Environmental Impact Statement

Department of Land and Natural Resources

Division of Water and Land Development
FINAL ENVIRONMENTAL IMPACT STATEMENT

March 1982

Project: Agricultural Subdivision
Phase I Increment for the Waimanalo Agricultural Park

Location: Waimanalo, Koolaupoko District, Island of Oahu, State of Hawaii

Proposing Agency: Department of Land and Natural Resources
Division of Water and Land Development
State of Hawaii

Accepting Authority: Governor
State of Hawaii

Consultants: Park Engineering, Inc.
190 South King Street, Suite 2085
Honolulu, Hawaii 96813
Telephone: 531-1676

Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809
Telephone: 521-8391
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SECTION 1:</strong></td>
<td>SUMMARY</td>
<td>1-1</td>
</tr>
<tr>
<td><strong>SECTION 2:</strong></td>
<td>INTRODUCTION TO WAIMANALO AGRICULTURAL PARK</td>
<td>2-1</td>
</tr>
<tr>
<td></td>
<td>I. Definition of an Agricultural Park</td>
<td>2-1</td>
</tr>
<tr>
<td></td>
<td>II. Historic Overview</td>
<td>2-2</td>
</tr>
<tr>
<td></td>
<td>III. Phasing Overview</td>
<td>2-3</td>
</tr>
<tr>
<td><strong>SECTION 3:</strong></td>
<td>DESCRIPTION OF PROPOSED PROJECT</td>
<td>3-1</td>
</tