention assemblies or receiving tanks with approved air gaps on inlet piping will be required immediately after all water meters serving both project sites.
7. We have concerns about the adverse impact due to the ground disposal of wastewater at the project sites. As the document states, this area is a prime groundwater recharge area. The ground disposal of wastewater, by a septic tank, leachfield setup may contribute to degradation of the underlying aquifer. We suggest other more efficient methods of disposal, such as maintained closed vault systems. All waste disposal alternatives should be coordinated with the Sanitation Branch of the State Department of Health.
8. Regarding the discussion on "Water Resources" on page 7: Pauoa Stream is fed by both Booth Springs and Kahawai Springs. Booth Springs is also not currently in use by BWS, although it might be reactivated at some future date.

If you have any questions, please contact Roy Doi at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Michael Chu

October 5, 1993

Mr. Kazu Hayashida, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Berelania Street
Honolulu, Hawaii 96843

Dear Mr. Hayashida:

Subject: Your Memo of July 29, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. You will have additional opportunity for input as part of the EIS process.

The following responds to your numbered comments:

1. When available, construction drawings will be submitted for BWS review and approval.
2. Additional water will probably not be required.
3. DLNR and BWS approval will be obtained and BWS fees paid in the event that additional water should be required.
4. New water meters will comply with BWS requirements.
5. The Fire Department is a consulted party for this EIS.
6. BWS backflow-prevention requirements will be met.
7. The Master Plan originally proposed closed vaults for wastewater disposal. The DOH asked that septic tanks with leachfields be used. The BWS prefers closed vaults. This issue will be addressed in the EIS.
8. Your corrections will be incorporated in the EIS.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
808 SOUTH KING STREET
HONOLULU, HAWAII 96813



C. MICHAEL STREETER
DIRECTOR AND CHIEF ENGINEER
FELIX B. SURIBACO
ENVIRONMENTAL ENGINEER
ENV 93-116

May 17, 1993

Mr. Michael S. Chu
Land Architect
81 South Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

Subject: Environmental Impact Statement Preparation Notice (EISP) Improvements Within the Makiki-Tantalus State Recreation Area. TMK:2-5-19:FOR. 03. & 2-5-19:04

We have reviewed the subject EISP and have the following comments:

1. The EISP should address the traffic impact and any road improvements, including compliance with the Americans With Disabilities Act (ADA).
2. The EISP should state what structural or non-structural best management practices (BMP) will be provided to control and reduce discharge of pollutants resulting from construction operations.
3. If the disturbed area (clearing and grubbing, grading and stockpiling) exceeds five (5) acres, a storm water NPDES permit will be required by the State Department of Health.
4. Should a septic tank be used, approval from the State Department of Health is required.
5. When pumping of the septic tank is needed, a private pumping service will have to be arranged since the City does not provide service for pumping septic tanks.

Should you have any questions, please contact Mr. Alex Ho, Environmental Engineer, at 523-4150.

Very truly yours,

[Signature]
C. MICHAEL STREETER
for Director and Chief Engineer

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Mr. C. Michael Streeter, Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Streeter:

Subject: Your Memo of May 17, 1993, Commenting on the EIS Preparation Notice for Improvements to the Makiki-Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. Your Department will have additional opportunity for input as part of the EIS process.

The following responds to your numbered comments:

1. The EIS will address the traffic impacts of proposed improvements. Facilities will be designed to comply with Federal requirements for persons with disabilities.
2. Given the small areas involved, standard soil erosion control measures such as terracing will be adequate.
3. A storm water NPDES permit will be obtained if required.
4. The wastewater system selected will be acceptable to both the DOH and BWS.
5. If closed vaults are used, then private contractors will be used to pump them.

Please feel free to call me if you have any questions.

Yours Truly,

[Signature]

Michael S. Chu

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PLANNING AND ENGINEERING DIVISION
155 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANKIE PARR
MAIL ROOM

The Honorable John D. Waihee
Page 2
June 3, 1993

TE-1938
PL93.1.187

Should you have any questions, please contact Lance Watanabe of my staff at 523-4199.

Sincerely,

JOSEPH M. MAGALDI, JR.
Director

cc: Michael S. Chu, Land Architect

June 3, 1993

The Honorable John D. Waihee
Governor
State of Hawaii
c/o Department of Land and
Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Makiki-Tantalus State Recreation Area
Environmental Impact Statement
Preparation Notice (EISP/N)
TMK: 2-5-19: Portion of 3 and 4

This is in response to the EISP/N submitted to us for review by Michael S. Chu, Land Architect.

Based on our review, we have the following comments:

1. All vehicular access points should be constructed as standard City dropped driveways.
2. Adequate sight distance should be provided at all driveway locations. Landscaping should be placed in locations where it does not obstruct vehicular sight lines.
3. The driveway grade should not exceed five percent (5%) for a minimum distance of 35 feet from the curb line.
4. The access roads should be wide enough to accommodate two-way traffic.
5. A traffic study should be included in the draft EIS.

MICHAEL S CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • DESIGN/CONSTRUCTION

October 5, 1993

Mr. Joseph M. Magaldi, Jr., Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Magaldi:

Subject: Your Letter of June 3, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. Your Department will have additional opportunity for input as part of the EIS process.

The following responds to your specific comments:

- The Master Plan will propose compliance with City driveway and road standards. The details will need to be resolved at a later stage when design and construction funds are appropriated.
- The EIS will analyze the traffic impacts of implementation of the Master Plan.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chu

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAOPAKA STREET, SUITE 4425
HONOLULU, HAWAII 96819-1889



June 9, 1993

DONALD S. M. CHANG
FIRE CHIEF
RICHARD S. SETO
DEPUTY FIRE CHIEF

Mr. Michael S. Chu
Land Architect
81 South Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

SUBJECT: Environmental Impact Statement Preparation Notice for
Improvements Within the Makiki-Tantalus State Recreation Area

We have reviewed the subject material provided and foresee no adverse impact in
Fire Department facilities or services.

Access for fire apparatus, water supply and building construction shall be in
conformance to existing codes and standards.

Should you have any questions, please call Assistant Chief Attilio Leonardi of our
Administrative Services Bureau at 831-7775.

Very truly yours,

DONALD S. M. CHANG
Fire Chief

AKL:ny

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Mr. Donald S. M. Chang, Fire Chief
Fire Department
City and County of Honolulu
3375 Koaopaka Street, Suite H425
Honolulu, Hawaii 96819-1869

Dear Mr. Chang:

Subject: Your Letter of June 9, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several
changes have been made to the Master Plan to address concerns expressed by
consulted parties. Your Department will have additional opportunity for input as
part of the EIS process.

The following responds to your specific comments:

- The Master Plan will propose compliance with City standards for fire
apparatus access, water supply, and building construction. The
details will need to be resolved at a later stage when design and
construction funds are appropriated.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

2964

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU
845 SOUTH KING STREET
HONOLULU HAWAII 96813



FOR: [Handwritten initials]

DATE: JUNE 10, 1993

RE: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE SW REC PLAN WITH STUDY

APPROVED BY: [Handwritten signature]

DATE: JUNE 10, 1993

FOR: [Handwritten initials]

DATE: JUNE 10, 1993

RE: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE SW REC PLAN WITH STUDY

APPROVED BY: [Handwritten signature]

DATE: JUNE 10, 1993

June 10, 1993

Honorable Keith W. Ahue, Chairperson
Board of Land and Natural Resources
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

Environmental Impact Statement Preparation Notice (EISP/N) for Improvements within the Makiki-Tantalus State Recreation Area, Honolulu, Oahu, Hawaii, TAX Map Key: 2-5-19; POR: 03 and 2-5-19; 04

In response to Mr. Michael S. Chiu's letter of May 8 1993, we have reviewed the subject EISP/N and have the following comments:

1. The project sites are designated Preservation on the Development Plan Land Use Map for the Primary Urban Center.
2. The proposed project is consistent with the goals and objectives of the City and County of Honolulu's General and Development Plans.

Thank you for the opportunity to comment on this matter. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely,

Robin Foster
ROBIN FOSTER
Chief Planning Officer

RF:ft

MICHAEL S. CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • INTERIOR DESIGN

October 5, 1993
Mr. Robin Foster
Chief Planning Officer
Planning Department
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Foster:

Subject: Your Letter of June 10, 1993, Commenting on the EIS Preparation Notice for Improvements to the Makiki-Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. The Planning Department will have additional opportunity for input as part of the EIS process.

Please feel free to call me if you have any questions.

Yours Truly,
Michael S. Chiu
Michael S. Chiu

2899

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
 801 SOUTH BERETANIA STREET
 HONOLULU, HAWAII 96813 - AREA CODE (808) 538-3111



93 JUN 9 AM 11:30
 DIVISION OF STATE PARKS

FRANK P. FASI
 MAYOR

OUR REFERENCE BS-1K

June 4, 1993

Mr. Keith Ahue, Director
 Department of Land and Natural Resources
 1151 Punchbowl Street
 Honolulu, Hawaii 96813

Dear Mr. Ahue:

This is in response to your letter of May 8, 1993 requesting comments on an Environmental Impact Statement Preparation Notice for improvements with the Makiki-Tantalus State Recreation Area.

We note the intention to mitigate the impact of construction activities on dust and noise, and ask that construction-related traffic impacts also be mitigated. We have no other comments and do not need to be a consulted party during the EIS process.

Thank you for the opportunity to review this document.

Sincerely,

MICHAEL S. NAKAMURA
 Chief of Police

By *Eugene Uehura*
 EUGENE UEHURA
 Assistant Chief of Police
 Administrative Bureau

SEARCHED
 INDEXED
 SERIALIZED
 FILED
 JUN 10 1993
 FBI - HONOLULU

MICHAEL S. CHIU
LAND ARCHITECT
 PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Michael S. Nakamura, Chief of Police
 Police Department
 City and County of Honolulu
 801 South Beretania Street
 Honolulu, Hawaii 96813

Dear Chief Nakamura:

Subject: Your Letter of June 4, 1993, Commenting on the EIS Preparation Notice for Improvements to the Makiki-Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. As requested, the Police Department will not be a consulted party during the EIS process.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

Michael S. Chu

sl
9/10

DIVISION OF
STATE PARKS

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2-571

MICHAEL S. CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Mr. John A. Steelquist
Chair, Neighborhood Board No. 10
4054 Tantalus Drive
Honolulu, Hawaii 96822

Dear Mr. Steelquist:

Subject: Your Letter Commenting on the EIS Preparation Notice for
Improvements to the Makiki-Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. Your Neighborhood Board will have additional opportunity for input as part of the EIS process.

The following responds to your specific comments:

- DOFAW plans to incrementally replace a few delapidated offices and sheds at Makiki, but does not plan to increase the number of DOFAW employees who report to work there. In the short-term, to reduce committing to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles closer to where they are used. In the long-term, DOFAW will consider relocating its Makiki facility.
- The Master Plan proposes that lower portions of the Makiki area be used for public park and the Hawaii Nature Center.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

61 SOUTH HOTEL STREET, SUITE 312 • HONOLULU, HAWAII 96813 • TELEPHONE (808) 537-4671 • FAX (808) 531-9054

Subject: Environmental Assessment for the Makiki-Tantalus State Recreation Area

Since we did not have a quorum at our May 12, 1993 meeting, our board has no official position on the April 1993 report prepared by Michael S. Chu. We have discussed this area in 1991 and 1992 and received a presentation from Mr. Chu at our May meeting. The following is my summary of some previous discussions and motions.

The Makiki-Tantalus Recreation Area should be available for many recreational activities by Makiki and other Oahu residents. Open space, hiking trails, and nature education should be easily accessible to Makiki residents. The plan includes suggestions previously made by the Makiki Neighborhood Board and generally encourages our objectives. My personal opinion is that new Department of Forestry and Wildlife facilities should not be built in this area. As we pointed out during the public meeting on this plan, a more appropriate location for the Oahu Forestry Base Yard would be nearer the Waianaa Mountains. Space in the lower portions of the Makiki Area should be used for the Nature Center and not a public park.

sincerely,

John A. Steelquist
Chair, Neighborhood Board #10

TO: _____

FROM: _____

DATE: _____

BY: _____

RE: _____

SEARCHED _____

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DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE PARKS

JUN 13 11 30 AM '93

June 7, 1993

Mr. Keith Ahue
June 7, 1993
Page 2

Mr. Keith Ahue, Chairman
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

- PERSONNEL: Warren C. Haigh
- VICE PRESIDENT: Donald S. Sander
- TREASURER: E.L. White
- SECRETARY: Pat C. Munk
- DEPUTY DIRECTOR: Abraham Aono, Andrew Brown, Ed Cassidy, Don Conrad, Meredith Cheng, Charles H. Haddad, Kenneth E. Hapala, Dr. David L. Hays, Philip Hume, Richard E. Jones, Henry Lee, Douglas Soderstrom, Lynn Thompson, Roger Wall, Jeffrey Zimmerman
- EXECUTIVE DIRECTOR: Tamar Chotzen

Dear Mr. Ahue,

I am writing in response to the Environmental Impact Statement Preparation Notice (EISPN) for Improvements Within the Makiki-Tantalus State Recreation Area. I hope that the following comments will be taken into consideration during the EIS process.

Representatives of the Hawai'i Nature Center have reviewed the Final Environmental Assessment for Improvements to the Makiki-Tantalus State Recreation Area dated April 1993. In general we approve of the plan and are pleased to note that many aspects of the plan incorporate suggestions that were made during the early phases of the planning process. However, we would also like to reiterate our concerns at this time.

Of first priority to the Hawai'i Nature Center is the renovation of existing facilities and the addition of new facilities for the Nature Centers' use. Attached is an outline of the Nature Center's facilities requirements which was given to the planner several months ago. In total we asked for a minimum of 15,500 square feet. Nearly 8,600 square feet of the total space requested is to be used for public interpretation, and classrooms or field shelters for the Nature Centers elementary school programs. The balance will be utilized as conference and meeting rooms, offices, storage, gift shop, workshop, etc.

It is our understanding, based on the preliminary planning process, that the facilities highlighted in the attached map are for use by the Nature Center. If so, this plan meets our total facilities requirements.

While our request for new facilities may seem bold, we believe it is appropriate when viewed in the context of the services we provide to our state. The Hawai'i Nature Center has been operating in Makiki Valley since 1981. During the last twelve years we have in many ways served as the educational and interpretive arm of the Department of Land and Natural Resources in Makiki, serving more than 250,000 children and families.

Field Site on Oahu and Maui
21311 Makiki Highway Drive / Honolulu, Hawaii 96822 / Phone: (808) 955-0100 / Fax: (808) 955-0116

On page 13, item 6.1 Makiki Valley Improvements, the plan recommends that the existing structures in the valley be replaced by new structures. We are highly supportive of this recommendation in that the existing structures are inadequate, unsightly, unsanitary and unsafe. To conserve existing natural areas, we recommend that new buildings and open shelters be constructed in areas that have already been impacted, i.e.: existing concrete pads, parking lots, and other affected sites.

Also of concern to the Nature Center is the quality of experience provided to school children on a daily basis. In essence we are trying to provide a very personal outdoor experience utilizing a public resource. It is a continual challenge to effect some measure of positive control in our teaching areas while not interfering with the public use of the site. In the past, we have noted that where we have a physical presence, i.e. a facility, our use of the surrounding natural areas is more readily respected. While we are comfortable with the location of the new facilities as proposed, if changes are made we would like to participate in the redesign process.

We support the recommendation that the private residential lots at the entrance to the park be acquired by the state and that the area be used for the construction of an information center and conference/meeting facilities, designed with the aesthetics of the valley in mind. This portion of the plan also includes a new entrance into the park, which while needed, should be designed and constructed at low cost, in keeping with traffic safety, park security, etc.

In order to preserve the aesthetic qualities of the area as much as possible, we also recommend that all new buildings be designed to blend into the natural surroundings of the valley.

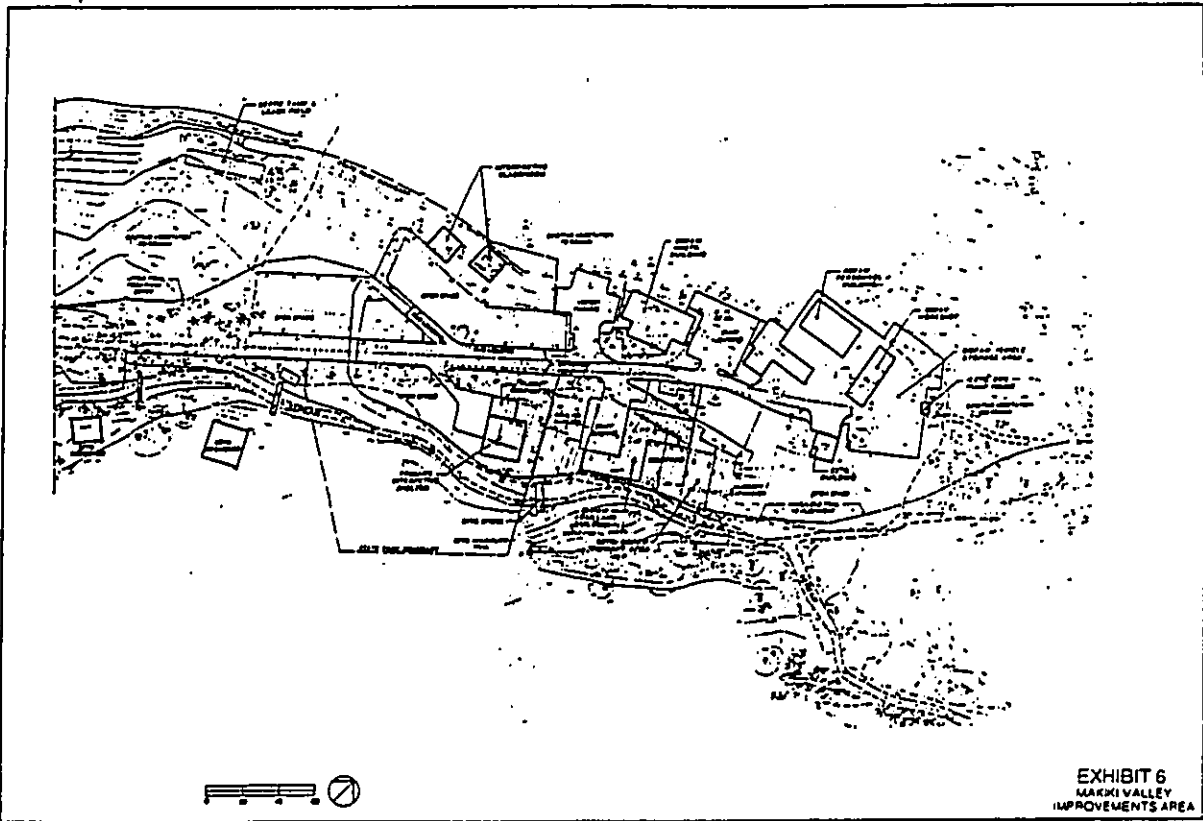
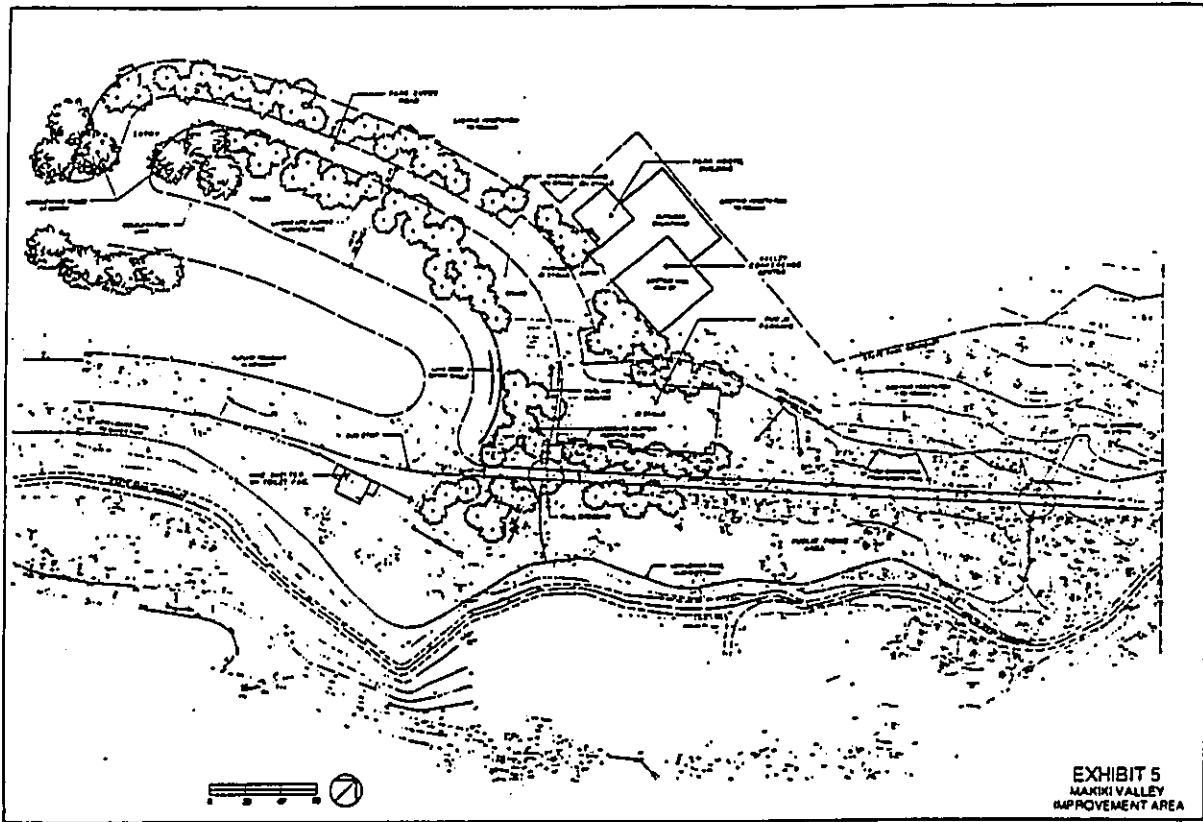
We hope these comments will assist in the successful completion of this project and that you will take our concerns into consideration in your own review of the plan.

Sincerely,

Tamar Chotzen
Tamar Chotzen
Executive Director

Warren Haigh
Warren Haigh
President

Encl: Facilities Requirements Makiki-Tantalus
Makiki-Tantalus State Recreation Area
Maps: Exhibits 5 & 6



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

HAWAII NATURE CENTER

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

Facilities Requirements Makiki-Tantalus

Current Service Statistics: 35,000
(19,000 k-5 elementary school children; 16,000 community groups and general public)

Projected Annual Service Statistics: 40,000 (suggested maximum)

Classroom/Interpretive Ctr.	4,200 sq. ft.
Shelters	4,320 sq. ft.
Reference Library	400 sq. ft.
Conference/Meeting	960 sq. ft.
Volunteer Workroom	480 sq. ft.
Workshop/Materials Storage	680 sq. ft.
Gift Shop	480 sq. ft.
Office	2,160 sq. ft.
Office Equipment/Reception	400 sq. ft.
Storage	1,400 sq. ft.
Total	15,480 sq. ft.

October 5, 1993

Ms. Tamar Choizen, Executive Director
Mr. Warren Haight, President
Hawaii Nature Center
2131 Makiki Heights Drive
Honolulu, HI 96822

Dear Ms. Choizen and Mr. Haight:

Subject: Your Letter of June 7, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice.

Several changes will be made to the Master Plan to address concerns expressed by consulted parties. As you know, these changes include the elimination of the two-story building you were to share with the Division of Forestry and Wildlife. We will continue to work with you to assure that appropriate facilities are provided for the Hawaii Nature Center elsewhere in Makiki Valley.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chu

2131 Makiki Hts. Dr., Honolulu, HI 96822 Pk: 973-0100
Printed on recycled paper.



Maunaloa Valley Community Association
 2417 Maunaloa Road
 Honolulu, Hawaii 96822

June 4, 1993

Mr. Michael S. Chu
 Land Architect
 81 South Hotel Street, Ste. 312
 Honolulu, HI 96813

Dear Mr. *Mike*

After receiving the latest copy of the Environment Impact Statement Preparation Notice (EISP), for improvement within the Makiki-Tantalus State Recreation Area, I must comment.

I cannot see any other improvements to this area that has not already been discussed and improved upon. I agree to all suggestions of Phases 1,2,3, and 4 on page 15 of the final draft report. However, there is one question that I would like to address. Where can the Division of Forestry be relocated? On the West wall of the entrance to the park or be moved completely out of the valley? Historically, Forestry and Wildlife Division has always been a part of Makiki Valley. Hopefully this issue can be resolved satisfactorily for everyone involved.

Thank you for the opportunity to express my input.

Sincerely,

Minerva Kaawa
 Minerva Kaawa,
 President, MVCA

cc: Margaret Young
 Herbert Kikukawa, Oahu District Forester

MICHAEL S. CHU
LAND ARCHITECT
 PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Mrs. Minerva Kaawa, President
 Maunaloa Valley Community Association
 2417 Maunaloa Road
 Honolulu, Hawaii 96822

Dear Mrs. Kaawa:

Subject: Your Letter of June 4, 1993, Commenting on the EIS Preparation Notice for Improvements to the Makiki-Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. You will have additional opportunity for input as part of the EIS process.

Two Maunaloa households have access from the DOFAW Makiki entry road. Several parties commenting on the EIS Preparation Notice asked whether it would be possible to arrange for landscaping of the stream side of the households to screen them from public view. We would appreciate your help in reaching some informal arrangement.

The following responds to your specific comments:

- DOFAW plans to incrementally replace a few delapidated offices and sheds at Makiki, but does not plan to increase the number of DOFAW employees who report to work there. In the short-term, to reduce commuting to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles closer to where they are used. In the long-term, DOFAW will consider relocating its Makiki facility.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

Michael S. Chu

cc: The Outdoor Circle

2827



THE OUTDOOR CIRCLE
1110 University Ave. #205 - Honolulu, HI 96826
Phone: 808 943-9658 Fax: 808 955-7363

RECEIVED
DIVISION OF
STATE PARKS
JUN 14 10 31 AM '93

Established 1912
A Non Profit Organization

- BRANCHES**
- OAHU: Kaneohe, Eleele, Lanai, Kula, Maui, Molokai, Hawaii
 - KAUAI: Hanalei
 - MOLOKAI: Maunaloa
 - GARDEN CIRCLES: Hawaii, Maui, Lanai, Molokai, Oahu

June 3, 1993

Mr. Keith Ahue, Chair
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

RE: Final Environmental Assessment for Improvements to the
Makiki-Tantalus State Recreation Area

Dear Mr. Ahue:

We have reviewed the above referenced document as prepared by Michael S. Chu, and offer the following comments:

The Outdoor Circle feels that it is inappropriate to locate the two story "auxiliary" DOPAW building stream-side. This area should be for the enjoyment of visitors and picnickers.

We would like to see the entrance into Makiki Valley relocated. Rather than the long "gracious" drive proposed, the entry should be changed, and cars could enter directly into the parking lot. The emphasis would then be properly placed on the park and not the road.

We strongly object to the proposed landscape plan. Because Act 73 requires the use of native plants wherever possible, we feel the MTSRA plans must include native plants and shrubs rather than the Norfolk Pines specified.

In order to maintain a park-like setting, The Outdoor Circle feels that the two houses which front the park road must be landscaped.

We applaud the plans for a continuation of current recreational uses at Puu Ualakaa and construction of improvements to support these activities. With the increase in the numbers of people using recreation areas, further environmental educational programs can be established.

Mr. Keith Ahue
June 3, 1993
Page 2

Renovation of Nutridge for use as a public recreation facility--for retreats, meetings, possible lodge for tent camping, etc. also allows for increased recreation and interpretive programs. We do feel, however, that there should be a full time custodian on site.

We feel that other outdoor groups should be included on the MTSRA advisory committee. Organizations such as the Trail and Mountain Club, Audubon, Nature Conservancy, and others would have valuable input.

Please keep The Outdoor Circle informed of any and all public hearings and information regarding the Makiki-Tantalus State Recreation Area.
Thank you for your cooperation.

Sincerely,

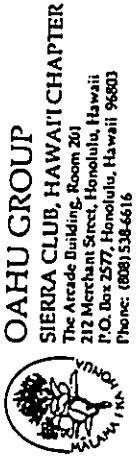
Susan Bright Spangler
Susan Bright Spangler
President

SBS:da

- ADMINISTRATION
- CLERICAL
- PLANNING
- RES. MGT. RE.
- PROJ. CONTROL
- SW. REC. PLAN.
- CLERICAL STAFF
- ADMIN. ASST.
- ARCHAEOLOGISTS
- CIRCULARS/POST
- COLLECTIONS & REC.
- PLANT REPLY
- PERMIT
- PERLOW LP
- TRIP
- TRUSH DRIVE
- SEE ME
- NO COPY TO

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MICHAEL S CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN



OAHU GROUP
SIERRA CLUB, HAWAII CHAPTER
The Arcade Building, Room 201
212 Merchant Street, Honolulu, Hawaii
P.O. Box 2577, Honolulu, Hawaii 96803
Phone: (808) 538-6616

October 5, 1993

Mrs. Susan Bright Spangler, President
The Outdoor Circle
1110 University Avenues #205
Honolulu, HI 96826

Dear Mrs. Spangler:

Subject: Your Letter of June 3, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. You will have additional opportunity for input as part of the EIS process. The following responds to your specific comments:

- The two-story office building will be shortened, but must comply with City sight-line standards.
- Substitutes for Norfolk Pines will be explored.
- The State Parks Division lacks jurisdiction to initiate landscaping of the two leased houselots with access from the Division of Forestry and Wildlife Makiki entry road. You might wish to consult directly with the two affected Maunaloa families or the Maunaloa Valley Community Association.
- The DLNR State Parks Division has retained the Hawaii Nature Center to identify a variety of program opportunities for the Makiki-Tantalus area. Facility needs associated with these opportunities will also be reviewed as part of the 21 month study, including potential interpretive uses for the Nuridge house. The DLNR has deferred any decision on future public use/management of the Nuridge house until a more complete list of suitable options can be considered.
- No additional public hearings or meetings of the MTSRA advisory committee are planned at this stage. The groups you mentioned still can participate in the planning process by commenting on the EIS.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chiu

June 2, 1993

Mr. Keith W. Ahue
Department of Land and
Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Re: Final Environmental Assessment for Improvements to the
Makiki/Tantalus Estate Recreation Area

Dear Mr. Ahue:

I am the Oahu Group Chair, of the Hawaii Chapter of the Sierra Club. The following comments are being submitted in a response to a report prepared by Michael S. Chu, April 19, 1993, for the Department of Land and Natural Resources, State of Hawaii, on the Final Environmental Assessment for Improvements to the Makiki/Tantalus State Recreation Area (MTSRA). The Sierra Club agrees with the overall recreational purposes of the plan as set forth by Mr. Chu.

Over fifteen (15) years ago, the preliminary draft report, Makiki/Tantalus State Recreation Area (MTSRA), recommended relocation of the Department of Forestry and Wildlife (DOFAW) facility. The new report states that, the relocation plans were canceled. It appears that DOFAW, is not now seeking an alternate site. The Sierra Club opposes any expansion of DOFAW facilities within the MTSRA. DOFAW should eventually be located out of the area to a location, where there would be sufficient space for a helicopter and where staff and equipment traffic would not need to go through a residential area. Until such time as DOFAW's facilities have been relocated outside of the area, they should be consolidated along the Eva wall of the valley.

The plan calls for the construction of a two (2) story auxiliary building, of six thousand (6,000) square feet. A two (2) story building in this area would be totally out of character and is not needed. The report does not describe the use of the new auxiliary building or why one is needed. The Sierra Club opposes the construction of this building. It is also inappropriate,



OAHU GROUP
SIERRA CLUB, HAWAII CHAPTER
The Arcade Building, Room 201
212 Merchant Street, Honolulu, Hawaii
P.O. Box 2577, Honolulu, Hawaii 96802
Phone: (808) 538-6616

Mr. Keith W. Ahue
Department of Land and
Natural Resources
June 2, 1993
Page -02-

Re: Final Environmental Assessment for Improvements to the
Makiki/Tantalus Estate Recreation Area

according to the drawings, in Exhibit 6, to construct this building along the stream. Construction of a two (2) story auxiliary building in the area indicated on Exhibit 6, renders the entire area a "industrial area" and inappropriate with the overall goals of the developing a recreation plan for the State owned Forest Reserve Recreational Area.

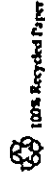
The Sierra Club believes that Nutridge, should become a public recreational facility, no later than January, 1995. There is a great public need for a facility in the location of Nutridge to downtown Honolulu, would provide the public with access to a such needed facility. However, we do not believe that, it should be delayed until the final phases of the project, since there is no time limit as to when this project may be completed. We believe that, since the current tenant is on a month to month lease, arrangements can be made to have Nutridge returned to public use, and, any additional work which may need to be done to further promote public use of Nutridge, can be accomplished.

The report on Puu Ualakaa Improvements at page 14, recommends the construction of additional connector trails in phase 2. Exhibit 7 shows the location of the new trail connections to the Nutridge site. Why are two trails needed? Couldn't only the upper trail be constructed, rather than the lower one? These questions need to be answered before the final EIS report is completed.

Very truly yours,

PHILIP D. BOGETTO
Oahu Group Chair
Sierra Club
Hawaii Chapter

PDB:ja



MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • DESIGN SERVICES

October 5, 1993

Mr. Philip D. Bogetto, Oahu Group Chair
Sierra Club Hawaii Chapter
P.O. Box 2577
Honolulu, Hawaii 96803

Dear Mr. Bogetto:

Subject: Your Letter of June 2 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. You will have additional opportunity for input as part of the EIS process. The following responds to your specific comments:

- The Division of Forestry and Wildlife (DOFAW) needs to replace delapidated offices and sheds at Makiki, but does not plan to increase the number of DOFAW employees who report to work there. In the short-term, to reduce commuting to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles closer to where they are used. In the long-term, DOFAW will consider relocating its Makiki facility.
- The Master Plan no longer proposes a two-story office building adjacent to the stream. The office, classroom, and storage needs of the Hawaii Nature Center will instead be met with one-story buildings at more acceptable locations.
- The DLNR State Parks Division has retained the Hawaii Nature Center to identify a variety of program opportunities for the Makiki-Tantalus area. Facility needs associated with these opportunities will also be reviewed as part of the 21 month study, including potential interpretive uses for the Nutridge house. The DLNR has deferred any decision on future public use/management of the Nutridge house until a more complete list of suitable options can be considered.
- The upper and lower trails proposed between the new Puu Ualakaa lookout and the Nutridge property form a loop so hikers need not backtrack. This will facilitate various outdoor education activities occurring at the same time.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu

June 4, 1993

Mr. Michael Chu
81 S. Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu:

Mahalo for sending me a copy of the "Makiki-Tantalus State Recreation Area Improvements" report.

As a life-long Hawaii resident (but one who is relatively new to the Makiki neighborhood), I was surprised to learn at the recent Makiki District Park presentation that planning and development of this tremendous resource area has been underway for many years. Many good things have been accomplished, however, it seems unfortunate to me that the major elements of the DLNR "Preliminary Draft Report" written over 15 years ago have in the words of your report, "languished."

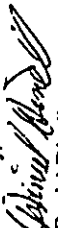
My specific concerns are: 1) Why is the relocation of the DOFAW base yard not a part of your updated report? The vast majority of the forest areas under the jurisdiction of DOFAW on this island are in the Central Oahu area. It just doesn't make sense to have their headquarters adjacent to one of the densest populated areas in the State. The land acquisition argument is moot - I am sure that surplus State owned land could be found. Once new buildings are constructed as advocated in this proposed plan, it will be another century before the baseyard is moved to where it logically should be and the Makiki Valley area become a tranquil oasis in the hectic urban core.

2) DLNR policy does not seem to be consistent. This report advances the acquisition of the lots fronting the Valley road entrance, yet some time ago the same agency agreed to long term leases in the Maunaloa homestead area. In one case the State is using tax dollars to purchase land from private interests, in the other, offering State lands for private use. Why are these two apparently contradictory policies occurring and how will the EIS address this?

It would be most helpful in planning for the future to know how many people use the area today (and what are they doing - i.e. HNC classes, individual hiking, sightseeing, etc.). Finally, what is the current vehicular counts as it relates to traffic and parking? I look forward to the inclusion of this kind of data in the Draft EIS.

Thank you for allowing me the opportunity to comment. Please send me a copy of the Draft EIS when it is ready for distribution.

Sincerely,


Daniel Dinell
1019 Maunaloa Pl. #203
Honolulu, Hawaii 96822

MICHAEL S. CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Mr. Daniel Dinell
1019 Maunaloa Place No. 203
Honolulu, Hawaii 96822

Dear Mr. Dinell:

Subject: Your Letter of June 4, 1993, Commenting on the EIS Preparation Notice for Improvements to the Makiki-Tantalus State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. You will have additional opportunity for input as part of the EIS process. The following responds to your specific comments:

- The Master Plan has been prepared for the DLNR Division of State Parks and is not intended to evaluate the options and costs of relocating the Division of Forestry and Wildlife's (DOFAW) Makiki facility. DOFAW plans to incrementally replace a few delapidated offices and sheds at Makiki, but does not plan to increase the number of DOFAW employees who report to work there. In the short-term, to reduce commuting to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles closer to where they are used. In the long-term, DOFAW will consider relocating its Makiki facility.
- The Maunaloa homestead area has been a Hawaiian settlement since at least the 1848 Mahele. A number of families still living there are direct descendants of residents mentioned in historic 19th century documents. Beginning more than a century ago, public officials have promised not to evict Maunaloa residents. About a decade ago, the State Legislature and DLNR agreed to formally sanction continued residential use of the homestead area with long-term leases. Neither the Master Plan nor the EIS propose any alteration of these leases.
- The Draft EIS will include sufficient data on recreational use, traffic, and parking to evaluate potential impacts of the proposed Master Plan.

Please feel free to call me if you have any questions.

Yours Truly,


Michael S. Chu

16
 ASST. DIR.
 ASST. MGR.
 PLAN BR.
 RES. MGT. BR.
 PROJ. CONTROL
 SW. REC. PLAN
 CLERICAL STAFF
 ADMIN. ASST.
 ARCHITECTS
 ENG.
 EXECUTIVE/POST
 COMMENTS & REC.
 INQUIRY
 DATE
 10/24/93
 10/24/93

Department of Land and Natural Resources
 Division of State Parks
 P.O. Box 621
 Honolulu, HI 96809

Attention: Mr. Bill Gorst

SUBJECT: Makiki-Tantalus State Recreation Area Master Plan

I offer the following comments with respect to the proposed master plan
 improvements for the Makiki-Tantalus State Recreation Area.

- I don't like the site I proposition of
 building a two-story building next to
 the stadium. I don't think there should be a
 two-story building anywhere in the complex
 unless it is on the east side against the
 slope with the ground floor largely level.
 Realigning the Kamehameha Trail to the
 side of a two-story building is unacceptable.
 The site plan proposal for this building should
 be left open.
- The multi-use proposals are good and do establish
 public use, bike use, horse use, should be planned
 to occur sooner. Strip of comfort station and
 parking should not preclude tent camping
 area. Tent camping use of level by campers.
 (include additional sheets as necessary)

Submitted By Lorin T. Gill (over)

name LORIN T. GILL
 address 410 ROUND TOP DR
HONOLULU HI 96822
 date 1 June 1993

4. The draft plan dismissed "Day Camping"
 as having been tried and found to be
 unsuccessful. While "Day Camping" (as described by the
 American Camping Association) may no
 longer be feasible for the location, it would
 be noted that it was not adequately tried
 or promoted.

5. While the plan does not address the
 issue - or rather, dismisses it due to
 objection of Makiki day-use residents,
 area outside for passive picnic-ing
 should be checked on the Kalaewai
 Ridge (near present viewpoint in the
 encampment area) and on the Kihuna road.

**SUMMARY OF PROPOSED IMPROVEMENTS
MAKIKI-TANTALUS STATE RECREATIONAL AREA**

The Makiki-Tantalus State Recreation Area consists of approximately 2000 ac. of land lying within the State Conservation District Boundary. It adjoins the Primary Urban Center of Honolulu just above the populated Makiki neighborhood. Exhibit 1, entitled 'Location and Master Plan Boundary Map,' illustrates the proximity of the Makiki-Tantalus State Recreation Area relative to recognizable Honolulu landmarks such as Punchbowl Crater, Punahou School and the major roadways crossing the city.

The proposed improvements are confined to two geographic areas within the overall Makiki-Tantalus State Recreation Area. These two locations are described as (a) the Makiki Valley Improvement Area and (b) the Puu Ualakaa Improvement Area.

Makiki Valley Improvement Area

The proposed uses for Makiki Valley include public park, Division of Forestry and Wildlife (DOFAW) baseyard and administration, and the environmental/education activities of the Hawaii Nature Center (HNC). The physical improvements need to support these uses include building construction, infrastructure improvements and circulation/parking improvements.

Building Construction

- Replace six old DOFAW building with five new structures including various outdoor apartments
- Construct four open shelters for State Parks activities
- Construct a park maintenance building
- Acquire private residential lot near park entry for the construction of a park informational and community conference center

Infrastructure Improvements

- Construct two comfort stations with septic tank and leach field for waste water disposal; installation of a sewer line for future connection to the City municipal sewer
- Re-alignment of a portion of an existing trail (Kanealole Trail)

Roadway/Parking Improvements

- Develop new park entry road off of Makiki Heights Drive; discontinue public use of existing park road
- Improve/widen existing access driveway in valley; construct parking to accommodate staff, visitors and DOFAW vehicle storage

- Construction of new trail connections; realignment of existing trails
- Landscaping improvements are proposed along the Makiki Heights Drive from the vicinity of Baker Park to the new park entry road.

In addition to the improvements described above, portions of Makiki Valley which relate to park and public recreation shall be placed under the jurisdictional control of the Division of State Parks.

6.2 Puu Ualakaa Improvements

The proposed uses for Puu Ualakaa include open-space park and environmental education/HNC activities. The physical improvements needed to support these uses include modest building construction and repair, incidental infrastructure improvements consisting of selective clearing/grading for the construction of additional hiking trails connections. Other existing uses at Puu Ualakaa include public telecommunications facilities within the park boundaries and a residence at Nutridge. No expansion and/or modifications to the telecommunications activity are proposed under this environmental assessment. The proposed plan considers elimination of the state residential lease.

Building Construction

- Modify existing Nutridge garage into shelter for environmental education/interpretive program use; install comfort station
- Selectively clear site and construct 400 sf shelter for environmental education/interpretive program use
- Repair existing picnic shelter; construct second picnic shelter

Infrastructure

- Selectively clear and construct approximately 4500 lf of hiking trail between proposed shelters and existing Puu Ualakaa trail
- Improved vehicular access and parking improvements to accommodate future public use of the Nutridge facility

In addition to the improvements described above, the entire Puu Ualakaa area (TMK: 2-5-19:04, 22 ac. and TMK: 2-5-19: por 03, approx. 80 ac.) is proposed to be placed under the administrative control of the Division of State Parks.

MIKI HALL & CHIU
LAND ARCHITECT
 PLANNING • LANDSCAPE ARCHITECTURE • INTERIOR DESIGN

October 5, 1993

Lorin T. Gill
 4110 Round Top Drive
 Honolulu, HI 96822

Dear Mr. Gill:

Subject: Your Letter of June 1, 1993, Commenting on the Makiki-Tantalus State Recreation Area Master Plan

Thank you for taking the time to review the draft Master Plan. Several changes have been made to address concerns expressed by consulted parties. You will have additional opportunity for input as part of the EIS process.

The following responds to your numbered comments.

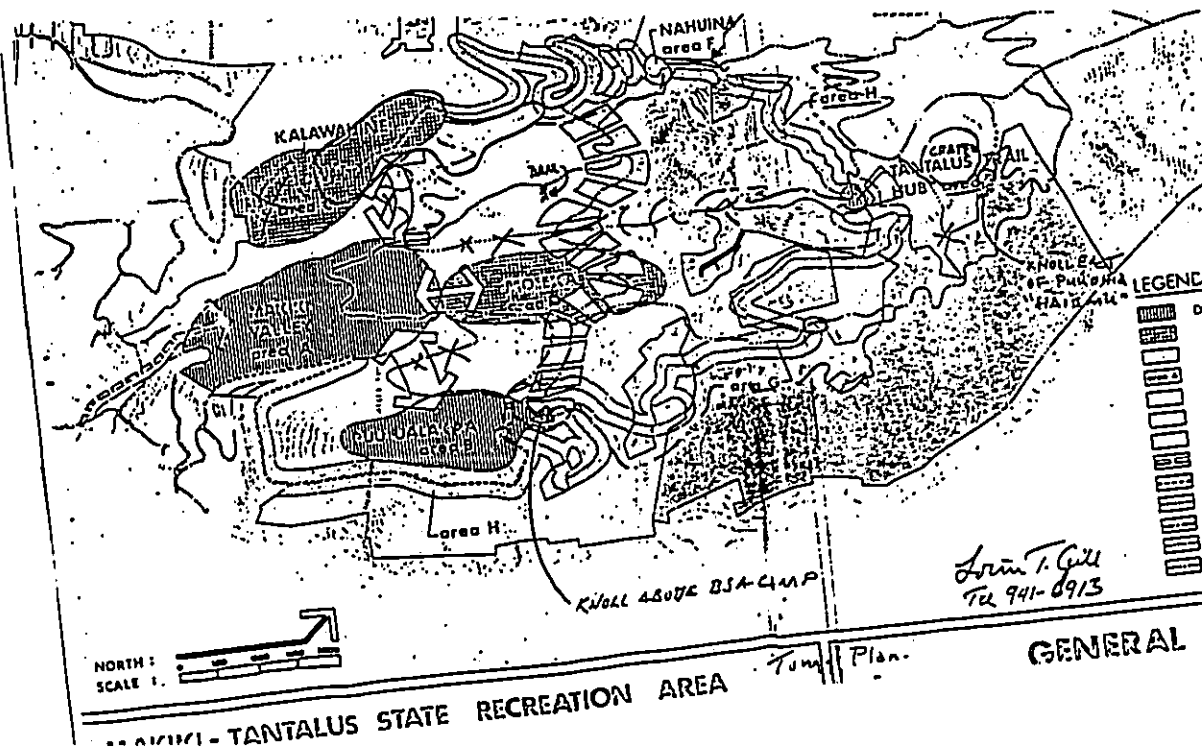
1. The Master Plan no longer includes a two-story building.
2. The Master Plan no longer proposes an office building abutting the realigned Kaneohe Trail.
3. The DLNR State Parks Division has retained the Hawaii Nature Center to identify a variety of program opportunities for the Makiki-Tantalus area. Facility needs associated with these opportunities will also be reviewed as part of the 21 month study, including potential interpretive uses for the Nutridge house. The DLNR has deferred any decision on future public use/management of the Nutridge house until a more complete list of suitable options can be considered.
4. The Master Plan can accommodate day camping should the need arise.
5. We will let the Division of Forestry and Wildlife (DOFAW) know that you have requested additional cleanings at Kalawahine Ridge and Nahuina knoll for passive picnicking. The Master Plan does not propose that these areas be part of the State park, and they will continue within DOFAW's jurisdiction.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chu



ALBERT LONO LYMAN
P.O. Box 3896
Honolulu, Hawaii 96812-3896

phone 944-1984

June 7, 1993

Michale S. Chu
Land Architect
81 South Hotel Street
Honolulu, Hawaii 96813

I am writing to request to be a consulted party for the preparation of the EIS for the improvements within the Makiki-Tanilus State Recreational Area. I am also writing to set forth concerns that I believe should be addressed in the Draft and Final EIS.

My first and principal area of concern is the preservation of pre-historic and historic period cultural and historic sites and features in the Makiki-Tanilus State Recreational Area. In this regard, I offer the following comments:

1) The archeological standards that are the basis for both the field investigations and the determinations of significance criteria have changed since the 1980 inventory work performed by Yent and Ota. More intensive work may be appropriate for the Draft EIS given the plans for developing areas. The Draft EIS should include a current report of archeological resources in the two project locations and the Makiki-Tanilus State Recreational Area. The report should be prepared under the supervision of an archaeologist with a Ph.D. in archeology, and should be based on field investigations conducted under the supervision of that archaeologist and based on current standards. The archeological report in the Draft EIS should contain the results of the field investigation, the State Historic Preservation Offices review of the results, and any recommendations for mitigation.

2) Given that some of archeological sites that were identified in the 1980 work done by Yent and Ota could not be relocated in the 1992 inspection conducted with Yent, the Draft EIS should ascertain what happened to these "missing" sites and make recommendations to avoid further destruction (inadvertent or otherwise) of cultural sites. These recommendations should be made in conjunction with the field work conducted by the archaeologist in item one, above. Relative to the "missing" sites, The Draft EIS should contain the results of the field investigation, the State Historic Preservation Offices review of the results, and any recommendations for mitigation.

Michale Chu
June 6, 1993
Page 2

3) The trails within the Makiki-Tanilus State Recreational Area that preceeded the Highway Act of 1892 are significant Hawaiian cultural sites. These trails are part of a system of trails that link the Makiki Valley and Puu Ualakaa project locations. All trails in the Makiki-Tanilus State Recreational Area that preceeded the Highway Act of 1892 should be documented in the Draft EIS including the existing trails that are accessible to the public, "abandoned" trails (such as the Moleka Trail), and trails that private land owners have "blocked" (such as the Puu Ohia Trail). The Draft EIS should fully analyze and discuss the alternatives for reopening any closed trails that preceeded the Highway Act of 1892.

A second area of concern is the location of the Forestry Division facilities in the Makiki Valley. The Draft EIS should fully analyze and discuss the alternatives for locating the proposed facilities, both on- and off-site. The on-site analysis should include an analysis of reducing, rather than increasing, the area occupied by the Forestry Division, and analysis of conflicts between the use of the Makiki Valley site for Forestry Division versus non-Forestry Division uses. The off-site analysis should analyze the costs of alternative off-site locations for Forestry Division facilities.

A third area of concern is the alternative of public or quasi-public uses for the Nut Ridge property which is presently leased to a private party. This present use precludes alternative public or quasi-public uses. The Draft EIS should fully analyze and discuss the alternatives for Nut Ridge being used for public or quasi-public uses

A fourth and final area of concern is the conclusion that there are no significant impacts. The finding is not adequately supported. The rationale and basis for such a finding, if such a finding is appropriate, should be fully documented in the Draft EIS.

Aloha!



Copies: DLNR
OIEQC
OHA
Neighborhood Board No. 10

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • INTERIOR DESIGN

October 5, 1993

Mr. Albert Lono Lyman
P.O. Box 3896
Honolulu, Hawaii 96812-3896

Dear Mr. Lyman:

Subject: Your Letter of June 7, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. You will have additional opportunity for input as part of the EIS process.

The following responds to your numbered comments:

1. Appropriate documentation concerning historic and prehistoric resources will be presented in the EIS to satisfy the concerns of the State Historic Preservation Office.
2. The EIS will discuss management of archaeological sites which could be affected by park development and use. "Missing" sites outside the project area will not be addressed.
3. The Master Plan has been prepared for the DLNR Division of State Parks and is focussed on proposed additions to the State park system and park-related improvements. It is not within the scope of the EIS to address management of the network of historic and modern trails outside of proposed park boundaries.

The following responds to your other concerns.

- The Master Plan has been prepared for the DLNR Division of State Parks and was not intended to address options and costs of relocating the Division of Forestry and Wildlife (DOFAW) Makiki facility. Although DOFAW plans to incrementally replace a few dilapidated offices and sheds at Makiki, there will be no increase in the number of DOFAW employees who report to work there. In the short-term, to reduce commuting to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles closer to where they are used. In the long-term, DOFAW will consider relocating its Makiki facility. The EIS will treat DOFAW relocation plans as an unresolved issue.

2

The DLNR State Parks Division has retained the Hawaii Nature Center to identify a variety of program opportunities for the Makiki-Tantalus area. Facility needs associated with these opportunities will also be reviewed as part of the 21 month study, including potential interpretive uses for the Nutridge house. The DLNR has deferred any decision on future public use/management of the Nutridge house until a more complete list of suitable options can be considered. Consequently, the EIS will treat use of the Nutridge residence as an unresolved issue.

- The EIS will present the basis of conclusions on environmental impacts.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chu



University of Hawaii at Manoa

Colleges of Tropical Agriculture and Human Resources
Department of Horticulture
St. John Plant Science Laboratory 102
3180 Maile Way • Honolulu, Hawaii 96822
Facsimile: (808) 958-3894

June 7, 1993

Mr. Michael S. Chu
Land Architect
81 South Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu,

I am sorry for my tardiness in response to your transmittal of May 8, 1993. It was on my desk upon my return from a trip to the mainland. I first wish to express my thanks for the business like fashion in which you conducted each of the meetings. You also managed to keep the meetings short and to the point.

I have reviewed the report and find it in excellent condition. I am impressed with the orderly fashion in which each point is discussed. I have made notations on minor corrections which could be made in the text. I have not bothered to type them since the notations were made while I was reviewing the document.

As a resident and worker in the Manoa area, I do hope that the State activates the project. It is too nice an area to neglect.

It was a pleasure to serve on your ad-hoc committee.

Sincerely yours,

Yoneo Sagawa
Yoneo Sagawa
Professor of Horticulture

An Equal Opportunity/Affirmative Action Institution

Page 10 5.7 5.11 #2 line 7 "boarders" should be "borderers"
Page 12 line 2 "passed" should be "past"
"was" should be "were"
#2 line 2 insert "by other" "unannounced"
#3 line 1 "because" = "because"
#4 line 1 "emerging" should be "emerged"
Page 13 #2 line 2 "individuals" drop "S"
Page 14 line 2 insert "and" after "center"
#4 line 1 delete "to"
#5 line 4 "expand" = "expand"
c.2 #2 line 5 insert "on" after "show"
line 6 "maybe" should be "may be"
#4 line 2 "are" should be "are"
c.4 line 3 "are" should be "is"
Page 15 7.0 #1 line 1 "population" should be "populations"
#2 line 5 drop "S" from "island"
#2 line 7 add "S" to "source"
Page 17 #2 line 3 add "S" to "aw"
P.2 #2 line 2 add "S" to "land"
Page 18 9.2 #1 line 7 add "S" to "Project"
Page 19 10.2 #4 line 1 add "S" to "change"
line 1 drop "in" from "over"
Page 20 #3 line 1 "Exception" should be "Except"
Page 21 #2 line 3 add "S" to "Project"
Page 23 13.0 #2 line 1 delete "S"
Page 24 line 2 "of" should be "on"
Exhibit 11 Photo K Replace "S" with "S" in "center"



MICHAEL S CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Dr. Yoneo Sagawa
Professor of Horticulture
University of Hawaii at Manoa
St. John Plant Science Laboratory 102
3190 Maile Way
Honolulu, Hawaii 96822

Dear Dr. Sagawa:

Subject: Your Letter of June 7, 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Your minor
corrections were very helpful.

Several changes have been made to the Master Plan to address concerns
expressed by consulted parties. You will have additional opportunity for input
as part of the EIS process.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chiu

To: Department of Land and Natural Resources
Mr. Keith Ahee, Chairman
From: Margaret S. Young

Re: FINAL ENVIRONMENTAL ASSESSMENT for Improvements
to the MAKIKI TANTALUS STATE RECREATION AREA

Page 4 of ASSESSMENT says:

"Pursuant to budgetary legislation, Act 314 Session Laws of Hawaii, as amended by Act 299 SLH 1960, the Makiki Tantalus State Recreation Area project was undertaken by the DLNR with the express purpose of developing a recreation plan for the State owned forest reserve recreational area."

RECREATION was the intent of the 1970 Legislature when it created the 2675 acre Makiki Tantalus State Park (now called State Recreation Area) for the densely populated Makiki district which qualified for Federal matching funds as being within 45 minutes distance. The bill also included an appropriation of \$335,000 for development which was allowed to lapse.

HISTORY

Historically there had been earlier plans for a Makiki Tantalus park by the Civic Federation of Honolulu in 1905-06 with evaluation by nationally known Charles Mulford Robinson. The Civic Federation plan was never funded. In 1938 Lewis Mumford, nationally known city planner, was commissioned to make a survey of Oahu's needs by the Honolulu Parks Board. He said "The kind of park that is lacking is the upland wild park; the primeval park... Contrary to the unwise practice of some of the large primeval parks and reservations on the mainland, access to such parks should not be made too easy."

"This excludes large well-surfaced roads and large parking areas that would attract the sort of picnicker whose very presence would rob the scene of the value it holds for those who meet its challenge."

"The Tantalus park should be... the one great park for Honolulu, that bit of God's world that cities now are learning to secure and save for the people, that they may get close to nature, forgetting the fences and survey lines which civilization has thrown like a network of prison walls upon the world."

In the 1940s the late Colin Lennox, head of the Board of Agriculture and Forestry, did conceive the view park and picnic areas now such enjoyed at Ulakaa on Round Top developed in the 1950s. Ulakaa, in the past few years, received a \$600,000 refurbishing and replacement of plumbing and new lookout pergola (which many people feel should have had a rustic rock base instead of so much concrete).

Over the years the City asked for the Valley and had tentative plans for a park but was turned down. DLNR also had commissioned one of its staff to make plans for an enlarged State Parks and Forestry combined baseyard. These plans were dropped after protests from The Outdoor Circle that there would be disturbance by employees and equipment moving through a residential community.

Soon after 1970 the late Gene Renard, State Parks planner, did develop a plan but it received little attention and he was assigned to a different project for an interval.

MFRSA

June 1, 1973 page 2

In November 1972 The Outdoor Circle presented to DLNR suggestions for development of MFRSA. These were also used as a basis for the 1974 Legislature to urge "action with citizen participation".

In August of 1973 Margaret Kidwell, chairman of The Outdoor Circle 1972 MFRSA committee, asked me to see what I could do to get the DLNR to "move" on the plans. A few months later the Makiki Community Association officers asked that I chair their Citizen Committee re the project so I have spent nearly 2 1/2 years watching "planning" and some progress under many changes in the administration of DLNR and its Parks, Forestry and Land Management Divisions.

Born in Makiki, I grew up in Kanoa with picnics by Makiki stream, much hiking experience, and an inherited appreciation of the area as my family owned property on Tantalus from the first house in 1891 until I sold my last in 1988.

The thoughts of the Citizen Committee over the years has been sharing the beauties of nature and protecting them from over use and abuse. Make it available for those who appreciate the wilderness and vistas--but protect it from vandalism and man-made litter. Reserve mauka areas for passive recreation--hikes and picnics--keep organized activities in the valley below Trail #74.

In 1976-77 Tongg Associates were commissioned to provide a master plan for the area. Their reports give further historical and much basic information which has given Michael Chu a head start on his current master plan contract.

During the development of the Tongg plan there were over 20 public meetings and many committee meetings of interested Makiki residents and people from other parts of the island. Harry Whitten, Star-Bulletin columnist, attended the meetings and kept readers informed of plans and progress and there was real citizen input.

It took over ten years and two court cases (lower and the Supreme Court) to get the Choi family commercial nursery out of the five and a half acres they were leasing in the lower valley for \$35 a month. Details of their ownership of their fee simple property on which two cottages are located is recorded in the book LAND AND POWER IN HAWAII. The home nearest the park gate is now owned by the Cruickshank family.

Tongg Associates recommended condemning the two cottages for park use or making a land exchange. Gene Renard had in mind a desirable view lot State owned on Tantalus which might have been offered in exchange. Chu has rightly scheduled taking of the houses in Phase I of his plans--but Bill Gerst says there is no money available at present. Several hundred thousands of dollars appropriated for MFRSA over the years have been allowed to lapse.

Concern over MFRSA planning was the original spur to the forming of the Tantalus Community Association. Agreement with them over the cross valley Trail #74 to provide passive recreation activities was achieved through the Association. The Association has organized the residents of the some 130 homes to help keep litter picked up through assignment of certain sections to near neighbors and they have regular community Saturday work days.

The trails are in good condition but I believe the one to Kuuanu from Pauoa Flats is not complete. The recent organization of Ma Ala, Hele under DLNR has now taken over trail guardianship and is working on questions of liability when trails cross private property.

Hawaii Nature Center and Tantalus Community residents agreed a year or so ago to leave Puu Kakea without restoration of the old trail which is near residents.

Vertical lines and markings on the right side of the page, possibly a scanning artifact or a reference to another page.

MTSRA

June 1, 1993 page 3

Several recommended view lookouts along the Tantalus loop drive have not been kept clear by Forestry for picture taking by visitors.

A planned picnic area overlooking Punchbowl but away from homes at Kalawahine on about the 800 foot elevation has not yet been implemented and Chu recommended deleting it from the plans. Lorin Gill has made a strong plea for providing it. There are several other inconspicuous locations with potential for picnic areas.

Two picnic areas were developed at Kahuina and above the Boy Scout Camp but were not indicated on the last State Parks map which I saw. MTSRA itself was not noted either--but Usakaa was.

ALAKAA

Tamar Chotzen, director of the Hawaii Nature Center, worked closely with Chu on a new place where 4th and 5th graders could meet without disturbance by tourist buses and other improvements were suggested for trails, etc.

TRIDGE

Nothing was done for a decade about the Outdoor Circle's suggestion that Nutridge become a public recreation facility. It was subject to neglect and vandalism. In March 1981 Rick Ralston was granted three years occupancy on condition he put on a new roof and do \$70,000 of repairs. The place is now in excellent condition. He is still a tenant on a month to month basis since December 1986 at a comparatively minimum rent. He does open the park gate mornings and also clears roadside litter just as other Tantalus residents do.

When Nutridge becomes a public recreation facility--for retreats, meetings, possible lodge for tent camping for adults, etc. there should be a live-in custodian. There are available quarters in the residence for one person or an apartment could be arranged for a couple. Possibly the custodian could also qualify to provide interpretive programs for visitors which is a requirement to get Aina Hoomalu funding for maintenance.

A letter from Ralston Magata, State Parks Administrator, December 28, 1992 says: "A contract is being proposed to refine and implement the Makiki Tantalus State Recreation Area plan as a 'Aina Hoomalu (places to seek peace) park project. We received the Board authorization to proceed with the proposed contract which normally takes about three months to complete. The draft scope of work includes a public meeting with the community before a 12-month pilot project gets underway."

This is not a part of the Chu contract and has not yet been signed by anyone else. He lists it as making Nutridge available in Phase IV. This is a long time since The Outdoor Circle first asked that it be made available.

Magata also says about Nutridge: "The long range objective is to discontinue the house as a private residence. In order to convert the house to public use, handicap access, parking and adequate restrooms would have to be provided. It was estimated it would take three years to obtain funding and plans for this renovation. Meanwhile the house is being rented on a revocable permit."

The DLNR did put a request in the 1989 budget for planning funds but this was one of several projects deleted.

HAWAII NATURE CENTER

The Tongg plan, following the Outdoor Circle 1972 suggestion, called for an environmental education center in the valley. The State made no move on this so the Makiki Environmental Education Center (now called Hawaii Nature Center) was set up in mid 1981 by a non-profit group. The State provides an old warehouse, which was previously occupied by State Parks, for a classroom and it was renovated

MTSRA

June 1, 1993 page 4

in 1990 with donated funds. State also maintains the grounds.

The 1988 Legislature provided a van which enables the Center staff to meet groups at Usakaa and other sites on the island. The Center desperately needs more space for staff and expanding activities. It has been necessary to rent two trailers for staff. The Center has been very successful in serving elementary school children in grades K-5 with twelve full time and three part time staff at present and devoted volunteers. There are special summer programs and week-end hikes and activities stressing family participation.

During 1992 the Center in Makiki served 49,521 people and opened a branch at the old Lao Lodge on Maui with two full time and three part time staff and volunteers who served 8,022 individuals. Renovation of the old buildings is continuing.

DOFAW is renovating an old Mike site in the Waianae Mountains Pohole Natural Area Reserve on Oahu as a site for future overnight camping by 6th graders.

Members of the Citizen Committee were distressed that a new two story Auxiliary DOFAW building is on Chu's plan for a streamside site which has special "people appeal" for recreation. DOFAW already has headquarters by the sea wall of the valley.

Forestry has also asked for extended nursery activities in this area. We had understood that nursery activity was to be on other islands when they were moved several years ago--but they have been expanding in Makiki again. Any nursery activity should be between the Forestry buildings against the sea wall of the valley and the Citizen Committee believes all Forestry activities should be on the sea side of the road.

Bill Gorst had told Chu to out a boundary between State Parks and Forestry just above the present classroom building and clear across the valley at that level. I wonder if this has had DLNR Board approval???? We feel that the valley road should serve as the boundary if there needs to be one. Hopefully then their industrial type activity can be "planted out".

DOFAW offered to share the proposed new Auxiliary building with HMC but we feel the building should not be there--and HMC should have a staff annex next to their classroom Interpretive Shelter. It could be one story on the next level just above it where a new Trail head Pavilion is also scheduled.

MTSRA needs to have "park" space clear up as far as the Pump house. Perhaps the log cabin building could be converted to rest-rooms.

We have been told that search for a base yard site outside the valley has not been successful. We hope the search will continue. Inen Forestry can have its helicopter and the residents of Makiki will not suffer traffic of equipment and employees.

At the public meeting on the Chu plan (which the advisory committee had not had the opportunity to see before it was displayed) John Steelquist, chairman of the Makiki, Tantalus, Punchbowl Neighborhood Board #10, said he felt that DOFAW would eventually have to move to allow the park to serve more of the dense population it was created for and questioned replacing the "elderly" buildings they use now.

MTSRA

HPC staff does appreciate the feeling of security given by having DOPAW in the valley. There should be a live-in custodian, perhaps in the James Choi house.

A full time caretaker for MTSRA was provided by the 1981-83 Legislature budget (and caretakers for four other Oahu parks). He has not been put in charge of which comes to Makiki to cut the grass on schedule. The Biennial report showed the caretaker is not full time in the valley because it is still under Forestry.

There was a public hearing held by DMR July 31, 1987 to discuss transfer of the valley and Nutridge to State Parks. Surveys were not complete and there were "no funds" to landscape the five and a half acres retrieved from the commercial nursery either.

Any new plantings and landscaping in the valley should be native plants and shrubs -- not the Norfolk pines on Chu's plan.

Chu has said the gate to the valley road should be kept locked--but is does not seem that this is feasible for a public park during the day. It is currently locked at night.

Chu also says the valley is served by City Bus #15. This is an error. #15 uses Mott-Smith Drive. It does not travel to the valley on Makiki Heights Drive. People do walk up from the bus stop at Keesomoku and Hehoa corner or from the Pu'uohu/Manoa bus. The new plan shows a space for a City Bus stop outside the "locked" gate.

Chu plans 35 parking stalls in the present hollow area behind the Cruickshank house. This is the wrong place for parking for a gracious park entrance. Put more parking later--if an actual need is demonstrated--near the entrance. Put new Park Headquarters and Community Hall. We believe one parking space is required for every five people in a meeting hall. There is space there to increase the number of spaces he has designated now. The hollow should be filled and made part of the gracious entrance to the park.

Chu's new entrance driveway 500 feet up Makiki Heights Drive is an added expense and time-consuming and lengthy for pedestrians if the other gate is locked. Make a new direct approach to the Park Headquarters, Meeting Hall/Conference Center and expand parking in that area if need increases over what is already planned.

At the "public hearing" on the Chu plan April 29 there was a sparse attendance of "approximately 25 individuals". Fourteen were members of the ad hoc "advisory" committee (which had not had a chance to see the plan before it was shown the public). Two new men from the Department of Botany, two Tantalus residents whom I had invited, two new individuals who had read the newspaper announcement April 25. Not truly a Public Hearing???

Besides the April 29 hearing Chu made a presentation to Neighborhood Board #10 on May 13. The meeting was very poorly attended with only eight of the Board there--not a quorum. Several Legislators, Councilmen or their staff members, and two businessmen to report on the Paws project and three or four others were the only attendants. Neither Forestry nor Parks staff were there except Betsy Gagne who now works for Forestry. She came at my invitation because I knew she had written part of Senator Carol Fukunaga's 1992 review of Chu's May 1992 Investigative Report.

RETAKER

June 1, 1993 page 5

MTSRA

June 1, 1993 page 6

HAUNALAJA

The Neighborhood Board #10 had sent out 15,000 questionnaires in November 1991 to solicit park interests from Makiki residents and other ideas. There were no questions about Nutridge and many residents do not know of its existence.

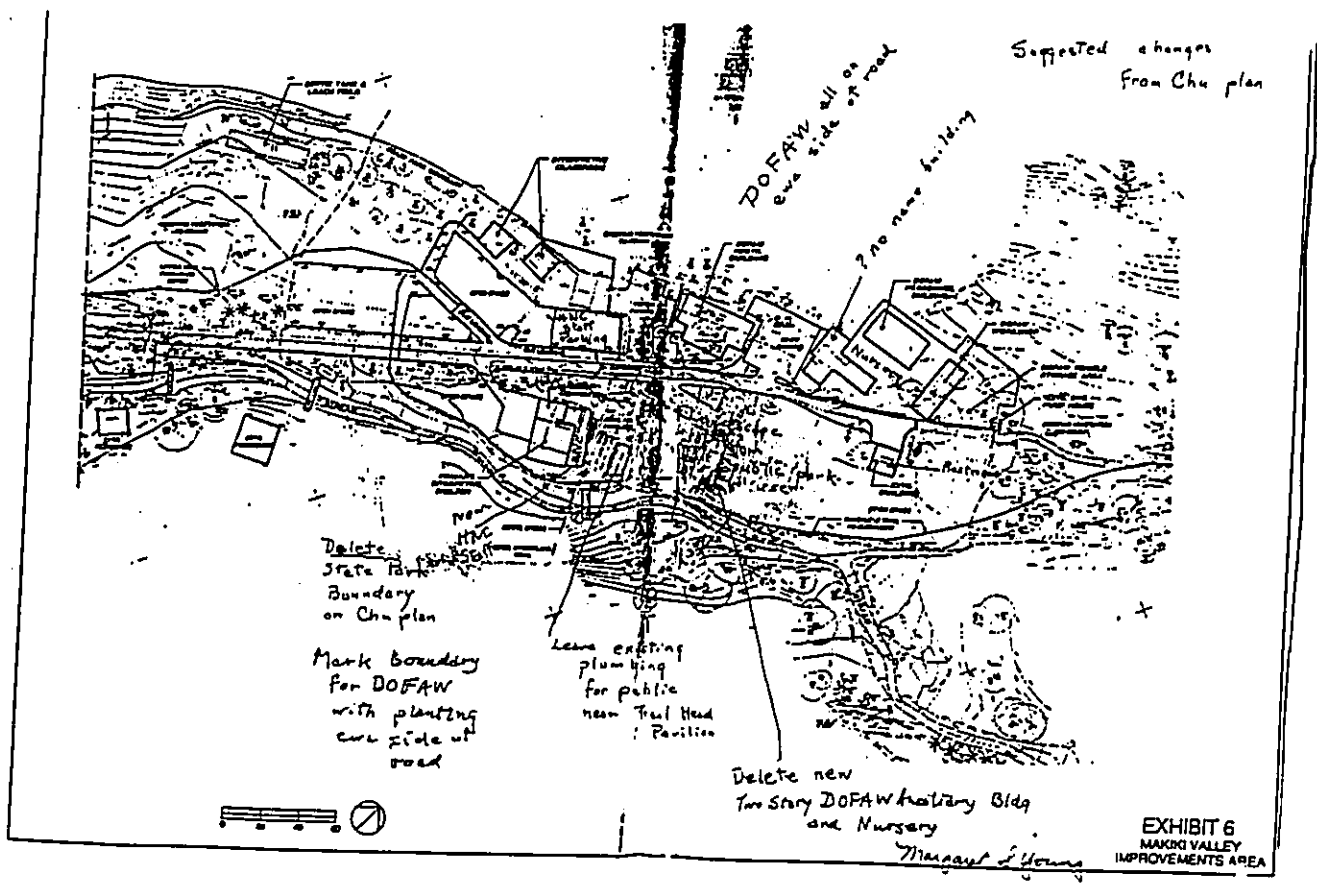
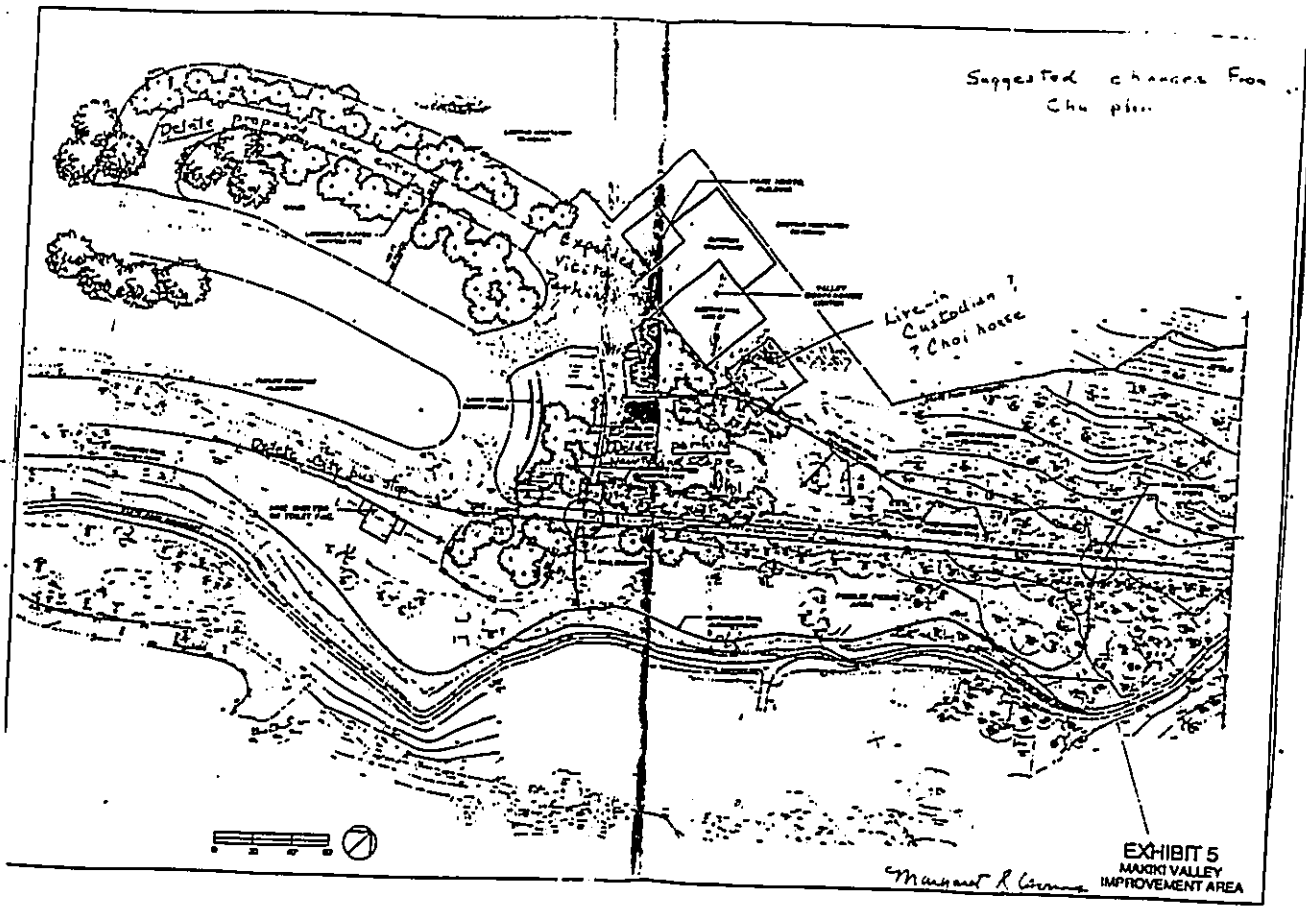
There are two of the 29 Haunala families who have received 65 year leases who have access to their homes on the park road and bridges across the stream. There is need for a more park like look and view of their parking and approach. Perhaps they can be "planted out" (particularly the lower of the two boxes) as the lease surveys left room for planting on the Makiki side of the stream.

They weren't the Trail and Mountain Club, Audubon, Nature Conservancy and other outdoor interests included in the ad hoc "advisory" committee???

Margaret S. Young

What would Charles Mulford Robinson and Lewis Mumford think of a wilderness park with an industrial baseyard in it??????????

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

October 5, 1993

Mrs. Margaret S. Young
45-090 Namoku Street #1304
Kaneohe, HI 96744

Dear Mrs. Young:

Subject: Your Letter of June 1 1993, Commenting on the EIS
Preparation Notice for Improvements to the Makiki-Tantalus
State Recreation Area

Thank you for taking the time to review the EIS Preparation Notice. Several changes have been made to the Master Plan to address concerns expressed by consulted parties. You will have additional opportunity for input as part of the EIS process.

The following responds to your specific comments:

- Your letter, including your informative history of planning for the Makiki Tantalus State Recreation Area, will be reproduced in the EIS.
- We will let the Division of Forestry and Wildlife (DOFAW) know that you have requested additional clearings at Kalawahine Ridge and Nahuina Knoll for passive picnicking. The Master Plan does not propose that these areas be part of the State park, and they will continue within DOFAW's jurisdiction.
- The DLNR State Parks Division has retained the Hawaii Nature Center to identify a variety of program opportunities for the Makiki-Tantalus area. Facility needs associated with these opportunities will also be reviewed as part of the 21 month study, including potential interpretive uses for the Nuihage house. The DLNR has deferred any decision on future public use/management of the Nuihage house until a more complete list of suitable options can be considered.
- The Master Plan no longer proposes a two-story building next to the stream. The office, classroom, and storage needs of the Hawaii Nature Center will instead be met with one-story buildings at more acceptable locations.
- DOFAW would like to install a shade house with a sprinkler system to upgrade cultivation of native plants. However, no increase is needed in the area of DOFAW's Makiki nursery. DOFAW also proposes to replace delapidated offices and sheds at Makiki, but does not plan to increase the number of DOFAW employees who report to work there. In the short-term, to reduce commuting to and from Makiki, DOFAW is exploring the feasibility of storing its vehicles closer to where they are

2

- used. In the long-term, DOFAW will consider relocating its Makiki facility.
- At its May 22, 1992 meeting, the Board of Land and Natural Resources (BLNR) selected the general concepts for the Master Plan from alternatives presented in the "Final Investigative Report Makiki-Tantalus State Recreation Area Phase 1". Set-asides of State land for park use, such as those proposed in the Master Plan, must be authorized by the BLNR and then formally established with a Governor's Executive Order. The DLNR State Parks Division will consider enlarging the proposed park if justified by increased public use.
- DOFAW normally manages DLNR property within forest reserves. However, by agreement with DOFAW, the State Parks Division now maintains the landscaped area between the former Choi nursery and Makiki pumping station, about 0.6 acres within the DOFAW Makiki facility under lease to Hawaii Nature Center, and landscaping and improvements at Puu Ualakaa. Creation of formal State park boundaries encompassing a larger area will expand the State Parks Division's responsibilities and require at least one full-time groundskeeper. Since no camping will be allowed within the Makiki park boundaries, the park will be closed at night and no live-in custodian will be established.
- Substitutes for North Pine will be explored.
- After development of a new park entrance, it would be desirable to limit public use of the existing DOFAW access road. How this will be accomplished will be resolved at a later date. Options include a card-operated gate system.
- The Master Plan park entrance has been reconfigured and parking is no longer proposed in the hollow behind the Cruickshank house.
- The Master Plan no longer proposes a bus stop.
- The proposed driveway will be shortened, but must comply with City sight-line standards.
- No additional advisory committee meetings or public hearings are planned at this stage. Interested groups and individuals can still participate in the planning process by commenting on the EIS.
- The State Parks Division lacks jurisdiction to initiate landscaping of the two leased houselots with access from the DOFAW Makiki entry road. You might wish to consult directly with the two affected Maunaloa families or with the Maunaloa Valley Community Association.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chu

APPENDIX B
ARCHAEOLOGICAL INVENTORY SURVEY

**Archaeological Survey of Proposed State Park
Areas in Makiki Valley and Pu`u `Ualaka`a,
Makiki, Honolulu District, Island of O`ahu
TMK: 2-5-19:3 (por.), 4, 8 (por.) & 2-5-20:4 (por.), 5**

Prepared by:

**Alan Carpenter
and
Martha Yent, M.A.**

ARCHAEOLOGY SECTION



**State of Hawaii
Department of Land and Natural Resources
DIVISION OF STATE PARKS**

August 1994

TABLE OF CONTENTS

INTRODUCTION	1
PROJECT LOCATION AND DESCRIPTION	1
ENVIRONMENTAL SETTING	6
HISTORICAL BACKGROUND	8
PREVIOUS ARCHAEOLOGY	19
SURVEY RESULTS	23
Methodology	23
`Ualaka`a Survey Area	23
Makiki Survey Area	26
ARCHAEOLOGICAL TESTING	32
Methodology	32
Trench 1	32
Trench 1 - Results	32
Trench 2	34
Trench 2 - Results	34
SUMMARY AND RECOMMENDATIONS	39
Pu`u `Ualaka`a Area	39
Makiki Area	40
REFERENCES CITED	42
APPENDIX 1: Radiocarbon Dating Results from Sites 50-80-14-4668 and 50-80-14-4866, Makiki, Honolulu, O`ahu	45

LIST OF PHOTOGRAPHS

PHOTO 1: 1927 Aerial View of Makiki Valley, Pu`u `Ualaka`a at Right	19
PHOTO 2: Trench 1, 40 cmbd (north end). Large boulder at left is front facing of terrace, cobble alignment represents interior facing. View to west.	33
PHOTO 3: Trench 1, Base of Excavation (north end)	34
PHOTO 4: Trench 2, Base of Excavation	38

LIST OF FIGURES

FIGURE 1: Makiki and `Ualaka`a Survey Areas (USGS, Honolulu quadrangle, 7.5 minute series) 3

FIGURE 2: Tax Map Key 2-5-19 [por.], Showing `Ualaka`a and Makiki Survey Areas 4

FIGURE 3: Tax Map Key 2-5-20, Showing Portion of Makiki Survey Area 5

FIGURE 4: Location and Approximate Boundaries of Known Land Commission Awards in Makiki 16

FIGURE 5: Archaeological Survey Areas along Kanealole and Moleka Streams Included in the 1980 State Parks Survey 21

FIGURE 6: Detail of the Pu`u `Ualaka`a Survey Area Showing Archaeological Transects 24

FIGURE 7: Makiki Valley Survey Areas 28

FIGURE 8: Location of Site 50-80-14-4866 30

FIGURE 9: Plan and Profile Views of Test Trench 1 35

FIGURE 10: Plan and Profile Views of Test Trench 2 37

LIST OF TABLES

TABLE 1: Stratigraphic Sequence of Trench 1, Makiki Valley 36

TABLE 2: Stratigraphic Sequence of Trench 2, Makiki Valley 39

INTRODUCTION

It is proposed to transfer portions of Makiki Valley and Pu`u `Ualaka`a from the Division of Forestry and wildlife (DOFAW) to the Division of State Parks. These areas are presently being maintained as Makiki State Recreation Area and Pu`u `Ualaka`a State Wayside, but are awaiting official transfer via executive order. A consultant is currently preparing a master plan and Environmental Impact Statement for the transfer of these two areas and proposed park developments. These developments include additional trails, a secondary lookout and additional landscaping at `Ualaka`a, and new buildings, a parking lot and a foot trail along Kanealole Stream in the Makiki section.

In conjunction with this planning, an archaeological survey of the two areas was conducted by State Parks Archaeologists Martha Yent and Alan Carpenter. The Pu`u `Ualaka`a portion of the survey was conducted on October 28, 1993 and the Makiki portion was conducted on November 1, 1993. Following this survey, archaeological testing was conducted in the area along the west side of Makiki Stream between the park entrance and the forestry baseyard. Remnant agricultural terraces existed in a portion of this area, and the testing was aimed at determining the presence or absence of archaeological deposits within these terraces, and to determine their significance and age, if possible. This testing was conducted in early February 1994.

PROJECT LOCATION AND DESCRIPTION

Pu`u `Ualaka`a State Wayside

This area encompasses portions of the Round Top Forest Reserve and the Honolulu Watershed Forest Reserve (Figures 1 & 2). This area is defined by Round Top Drive on the south, west and east sides and is irregular along its north boundary (TMK 2-5-19:3 [por.], 4, 8 [por.]). The project area excludes a small reservoir lot located in the southwest corner of the project area (TMK: 2-5-19:6) and the transmitter antenna site located near the summit (2-5-19:11). The total area to be transferred to State Parks encompasses approximately 90 acres. This includes the "Nutridge" estate, which

contains the historic Van Tassel house and macadamia nut orchard on the northern side of `Ualaka`a.

In the `Ualaka`a portion of the survey area, current use is as a park, with developed picnic facilities and a lookout at the summit. Additionally, the Nutridge house and some of the grounds have been restored by Rick Ralston, who leases the home from the state.

Makiki Valley State Recreation Area

This area encompasses a strip of land approximately 3000 feet (915 m) in length along the northwest side of Makiki Stream, from the Board of Water Supply Pumping Plant to the DOFAW Baseyard adjacent to the intersection of Kanealole and Moleka Streams (Figures 1-3). Additionally, a small parcel on the southeast side of Makiki Stream located across from the Hawaii Nature Center is also included. This area includes the Forestry Baseyard and offices, the Hawaii Nature Center facilities, and the grassed areas along the northwest side of Makiki Stream on both sides of the DOFAW access road (TMK: 2-5-19:8 [por.]; 2-5-20:4 [por.], 5). At the junction of the DOFAW access road and Makiki Heights Drive a private parcel (TMK 2-5-20:7) roughly a third of an acre in size is excluded from the project area.

Current uses of the Makiki portion of the survey area include continued use of the area at the end of the DOFAW access road by the Division of Forestry as a baseyard and nursery with warehouse and office space. On the stream side of the road, the Hawaii Nature Center operates out of a former warehouse and portable building and offers interpretive programs for the public. Several hiking trails originate from this point, some of which are used and maintained by the Hawaii Nature Center.

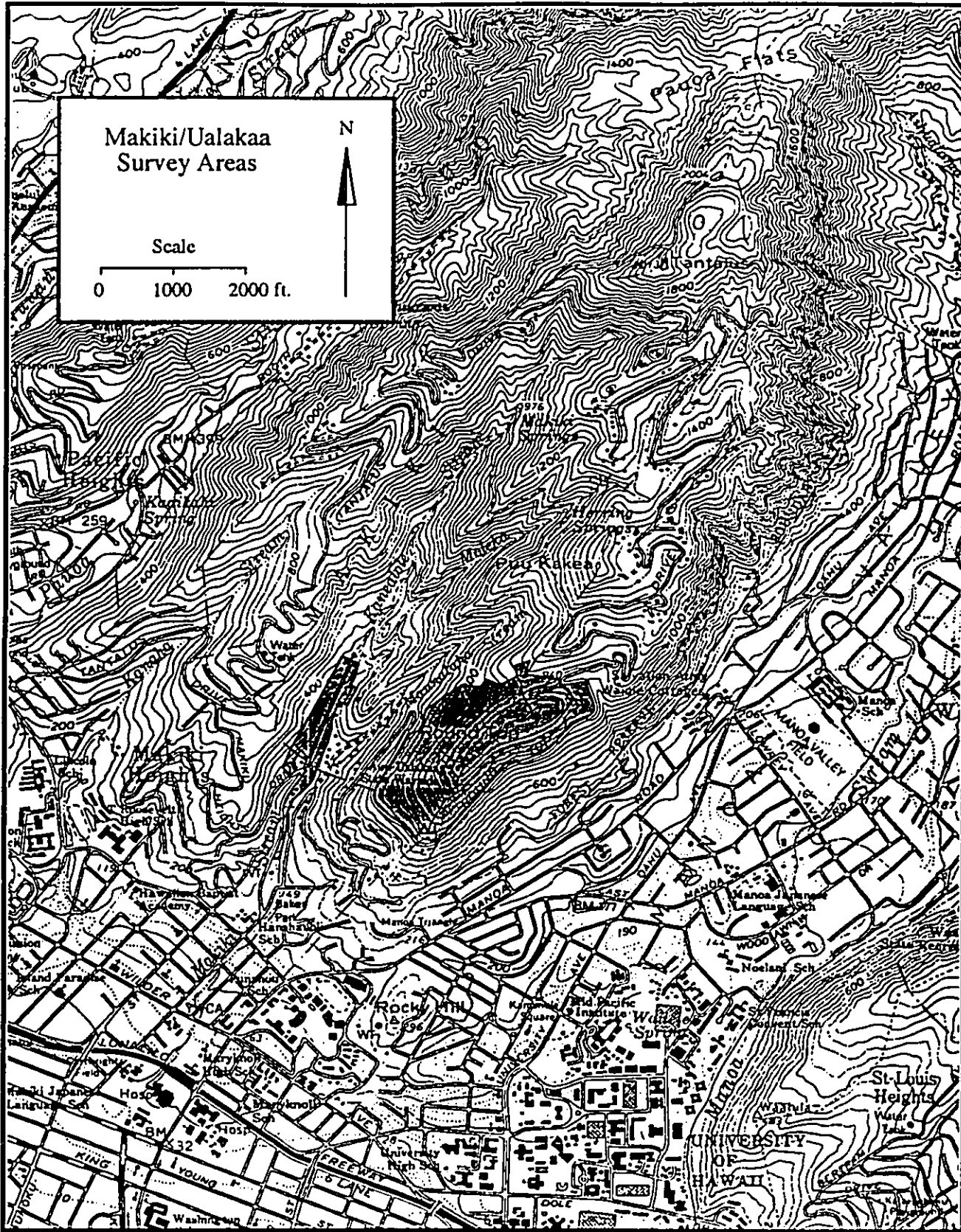
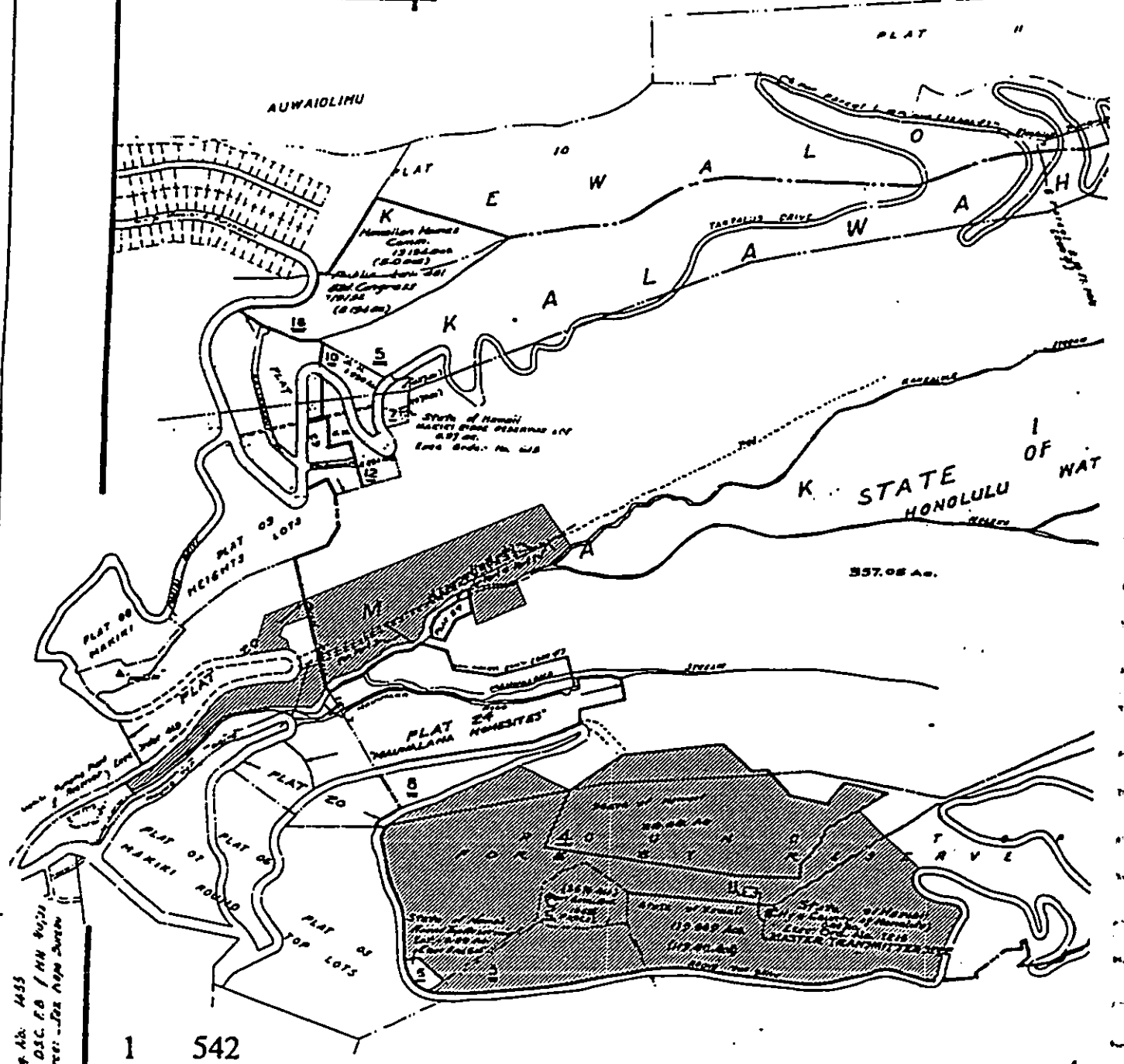


FIGURE 1: Makiki and 'Ualaka`a Survey Areas (USGS, Honolulu quadrangle, 7.5 minute series)

DEPARTMENT OF TAXATION		
TAXATION MAPS BUREAU		
STATE OF HAWAII		
TAX MAP		
FIRST TAXATION DIVISION		
ZONE	UC	PLAT
2	5	19
SCALE 1 IN = 400 FT		

PAUO A
SECTION 2



Eng. No. 1433
By: D.S.C. P.B. / M.H. W.J.S.
Surveyed: 1922-1924

1 542
MAKIKI & TANTALUS, OAHU (HONOLULU WATERSHED FOREST RESERVE.)

M A N O A
SECTION 3

FIGURE 2: Tax Map Key 2-5-19 [por.], Showing 'Ualaka'a and Makiki Survey Areas

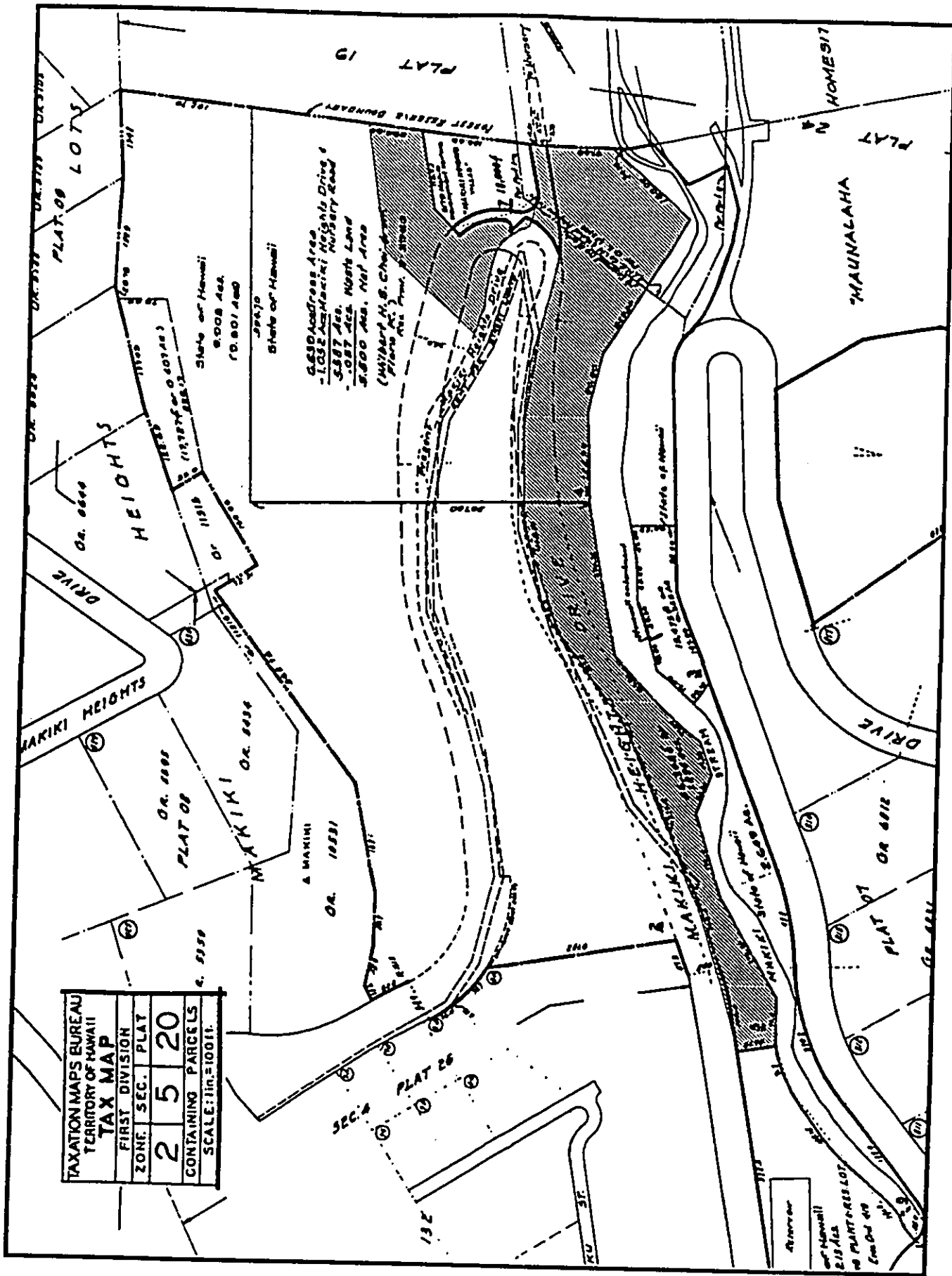


FIGURE 3: TMK 2-5-20 [por.] showing Makiki Survey Areas.

ENVIRONMENTAL SETTING

Makiki Valley is situated on the Honolulu side of the Koolau mountain Range, between Pauoa Valley to the west and Manoa Valley to the east. It is a relatively narrow and shallow valley, especially when compared to the adjacent Manoa Valley which extends headward to the crest of the Koolau's. The head of Makiki Valley is defined by Pu'u `Ohi`a, today known as Tantalus. Tantalus, Pu'u Kakea (Sugarloaf) and Pu'u `Ualaka`a (Round Top) which help to define the southern side of Makiki Valley, are all volcanic vents, or cinder cones, which are much younger than the Koolau's. Tantalus and Sugarloaf erupted as recently as 67,000 years ago (MacDonald, Abbott and Peterson 1983:447). The upper and middle portions of Makiki are divided by several small, steep-sided ridges, creating even smaller valleys which are drained by several streams tributary to Makiki Stream. These smaller stream valleys include (from west to east) Kanaha, Kanealole, Moleka, and Maunalaha. Kanealole and Moleka streams converge to form Makiki Stream at the present Forestry baseyard, and Maunalaha Stream joins it about 1000 feet (300 m) downvalley. Kanaha Stream, whose flow is altered by Puowaina (Punchbowl Crater) flows into Makiki Stream after the valley begins to flatten out, just above present day Wilder Avenue. Makiki Stream then drains through the emerged reef of the Honolulu Plain. All of these Makiki streams are permanent, but their flows have been altered historically by the Board of Water Supply. Several springs also exist along the upper stream courses.

The recent eruptions along the rim have influenced the soil development within Makiki Valley, which consists of well-drained soils of the Tantalus, Makiki, Kawaihapai and Kaena Series', clay loams and silty clays with a high cinder constituent. Cinder Land and Rock Land is characteristic of the upper valley margin. Deep, poorly-drained alluvial soils of the Kaena Series are found only in the stream valleys of Kanealole, lower Moleka, and Maunalaha (Foote et. al. 1972). Annual rainfall averages from approximately 25 inches in the lower plain to over 100 inches atop Tantalus (Giambelluca, Nullet, & Schroeder 1986).

The vegetation community of Makiki Valley is dominated by a dense growth of exotic species. Makiki was largely denuded in the nineteenth century as a result of the demands for sandalwood for export and firewood for local consumption, and possibly cattle grazing as well. An 1874 map of Makiki notes thickly wooded areas near the head of the Valley, suggesting that this area was spared from deforestation (Alexander 1874). Makiki was designated a Forest Reserve in 1904 and reforestation was initiated in the lower valley in 1910. This has resulted in a dense growth of exotic species in both the canopy and the understory. Often the various species were planted in specific zones. This is most readily visible on the ridgetops, which were planted with Norfolk Pines and ironwoods. Other common tree species include Java plum, octopus, eucalyptus, silver oak, mango, avocado, and banyan. The understory is characterized by various exotic grasses including palm, Guinea, and molasses, ginger, *ti* and various weedy shrubs. *Koa haole* and vines dominate areas on the upper slopes, including 'Ualaka`a. The stream courses are often overgrown by dense thickets of *hau* and cat's claw. Wild taro is prevalent along the streams also. Native and Polynesian-introduced species include *kukui*, 'ulu (breadfruit), *hau*, *ti*, *hala*, banana and coconut. These are often present at habitation sites. Finally, two historic attempts at cultivation are still in evidence. Along Moleka Stream is a dense growth of coffee plants from the failed plantation of J.M. Herring in the late 1800's. Also, the western side of 'Ualaka`a is still planted in rows of macadamia nut trees from the former orchard, planted circa 1925, although a variety of exotic species have colonized the area as well.

It should be noted that the present day environment of Makiki is vastly different from that which existed prior to Western contact. Joseph Meyen, the botanist who traveled this area in 1831, described the vegetation, which is in striking contrast to what we see today (see *Historical Background*).

HISTORICAL BACKGROUND

Makiki and its system of small valleys was developed for irrigated agriculture in prehistory, as indicated by the remnant terraces present there today. Although we know this to be the case, there is very little indication of this use in the historical record. The terraces of Makiki may have been abandoned relatively soon after Western contact due to the decline in population and the more agriculturally favorable adjacent valleys of Pauoa and Manoa. Pu`u `Ualaka`a, however, was noted as an area famous for the cultivation of sweet potatoes:

The region around Makiki and Round Top, between Makiki and Manoa Valley, is perhaps the most favorable locality on Oahu for sweet potato cultivation; here Hawaiians still have many small plantations, mostly for domestic use, though occasionally they market their products. The volcanic cinder mixed with humus in this locality seems to be ideal for sweet potato cultivation and normally the amount of rainfall is about right. Round Top, the Hawaiian name for which is Ualakaa (literally, Rolling Potatoes), is famous in the annals of Hawaiian agriculture because here Kamehameha I established his own plantation on the steep slopes above Manoa (Handy 1940).

The earliest description of Makiki Valley is believed to be the narrative of the German botanist Dr. F.J.F. Meyen, who visited Oahu in 1831. Meyen was a trained observer and recorded not only botanical observations, but cultural and geological ones as well. Among the excursions he took was a day trip to the summit of Pu`u Kakea (Sugarloaf). His route apparently took him up the ridge behind Punchbowl, over to Kakea, and then down through Makiki Valley, probably along Moleka Stream. He described very different vegetation communities from what exist today. The lower slopes of the ridges were covered with low grasses to an elevation of 600-700 feet. The vegetation then gave way to meadows of sedges and Morning Glory, and then abruptly to a diverse fern forest, with abundant *kukui* and *koa* trees. Continuing higher, the vegetation became much denser, and in addition to a wide variety of lobelias, Meyen noted a number of useful native species, including *ma`aloa* (used to make tapa), *olona*, *maile*, *`ilima*, and *papala*. Between Tantalus

Ridge and Kakea they came across a spring which had dry taro planted adjacent to it. This was likely Makiki or Herring Springs. They descended from Kakea through a valley, probably Moleka or Maunalaha, which Meyen described as follows:

Nowhere again, neither on Oahu nor in Brazil nor in Manila, did we see such a charming picture of nature. We saw here the greatest profusion of the gayest tropical vegetation complemented by the picturesque forms of the mountains. Numerous *Musaceae* [bananas], some casually planted, others wild, covered the slope of the mountain. . . (Pultz 1981:44).

As Meyen's group descended through the valley, they came across evidence of Hawaiian habitation, which is described in the following excerpts:

As we descended farther into the charming valley the small stream which flows in it became larger and larger. Some Indians [Hawaiians] had built their huts beside it and had prepared some land for the cultivation of taro. . .

As soon as the valley became wider the beautiful vegetation disappeared. The slopes of the mountain were covered only with low grasses, the huts of the Indians became more numerous and here and there large boulders appeared again. The end of a low ridge which runs through the center of this transversal valley had been artificially cleared of vegetation and of the cover of humus. The rock which came to light here is a very attractively colored basalt conglomerate [of black basalt and white calcite crystals]. The Indians were just then busy chipping flat pieces from this rock which they wanted to use to hunt octopus.¹ The rock on the sides of the valley, however, is the usual porous basalt which is found all around Honolulu. Here and there one can find caves in this rock, some of which are inhabited.

In the course of our excursion we saw the mountains everywhere covered with grazing horses and horned cattle. One is amazed at the great number of cows which thrive here beautifully with the slightest care. . .

Many and extensive fields through which we have just wandered and which are presently being used as pasture land were formerly covered with sweet potatoes.

¹ This reference to quarrying stone for octopus lures is especially interesting in relation to a reference from David Malo, in which he gives *makiki* as one of the names of "the stones used in making *lu-hee* for squid-fishing [which] are peculiar and were of many distinct varieties" (Mal0 1951)

Today one can still see the remaining traces of their cultivation. They say that in the days of Kamehameha a great part of the Honolulu Valley was used for the cultivation of field-produce. Now there are meadows there and the valley is far less productive than in former times (ibid.:46-47)

Before continuing with an historical overview of Makiki, we must first mention the problems with defining this *ahupua`a*. By the time of the Mahele (1846-52), Makiki had come to refer to the area roughly above King Street, defined by Tantalus, Pu`u Kakea, and Pu`u `Ualaka`a on the east, and by Tantalus and the ridge extending down to meet Punchbowl Crater on the west. In *Sites of Oahu*, Makiki *ahupua`a* is shown as bordering Pauoa on the west (Sterling and Summers 1978), and is not defined below present-day Beretania Street. If what is indicated in the mid-nineteenth century reflected prehistory, then Makiki was a landlocked *ahupua`a*, which would have had limited upland resources and taro lands, but no extensive irrigated pondfields, fishponds, or shoreline access. By that time, the plain between Makiki Valley and the ocean was considered part of Waikiki (referred to as an *ahupua`a* in some of the Mahele records), more specifically Pawa`a and Kalia to the east of present-day Sheridan Street, and Kewalo and Kukuluae`o on the west (Bishop 1884, Ii 1959). These are in the areas today referred to as Kapiolani, Kewalo, and Ala Moana.

It seems unlikely that Makiki, and such neighboring *ahupua`a* as Manoa, Pauoa, and Nuuanu would not have extended to the sea. The land divisions as known by circa 1850 more likely reflect political changes of the late eighteenth and early nineteenth centuries, including establishment of Waikiki as the royal center, the "discovery" of Honolulu Harbor by westerners in 1793 and the subsequent strategic importance of Honolulu and its establishment as the capital. The influx of foreigners and changes in land use would have rapidly superseded traditional land divisions.

The *Mahele* claims for Makiki reflect the pattern alluded to by Meyen. Most of the awards are for small parcels of land containing a houselot, but only a few had taro *lo`i* and *kula* land. In addition, however, three Hawaiians received extremely large land awards (Figure 4). John Li is the most notable of these awardees, who received about 250 acres. Li was awarded a large parcel of land on the western edge of upper Makiki Valley, as well as two large parcels in the lower valley. The Makiki awards include the following:

L.C.A. #	11MA (Mahele Award)	R.P. # 6715
Location:	`ili of Poloke	
Awardee:	Keawehano	
Pcs (<i>Apana</i>):	2	
Acreage:	119.99	
Notes:	No description of this claim found.	
<hr/>		
L.C.A. #	19MA (Mahele Award)	R.P. # 5584
Location:	Kahaumakaawe, Waikiki, Oahu	
Awardee:	Kanehiwa	
Pcs (<i>Apana</i>):	1	
Acreage:	3.25	
Notes:	Award is for half of Kahaumakaawe `ili. The other half was government land, located just south of the summit of Pu`u Kakea.	
<hr/>		
L.C.A. #	24MA (Mahele Award)	R.P. # none
Location:	Kaiwiokaihu, Waikiki, Oahu [2 parcels - 1 along upper Maunalaha Stream, other along Makiki Stream]	
Awardee:	Kauliokamo	
Pcs (<i>Apana</i>):	2	
Acreage:	unknown	
Notes:	No description of this claim found.	
<hr/>		
L.C.A. #	95	R.P. # 6305
Location:	Makiki, Kona, Oahu	
Awardee:	Hannah Jones	

Pcs (*Apana*): 2
Acreage: 8.02
Notes: *Kula* land received from John L. Jones, who received it in turn from Kalaimoku circa 1825.

L.C.A. # 591 R.P. # 2387
Location: Kaaihee, Waikiki, Oahu [at corner of Makiki Street and Wilder Ave.]
Awardee: Capt. John Meek
Pcs (*Apana*): 1
Acreage: 1.73
Notes: Houselot received from Boki in 1817. The area was enclosed by a stone wall and contained 2 houses, built in 1826.

L.C.A. # 1447 R.P. # 4432
Location: Hamohamo, Waikiki, Kona, Oahu [lower Makiki - surrounded by Keeaumoku, Kamehameha (Beretania), Punahou & King Streets.]
Awardee: Kahue
Pcs (*Apana*): 2
Acreage: .39
Notes: Claim for a small houselot and one *lo'i*, received from Kane in 1843.

L.C.A. # 2900 R.P. # 4310
Location: Pawaa, Waikiki, Oahu [adjacent to Makiki Street just below Wilder Ave.]
Awardee: T. Kaoi
Pcs (*Apana*): 1
Acreage: .42
Notes: Claim for a houselot.

L.C.A. # 3135 R.P. # 6924
Location: Pawaa, Waikiki, Oahu [Surrounded by Young, Punahou, King & Keeaumoku Streets.]
Awardee: James Walker
Pcs (*Apana*): 1
Acreage: 1.15
Notes: *Kula* land received in 1828 from Manuia, containing three houses.

L.C.A. # 3746B R.P. # 3863
Location: Kupahee, Makiki, Oahu [Maunalaha Stream]
Awardee: Nahina
Pcs (Apana): 1
Acreage: .66
Notes: Claim for a *moo`aina* [Agricultural lot] called Kupahee, received from Ii in the time of Kinau.

L.C.A. # 4263B R.P. # none
Location: Makiki, Kona, Oahu [Kanealole Stream]
Awardee: Kaaiahua
Pcs (Apana): 1
Acreage: .61
Notes: Claim was for the entire valley of Kanealole, from Pu`u `Ohi`a to a waterfall called Ohialolo (location unknown), received from Ii in the time of Kinau. Obviously only a small portion of this claim was awarded, as evidenced by the size of the award. The exact location of the award is unknown.

L.C.A. # 4279B R.P. #5463
Location: Pawaa, Waikiki, Kona, Oahu [along Kanealole Stream]
Awardee: Ia
Pcs (Apana): 1
Acreage: .40
Notes: No testimony found.

L.C.A. # 4283C R.P. #7410
Location: Poohukini, Makiki, Kona, Oahu
Awardee: Moo
Pcs (Apana): 1
Acreage: .56
Notes: No testimony found. The location of this award is unknown.

L.C.A. # 4285B R.P. # 3830
Location: Manu, Makiki, Kona, Oahu [Lower Moleka Stream]
Awardee: Mokuhanui

Pcs (*Apana*): 1
Acreage: .67
Notes: Claim for houselot and taro land, received from li in the time of Kinau.

L.C.A. # 6489 R.P. # 4519
Location: Kauhikio, Makiki, Kona, Oahu
Awardee: Kaihiwa
Pcs (*Apana*): 4
Acreage: 73.80
Notes: Claim for a houselot and land at Kauhikio, an *'ili kupono*. Land received from the *Mo'i* [King].

L.C.A. # 8241 R.P. # 5699
Location: Kalawahine
Awardee: John li
Pcs (*Apana*): 1
Acreage: .77
Notes: Claim for three *lo'i* and *kula* land. Exact location of this award is unknown.

L.C.A. # 8241 R.P. # none
Location: Pawaa
Awardee: John li
Pcs (*Apana*): 1
Acreage: 2.59
Notes: Exact location unknown. Possibly combined with below award.

L.C.A. # 8241 R.P. # 5704
Location: Pawaa
Awardee: John li
Pcs (*Apana*): 5
Acreage: 250.80
Notes: Claim for the *'ili* of Pawaa, received from Kamehameha I after the battle of Nuuanu. At the time of the claim 14 families were living on this land with li's permission.

L.C.A. # 10162 R.P. # 2270
Location: Makiki, Waikiki, Oahu [at intersection of Wilder and Punahou Streets]
Awardee: Moku
Pcs (*Apana*): 1
Acreage: .56
Notes: Claim for a houselot, taro land and a *kula*.

L.C.A. # 11018 R.P. # 3690
Location: Pawaa, Waikiki, Oahu [adjacent to Makiki Street just below Wilder Ave.]
Awardee: Wahine
Pcs (*Apana*): 1
Acreage: .42
Notes: Claim for a houselot containing two houses, received from M. Kekuaaoa in the time of Kaomi's disturbance.

A couple of statistics immediately jump out at you when examining these awards. First, a few important persons (i.e. John Papa Ii) received very large awards of several parcels. Second, if one were a *maka`ainana* living in Makiki, he was very unlikely to be awarded more than one parcel and it would be about a half acre in size. This rather small award size is in marked contrast to other areas. For example, in Wailua, Kauai the average *maka`ainana* award was just under two acres (Stauffer 1990) and in Kahana Valley, Oahu the average *maka`ainana* award was just under three acres in size (Stauffer 1993). In each of these other case areas the award included both a houselot (*pahale*) and agricultural land (*lo`i* and *kula*), usually in two parcels. This was not the case in Makiki. Of the eleven *maka`ainana* awards, only four definitely contained *lo`i*. This fact suggests that the traditional agricultural subsistence economy was being abandoned much more rapidly in Makiki as opposed to other areas well outside of Honolulu. The unawarded land in Makiki was partially Crown Lands, claimed by Kamehameha III, and the remainder became Government Lands (Indices of Awards, Part I).

Below King Street, in the areas referred to as Pawaa and Kalia but which may have

once belonged to Makiki (at least one claimant referred to this area as Makiki) there were at least fifteen Land Commission Awards, including another large parcel to John II. These awards included houselots, sixteen *lo`i*, ten fishponds and thirteen *ki`opua* (ponds for raising young fish or fry). The largest fishpond was Loko Kuwili, adjacent to the mouth of Makiki Stream, which encompassed 9.7 acres (Kikuchi 1973) and was claimed by the *ali`i* Kaunuohua (LCA #6450). The average award size here was considerably larger than in upper Makiki, likely due to the size of the fishponds. These figures suggest that in this lower area, traditional agricultural and aquacultural practices continued at least through the mid-nineteenth century. Again, in this area unawarded lands were claimed partially by the Crown and partially by the Government (*ibid.*).

By 1874, Lot Kamehameha (Kamehameha V) had inherited the crown lands and added to them through additional land grants, totalling roughly 500 acres in Makiki. Also by this time, large parcels of land were being granted to various people in lower Makiki, mostly foreigners (Gulick, Baldwin, Paris, Lemon, Meek, Gray, and others) as indicated on a map of Kamehameha V's estate (Alexander 1874). One large land grant to H.W. Schmidt of 21 acres (Grant # 3535) was located well back in the valley. Here he built a house and attempted to grow coffee, but the venture proved unprofitable (Young n.d.).

Also at this time, another individual was making an attempt to grow coffee lower in the valley. J.M. Herring purchased several parcels along Kanealole and Moleka Streams between 1864 and 1876 (L.C.A.'s 6489:2,3,4; 3746B; 4283C; 4285B). Here he apparently built a house, constructed a carriage road leading to his residence, and planted coffee, which is still prevalent in the area today. A 1913 map indicates the route of the carriage road as connecting with Makiki Heights Drive on the west, paralleling the west side of Kanealole Stream *mauka*, then winding eastward along the ridges and through the valleys to connect with Round Top Drive on the east, crossing the streams of Kanealole, Moleka, and Maunalaha (Podmore 1913). Possible bridge foundations associated with this road have been located along

Kanealole and Moleka Streams (Yent 1993:7). Herring also apparently altered existing terraces to create his house site, the carriage road, and planting areas, although the extent of this modification is unclear.

A series of Photographs taken by Bertram circa 1900 from the top of Punchbowl looking toward Diamond Head illustrate the development of lower Makiki (Hawaii State Archives). In these views, the area between Makiki Heights and the ocean is visible. The upper area is divided into large residential lots, containing large homes and fenced cleared areas, presumably for the stabling of horses. Closer to the ocean, there are few buildings and large fishponds or irrigated pondfields are still visible.

The Division of Forestry acquired Makiki Valley in 1904, and initiated a reforestation program aimed at reversing the effects of the sandalwood trade. Sometime soon thereafter, a concrete dam was constructed midway along Kanealole Stream, creating a small reservoir, as shown on a 1911 map (Newton 1911). This map also shows the carriage road associated with Herring, labeled as the "Tantalus Auto Road". Among the developments implemented by Forestry (then known as the Board of Agriculture) was a large nursery at the *mauka* end of the present-day DOFAW access road.

Beginning in 1921, the Nutridge estate on the western side of Pu`u `Ualaka`a was developed. This 22-acre complex consists of the historic E. S. Van Tassel house (designed by Hart Wood and built in 1925), several outlying buildings, and a carriage road which extended from the hairpin turn in Round Top Drive to the main house at the top of the slope. In the area extending across and down the slope toward the hairpin turn, a macadamia nut orchard was planted. This is significant for being the first commercial macadamia nut plantation in Hawaii. The orchard was cultivated until about 1967.

A 1927 aerial photograph of Makiki (Photo 1) shows the success of the Forestry Division's reforestation efforts, the dam and reservoir along Kanealole Stream, and



IP.S. B-615 (9-127) (20-2000) OAHU FOREST RESERVE

PHOTO 1: 1927 Aerial View of Makiki Valley, Pu`u `Ualaka`a at Right.

the Nutridge macadamia plantation on the west side of `Ualaka`a. It also shows additional agricultural plots on the southern slope of `Ualaka`a, possibly the small sweet potato gardens referred to by Handy (1940).

The area around the Makiki park entrance at the hairpin turn in Makiki Heights Drive was used as a nursery from 1964 through 1984. Approximately 5.5 acres was leased to the Choi family, and they extensively modified the area through clearing and grading and the erection of several buildings (no longer standing). A small private parcel still exists here, containing two houses.

PREVIOUS ARCHAEOLOGY

There has been only one systematic archaeological survey conducted in Makiki Valley. It was conducted by the Division of State Parks in 1980 and encompassed five selected areas along Kanealole and Moleka Streams (Figure 5) in Upper Makiki Valley (Yent and Ota 1980). This survey indicated the following site types and distribution:

- Agricultural terraces are located along the narrow valley floors of Kanealole and Moleka Streams. These terraces were constructed with rock-faced retaining walls and most of the terracing is oriented along the contour. A remnant of an *auwai* was noted in association with the terraces along the west side of Kanealole Stream. These terraces extend up to approximately the 1000 foot elevation.

- Free-standing, stacked rock walls on the western slope of Kanealole Stream that may correspond to L.C.A. boundary walls.

- Rockshelters in the slopes of the ridge that separates Kanealole and Moleka Streams. Recent occupation was evident in several of these rockshelters. The potential for earlier occupation was not determined through archaeological excavations.

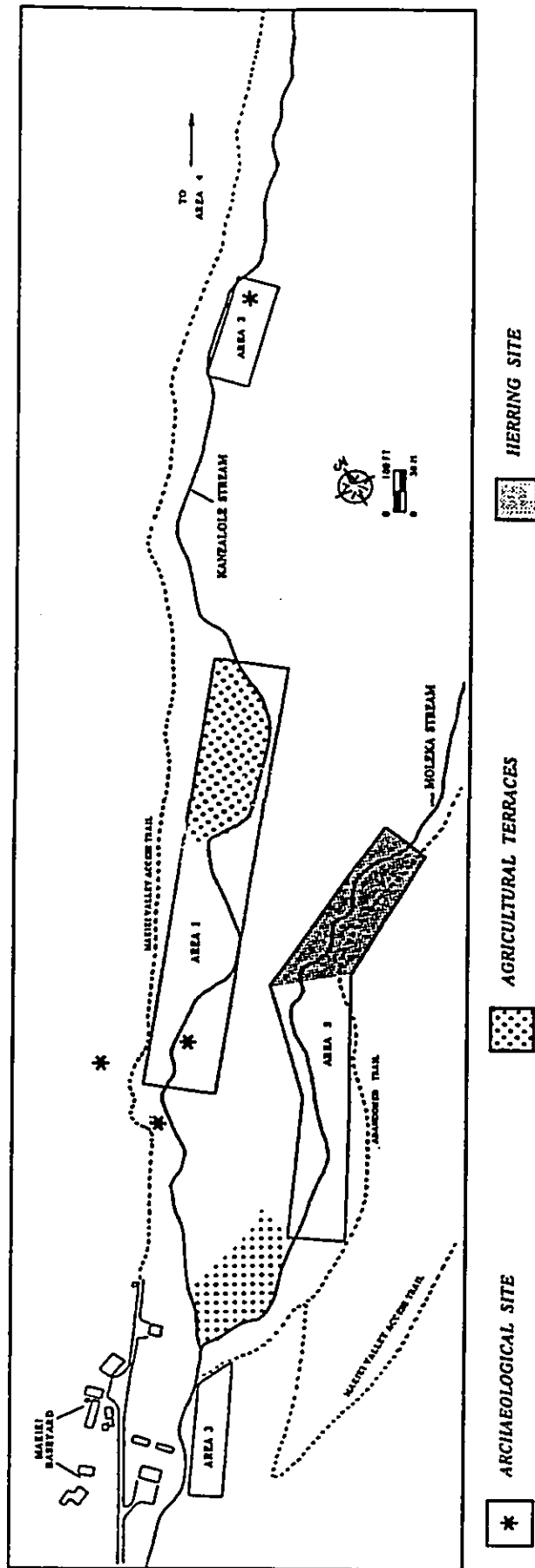


FIGURE 5: Archaeological Survey Areas along Kanealole and Moleka Streams Included in the 1980 State Parks Survey (Yent and Ota 1980).

-Walled enclosure located alongside Moleka Stream. This enclosure is of uncertain age and function.

-Historic housesite and carriage road in Moleka associated with Herring, circa 1860-1900. It appears that the coffee was planted atop the former taro *lo'i* with little alteration.

-Retaining walls, approximately 3 meters high and 4-5 meters wide, were recorded along Kanealole and Moleka Streams near where they converge. These may be the foundations of a bridge associated with the with the road from Maunalaha Ridge.

This 1980 survey indicated that sites from both the prehistoric and historic periods are still present in Makiki Valley. The sites appear to reflect the traditional settlement and subsistence pattern recorded by Meyen in 1831 with agricultural fields along the streams and some habitation in the rockshelters. A continuity of occupation is represented by the sites along Moleka Stream which correspond to the occupation of J.M. Herring, circa 1875-1900.

An informal survey of the eastern slope of Moleka Stream in 1993 with the staff of the Hawaii Nature Center located a rockshelter site (site #50-80-14-4668) situated above the agricultural fieldsystem. Mapping and testing of this site has been undertaken and the results of the project should provide insight into the occupation of Makiki Valley (Carpenter 1993). Additional sections of the road from Maunalaha to Moleka were also documented.

SURVEY RESULTS

Methodology

The survey was conducted via a series of walking transects aimed at covering a cross-section of all the areas within the survey. Areas of proposed developments were paid special attention to, as were known features (i.e. the old carriage road) which could be associated with additional sites. Topography and vegetation were limiting factors which precluded staying on a predetermined compass bearing at all times. Several transects approximately followed proposed trail routes and therefore did not attempt to follow a particular bearing. Previously unrecorded features were plotted approximately on a USGS 7.5 minute series map as well as on an enlarged map of the project area provided by the planning consultant. No features were mapped in the field. The Makiki portion of the survey was conducted by State Parks archaeologists Alan Carpenter and Martha Yent, and the Pu`u `Ualaka`a portion of the survey added the assistance of consultant Doug Meller.

`Ualaka`a Survey Area

The `Ualaka`a portion of the survey included the existing State Wayside and lookout, the Nutridge complex, and the surrounding lands defined by Round Top Drive (refer to Figures 1 and 2). The eastern flank of the *pu`u* between the existing lookout and Round Top Drive was not surveyed due to the steepness of the slope, and the landscaped portion of the Nutridge Estate (approximately two acres) was excluded since it is leased as a private residence.

The archaeological survey of this area consisted of four transects (Figure 6) along the south and west sides of `Ualaka`a. Transect 1 commenced at the existing lookout and followed a 270 degree bearing to Round Top Drive, a distance of approximately 1500 feet (450 m). This transect provided a cross-section of the *makai* (south) side of the *puu*, which is the area under cultivation, in the form of small rectangular plots, as indicated in the 1927 photograph (refer to Photo 1). No evidence of this former use was observed. The area is presently covered in dense vegetation consisting of

Octopus, Formosan *koa*, Christmasberry, *koa haole*, vines, Guinea grass and weedy shrubs. At the upper end of this transect the Hawaii Nature Center has installed a short learning trail with a small cleared area about 200 feet (60 m) *makai* of the present lookout. No archaeological sites were located along this transect.

Transect 2 began at the intersection of the lower end of the old carriage road and Round Top Drive, approximately 500 feet (150 m) northwest of Transect 1. The lower portion of the carriage road is covered by a dense growth of Guinea grass. the roadbed appears to be about ten feet wide with no evidence of paving or retaining walls. However, the upslope side has been cut into the cinder slope. The carriage road runs generally north-south and was followed for a distance of approximately 500 feet (150 m). The remains of a building associated with the macadamia plantation are located at some point along this road (Gorst, pers. comm.), but were not located. At this point, the transect turned east and a survey was made through the macadamia nut orchard. The Macadamia nut trees extend up to about the 950 foot elevation and have been planted in parallel rows along the contour of the slope. The vegetation above the 950 foot elevation is similar to that of transect 1. This transect terminated at the small Nature Center clearing noted in Transect 1. No archaeological sites were located along this transect.

Transect 3 followed another Nature Center footpath that runs generally north along the western slope of the *pu`u* at an elevation of roughly 1000-1050 feet. Near the antenna site, the path runs between two parallel rows of Norfolk Pine trees which create a very nice walkway. Further north it switches back downslope to the Norfolk Pine grove adjacent to the Nutridge house driveway. This path is above the macadamia nut orchard and the proposed trail routes shown in Figure 5. No archaeological sites were located along this transect.

Transect 4 commenced along the ridge trail which starts at the intersection of the park access road and the Nutridge driveway. This existing trail was followed up to the first ridgeline bearing off to the west, also planted in two parallel rows of

Norfolk pines. This ridge is proposed as the start of a trail route which will skirt around the Nutridge site and through the Macadamia orchard to connect up with the new proposed lookout on the south side of the *pu`u* (Figure 6). This transect followed the ridge for a few hundred feet before meeting a nearly impenetrable thicket of *hau*. We then skirted around and through the *hau* on the north side of the ridge, eventually circling around to the south and ending up below the Nutridge main house. The unmaintained area around the Nutridge House is marked by Christmasberry, Guinea grass, and scattered macadamia nut trees. From this point, the transect contoured along the west side of the *pu`u* through the macadamia grove, then traversed the slope to meet up with the footpath of Transect 3. No archaeological sites were encountered along this transect. However, evidence of landscaping and historic use (old beer bottles, etc.) was seen within the area of the Nutridge house and macadamia grove. Additionally, a flume used to transport harvested macadamia nuts down the slope for processing or packing was encountered. This flume consists of a thin metal pipe, approximately 12 inches in diameter, mounted atop wooden supports and containing small rectangular openings at regular intervals into which the nuts would be dumped.

Makiki Survey Area

The Makiki portion of the survey area consists of a strip along the western side of Makiki Stream from the Forestry baseyard to the BWS pumping plant (refer to Figures 1-3). Most of this area is relatively open and grassed, facilitating a ground survey. The steep area along the stream between the BWS parcel and the park entrance is heavily overgrown, as is the area behind (west of) the two houses at the park entrance which was formerly part of the Choi nursery lease. For the purposes of discussion the area will be divided into four subareas (Figure 7).

Subarea 1: Forestry Baseyard

The Division of Forestry baseyard consists of several buildings used for maintenance, storage and offices, the Oahu Forester's residence, and a nursery area. Additionally, the warehouse and portable building which serve as the headquarters

of the Hawaii Nature Center are located adjacent to the stream below the Forestry facilities. These facilities are all situated along the end of the DOFAW access road, and this area encompasses roughly 600 feet (N-S) by 250 feet (E-W) [185 by 75 m]. This area has been thoroughly disturbed through continuous use spanning nearly all of this century. The nursery area consists of a series of parallel concrete footing on terraces adjacent to the stream. These are significant for being part of the first Territorial Government's Forestry program, and are therefore of some historical interest, although they have little aesthetic value. The rest of this area has been modified, in the form of cutting and leveling of the land to provide foundations for the existing buildings, and stone and mortar retaining walls have been built on the west side of the road. This area was likely formerly in agricultural terraces, as evidenced by a preserved section of *auwai* along the hillside west of the area and the remnants of terraces along the stream and lower slopes *makai* of the baseyard area (Subarea 2 - see below). No archaeological sites were located in Subarea 1.

Subarea 2: Picnic Area

This subarea encompasses the area between Makiki Stream and the lower slope of Kanaha Ridge from the Forestry baseyard to the edge of the Forest Reserve boundary just *mauka* of the intersection of Makiki Heights Drive and the DOFAW access road. This subarea is roughly 1000 feet (305 m) long (N-S) and averages approximately 300 feet (90 m) wide (E-W). A survey transect paralleling Makiki stream between the stream and the access road located a series of large terraces on a very gentle slope oriented perpendicular to the stream (Figure 7). These terraces are of varying width, and lengthwise they extend almost to the edge of the road, at which point they have been destroyed by that feature. These terraces appear to be former agricultural terraces, likely associated with the cultivation of taro. They presently have the appearance of being earthen-faced terraces, but a few stones present in the eroded facings suggest that they were once stone-faced and have had these stones removed historically. Trench 1 was excavated within this terrace complex (see *Archaeological Testing* below). The streamside terraces extend into Subarea 3.

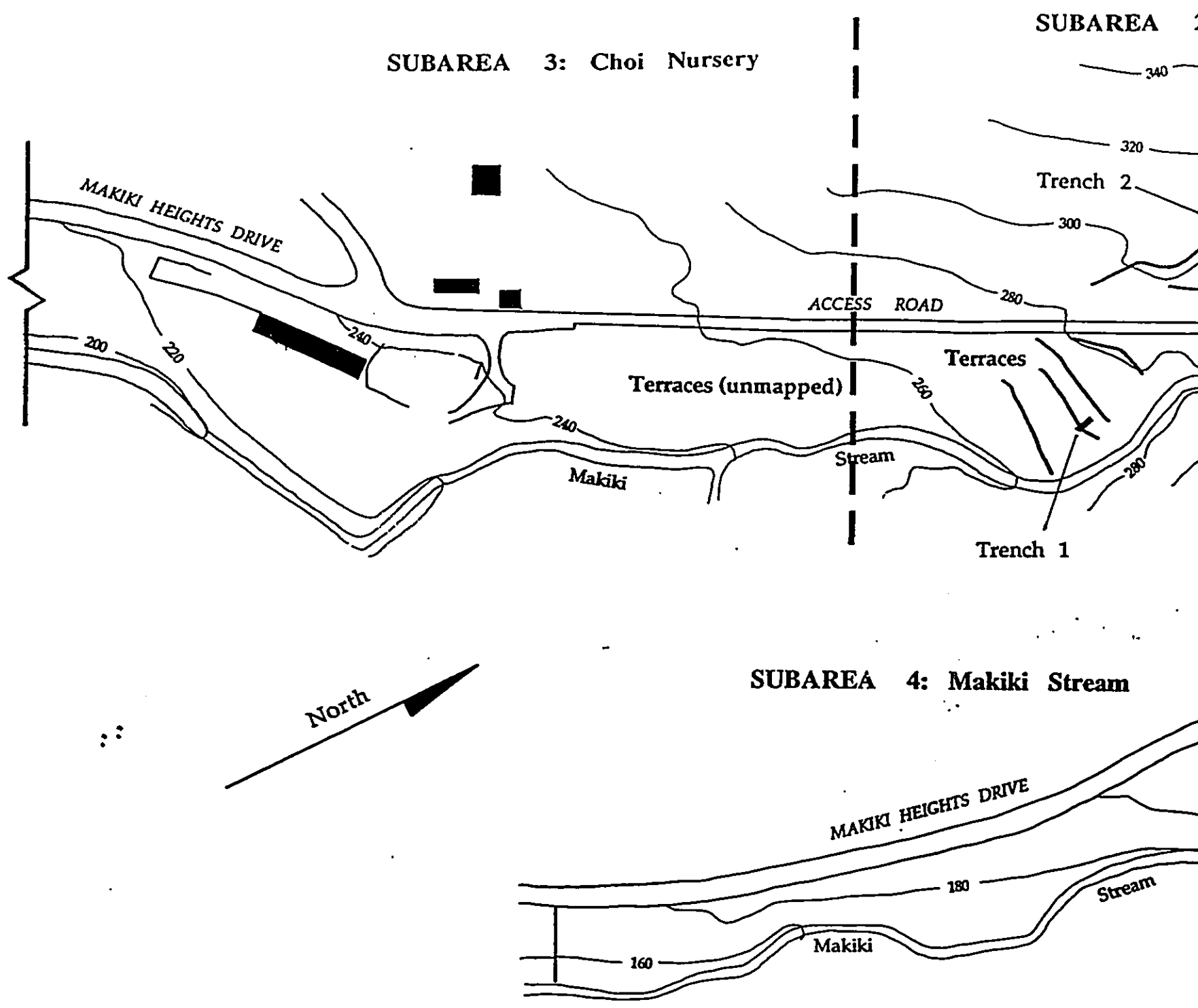
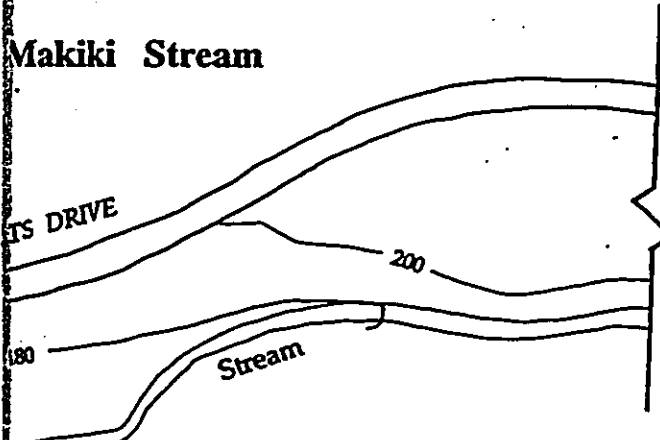
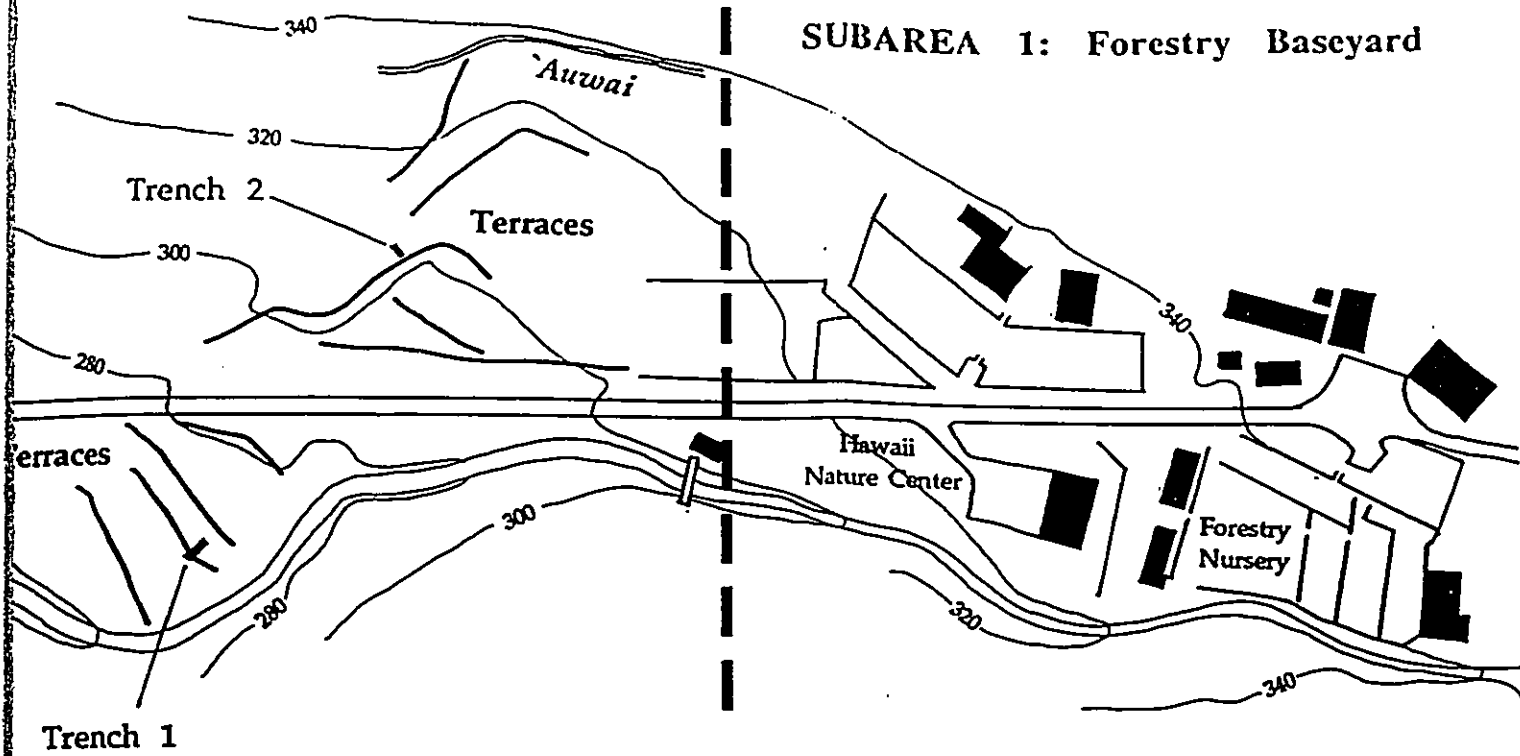

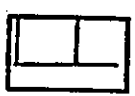


FIGURE 7: Makiki Valley Survey Areas. Note the area of remnant agricultural terraces in Subareas 2 and 3 and Test Trench locations. Map adapted from *Topographic Survey Map: Makiki-Tantalus State Park* (Park Engineering 1977).

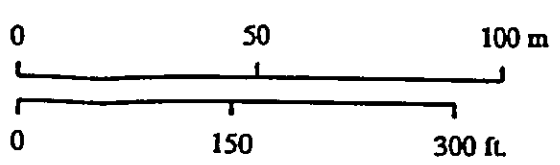
SUBAREA 2: Picnic Area

SUBAREA 1: Forestry Baseyard



-  = Existing Building
-  = Modern Walls

APPROXIMATE SCALE



A second *mauka-makai* transect covered the strip between the access road and the lower slope of Kanaha Ridge. The *mauka* portion of this transect located a series of stone-faced terraces on a moderate slope oriented parallel to the stream. A section of an *auwai* is located above the uppermost terrace, paralleling the terraces along the 350 foot contour. This feature has been destroyed on the *mauka* end by the Forestry developments, and on the *makai* end by grading and tree planting efforts, which also apparently destroyed any terraces in this area. The present terraced area measures approximately 250 feet (75 m) square. Trench 2 was excavated within these terraces. A linear pile of rocks, probably from the retaining walls of former terraces, is present at the upslope edge of the tree planting area. No archaeological sites were located upslope of the *auwai*. The terraces on the slope and along the stream certainly made up a contiguous site prior to the construction of the road, and are therefore being considered a single site, State site #50-80-14-4866 (Figure 8).

Subarea 3: Choi Nursery

The Choi Nursery encompassed the private parcel (TMK 2-5-20:7) and leased State land (2-5-20:4) totaling 5.5 acres (refer to Figure 3). This nursery operated between 1964 and 1984 in the area around the intersection of the DOFAW access road and Makiki Heights Drive. The streamside terraces located in Subarea 2 extend into the *mauka* end of Subarea 3 between the stream and access road (Figures 7 & 8). Continuing *makai*, there is still evidence of building foundations and other features, such as mortared brick and stone walls, associated with the nursery in the area between Makiki Stream and Makiki Heights Drive. State Parks has cleared and grassed portions of the former nursery in this area. Survey in this area indicated that the ground surface had been leveled and there is no surface evidence of the agricultural terraces along the stream continuing into the former nursery area.

A survey of parcel 2-5-20:4 around the existing houses indicated that this area has also been graded and is now overgrown with *koa haole* and vines. The lower slope of Kanaha Ridge was surveyed along the western edge of parcel 2-5-20:7 since a new access road and park headquarters have been proposed for this area. This slope is

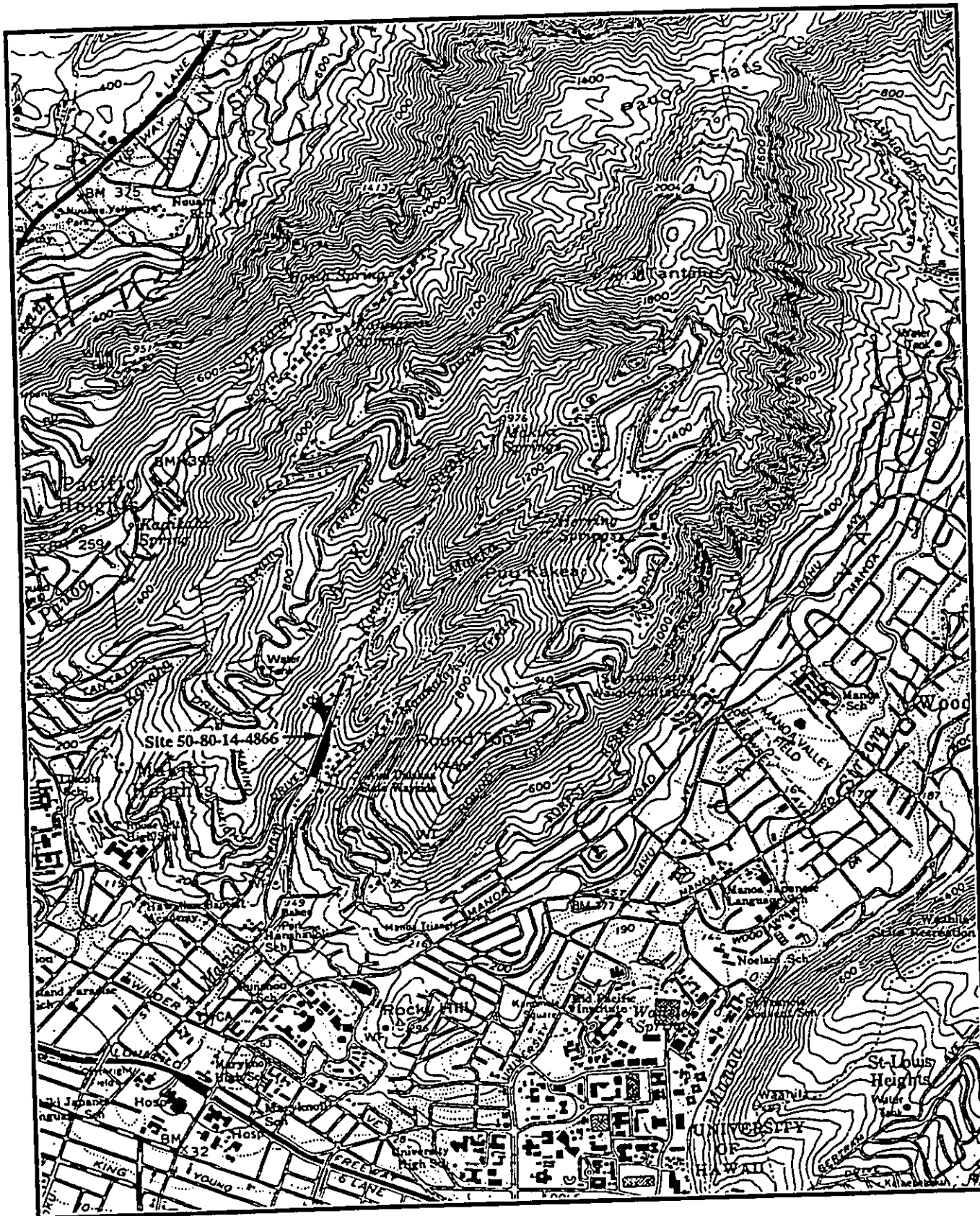


FIGURE 8: Location of Site 50-80-14-4866 (USGS, Honolulu Quadrangle, 7.5 minute series).

marked by exposed faces of cinder, but no evidence of rockshelters or other archaeological features were encountered. To the north (*mauka*) of parcel 7 on the west side of the access road is a large borrow pit which has been partially filled and is proposed as a parking area.

Subarea 4: Makiki Stream

This subarea encompasses the narrow strip between Makiki Stream and Makiki Heights Drive that is *makai* of the former Choi Nursery. This strip measures approximately 1000 feet (305 m) long (N-S) and is relatively narrow, with a maximum width of about 100 feet (30 m) between the road shoulder and the steeply sloping stream bank. The upper area between the road and the top of the bank is relatively level and grassed, but the stream banks are overgrown with grasses, *koa haole*, and vines. One transect followed the bed of Makiki Stream to look for exposed cultural deposits or evidence for terracing along the western stream cut. The streambank consisted of densely packed cinder deposits and no cultural remains were observed along this bank. There was some evidence of terracing along the eastern side of the stream which appeared to be relatively recent. This was outside of the project area, however, and was not fully investigated.

A second transect followed along the upper flat grassy strip adjacent to Makiki Heights Drive. Some boulders were exposed on the surface, but there was no evidence of terracing. It is likely that the agricultural terracing noted in Subareas 2 and 3 once extended into this area along the Stream, but any evidence for this agricultural development would have been destroyed historically by the construction of Makiki Heights Drive and the Board of Water Supply pumping station.

ARCHAEOLOGICAL TESTING

Two archaeological test trenches were excavated within site 50-80-14-4866 in Subarea 2 of the Makiki Valley survey area (Figure 7). This is in the area containing remnant agricultural terraces. The trenches were excavated in order to determine the presence or absence of subsurface archaeological remains in this area, to document the type of terrace construction, and to obtain dateable materials which could suggest an approximate age of these features. As this is the first testing to be conducted in the agricultural features of Makiki, the results should provide us with the first glimpse of a chronology for the development and use of the terraced fieldsystems in the valley. Overall, we hoped to determine the research potential and historical significance of this site, which could be impacted by the realignment of trails through this area.

Methodology

The trenches were excavated by shovel, pick and trowel. Attempts to screen the matrix through our 1/8" mesh screens proved almost futile due to the structure and stickiness of the soils, so only a small percentage of the matrix was actually screened. All cultural materials were collected, and charcoal samples were taken to be submitted for radiocarbon dating. Profile views were drawn and plan views were drawn at the base of each layer. Color slides and black and white prints were taken of all phases of the excavations. The units were backfilled upon completion.

Trench 1

Trench 1 was located adjacent to the west side of Makiki Stream, dissecting the facing of an eroded terrace running perpendicular to the stream (see Figure 7). This trench measured 3 m by 50 cm, and was excavated both above and below the terrace facing. This area is developed and maintained as a picnic area, with a picnic table located centrally atop this feature.

Trench 1 - Results

Trench 1 was excavated to a maximum depth of 108 cm below datum (bd) in the

northern half of the unit (approximately 105 cm below surface). A very large boulder formed the front facing of the terrace, and a stacked wall of small subrounded boulders (at the base) and cobbles formed the interior facing, which was three courses high (Photos 2 and 3, Figure 9). The base of this interior facing was 65 cmbd, and the wall was soil-filled. A layer of cobbles was encountered at a depth of ~50 cmbd which may represent a flooding episode. Four stratigraphic layers were encountered in this trench (Table 1), two of which are believed to represent agricultural soils corresponding to the cultivation of these terraces (Layers II and III). No pond soils associated with irrigated agriculture were encountered. The unit was terminated due to sterility and encountering bedrock. In the southern end of the trench which was actually on the terrace below, the unit was terminated at a depth of approximately 40 cmbs due to encountering a dense layer of cobbles. Some historic cultural materials were encountered in the upper 5-10 cm of this unit



PHOTO 2: Trench 1, 40 cmbd (north end). Large boulder at left is front facing of terrace, cobble alignment represents interior facing. View to west.

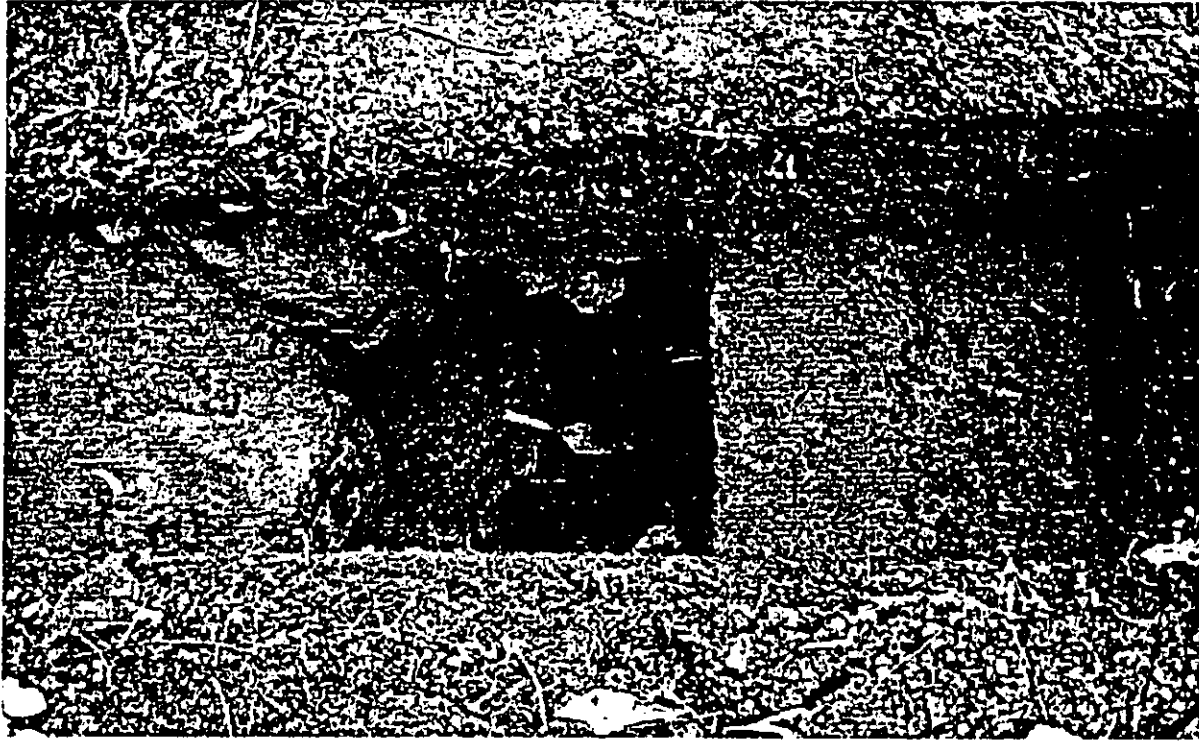


PHOTO 3: Trench 1, Base of Excavation (north end). Boulders at left are base course of interior facing.

(Layers I and II), which likely represent the historic use of this area after the abandonment of the terraces. These materials included ceramics, clear glass, several pieces of corroded metal, one piece of bone, and a square nail. Below this upper stratum the only cultural material encountered was charcoal, which was sparsely distributed throughout Layers II and III.

Trench 2

Trench 2 was placed behind a stone terrace facing on the west side of the access road (see Figure 7). It measured 2 m by 50 cm, and did not extend through the terrace facing as with Trench 1. The stacked stone retaining wall of the terrace measured 70 cm in height and was one of several stone-faced terraces oriented parallel to the stream on a moderate slope.

Trench 2 - Results

This trench was excavated to a maximum depth of 100 cmbd (~100 cm maximum

MAKIKI VALLEY, O'AHU
 State Site #50-80-14-4866
 Test Trench 1
 February 1994

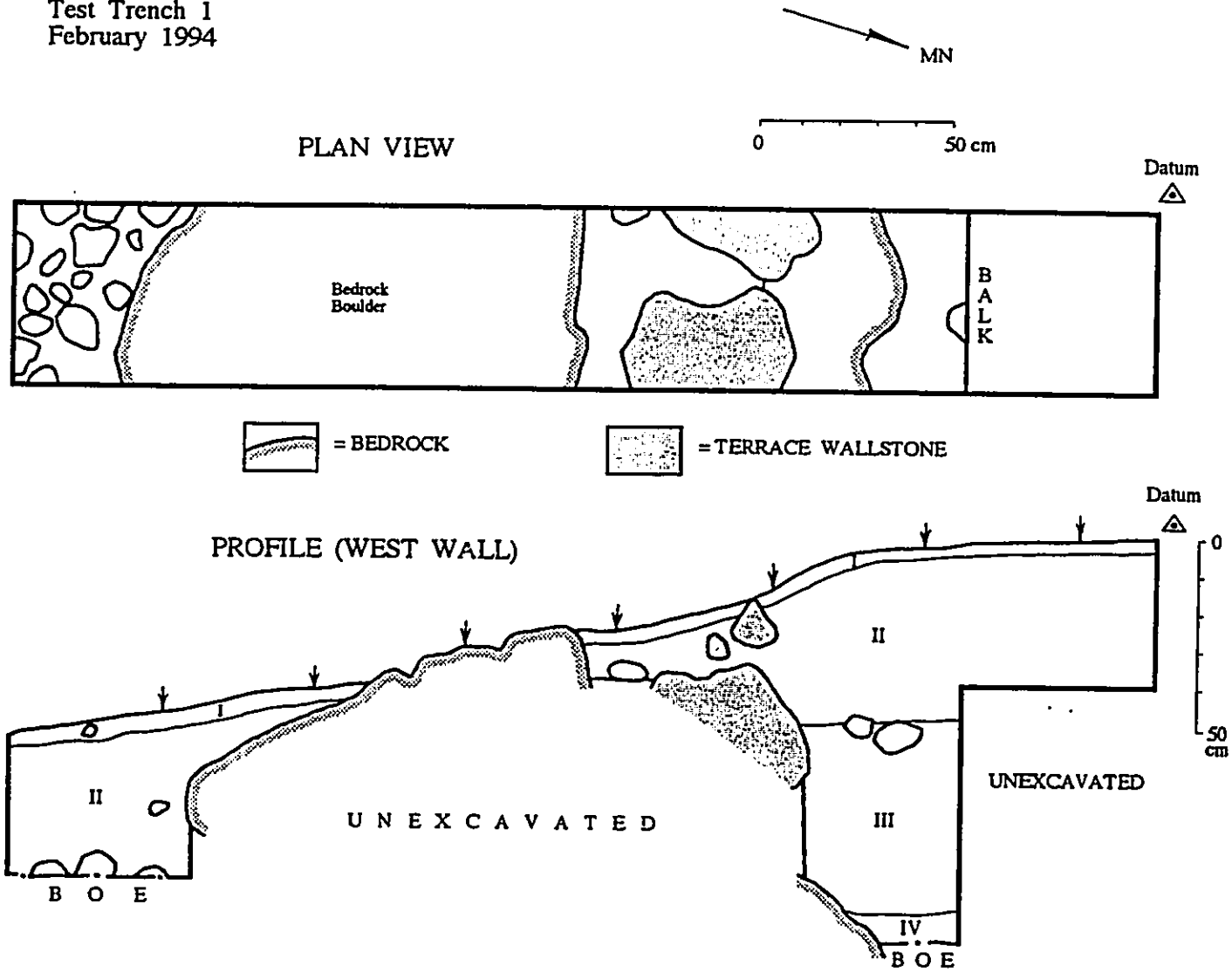


FIGURE 9: Plan and Profile Views of Test Trench 1

TABLE 1: Stratigraphic Sequence of Trench 1, Makiki Valley

Layer	Thickness	Depth	Description
I	~5 cm	0-5 cmbs	Black (10YR 2/1) silty clay mixed w/ organics (decaying leaves, twigs, root mat); moist; firm; crumb; sticky; plastic; many roots (micro-fine); few pebbles (subangular-subrounded); abrupt boundary w/ Layer II.
II	~40 cm	5-45 cmbs	Dk. grayish brown (10YR 3/2) silty clay with some mottled red/brown/black/gray cinder particles; moist; friable; crumb to blocky; very sticky; very plastic; many roots (micro-coarse); few basalt cobbles and pebbles (subrounded), rare coral pebbles (rounded); clear boundary w/ Layer III.
III	~50 cm	45-95 cmbs	Dk. brown (10YR 3/3) silty clay loam with some mottled red/brown/black/gray cinder particles; moist; friable; crumb; sticky; plastic; few roots (coarse); few basalt cobbles and pebbles (subrounded-rounded) including saprolitic; clear boundary w/ Layer IV.
IV	0-10 cm +	95-105+ cmbs	Dk. reddish brown (5YR 3/3) silty clay loam with mottled red/brown/black/gray cinder particles; moist to wet; friable; crumb; sticky; plastic; no roots; few saprolitic pebbles and cobbles (subrounded-rounded).

below surface). The interior facing of the terrace wall was encountered in the eastern end of the unit. This wall measured approximately 110 cm wide at the top and was constructed of stacked small boulders and cobbles, with a core-fill of cobbles and soil (Photo 4, Figure 10). Several stones encountered at approximately 25 cmdb in the unit appear to be the result of wall collapse. The base of the interior facing was encountered at 60 cmdb. Three stratigraphic layers were encountered in this trench (Table 2). As with Trench 1, no pond soils suggestive of irrigated agriculture were encountered, surprising in light of the fact that an *auwai* exists just above these terraces. This area may have been modified historically, impacting subsurface deposits. A road is known to have been aligned through this area early in this century. The unit was terminated due to sterility and encountering bedrock. No historic cultural materials were encountered in this unit, and only very sparse charcoal flecking was noted and collected.

The lack of obvious soils associated with irrigated pondfields in either trench suggests that these terraces were either never irrigated, that they were modified and

MAKIKI VALLEY, O'AHU
State Site #50-80-14-4866
Test Trench 2
February 1994

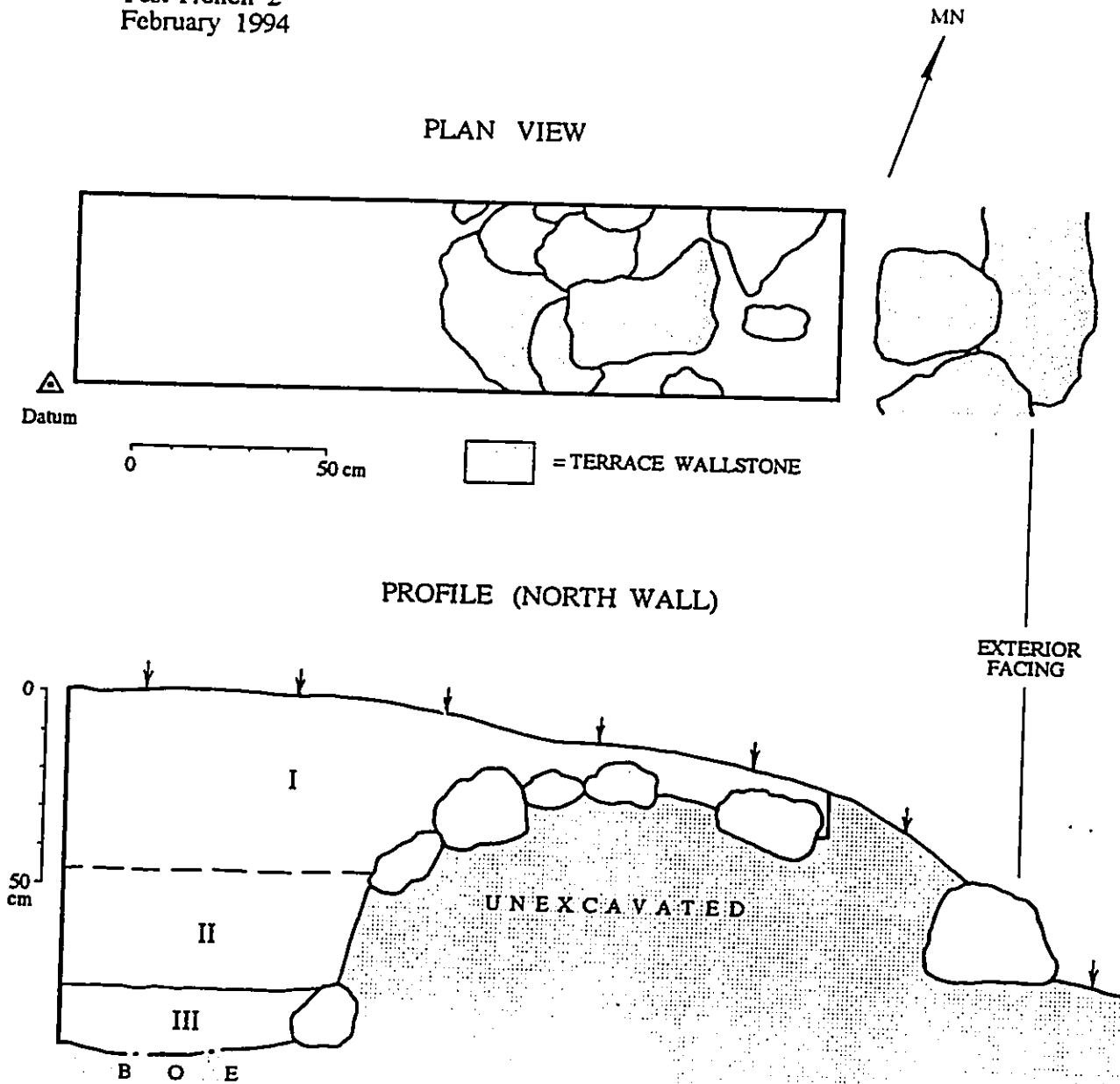


FIGURE 10: Plan and Profile Views of Test Trench 2

used as non-irrigated terraces later in their history, or that they have undergone historic alteration which has disturbed the stratigraphy. It is possible that there was not a permanent enough stream in Makiki to constantly irrigate the fieldsystem, and the *`auwai* above the terraces could be part of a flood control system rather than the irrigation system. Dates from radiocarbon samples collected from the excavations should shed some light on these assumptions. The results of these dated samples, as well as samples collected from site 50--80-14-4668, will be included in this report as Appendix 1.

PHOTO 4: Trench 2, Base of Excavation.
Note stacked *stone wall of interior terrace* facing at bottom of photo.
View to west.

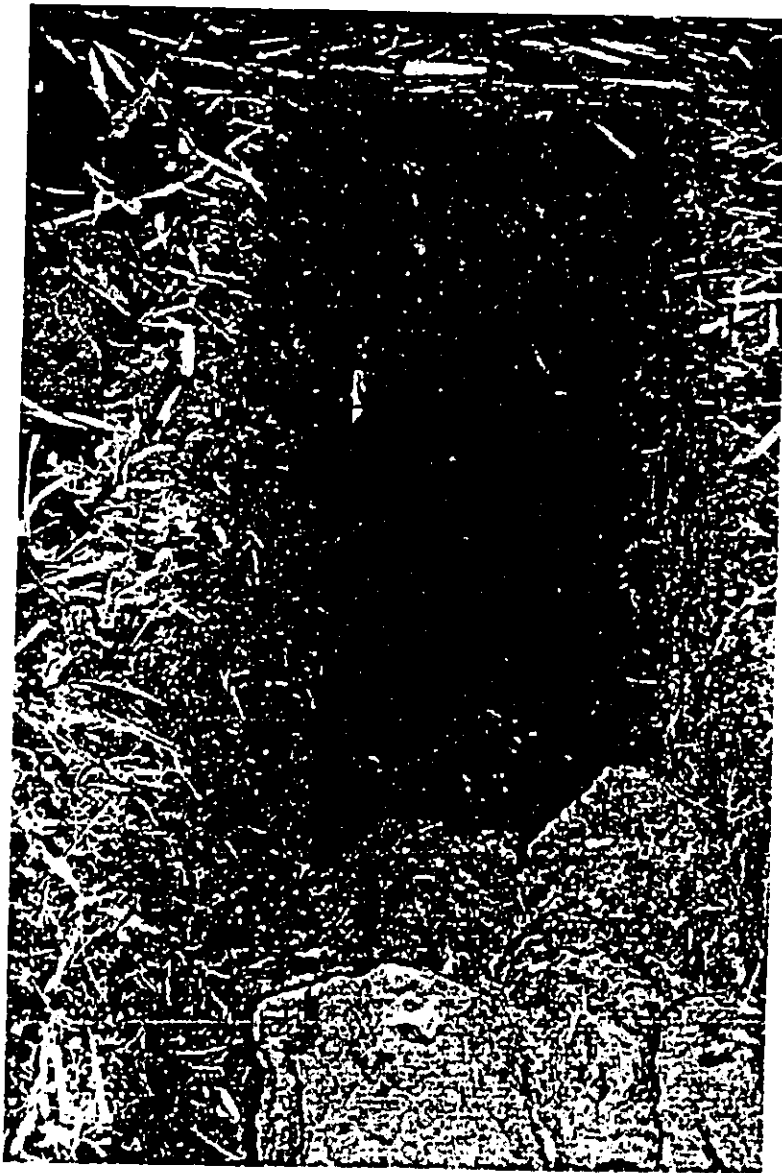


TABLE 2: Stratigraphic Sequence of Trench 2, Makiki Valley

Layer	Thickness	Depth	Description
I	~55 cm	0-55 cmbd	Dk. grayish brown (10YR 3/2) silty clay loam w/ small pockets of orange (5YR 4/6) iron staining; moist; friable to firm; crumb to blocky; very sticky; very plastic; many roots (micro); few basalt cobbles and pebbles (subrounded-rounded); gradual boundary w/ Layer II.
II	~30 cm	55-85 cmbd	Dk. grayish brown (10YR 3/2) silty clay loam; moist to wet; firm; blocky; very sticky; very plastic; common roots (micro-coarse); common basalt and saprolitic cobbles and pebbles (subrounded-rounded); clear boundary w/ Layer III.
III	20 cm +	85-100+ cmbd	Dk. grayish brown (10YR 4/2) and orange (5YR 3/4) mottled silty clay loam; moist to wet; firm to very firm; blocky; sticky; plastic; no roots; many basalt and saprolitic cobbles and pebbles (rounded).

SUMMARY AND RECOMMENDATIONS

The archaeological survey of the proposed Makiki State Recreation Area and Pu`u `Ualaka`a State Wayside documented areas of potential historical significance. At present, the facilities, trails, and visitor use areas proposed in the master plan are only conceptual and therefore are subject to change and modification. It is recommended that locations of all proposed developments be fieldchecked by a qualified archaeologist prior to the plans being finalized. In particular, proposed trail routes should be flagged and then fieldchecked by an archaeologist prior to trail construction, and new building locations should be flagged, fieldchecked, and if necessary be archaeologically tested if the area may hold subsurface cultural deposits.

Pu`u `Ualaka`a Area

No archaeological sites were located during the survey of the Pu`u `Ualaka`a area. This area has been altered for agricultural production and recreational use in this century, which appears to have destroyed any archaeological sites which may have formerly existed on the slopes or summit of the *pu`u*. However, all historical

references indicate that `Ualaka`a has always been a sweet potato planting area, and some of the agricultural development in this century may simply represent a continuation of that traditional land use (Handy 1940). The macadamia nut plantation on the western side of the *pu`u* is certainly of some historical interest, significant for the fact that it was the first commercial macadamia plantation in Hawaii. It's significance has been recognized by the estate being placed on the State and National Historic Registers. It is therefore recommended that all features and facilities associated with this plantation, including buildings, the flumes and the grove itself be preserved during park development. The proposed development in this park area is limited to additional trails, landscaping, an additional picnic shelter, and an open viewing shelter on the *makai* side of the existing lookout. The following recommendations should be adhered to during the development phase of this project:

-Proposed trail alignments should be flagged and fieldchecked by an archaeologist prior to construction.

-The proposed second lookout involves cutting of the *pu`u* and construction of a buried retaining wall. If these plans are carried out, these excavations should be monitored by an archaeologist.

Makiki Area

A remnant section of irrigated agricultural fieldsystem (site # 50-80-14-4866) was located in the Makiki survey area on the west side of Makiki Stream between the Forestry Baseyard and the park entrance. This system undoubtedly was once more extensive, but historic modification including road construction, developments by the Division of Forestry and a commercial nursery have destroyed large portions of the former agricultural area. The remaining terraces should be preserved as they have both research and interpretive potential. The proposed developments in the Makiki park area include the construction of new buildings, a new park access road,

parking areas and trail realignments. As presently proposed, most of the new buildings would be built atop the footprints of existing ones which would be demolished. The following precautions should be taken during the development phase of this project to avoid unnecessarily impacting areas of archaeological significance:

-Trail routes should be aligned so as to avoid adversely impacting the agricultural terrace system, and these routes should be flagged and evaluated by an archaeologist prior to any trail construction.

-New buildings constructed atop existing foundations would need no further archaeological investigation provided no excavation for foundation work was required. If excavation is required, this work should be monitored by an archaeologist.

-Completely new construction, including buildings, parking areas, etc. should have their locations flagged and be fieldchecked by an archaeologist prior to construction. Subsurface archaeological testing may be required if the proposed construction is in an area of potential archaeological significance.

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1981 *A Botanist's Visit to Oahu in 1831: Being the Journal of Dr. F.J.F. Meyen's Travels and Observations about the Island of Oahu*. Press Pacifica, Ltd., Kailua.
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1978 *Sites of Oahu*. Bishop Museum, Departments of Anthropology and Education, Honolulu.
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1980 *Archaeological Reconnaissance Survey: Kanealole and Moleka Stream Systems, Makiki State Recreation Area, Makiki Valley, Kona District, O'ahu*. Prepared for State of Hawaii, DLNR, Division of State Parks, Honolulu.

Yent, Martha

1993 *Preliminary Archaeological Survey: Proposed State Park Areas in Makiki Valley and Puu Ualakaa, Makiki, Honolulu District, Oahu.*
State of Hawaii, DLNR, Division of State Parks, Honolulu.

Young, Margaret S.

n.d. Untitled memorandum to Michael S. Chu. Copy on file at the
Division of State Parks, Honolulu.

APPENDIX 1:

**Radiocarbon Dating Results
from Sites 50-80-14-4668 and 50-80-14-4866
Makiki, Honolulu, O`ahu.**

Charcoal samples were collected from excavations within two Makiki Valley archaeological sites. Site 50-80-14-4668 is a rockshelter site located on a steep slope above the east side of Moleka Stream (Carpenter 1993). A small-scale archaeological project, consisting of clearing, mapping, and excavation of two test units within this site was conducted (Carpenter, Dixon, and Yent in press). Several small firepits and charcoal concentrations were encountered in one of the test units, and three samples from this site (Beta-72248, Beta-72249, Beta-72250) were submitted to Beta Analytic for dating.

Site 50-80-14-4866 was located and described during the survey described in this report. It consists of an area of remnant agricultural terraces in the lower valley. Two test trenches were excavated within this site, and Trench 1 provided sufficient quantities of charcoal to submit for radiocarbon analysis, and two samples (Beta-72251, Beta-72252) were submitted.

This appendix includes a table summarizing the radiometric age of each sample (Table A-1). Additionally, a printout of the calibration of radiocarbon age to calendar years for each sample can be found on the following pages. The first sample from Site 50-80-14-4668 (Beta-72248) gave a modern date and therefore no calibration report is included for that sample. Finally, the calibrated dating results are summarized in graphical form in Figure A-1.

The results suggest that lower Makiki Valley was developed for irrigated agriculture by the twelfth century AD. The dates from the rockshelter indicate that it was being utilized from as early as the fifteenth century. The relatively early dates obtained from site 50-80-14-4866 indicates that it is a significant site which still contains valuable research potential. The condition of this site should therefore be monitored closely as proposed park improvements are implemented in this area.

TABLE A-1: Summary of Radiocarbon Dating Analyses from Makiki Valley, O'ahu

SAMPLE #	BETA #	DESCRIPTION	C13/12 ADJUST	RADIOMETRIC AGE (C13 ADJUSTED)
4668-1	Beta-72248	Site #50-80-14-4668, Test Unit 1, Layer I, Level 3, Fe 1, 21-31cmbd	-28.9	101.7 +/- 0.8% (modern)
4668-2	Beta-72249	Site #50-80-14-4668, Test Unit 1B, Layer II, Level 2, Fe 3, 25-28cmbd	-29.3	290+/-60 BP
4668-3	Beta-72250	Site #50-80-14-4668, Test Unit 1B, Layer II, Level 9, 45-50cmbd	-27.2	200+/-60 BP
4866-1	Beta-72251	Site #50-80-14-4866, Trench 1, Layer II, 10-30cmbd	-28.2	650+/-120 BP
4866-2	Beta-72252	Site #50-80-14-4866, Trench 1, Layer III, 80-100cmbd	-26.8	610+/-60 BP

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -29.3; lab mult. = 1)

Laboratory Number: Beta-72249

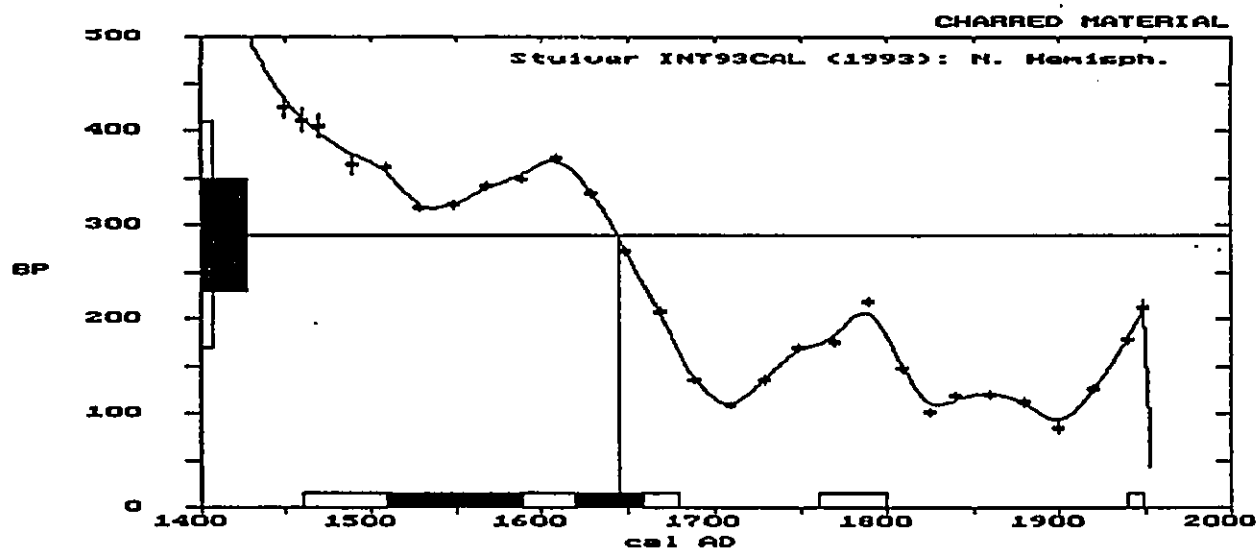
Conventional radiocarbon age: 290 +/- 60 BP

Calibrated result: cal AD 1460 to 1680 and
(2 sigma, 95% probability) cal AD 1760 to 1800 and
cal AD 1940 to 1950

Intercept data:

Intercept of radiocarbon age
with calibration curve: cal AD 1650

1 sigma calibrated results: cal AD 1510 to 1590 and
(68% probability) cal AD 1620 to 1660



References:

- Vogel, J. C., Fuls, A., Visser, E. and Becker, B., 1993, Radiocarbon 35(1), p73-86
- Talma, A. S. and Vogel, J. C., 1993, Radiocarbon 35(2), p317-322
- Stuiver, M., Long, A., Kra, R. S. and Devine, J. M., 1993, Radiocarbon 35(1)

Results prepared by:

Beta Analytic, Inc., 4985 SW 74th Court, Miami, Florida, 33155
A-3

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -27.2; lab mult. = 1)

Laboratory Number: Beta-72250

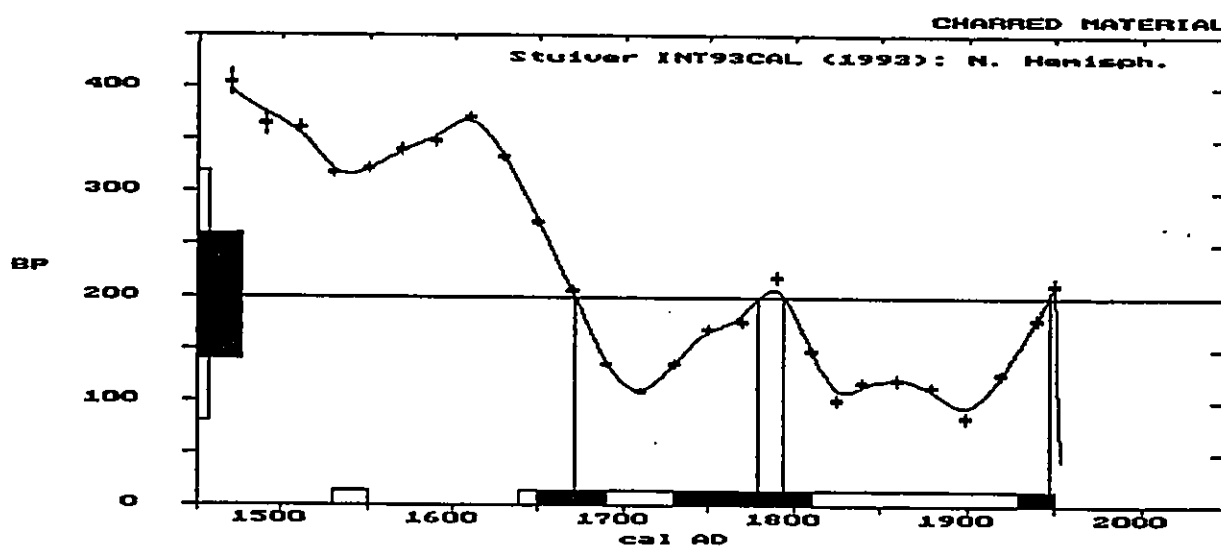
Conventional radiocarbon age: 200 +/- 60 BP

Calibrated result:
(2 sigma, 95% probability) cal AD 1530 to 1550 and
cal AD 1640 to 1950

Intercept data:

Intercepts of radiocarbon age
with calibration curve: cal AD 1670 and
cal AD 1780 and
cal AD 1790 and
cal AD 1950

1 sigma calibrated results:
(68% probability) cal AD 1650 to 1690 and
cal AD 1730 to 1810 and
cal AD 1930 to 1950



References:

- Vogel, J. C., Fuls, A., Visser, E. and Becker, B., 1993, Radiocarbon 35(1), p73-86
Talma, A. S. and Vogel, J. C., 1993, Radiocarbon 35(2), p317-322
Stuiver, M., Long, A., Kra, R. S. and Devine, J. M., 1993, Radiocarbon 35(1)

Results prepared by:

Beta Analytic, Inc., 4985 SW 74th Court, Miami, Florida, 33155

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -28.2; lab mult. = 1)

Laboratory Number: Beta-72251

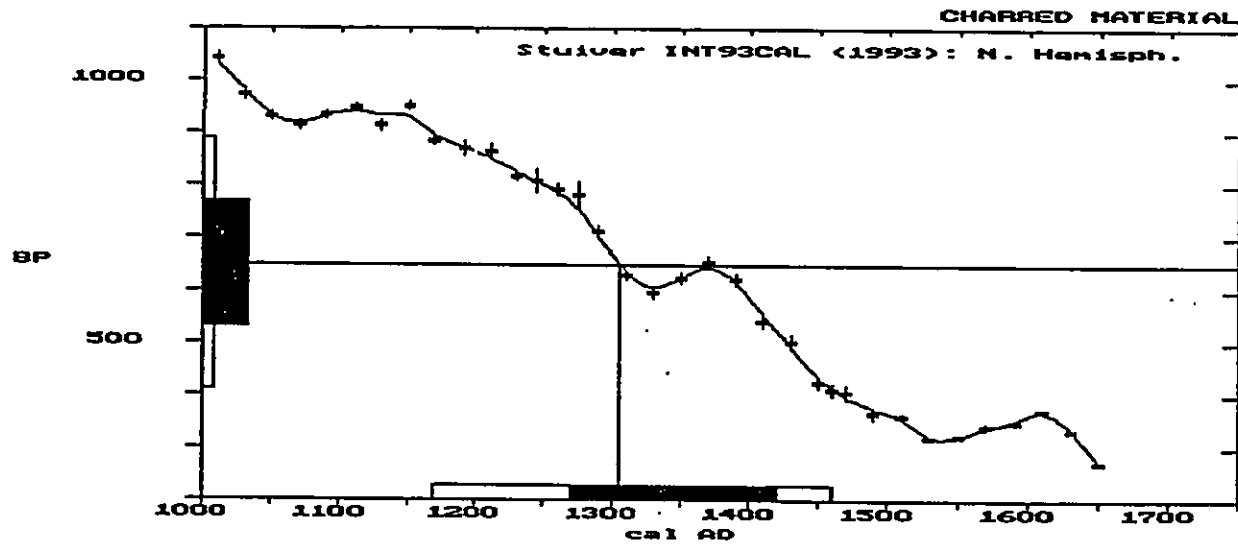
Conventional radiocarbon age: 650 +/- 120 BP

Calibrated result: cal AD 1170 to 1460
(2 sigma, 95% probability)

Intercept data: - - -

Intercept of radiocarbon age
with calibration curve: cal AD 1310

1 sigma calibrated result: cal AD 1270 to 1420
(68% probability)



References:

- Vogel, J. C., Fuls, A., Visser, E. and Becker, B., 1993, Radiocarbon 35(1), p73-86
- Talma, A. S. and Vogel, J. C., 1993, Radiocarbon 35(2), p317-322
- Stuiver, M., Long, A., Kra, R. S. and Devine, J. M., 1993, Radiocarbon 35(1)

Results prepared by:

Beta Analytic, Inc., 4985 SW 74th Court, Miami, Florida, 33155

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -26.8; lab mult. = 1)

Laboratory Number: Beta-72252

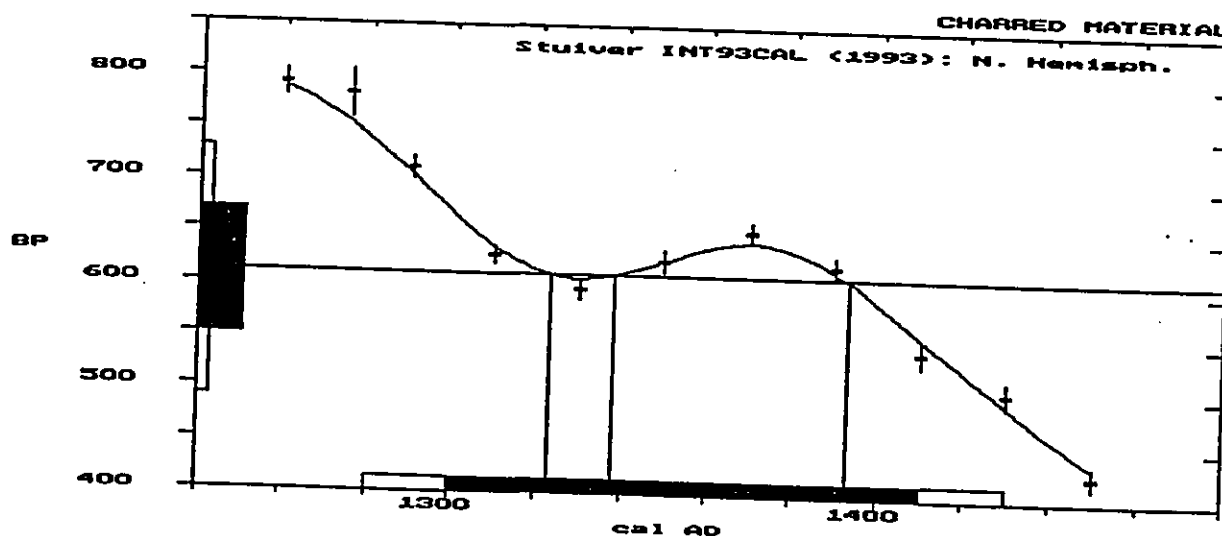
Conventional radiocarbon age: 610 +/- 60 BP

Calibrated result:
(2 sigma, 95% probability) cal AD 1280 to 1430

Intercept data:

Intercepts of radiocarbon age
with calibration curve: cal AD 1320 and
cal AD 1340 and
cal AD 1390

1 sigma calibrated result:
(68% probability) cal AD 1300 to 1410



References:

- Vogel, J. C., Fuls, A., Visser, E. and Becker, B., 1993, Radiocarbon 35(1), p73-86
- Talma, A. S. and Vogel, J. C., 1993, Radiocarbon 35(2), p317-322
- Stuiver, M., Long, A., Kra, R. S. and Devine, J. M., 1993, Radiocarbon 35(1)

Results prepared by:

Beta Analytic, Inc., 4985 SW 74th Court, Miami, Florida, 33155

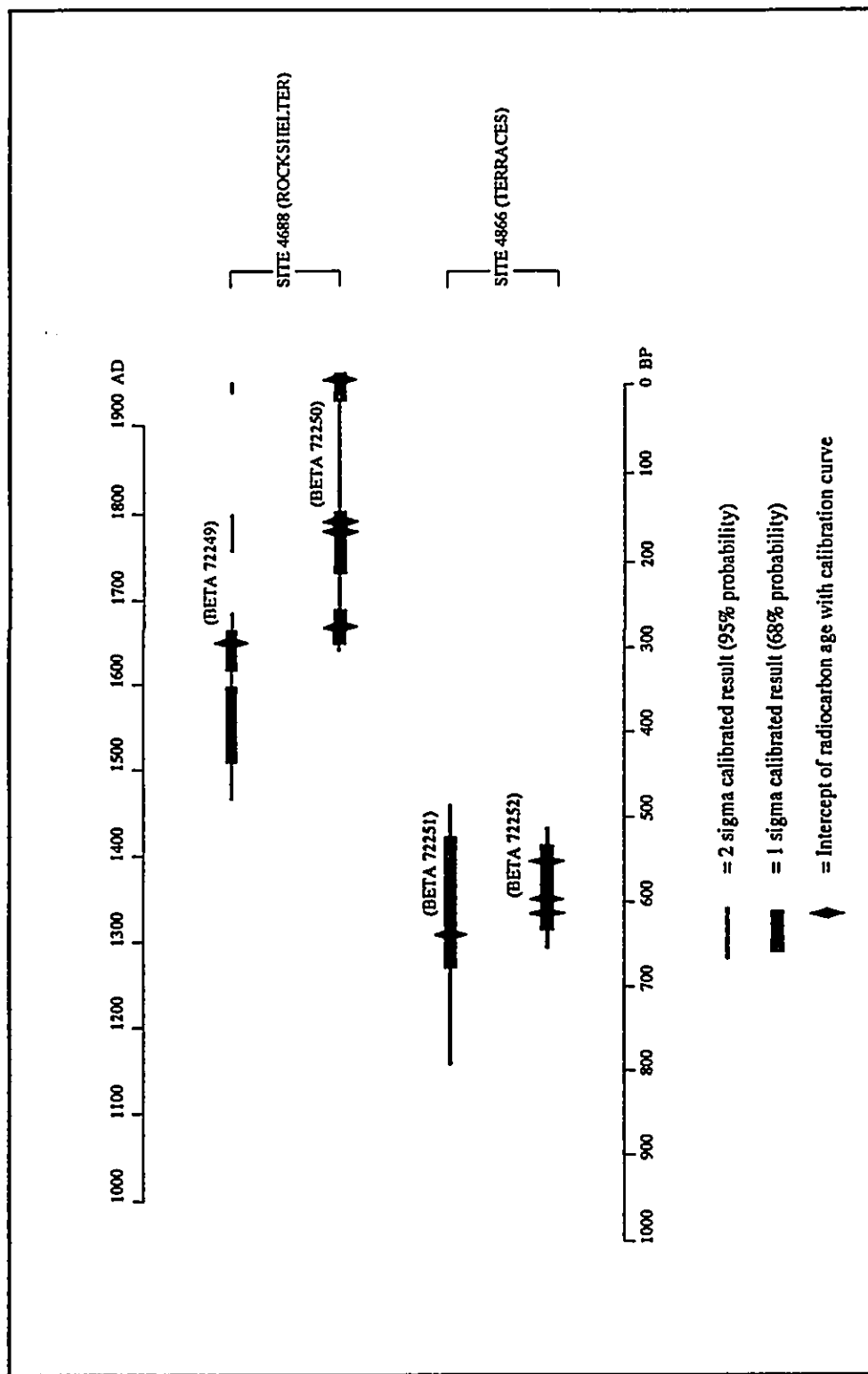


FIGURE A-1: Graphical Representation of Calibrated Radiocarbon Dates from Makiki Valley, Oahu.

APPENDIX C

**COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT
STATEMENT AND RESPONSES**



United States Department of the Interior



GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
677 Ala Moana Blvd., Suite 415
Honolulu, Hawaii 96813

January 6, 1993

Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

Dear Governor Waheee:

Subject: Draft Environmental Impact Statement (DEIS), Makiki-Tantalus
State Park Master Plan and Makiki Forestry Facilities, Honolulu,
Oahu

We are in receipt of the subject DEIS. We have reviewed the subject DEIS and
we have no comments to offer at this time.

Thank you for allowing us to review this DEIS.

As requested, we are returning the DEIS to your office for your future use.

Sincerely,


William Meyer
District Chief

Enclosure

cc: Mr. Bill Gorst
Division of State Parks
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

Mr. Michael S. Chu
Michael S. Chu Land Architect
81 South Hotel Street, Suite 312
Honolulu, HI 96813

JOHN WAIHEE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
HOUSING FINANCE AND DEVELOPMENT CORPORATION
877 QUEEN STREET, SUITE 200
HONOLULU, HAWAII 96813
FAX (808) 547-0000

JOSEPH E. CONLEY
EXECUTIVE DIRECTOR

BY REPLY REFER TO:
94:PPZ/378

POSTAGE
CONTRIBUTION



STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
Room 164, 9th Federal Building
337 Merchant Street
Honolulu, Hawaii 96813
Telephone: 571-3121

ESTHER UEDA
EXECUTIVE OFFICER

January 26, 1994

TO: Governor John Waihee
C/o Office of Environmental Quality Control
FROM: *Joseph E. Conley*
Executive Director
SUBJECT: Draft EIS for Makiki-Tantalus State Park Master Plan
and Makiki Forestry Facilities

Thank you for the opportunity to review the subject draft EIS (enclosed). We have no comments to offer.
Enclosure

c: Bill Gorst, DLNR
Michael S. Chu Land Architect

December 22, 1993

The Honorable John Waihee, Governor
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

We have reviewed the subject draft EIS and confirm that the project site as shown on exhibit 11 of the draft EIS is located within the State Land Use Conservation District.

We have no other comments to offer at this time.

Should you have any questions, please feel free to call me or Kathy Murakami of my staff at 587-3822.

Sincerely
Esther Ueda
ESTHER UEDA
Executive Officer

EU:KH:fl

cc: Mr. Bill Gorst (DLNR, Division of State Parks)
Michael S. Chu Land Architect
DBEDT (Dir. Referral No. 93-364-L)



FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

332 SOUTH KING STREET, SUITE 402
HONOLULU, HAWAII 96813-1005



FRANK F. FAH
MAYOR

DONALD S. M. CHANG
FIRE CHIEF
RICHARD B. SETO MOORE
FIRE DEPUTY CHIEF

FRANK F. FAH
MAYOR



DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU, HAWAII 96813

ENVIRONMENTAL QUALITY CONTROL
ACTING DIRECTOR AND CHIEF ENGINEER
KENNETH E. SPRAGUE

January 4, 1994

ENV 93-258

December 17, 1993

Office of Environmental Quality Control
220n South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Sir:

SUBJECT: DRAFT EIS FOR MAKIKI-TANTALUS STATE PARK MASTER
PLAN AND MAKIKI FORESTRY FACILITY, OAHU, HONOLULU
IMK 2-5-19; 3, 4, & FOR 8; 2-5-20; FOR 4, 5, & 7

We have reviewed the subject material provided and foresee no
adverse impact in Fire Department facilities or services.

Access for fire apparatus, water supply and building construction
shall be in conformance to existing codes and standards.

Should you have any questions, please call Assistant Chief Attilio
Leonardi of our Administrative Services Bureau at 831-7775.

Sincerely,

DONALD S. M. CHANG
Fire Chief

AKL:ny

Returning Draft Environmental Impact Statement report

Copy to: DLNR, Attn: Bill Gorst
Michael Chu Land Architect

The Honorable John Waihee
Governor
State of Hawaii

c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS)
Makiki-Tantalus State Park Master Plan and
Makiki Forestry Facilities
IMK 2-5-19; 3, 4, & FOR 8; 2-5-20; FOR 4, 5 & 7

We have reviewed the subject DEIS and have the following
comments:

1. We have no objections to the proposed project.
2. The planned Sewer District Improvement project for Makiki Heights and Round Top areas is under the purview of the Department of Wastewater Management (DWM). Accordingly, we suggest a copy of the DEIS be forwarded to DWM for their review and comment.

Should you have any questions, please contact Mr. Alex Ho,
Environmental Engineer, at 523-4150.

Sincerely,

KENNETH E. SPRAGUE
Acting Director and Chief Engineer

cc: DLNR

Michael S. Chu Land Architect



January 24, 1994

FRANK P. KANE
 MAYOR

TO: [Handwritten initials]
 FROM: [Handwritten initials]
 SUBJECT: [Handwritten text]
 HPP 94-36

The Honorable John Waihee, Governor
 State of Hawaii
 C/O Office of Environmental Quality Control
 220 South King Street, 4th Floor
 Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities, Honolulu, Oahu, Hawaii

We have reviewed the subject draft impact statement and offer the following comments:

1. There are no existing municipal wastewater facilities available to sewer the proposed park improvements.
2. A future project, Makiki Heights and Puowaina Drive Sewers Improvement District, includes construction of sewer lines in the proximity of the lower reaches of the subject park areas. Construction of the proposed sewer improvement district project is tentatively scheduled to begin in Fiscal Year 1996, subject to approval of funds.
3. The future sewer project may provide a sewer lateral for the Makiki Valley Improvement Area. However, a lengthy sewer line would be required from the park facilities to the sewer lateral. The feasibility of such a sewer line would be dependent upon the topography of the park grounds.

The Honorable John Waihee

January 24, 1994

4. Sewering the Puu Ualakaa Improvement Area would involve similar difficulties, with the added problem of requiring a sewer easement through private property in order to be connected to the City's sewer system.

Should you have any questions, please call Thomas Tamanaha at 523-4671.

Very truly yours,

Kenneth M. Rappolt
 KENNETH M. RAPPOLT
 Director

cc: DLNR (Michael S. Chu)

MICHAELS CHU
 LAND ARCHITECT
 PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

March 21, 1994

Mr. Kenneth M. Rappolt, Director
 Department of Wastewater Management
 City and County of Honolulu
 650 South King Street
 Honolulu, Hawaii 96813

SUBJECT: Your Letter of January 24, 1994, Commenting on the Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Rappolt:

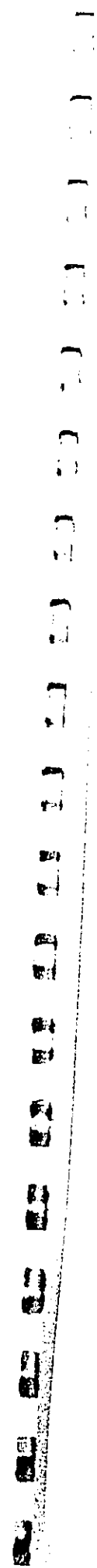
Thank you for taking the time to review the Draft EIS.

The Division of State Parks will evaluate the costs and benefits of extending a gravity sewer line to proposed State parks after the proposed Makiki Heights and Puowaina Drive Sewers Improvement District is funded and underway. At least for the short-term, wastewater from proposed new park and forestry buildings will be disposed of with septic tanks and leaching fields.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu
 MICHAEL S. CHU



RECEIVED
CITY AND COUNTY OF HONOLULU
490 SOUTH KING STREET
HONOLULU, HAWAII 96813

JAN 31 3 44 PM '94



January 24, 1994

The Honorable John Waihee, Governor
State of Hawaii
C/O Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities. Honolulu, Oahu, Hawaii

We have reviewed the subject draft impact statement and offer the following comments:

1. There are no existing municipal wastewater facilities available to sewer the proposed park improvements.
2. A future project, Makiki Heights and Puowaina Drive Sewers Improvement District, includes construction of sewer lines in the proximity of the lower reaches of the subject park areas. Construction of the proposed sewer improvement district project is tentatively scheduled to begin in Fiscal Year 1996, subject to approval of funds.
3. The future sewer project may provide a sewer lateral for the Makiki Valley Improvement Area. However, a lengthy sewer line would be required from the park facilities to the sewer lateral. The feasibility of such a sewer line would be dependent upon the topography of the park grounds.

Mr. [Signature]

RECEIVED
DIRECTOR
FELER & LUTHECO
PLANNING & ARCHITECTURE

MPP 94-36

FOR: CONSULTING/POST/STAFF RM
CONSULTANTS & REL
DATE
FOLLOW UP
REVISIONS
SET ME
SUBJECT NO.

The Honorable John Waihee - 2 - January 24, 1994

4. Sewering the Puu Ualakaa Improvement Area would involve similar difficulties, with the added problem of requiring a sewer easement through private property in order to be connected to the City's sewer system.

Should you have any questions, please call Thomas Tamanaha at 523-4671.

Very truly yours,

Kenneth M. Rappolt
KENNETH M. RAPPOLT
Director

cc: DLNR (Michael S. Chu)

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

March 21, 1994

Mr. Kenneth M. Rappolt, Director
Department of Wastewater Management
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

SUBJECT: Your Letter of January 24, 1994, Commenting on the Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Rappolt:

Thank you for taking the time to review the Draft EIS.

The Division of State Parks will evaluate the costs and benefits of extending a gravity sewer line to proposed State parks after the proposed Makiki Heights and Puowaina Drive Sewers Improvement District is funded and underway. At least for the short-term, wastewater from proposed new park and forestry buildings will be disposed of with septic tanks and teaching fields.

Please feel free to call me if you have any questions.

Yours Truly,

Michael S. Chu
MICHAEL S. CHU



H
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T
eam, inc.

2153 N. King, #319

Honolulu, Hawaii

96817

January 28, 1994

Mr. Michael S. Chu
Land Architect
81 S. Hotel Street, Suite 312
Honolulu, Hawaii 96813

Dear Mr. Chu,

Subject: Makiki-Tantalus State Recreation Area
Improvements EIS

Thank you for the opportunity to comment on this project. Our comments are as follows:

We are generally in favor of any improvements which may accommodate a growing public need to escape our urban environment and commune with nature. Our group's main venue for doing this is the State trail system, particularly trails within the Makiki-Tantalus State Recreation Area. We conduct organized annual events such as the Tantalus Tropical Trek which expose many people to our natural resources and benefit other organizations whose aims are compatible with our own.

The presentation of your plan implies that the top priorities are facilities for park headquarters, meeting facilities, and for private groups such as the Hawaii Nature Center. We disagree. First priority for any improvements in this area should be to enhance enjoyment for the pedestrian who is a member of the general public. We recommend that the plan focus on the provision of convenient and secure parking areas, well-built and maintained trails, rain shelters, trail and area information, rest rooms, and wash-off facilities.

This area is experiencing dramatically increased use. While some of the users are associated with the Hawaii Nature Center; most are not. Most are pedestrians. In the absence of more focus on the trails and natural systems which comprise this area, improvements such as those you propose may accelerate its degradation.

We support the Hawaii Nature Center and other efforts aimed at increasing awareness and appreciation of our natural heritage. We do not, however, support any special interest, such as the Hawaii Nature Center, over those of the general public.

It is also our opinion that because of trail damage caused by mountain bikers, they should be prohibited from this area. Some of us are mountain bikers and feel very strongly that other trails in the State system are very appropriate for mountain bike use. The Makiki-Tantalus trails are not. In our own discussions about this problem we have concluded that decant signage and simple "bike barriers" would go a long way toward discouraging mountain bike use here. Most bikers are responsible people who want to enjoy trails as we do. Most will respect such a ban. Improvements to facilitate such a ban should be part of your plan.

Finally, trails are currently maintained by DOFAW and several dedicated, private organizations and individuals. They need facilities and support not provided in your plan.

Please feel free to contact us about these comments.

Sincerely,



Richard Senelly
Vice President

MICHAEL S CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

March 21, 1994

Mr. Richard Senelly, Vice President
Hawaiian Ultra Running Team, Inc.
2153 N. King Street No. 319
Honolulu, Hawaii 96817

Subject: Your Letter of January 28, 1994, Commenting on the Draft EIS for Makiki-Tanalus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Senelly:

Thank you for taking the time to review the Draft EIS.

The Draft EIS primarily addresses designation and improvements for two proposed State parks. As you noted, the Draft EIS intentionally does not address maintenance and management of the Makiki-Tanalus trail system outside of proposed park boundaries. No attempt is made to evaluate if proposed park improvements are a higher priority than potential non-park trail-related improvements. However, please note that in the first phase of improvements in Makiki Valley, proposed park headquarters will provide trail and area information, comfort stations, wash-off facilities, and parking; and the proposed new forestry office will include showers for staff and volunteers involved in trail maintenance.

A copy of your letter will be forwarded to DOFAW for their information. I would suggest that you contact your State legislators and the Board of Land and Natural Resources (BLNR) concerning funding for trail maintenance and improvements.

Within the past six months, the BLNR has adopted rules granting the Division of Forestry and Wildlife (DOFAW) authority to post signs to regulate use of bicycles on trails in forest reserves. DOFAW is considering either banning use of mountain bikes on most Makiki-Tanalus trails or else restricting season and/or time of use. Interested parties, such as yourself, should telephone the DOFAW Oahu Na Ala Hele Coordinator, Curt Cottrell, at 587-0166 or else write to him CO DOFAW at 1151 Punchbowl Street.

Please feel free to call me if you have any questions.

Yours Truly



MICHAEL S. CHU

cc: Michael Buck, DOFAW Administrator



University of Hawaii at Manoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 - 2550 Campus Road • Honolulu, Hawaii 96822
Telephone: (808) 956-7361

February 7, 1994
RE: 0644

Governor John Waihee
c/o Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Draft Environmental Impact Statement
Makiki-Tantalus State Park
Master Plan and Makiki Forestry Facilities
Honolulu, Oahu

The Draft EIS for the above cited project addresses the potential impacts associated with the establishment of new state park trails and forestry facilities in the Makiki Valley. The area is also the current home of the Hawaii Nature Center. The Draft EIS also covers the incorporation of new trails and construction of a new lookout on Puu Ualakaa.

We have been assisted in this review by Terry Hunt, Anthropology; Clifford Smith, Botany/Cooperative National Park Resources Studies Unit; Ray Tabata, Sea Grant; and Chris Welch, Environmental Center.

The Draft EIS adequately assesses most of the potential impacts to the Makiki Valley and Puu Ualakaa areas that would be incurred as a result of this project. There are some items, however, that need further clarification and elucidation.

5. Alternatives Considered

With regard to the trails on Puu Ualakaa, were other trail right-of-ways considered? Why are two parallel trails being put on the north side of the proposed lookout? A loop trail with one path to the northwest and one southeast of the existing lookout would allow for hiking around the entire park area.

Governor John Waihee
February 7, 1994
Page 2

6.5 Natural Hazards

The document indicates (page 6.3) that, "the project area is not subject to flood, tsunami, subsidence, or earthquake hazard." And, Section 7.1 states that the Makiki Stream area is outside the 100 year floodplain. With the expansion of the trail system to parallel the stream, there is concern about the potential for flash flooding. Is there any flash flood risk to recreational users of the park? Clarification of the risk hazard (if any) should be made, since future expansion of the Hawaii Nature Center in the valley, may result in the exposure of more school age children to any flood risk.

6.9 Visual Resources / 8.8 Views

In reference to the trail system being constructed, are there any plans for interpretive signs? The various plants along the trail should be identified for the park users and Nature Center Educational programs alike. Furthermore, scenic views of the Koolau's or even Honolulu from the loop trail could be nicely enhanced by informational signage.

8. Probable Environmental Impacts Erosion Issues

The Draft EIS does not discuss potential erosion problems on the trails. In light of the number of mountain bikers that use the trail system, a full discussion of the erosion issue should be provided in the Final EIS. It has been our observation that severe erosional problems are exacerbated as well as initiated by mountain bikers. Mountain bikes are well known to create erosional problems and personal hazards along other trails on Oahu. It would be prudent to assume that this would also occur on Puu Ualakaa. We are particularly concerned with the proposed trail down Nutridge. It appears that this trail will be fairly steep and almost straight down the ridge. The trail should be redesigned to minimize erosion and improve safety.

8.3 Flora and Fauna

The Draft EIS inadequately addresses the issue of endangered flora and fauna in the park areas. The statement that no species will be affected by the proposed activities is unsupported. The Nature Conservancy Hawaii Heritage Program specifically warns against using the information it provides to make such assumptions. To meet the EIS requirements, the area to be affected needs a complete biological survey. There are a number of indigenous species resident in the project area (e.g. Clermontia kekeana). Hau and kukui are referred to as introduced species in section 6.6. They too are indigenous species.

8.6 Recreation

The document notes that a significant increase is expected in park usage by school age children (from 37,500 in 1992 to over 55,000 in the near future). The impacts of providing access to the trail system for this increased number of visitors needs to be addressed in the Final EIS. In light of the higher usage, the potential that these school age children will come into contact with persons mountain biking on the trails needs to be given careful attention.

8.8 Views

Since the Department of Fish and Wildlife (DOFAW) facility is to remain on the grounds temporarily, the EIS should address ways to minimize the visual impact of these garage and maintenance buildings on visitors to the park area. A revegetation plan using indigenous species should be considered to help shield the facilities from the view of hikers and picnickers.

8.9 Historic and Archaeological Resources

The matter of archaeological resources in the park areas was well addressed. The fact that significant archaeological sites could be housed in the Makiki Valley area is evidence enough for further study as outlined on pages 16 and 17 in the Summary and Conclusions of the Preliminary Archaeological Survey report. We fully concur with these findings and urge implementation to address the research questions outline there in.

11. Unresolved Issues

The Nutridge House is addressed as an unresolved issue. The use of the house as a meeting place for environmental or community groups with interests in the park areas seems like an option worthy of consideration.

Concluding Remarks

One item that needs to be re-emphasized is the use of mountain bikes on the trail system. This issue should be carefully addressed in the Final EIS. The Draft EIS has no mention of potential impacts from this source of trail usage. With new trails being introduced, particularly those so accessible to population centers, this is a potentially serious threat both to the maintenance of the trails and to the personal safety of the trail users.

Thank you for the opportunity to review and comment on the document.

Sincerely,

Jaquelin N. Miller
Jaquelin N. Miller
Associate Environmental Coordinator

cc: OEQC

DLNR

Michael S. Chu Land Architect

Roger Fujioka

Terry Hunt

Clifford Smith

Ray Tabata

Chris Welch

March 21, 1994

Ms. Jacquelin N. Miller, Associate Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Subject: Your Letter of February 7, 1994, Commenting on the Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Ms. Miller:

Thank you for taking the time to review the Draft EIS. Responses to your comments are grouped in the same manner as your letter.

Alternatives Considered

Both alternatives proposed in the 1992 "Final Investigative Report Makiki-Tantalus State Recreational Area Phase 1" included trail access from a second Puu Ualakaa lookout to Nuiridge. In addition, the alternative selected by the Board of Land and Natural Resources (BLNR) proposed to connect the new Puu Ualakaa-Nuiridge trail to Ualakaa Trail with a new ridgeline trail. The rejected alternative would not have included this ridgeline trail connection.

The upper and lower trails proposed between the new Puu Ualakaa lookout and Nuiridge form a loop so hikers need not backtrack or cross any roads. This was specifically requested by the Hawaii Nature Center in order to facilitate various outdoor education activities occurring at the same time. While the same benefits could be achieved by a loop trail around Puu Ualakaa, part of such a trail would have to parallel then cross the existing park entrance road.

Natural Hazards

Adopted regulatory maps used for flood insurance do not indicate that Makiki Stream or its tributaries overflow their banks within proposed park boundaries. The current FEMA FIRIM designates proposed parks within Zone X, outside the 100-year floodplain.

Hawaii Nature Center (HNC) outdoor programs are cancelled on days when there is risk of intense rainfall. Hence, school age children will not be put at higher risk from abrupt increases in stream flow. Flash floods are more common on streams with larger watersheds than Makiki Stream. To date, HNC staff have not observed such events in Makiki Valley.

Visual Resources

Interpretive signs clearly would be desirable. The details of what signs will be provided will be resolved at a later date.

Probable Environmental Impacts/Erosion

The proposed trail down Nuiridge is intended to parallel the ridgeline and line of Norfolk Island Pines. The precise alignment, design, and management of proposed new trails will

be resolved at a later date. Trails within proposed park boundaries will be managed by the Division of State Parks. Trails outside park boundaries, which generally are not addressed in this EIS, will be managed by the Division of Forestry and Wildlife (DOFAW). Closure of eroded trails to bicyclists and/or special surfaces such as boardwalks or water bars for eroded areas are possible options. It may also be desirable for safety reasons to close certain trails to bicyclists.

Flora and Fauna

According to Wagner, Herbst, and Sohmer's Manual of the Flowering Plants of Hawaii (Bishop Museum Press 1990), kukui is positively and hau is probably not native to Hawaii. Given the history of human disturbances, a formal botanical survey is not warranted to determine if rare or endangered plants (other than those planted by DOFAW) are present within the proposed park boundaries, which generally are the project area for the EIS.

Recreation

The previous response to your comments on environmental impacts applies. Within the past six months, the BLNR has adopted rules granting DOFAW authority to post signs to regulate use of bicycles on trails in forest reserves. DOFAW is considering either banning use of mountain bikes on most Makiki-Tantalus trails or else restricting either banning of use. Interested parties should telephone the DOFAW Oahu Na Ala Hele Coordinator, Curt Cottrill, at 587-0166 or else write to him c/o DOFAW at 1151 Punchbowl Street.

Views

Presently, access to Kaneohe Trail is through the middle of the DOFAW facilities. To minimize visual impacts to hikers, proposed improvements include reconfiguring the DOFAW nursery and realigning Kaneohe Trail between the nursery and Makiki Stream. Other landscaping improvements of DOFAW facilities are not considered necessary.

Historic and Archaeological Resources

Findings of a complete archaeological inventory survey are included in the Final EIS.

Unresolved Issues

Use of the Nuiridge House will be resolved at a later date, after a pilot study of program and interpretive opportunities is completed.

Concluding Remarks

As previously noted, jurisdiction for regulation of mountain bikes will be split between DOFAW (within forest reserves) and the Division of State Parks (within proposed State parks). Since the majority of trails within the Makiki-Tantalus area will remain in DOFAW's jurisdiction, DOFAW will take the lead in regulating the use of mountain bikes.

Please feel free to call me if you have any questions.

Yours Truly,



Michael S. Chu

cc: Michael Buck, DOFAW Administrator

JOHN WAIKZE
ADMINISTRATOR
MAJOR GENERAL EDWARD F. RICHMOND
DIRECTOR OF THE DEPARTMENT OF DEFENSE
ROY C. PRICE, SR.
VICE DIRECTOR OF CIVIL DEFENSE



PHONE (808) 724-2181

Governor, State of Hawaii
February 4, 1994
Page 2

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3449 DUKONO ROAD
HONOLULU, HAWAII 96814-4448

February 4, 1994

TO: Governor, State of Hawaii
c/o Office of Environmental Quality Control

FROM: Roy C. Price, Sr.
Vice Director of Civil Defense

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR MAKIKI-TANTALUS
STATE PARK MASTER PLAN AND MAKIKI FORESTRY FACILITIES

We appreciate this opportunity to comment on the DEIS proposed by the Department of Land and Natural Resources (DLNR) for the Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities, Makiki Valley, and Puu Ualakaa, Oahu, Hawaii; THK: 2-5-19: 3, 4, and par. 8; 2-5-20: par. 4, 5, 7.

We do not have negative comments specifically directed at the DEIS. The proposed areas are covered by an existing siren warning device.

Section 6, "ENVIRONMENTAL SETTING," paragraph 6.1, "Physiography," and paragraph 6.5, "Natural Hazards," address slope/elevation and natural hazards, respectively. The elevation of Makiki Valley, a narrow stream-cut valley bounded by steep hillsides, ranges from 160 feet to about 340 feet. Puu Ualakaa ranges from 625 feet to 1,075 feet with moderate to steep slopes. The impact of terrain amplification of tropical storm/hurricane force winds and the potentially heavy rainfall associated with tropical storms/hurricanes in both locations must be seriously evaluated. Structures within the project areas must be designed and constructed to withstand the potentially destructive winds at the project elevation. The meeting facility proposed for Phase 3 in Makiki Valley could then be surveyed for use as a potential public shelter.

Our SCD planners and technicians are available to discuss this further if there is a requirement. Please have your staff call Mr. Mel Mishihara of my staff at 734-2161.

c: Mr. Bill Gorst
Division of State Parks, DLNR
✓ Mr. Michael S. Chu

MICHAEL S CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • INTERIOR DESIGN

March 21, 1994

Mr. Roy C. Price, Sr., Vice Director of Civil Defense
State of Hawaii
Department of Defense
Office of the Director of Civil Defense
3949 Diamond Head Road
Honolulu, Hawaii 96816

Subject: Your Letter of February 4, 1994, Commenting on the Draft EIS for Makiki-
Taniulus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Price:

Thank you for taking the time to review the Draft EIS.

In response to your comments, park buildings will comply with the City building code. Although the proposed Makiki Valley meeting facility potentially could be used as a public shelter during a hurricane, there is no definite timetable for its construction.

Please feel free to call me if you have any questions.

Yours Truly,



MICHAEL S. CHU

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK F. FARU
MAYOR

ROBIN FOSTER
CHIEF PLANNING OFFICER
ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

TH 12/93-2798

January 31, 1994

The Honorable John D. Waihee, III
Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Draft Environmental Impact Statement (EIS)
Makiki-Tantalus State Park Master Plan and
Makiki Forestry Facilities, Honolulu, Oahu, Hawaii

We have reviewed the subject Draft EIS and offer the following comments:

In addition to our comments of June 10, 1993, we recommend that the project be coordinated with existing plans for a Sewer Improvement District (Ordinance 87-75) which includes a portion of the Makiki Valley Improvement Area.

Thank you for the opportunity to comment on this matter. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely,

ROBIN FOSTER
Chief Planning Officer

RF:js

cc: Department of Land and Natural Resources
Attn: Bill Gorst
Michael S. Chu, Land Architect

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

March 21, 1994

Mr. Robin Foster, Chief Planning Officer
Planning Department
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Your Letter of January 31, 1994, Commenting on the Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Foster:

Thank you for taking the time to review the Draft EIS.

The current City proposal for a sewer improvement district does not extend into the Conservation District where park comfort stations are proposed. The DLNR Division of State Parks will evaluate the costs and benefits of a sewer hookup for proposed State parks after the City improvement district is funded and underway.

Please feel free to call me if you have any questions.

Yours Truly,

MICHAEL S. CHU

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA
711 KAPOLAHUA BOULEVARD, SUITE 1100
HONOLULU, HAWAII 96813



FRANKY FARI
MAILING

JOSEPH M. MAGALDI, JR.
DIRECTOR
AMAR BISHPAL
DEPUTY DIRECTOR
TE-4945
PL93-1.484

The Honorable John D. Waihee
Page 2
January 20, 1994

Should you have any questions, please contact Lance Watanabe of my staff at 523-4199.

Sincerely,

JOSEPH M. MAGALDI, JR.
Director

cc: Department of Land and Natural Resources
Michael S. Chu, Land Architect

January 20, 1994

The Honorable John D. Waihee
Governor
State of Hawaii
c/o Office of Environmental
Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Makiki-Tantalus State Park Master Plan and
Makiki Forestry Facilities
Draft Environmental Impact Statement (DEIS)
TMK: 2-5-19: 3, 4 and Portion 8;
2-5-20: Portion 4, 5, 7

We have reviewed the subject DEIS and have the following comments to offer:

1. All vehicular access points should be constructed as standard city dropped driveways.
2. The location and design of all access locations should provide for adequate sight distance to pedestrians and vehicles.
3. Landscaping should be placed in locations where it does not obstruct vehicular sight lines.
4. The driveway grade should not exceed 5 percent (5%) for a minimum distance of 35 feet from the curb line.
5. The pavement of all access roads should be wide enough to accommodate two-way traffic.
6. Construction plans for all work within the City right-of-way should be submitted to our department for review.

MICHAEL S CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

March 21, 1994

Mr. Joseph M. Magaldi, Jr., Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

SUBJECT: Your Letter of January 20, 1994, Commenting on the Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Magaldi:

Thank you for taking the time to review the Draft EIS.

In response to your comments, park improvements will comply with City driveway and road standards. The details will be resolved at a later stage when design and construction funds are appropriated.

Please feel free to call me if you have any questions.

Yours Truly,

MICHAEL S. CHU



William A. Bonnet
Manager
Environmental Department

February 3, 1994

The Honorable John Waihee
Governor of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th floor
Honolulu, HI 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS)
Makiki - Tantalus State Park Master Plan and Makiki Forestry Facilities
Honolulu, Oahu

We have reviewed the subject DEIS for the proposed State Park and Forestry Facilities, and request that the contractor obtain the necessary permits, if required, to extend electrical services to the park area. HECO shall reserve further comment pertaining to the protection of existing powerlines servicing the area until construction plans are finalized. Thank you for the opportunity to comment.

Sincerely,

cc: Bill Gorst, Division of State Parks
Michael S. Chu, Michael S. Chu Land Architect

An HEI Company

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

March 21, 1994

Mr. William A. Bonnet, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Subject: Your Letter of February 3, 1994, Commenting on the Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Bonnet:

Thank you for taking the time to review the Draft EIS.

In response to your comments, HECO will be consulted and necessary permits will be obtained before electrical services are extended to new park buildings.

Please feel free to call me if you have any questions.

Yours Truly,

MICHAEL S. CHU

March 1, 1994

The Honorable John Waihee, Governor
c/o Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS) for the Makiki-Tantalus
State Park Master Plan and Makiki Forestry Facilities, Makiki, Oahu,
TMK: 2-5-19-03, 04, Por. 08; 2-5-20; Por. 04, 05, 07

Thank you for the opportunity to review and comment on the DEIS for the proposed
park master plan.

The concerns indicated in our letter of July 29, 1993 on the Environmental Impact
Statement Preparation Notice have been addressed.

However, the statement on page 7-2, paragraph 4 indicating that although disposal of
wastewater in the "No Pass Zone" is not satisfactory to us, we have "...chosen to
discontinue regulation..." is misleading as presented. The situation under which we
discontinued regulation is more accurately described on page 6-3, paragraph 1. Only
after working with the State Department of Health and being assured of protection of
groundwater resources through continuing regulation of ground disposal of wastewater,
did we relinquish regulatory control. The statement should be amended to reflect this.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,



KAZU HAYASHIDA
Manager and Chief Engineer

cc: Office of Environmental Quality Control
Mr. Bill Gorsl, Division of State Parks, DLNR
Mr. Michael S. Chu, Michael S. Chu Land Architect

March 21, 1994

Mr. Kazu Hayashida, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

SUBJECT: Your Letter of March 1 1994, Commenting on the Draft EIS for Makiki-
Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Magaldi:

Thank you for taking the time to review the Draft EIS.

The EIS language shall be changes to more accurately reflect the role of the BWS relative to
wastewater disposal within the 'no pass' zone.

Please feel free to call me if you have any questions.

Yours Truly



MICHAEL S. CHU

145

SEND COPIES TO
APPROPRIATE PARTIES

HAWAII
NATURE
CENTER
CANC

February 5, 1993

John Waihee, Governor
C/O Office of Environmental Quality Control,
220 South King St., 4th floor
Honolulu, Hawaii 96813

Dear Governor Waihee,

On December 26, 1993 Margaret Smith Young passed away of a massive heart attack while visiting her daughter in Colorado. Not surprisingly, she had taken already taken the time to review the Draft EIS for the Hakiki-Tantalus State Park Master Plan.

Her comments on the plan were forwarded to me and I have paraphrased them below.

- 1. Page 4.1
First paragraph refers to "one-half acre of adjacent DOFAW facilities". Which is this on the map? Aren't they improving what they already have?
- 2. Page 4.2 and 4.5
Phase 2 refers to new permanent (long) access road off Hakiki Heights Drive. I would prefer connecting the "temporary access road" to the present gate access permanently with more parking area of it and new trail access nearer the gate. I also question "locked gate" in day time for park operation.
- 3. Page 4.3
Says "no live-in custodian". But I question this recommendation. Next paragraph says "require at least one fulltime groundskeeper". My letter June 1, page 5 reports that a full time caretaker was provided by 1981-83 legislative budget but he has not been serving full time. Is any new legislation necessary??
- 4. Page 4.4
Indicates DOFAW is "exploring the feasibility of storing vehicles and some supplies and equipment closer to where they are used". If part of the DOFAW vehicles are moved elsewhere, where do the 18 employees leave their cars before 7am? Not where they are at the present which should be a picnic area.
- 5. Page 4.5
Park headquarters building shown on map and in Phase I, but no mention anywhere as to who occupies it. Can James Choi house be used or moved?
- 6. No parking area designated on map for 12-20 HNC staff and 3-5 volunteers?


Field Sites on Oahu and Maui
Statewide Offices: 7111 Makiki Heights Drive / Honolulu, Hawaii 96822 / Phone: (808) 955-0100 / Fax: (808) 955-0116
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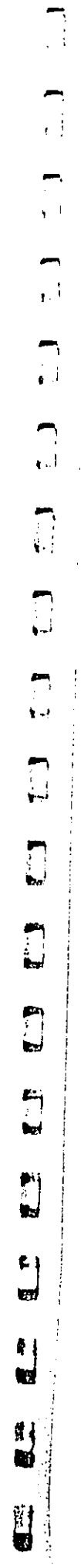
7. Where Exhibit 4 maps shows "existing DOFAW nursery to be reconfigured" --that whole area waikiki of road and along stream should be for people use for picnics, etc. Definately no DOFAW parking or nursery in this area. Nursery to be moved ewa of road to flat open space mauka of DOFAW buildings whcih Herb earlier clear for helicopter.

It sounds like DOFAW is really sincere about looking elsewhere for a permanent base. There will always be a need for some equipment and staff in the valley for Makiki-Tantalus maintenance.

8. Need united appeal for Nutridge for public group meetings as well as interpretive center. Live-in custodian needed and space available. Possibly could double as interpreter.

I have also attached copies of Margarets' notes for verification that these are indeed her comments.

Sincerely,

Tamar Chotzen
Executive Director



CORRECTION

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



COPY

**MICHAEL S CHU
LAND ARCHITECT**
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

March 1, 1994

The Honorable John Waihee, Governor
c/o Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS) for the Makiki-Tantalus
State Park Master Plan and Makiki Forestry Facilities, Makiki, Oahu,
TMK: 2-5-19: 03.04, Por. 08; 2-5-20: Por. 04, 05, 07

Thank you for the opportunity to review and comment on the DEIS for the proposed
park master plan.

The concerns indicated in our letter of July 29, 1993 on the Environmental Impact
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However, the statement on page 7-2, paragraph 4 indicating that although disposal of
wastewater in the "No Pass Zone" is not satisfactory to us, we have "...chosen to
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after working with the State Department of Health and being assured of protection of
groundwater resources through continuing regulation of ground disposal of wastewater,
did we relinquish regulatory control. The statement should be amended to reflect this.

If you have any questions, please contact Barry Usgawa at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Office of Environmental Quality Control
Mr. Bill Gorst, Division of State Parks, DLNR
Mr. Michael S. Chu, Michael S. Chu Land Architect

March 21, 1994

Mr. Kazu Hayashida, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

SUBJECT: Your Letter of March 1, 1994, Commenting on the Draft EIS for Makiki-
Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Mr. Magaldi:

Thank you for taking the time to review the Draft EIS.

The EIS language shall be changes to more accurately reflect the role of the BWS relative to
wastewater disposal within the 'no pass' zone.

Please feel free to call me if you have any questions.

Yours Truly

MICHAEL S. CHU



SEND COPIES TO APPROPRIATE PARTIES

February 5, 1993

John Waihee, Governor
c/o Office of Environmental Quality Control,
220 South King St., 4th floor
Honolulu, Hawaii 96813

Dear Governor Waihee,

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Her comments on the plan were forwarded to me and I have paraphrased them below.

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5. Page 4.5 Park headquarters building shown on map and in Phase I, but no mention anywhere as to who occupies it. Can James Choi house be used or moved?
6. No parking area designated on map for 12-20 HNC staff and 3-5 volunteers?

Field Station Oahu and Maui
Sulphur Office 2111 Makiki Heights Drive / Honolulu, Hawaii 96822 / Phone: (808) 955 0100 / Fax: (808) 955 0116

7. Where Exhibit 4 maps shows "existing DOFAW nursery to be reconfigured"--that whole area waikiki of road and along stream should be for people use for picnics, etc. Definitely no DOFAW parking or nursery in this area. Nursery to be moved away of road to flat open space mauka of DOFAW buildings which Herb earlier clear for helicopter.

It sounds like DOFAW is really sincere about looking elsewhere for a permanent base. There will always be a need for some equipment and staff in the valley for Makiki-Tantalus maintenance.

8. Need united appeal for Nutridge for public group meetings as well as interpretive center. Live-in custodian needed and space available. Possibly could double as interpreter.

I have also attached copies of Margarets' notes for verification that these are indeed her comments.

Sincerely,
Tamar Chotzen
Executive Director



①

I have spent a couple of days of class
with weather reading and reading
Chris Draft E.I.S.

After I get home on Jan 7 I'll
like to have a meeting with a
small group before Lanna goes over
it with Tantey, C.F. or John
with NB #10.

To include both of you
Susan Franklin and for Mary
Steen of Antelope Circle
Ravin Gell

Noti Patten - now ex-officio

A Native Center board but
the one who has set through
most meetings since early
1977, etc.

Tamm has asked the board
members to take over more
responsibility during her
pregnancy (due in April)

②

? Bill Party new HNC
board chairman

Seena: Club representative.

Discussion to include ~~the~~ E.I.S.

① Park headquarters building
shown on map and in Phase I
(page 4.5) but no mention
anywhere as to who occupies
it. Page 4.3 says no lot in
exclusion! - but I question this
recommendation. Next paragraph
on p. 4.3 says "require at least
one full-time groundskeeper!"

✓ My letter June 1, page 5
reports that a full time-sunder
was provided by 1981-83 reports:
budget but file has not been
serving full time! Do any new
legislation necessary??

②

Page 4.1 first paragraph refers
to one-half acre of adjacent
DOFAW facilities: Which is
this on the map? Reintroduction
improving what they already have?

143

13) P. 4.3 and P. 4.5 Phase 2
 refer to ^{new} permanent (long)
 access road off McKittrick Heights
 Drive. I would prefer
 connecting the "empty access
 road" to the present gate
 access presumably not parking
 area of it ~~to~~ and new trail
 access near the gate.
 In addition "locked gate" is
 a good trail for pack operation.

14) No parking designated for 12-20
 Hike staff and 3-5 volunteers?

15) Where Exhibit 4 maps shows
 "Existing DAFAN museum to be
 reconfigured" - that whole
 area walking of road and
 along stream should be for
 "people over for picnic, etc."

16) ? DAFAN - definitely
 no museum -
 Museum to be moved
 end of road to flat open
 space north of DAFAN
 buildings which have entire
 stand for helicopters -

16) P. 4.4 indicates DAFAN
 is "exploring possibility of
 strip vehicles and some supplies
 and equipment down to where
 they are used". If part of
 the 19 vehicles are moved
 elsewhere take their own
 18 employees take their own
 before 7 a.m.? - not where
 they are at present which
 should be picnic area

17) If our small group can arrange
 on some or all of these six points
 there is better chance of success.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

10/5

✓ It sounds like DIFAW
is really serious at looking
elsewhere for a permanent base.
There will always be need
for some equipment and staff
for making facilities maintain

small group - the change
to final plan of presentation
until sent to citizen meeting
and DNR board in
presentation prior to Feb 7 death.

10/5

Used for similar appeal for
(7) - Nutridge for public group
meeting as well as interactive
center - part - implementation
needed and
resources available. Possibly
could double as center.

8. Use of the Nutridge House will be resolved at a later date, after a pilot study of program and interpretive opportunities is completed.

Yours Truly,


MICHAEL S. CHU

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

March 21, 1994

Mrs. Tamar Chotzen, Executive Director
Hawaii Nature Center
2131 Makiki Heights Drive
Honolulu, Hawaii 96822

SUBJECT: Margaret S. Young Comments on the Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

Dear Tamar Chotzen:

Thank you for taking the time to edit Mrs. Margaret S. Young's comments. The following responses are provided to the numbered points made in your February 5, 1994 letter.

1. The "one-half acre" refers to Division of Forestry and Wildlife (DOFAW) facilities remaining after a State park is formally set aside in Makiki Valley.
2. For safety reasons, access to the proposed permanent park road will be located away from the hairpin turn on Makiki Heights Drive. The existing gate will be used to limit inappropriate vehicular access into the park.
3. It is the policy of the Division of State Parks not to establish live-in custodians in parks which are closed to public use at night. The Legislature will need to appropriate sufficient funds to maintain proposed parks. Such appropriations need not earmark funds for staffing any particular park.
4. Storage of DOFAW vehicles, equipment, and supplies outside Makiki Valley will result in DOFAW employees reporting to work (and parking) where DOFAW vehicles are stored.
5. DLNR staffing of the park headquarters is not resolved. Hawaii Nature Center will probably make use of part of the headquarters.

Two houses are located on the former Cioi lot. The first story of one existing residential structure is constructed from CMU block on a concrete slab. This house would be extremely difficult to move. It may be possible to utilize the existing residential structures in their present location. However, the consensus of the Makiki-Tantalus State Recreation Area Advisory Committee was to demolish the two houses and open up the park entry.

6. Most Hawaii Nature Center staff and volunteers would utilize the new parking lot at the park entrance.

7. In the early 1990s, the Territory of Hawaii established the first territorial tree nursery for reforestation in Makiki Valley. DOFAW's nursery is still used to propagate trees for reforestation, but now is also used to propagate endangered endemic plants and to grow native plants for public distribution. For these reasons, the DOFAW nursery is considered compatible with and relevant to the overall park experience.

February 4, 1994

lf: m

John Waihee, Governor
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Honorable Governor Waihee:

On behalf of the Hawai'i Nature Center, I am writing in response to the Draft Environmental Impact Statement for the Makiki-Tantalus State Park Master Plan & Makiki Forestry Facilities. I respectfully request that my comments be made a part of the public record, and that the following suggestions be incorporated into the final Master Plan.

After reviewing the Draft EIS, I have two major areas which I hope can be corrected. They are as follows:

1. On page 4.5, section 4.4 Costs, Funding, Phasing and Timing I recommend that the phasing be changed so that all major improvements to the Makiki area be included in Phase I, and all improvements to the Puu Ualakaa area be moved to Phase II or III as follows:

Phase I

Makiki Valley: Develop 4,000 sf park headquarters, temporary access road and temporary parking lot

Makiki Valley: develop bus bays

Makiki Valley: Replace HNC trailers and buildings leased by HNC with 3,000 sf interpretive center and offices.

Makiki Valley: Replace rain shelter and add comfort station.

Makiki Valley: Develop 6,500 square foot meeting facility.

Phase II

Makiki Valley: Realign Kanealohe Trail and develop pathways from Makiki Pumping Station and the new park headquarters.

Field Sites on Oahu and Maui
Saltwater Office: 7111 Makiki Heights Drive / Honolulu, Hawaii 96827 / Phone: (808) 955-0100 / Fax: (808) 955-0116
Printed on recycled paper. Part of our commitment.

Makiki Valley: Acquire private lot and remove or renovate two houses; develop permanent access road and parking lot.

Puu Ualakaa: Repair existing picnic shelter and develop new picnic shelter.

Phase III

Puu Ualakaa: Renovate Nutridge garage for HNC use and add comfort station.

Puu Ualakaa: Develop loop trail, second lookout shelter, and new connection to Ualakaa trail.

Makiki Valley: Replace Oahu Foresters house and garage with rain shelter

2. Not included on page 4.2, section 4.3.2 Proposed Improvements in Makiki Valley, nor on Exhibit 4, Makiki Valley Improvement Area Mauka Portion, is the inclusion of a rain shelter/picnic area just mauka of the existing comfort station, adjacent to the stream.

It is my understanding from discussions that took place earlier in the planning process that this area, which is now utilized for parking would be landscaped (grassed, etc.) and serve as additional streamside picnic area, HNC teaching area and rest point for the realigned Kanealohe Trail.

I hope this can be added to the plan.

Summary:

In general, the EIS and Master Plan are very good. The plan addresses most of the problems and concerns related to infrastructure and facilities that were expressed at community meetings.

Still unclear however, is how the expanded State Park area in Makiki Valley will be maintained. Will the existing State Parks Division

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
150 SOUTH KING STREET
HONOLULU, HAWAII 96813



94 JAN 13 10:11 AM '94

WALTER M. OZAWA
DIRECTOR
ALYMER C. AU
DEPUTY DIRECTOR

January 11, 1994

The Honorable John Waihee
Governor
c/o Office of Environmental Quality Control
220 South King Street, 4th floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (EIS) for
Makiki-Tantalus State Park Master Plan and
Makiki Forestry Facilities
Honolulu, Oahu
Tax Map Keys 2-5-19: 3, 4, & Por. 8
2-5-20: Pors. 4, 5, & 7

Thank you for providing us with the opportunity to comment on
the draft EIS for the Department of Land and Natural Resources'
proposal for the Makiki-Tantalus area.

We have reviewed the draft EIS and have no comment on the
proposed developments.

Should you have any questions, please call Bob Bevacqua of our
Advance Planning Branch at extension 6316.

Sincerely,

For WALTER M. OZAWA, Director

WMO:ei



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

94 FEB 16 10:53

WALTER M. OZAWA
DIRECTOR

FEB 08 1994

In reply refer to: AA

John Waihee, Governor
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

Dear Governor Waihee:

The U.S. Fish & Wildlife Service has reviewed the Draft EIS for the
Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities. We
believe that the proposed project will not affect any Federally protected species.
Thank you for seeking our input regarding the development of this project.

Sincerely,

for Robert P. Smith
Field Supervisor



DEPARTMENT OF THE NAVY
 COMMANDER
 NAVAL BASE PEARL HARBOR
 BOX 110
 PEARL HARBOR, HAWAII 96860-5020

11010
 Ser #4(23)/3754
 04 Jan 94



Mr. Brian Choy
 Office of Environmental Quality Control
 Fourth Floor
 220 South King Street
 Honolulu, HI 96813-4186

Dear Mr. Choy:

Subj: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) MAKIKI-TANTALUS STATE PARK MASTER PLAN AND MAKIKI FORESTRY FACILITIES, OAHU, HAWAII

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for the Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities, Oahu, Hawaii.

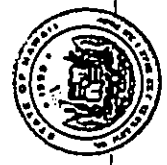
The Navy has no comments to offer at this time and appreciates the opportunity to participate in your review process. The Navy's point of contact is Mr. Stanford Yuen at 474-0439.

Sincerely,

 M. D. CLAUSSEN
 Commander, CEC, U.S. Navy
 Deputy ACOS Facilities and Environment
 the Commander

Copy to: (w/o encl)
 Department of Land and Natural Resources
 1151 Punchbowl Street
 Honolulu, HI 96813

ADRIAN VALDEZ
 General Manager
 MARI HANAUWALANA
 Director
 JEANETTE SCHLIZ
 Director
 RICK HIGGINS
 Director
 TAKERU YOSHIMURA
 Deputy Director



DEPARTMENT OF BUSINESS,
 ECONOMIC DEVELOPMENT & TOURISM

General Public Phone: 220 South King Street, 4th Floor, Honolulu, Hawaii Telephone: (808) 546-7400 Fax: (808) 546-2317
 Lobby Address: 1010 Ala Moana Boulevard, Honolulu Telephone: (808) 546-7400

January 27, 1994

Mr. Brian J.J. Choy
 Director
 Office of Environmental Quality Control
 220 South King Street, 4th Floor
 Honolulu, Hawaii 96813

Dear Mr. Choy:

The Department of Business, Economic Development & Tourism is pleased to submit the enclosed comments on the Draft Environmental Impact Statement for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities.

The comments were provided by our Energy Division. Questions regarding these comments may be directed to Maurice H. Kaya, Energy Program Administrator, at 587-3812.

Thank you for the opportunity to comment.
 Sincerely,

Mufi Hanjmann

Enclosure

JOHN WAIKELI
Governor
MATT HANSEN
Director
JEANNE SCHULTZ
Deputy Director
SICZ EGGID
Deputy Director
MITSU YOSHIMURA
Deputy Director



DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

ENERGY DIVISION, 333 MERCHAMER ST., RM. 110, HONOLULU, HAWAII 96813 PHONE: (808) 547-3000 FAX: (808) 547-3020

JOHN WAIKELI
Governor
MATT HANSEN
Director
JEANNE SCHULTZ
Deputy Director
SICZ EGGID
Deputy Director
MITSU YOSHIMURA
Deputy Director

18/ file



DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

ENERGY DIVISION, 333 MERCHAMER ST., RM. 110, HONOLULU, HAWAII 96813 PHONE: (808) 547-3000 FAX: (808) 547-3020

January 18, 1994

SUBJECT: Draft EIS for Makiki-Tantalus State Park Master Plan and
Makiki Forestry Facilities

The Energy Division has no comments to offer on the subject
Draft EIS (DEIS)

January 18, 1994

SUBJECT: Draft EIS for Makiki-Tantalus State Park Master Plan and
Makiki Forestry Facilities

The Energy Division has no comments to offer on the subject
Draft EIS (DEIS)

ifc
DUKLI



United States
Department of
Agriculture

Soil
Conservation
Service

P. O. Box 50004
Honolulu, HI
96850-0001

696

94 JUN 24 8 7 AM '94

January 16, 1994

U.S. DEPARTMENT OF AGRICULTURE

Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor:

Subject: Draft EIS for Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities

We have completed our review of the Draft EIS and have no major resource concerns at this time. However, precaution should be taken to ensure that sediment generated during and after construction is not allowed to enter Kaneohe Stream. It is recommended that land disturbance is minimized and the construction company properly installs and maintains all erosion control measures. Thank you for the opportunity to provide comment concerning the project. Should you have any questions please contact Mr. Michael C. Tulang at (808) 541-2606.

Sincerely,

Nathaniel R. Conner
NATHANIEL R. CONNER
State Conservationist

cc: Michael Bajrangthong, District Conservator, Honolulu Field Office
Bill Gerst, Division of State Parks, Dept. of Land & Natural Resources, 1151 Punchbowl Street,
Room 430, Honolulu, Hawaii 96813.

"To lead the way in helping our customers conserve, sustain, and enhance Hawaii's natural resources through efficient service of the highest quality."

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

28 Sept. 1994

Nathaniel R. Conner
United State Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, HI 96850-0001

SUBJECT: Comments on the Draft EIS for Makiki-Tantalus State Park Master Plan & Makiki Forest Facility

Dear Mr. Nathaniel R. Conner
Thank you for taking the time to review the Draft EIS.

In response to your comments, any construction work that may result in sedimentation into adjacent streams shall be mitigated through proper erosion control methods.

Please feel free to call me if you have any questions.

Yours Truly

Michael S. Chu
MICHAEL S. CHU

U.S. DEPARTMENT OF AGRICULTURE
NATIONAL CENTER FOR CONSERVATION SERVICES
1400 ...
HONOLULU, HI 96813
PHONE 808 ...
FAX ...



STATE OF HAWAII
 DEPARTMENT OF HEALTH
 P. O. BOX 3298
 HONOLULU, HAWAII 96808

JOHN C. LEWIN, M.D.
 DIRECTOR OF HEALTH

JOHN C. LEWIN, M.D.
 DIRECTOR OF HEALTH

IN REPLY, PLEASE REFER TO:

93-353/epo

February 3, 1994

To: The Honorable John Maitheo
 Governor, State of Hawaii

From: John C. Lewin, M.D. *John C. Lewin*
 Director of Health

Subject: Draft Environmental Impact Statement
 Makiki-Tantalus State Park Master Plan and
 Makiki Forestry Facilities
 THK: 2-5-19
 Honolulu, Hawaii

Thank you for allowing us to review and comment on the subject document.
 We have the following comments to offer:

Wastewater

At this time, we have no objections to the proposed designation and low-key improvements for an approximately 20 acre State Park in Makiki Valley and an approximately 90 acre State Park at Puu Ualakaa. We concur with the proposed use of septic tanks and leaching fields. However, we ultimately would like to see the proposed project connected to the County sewer service system.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems."

If you should have any questions on this matter, please contact Ms. Lori Kajiwara of the Wastewater Branch at 586-4290.

Nonpoint Source Pollution Concerns

The Makiki-Tantalus State Park & Makiki Forestry Facilities is located in the Ala Mai Watershed, one of sixteen Water Quality Limited Segments identified by the Hawaii State Department of Health. Currently, water quality standards are exceeded in the canal and cannot be met unless nonpoint source pollution is controlled.

The Honorable John Maitheo
 February 3, 1994
 Page 2

Runoff from Makiki-Tantalus Park drains into Makiki Stream which then enters the Ala Mai Canal. Proper planning, design and use of erosion control measures and management practices will substantially reduce the total volume of runoff generated, thereby decreasing sediment loads. Steps should be taken to minimize onsite erosion from construction activities. Some of these steps include the following:

- a. Conduct grubbing and grading activities during the low rainfall months (April - October).
- b. Replant or cover bare areas as soon as grading or construction is completed. New plantings will require soil amendments, fertilizers, and temporary irrigation to become established. Use high seeding rates to ensure rapid stand establishment.
- c. Maximize the use of pervious ground covers (vegetation, gravel, and pervious asphalt) to reduce the amount of additional runoff generated.

If you should have any questions on this matter, please contact Ms. Shirley Makamura of the Environmental Planning Office at 586-4337.

c: Wastewater Branch
 Environmental Planning Office

MICHAEL S. CHU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

28 Sept. 1994

Director of Health
P.O. Box 3378
Honolulu, Hawaii 96801

SUBJECT: Comments on the Draft EIS for Makiki-Tantalus State Park Master Plan
& Makiki Forest Facility

Thank you for taking the time to review the Draft EIS and providing the information contained in your letter.

It is understood that the DOH has no objection to the proposed project and concurs with the use of septic tanks and leaching fields. This condition can be improved with the eventual implementation of the City's sewer improvement district and hook up to the Makiki Valley area.

Recommendations, as provided in your letter to minimize run-off from the project area into Makiki Stream, shall be followed.

Please feel free to call me if you have any questions.

Yours Truly



MICHAEL S. CHU

STATE OF HAWAII DEPARTMENT OF HEALTH DIVISION OF ENVIRONMENTAL HEALTH SERVICES
1555 KALANIANA'OLANI BLVD., SUITE 2000, HONOLULU, HAWAII 96813-2000
TELEPHONE: 832-4400 FAX: 832-4401



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96861-5400

MAIL TO
ATTENTION OF

January 7, 1994



66
1-11-94
1-11-94

Planning Division

Office of Environmental Quality Control
State of Hawaii
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Sir/Hadam:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement for the Makiki-Tantalus State Park Master Plan and Makiki Forestry Facilities, Honolulu, Hawaii (TRR: 2-5-19; 3, 4, and por. 8; 2-5-20; por. 4, 5, and 7). The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

a. Based on the information provided, a DA permit is not required since the project does not include storm drains, water development, or stream channel alterations.

b. According to the enclosed Federal Emergency Management Agency's Flood Insurance Rate Map, Panel 150001-0120C, dated September 4, 1987, the proposed project sites are located in zone X (unshaded; areas determined to be outside the 500-year floodplain).

Sincerely,

Kisuk Cheung
Kisuk Cheung, P.E.
Director of Engineering

Enclosure

Customer Copy

LEGEND

FLOOD INSURANCE RATE MAP

COMMUNITY PANEL NUMBER 150001 0120 C

MAP REVISED: SEPTEMBER 4, 1987

FIRM

FLOOD INSURANCE RATE MAP

CITY AND COUNTY OF HONOLULU, HAWAII

PANEL 120 OF 135

PREPARED BY: FEDERAL EMERGENCY MANAGEMENT AGENCY

COMMUNITY PANEL NUMBER 150001 0120 C

MAP REVISED: SEPTEMBER 4, 1987

Federal Emergency Management Agency

LEGEND

1. FLOOD INSURANCE RATE MAP

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LEGEND

FLOOD INSURANCE RATE MAP

COMMUNITY PANEL NUMBER 150001 0120 C

MAP REVISED: SEPTEMBER 4, 1987

FIRM

FLOOD INSURANCE RATE MAP

CITY AND COUNTY OF HONOLULU, HAWAII

PANEL 120 OF 135

PREPARED BY: FEDERAL EMERGENCY MANAGEMENT AGENCY

COMMUNITY PANEL NUMBER 150001 0120 C

MAP REVISED: SEPTEMBER 4, 1987

Federal Emergency Management Agency

MICHAEL S. CHIU
LAND ARCHITECT
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

28 Sept. 1994

Kisuk Cheung, P.E.
Director of Engineering
Department of the Army
U.U. Army Engineering District
 Ft. Schafter, Hawaii 96858

SUBJECT: Comments on the Draft EIS for Makiki-Tantalus State Park Master Plan
& Makiki Forest Facility

Dear Mr. Kisuk Cheung:
Thank you for taking the time to review the Draft EIS and providing the information contained in your letter.

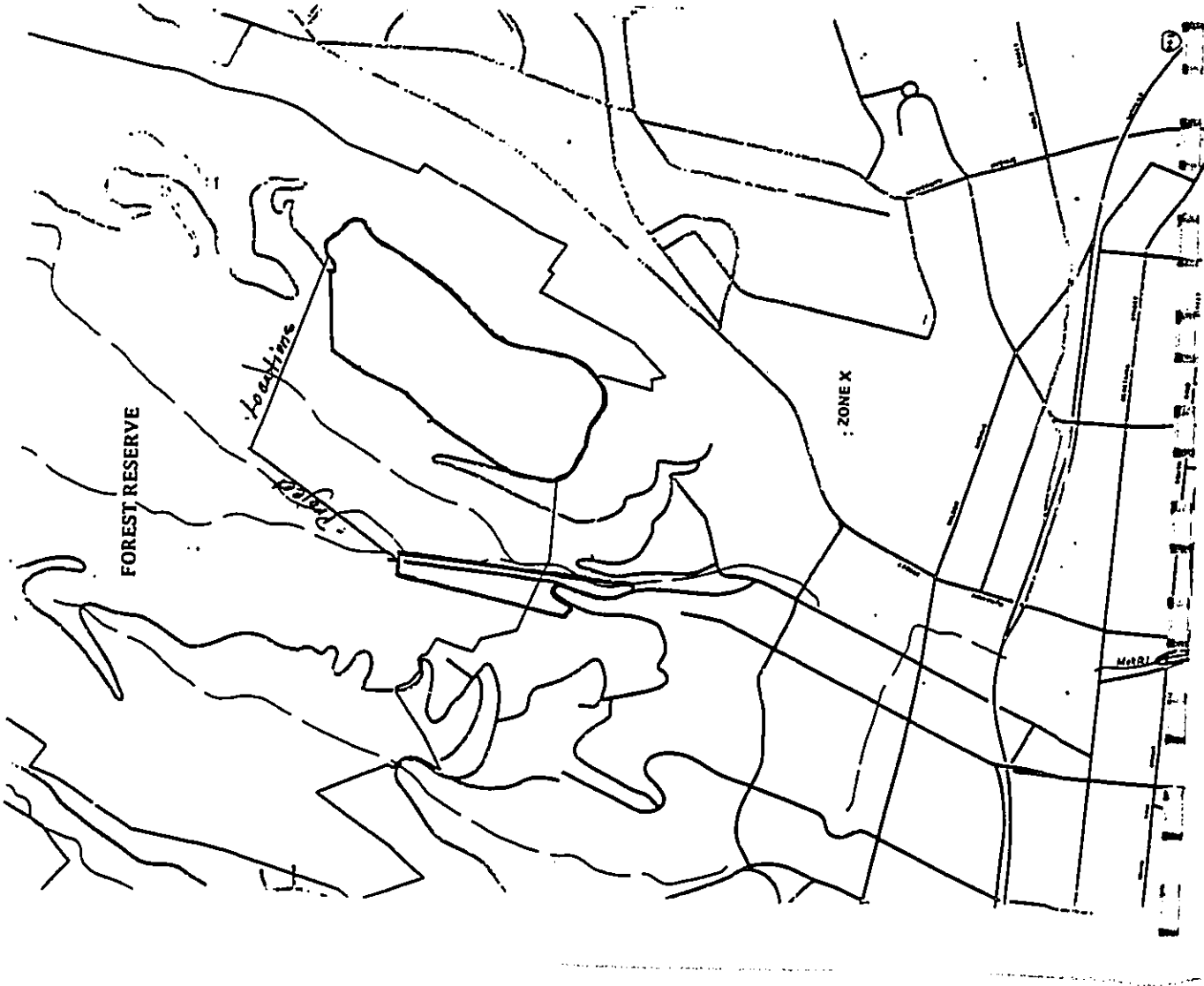
We understand that a DA permit will not be required for the proposed improvements and that project site is located outside the 500 year flood plain.

Please feel free to call me if you have any questions.

Yours Truly



MICHAEL S. CHIU



Division of Aquatic Resources



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

140
OFFICE OF LAND AND NATURAL RESOURCES

AGRICULTURE DEVELOPMENT PROGRAMS
AQUATIC RESOURCES
CONSERVATION AND RESTORATION
ENVIRONMENTAL AFFAIRS
CONSTRUCTION AND DEVELOPMENT
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
WATER AND LAND DEVELOPMENT

REP: OCEA: RMB

File No.: 94-404
I.D. NO.: 4034

JAN 27 1994

MEMORANDUM

TO: Director
Office of Environmental Quality Control

FROM: Keith W. Nuse, Chairperson
Department of Land and Natural Resources

SUBJECT: Draft Environmental Impact Statement (DEIS): Makiki Tantalus State Park Master Plan and Makiki Forestry Facilities, Honolulu, Oahu, THK Nos.: 2-5-19: 3, 4 & por. 8; 2-5-20: por. 4, 5 & 7

We have reviewed the DEIS for the subject master plan received by our office on December 17, 1993, and have the following comments:

Division of Aquatic Resources

The Division of Aquatic Resources (DAR) comments that these activities should not affect surface water biological resources. Although this master plan did not reference interpretive programs or other management considerations, priority should be given to protection and restoration of Makiki Stream, which is already being used for educational purposes despite its degraded condition.

Historic Preservation Division

The Historic Preservation Division (HPD) comments that this DEIS contains as Appendix B, a preliminary archaeological survey of the proposed State Park areas in Makiki Valley and Ualakaa. This appendix is inadvertently titled "Archaeological Inventory Survey" in the Table of Contents and on the cover sheet for the appendix. It is clear throughout the DEIS and in the preliminary archaeological survey report that this is not an inventory survey, and the title for the appendix should be changed to reflect this fact.

Director, OEOC

File No: 94-404

Historical background research and field inspection of the Ualakaa area yielded no archaeological sites and the expectation is that archaeological sites will not be found here due to prior use of the area for agricultural purposes. The preliminary report recommends that trail alignments in this area be flagged and field-checked by an archaeologist prior to construction, and that excavations for a proposed shelter structure be monitored by an archaeologist. In the event that surface or subsurface historic sites are discovered during monitoring, HPD believes that it is likely that these will be significant for their information content alone, and that potentially adverse effects of park construction can be mitigated, and considered to have "no adverse effect" through an appropriate program of data recovery or by altering the alignment of proposed trails.

HPD further comments that the preliminary archaeological survey in the Makiki area yielded a single potentially significant historic site. Additional archaeological work is proposed for this site so that sufficient information can be collected to determine significance. HPD looks forward to reviewing a report of this inventory level survey and the opportunity to comment on a determination of significance for this site.

When this information is in hand HPD will be able to assess the likely effects on this site of the proposed improvements. Presently, trails are the only proposed improvements in the area of the site, and trail locations can be altered to minimize possible effects on the site, should it prove to be significant.

Future use of the historic Ntridge Ixuse (State site 50-80-14-1349) is unresolved in the DEIS. HPD looks forward to reviewing proposed uses when the suitable options have been identified.

Office of Conservation and Environmental Affairs

The Office of Conservation and Environmental Affairs (OCEA) has the following comments:

- The proposed park boundaries described in Section 4.2 should be revised in the Final EIS to include illustrations detailing the proposed park boundaries relative to current THK boundaries.
- With respect to the Makiki Valley Improvement Area, OCEA notes the following:
 - 1) The privately owned parcel identified as THK: 2-5-20: 7, which is to be acquired by the State, was the subject of Conservation District Use Permit (CDUP) 04-189. Approved by the Board on July 23, 1971, this CDUP authorized the office use and expansion of one of two existing non-conforming dwellings by Makiki Nursery, Inc.

Director, OEDC

- 3 -

File No.: 94-404

2) The Hawaii Nature Center (HNC) was the subject of CDUP OA-1886 approved by the Board on August 22, 1986. This CDUP authorized the use of a 25,550 sq./ft. portion of TMK: 2-5-19: 8 as an interpretive environmental educational center. On October 9, 1987, the Board amended this CDUP to allow several related commercial revenue generating activities at the HNC. Any expansion and/or change in the use of this facility should also be authorized relative to CDUP OA-1886.

- There are no CDUPs on record for the existing recreational facilities at Puu Ualakaa Nayside Park. The proposed improvements at both Puu Ualakaa and at Makiki Valley should be conducted in compliance with the Conservation District regulations of Chapter 183-41, Hawaii Revised Statutes and Title 13, Chapter 3, Hawaii Administrative Rules.

- OCEA reiterates their recommendation made previously on the Preparation Notice for the DEIS that a CDUP be pursued for the entire recreational Master Plan for these two areas.

We have no other comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please feel free to call Steve Tegawa at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

MICHAEL S. CHU
LAND ARCHITECT

PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN

28 Sept. 1994

Mr. Keith Ahue
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: Comments on the Draft EIS for Makiki-Tantalus State Park Master Plan & Makiki Forest Facility

Dear Mr. Ahue:

Thank you for taking the time to review the Draft EIS. Response to your comments are provided:

Div. of Aquatic Resources
Attention to protecting and restoring Makiki Stream shall be given to all work undertaken as a result of this master plan.

Historic Preservation Div.

The final archeological report has been entitled "Archeological Survey of Proposed State Park Areas in Makiki Valley and Puu Ualakaa, Makiki, Honolulu District, Island of Oahu."

Future trail and park shelter development in the Ualakaa area shall be monitored by an archeologist as recommended in your letter.

The archeology report recommends flagging and field checking by an archeologist for new construction (e.g. buildings, roads, parking areas), and that subsurface archeological testing may be required. HPD will be kept informed of any findings and additional work performed.

Use of the Nuridge House will be resolved after a pilot study of program and interpretive opportunities is completed. HPD will be kept informed.

Office of Conservation and Environmental Affairs
It has been recommended that the park boundaries be revised in a manner suited for administrative purposes between DOFAW and State Parks. This may not necessarily follow existing TMK boundaries.

Information regarding the CDUP OA-189 and CDUP OA-1886 is acknowledged. Any use and/or expansion shall be petitioned through the Board of Land and Natural Resources.

Please feel free to call me if you have any questions.

Yours Truly



MICHAEL S. CHU

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100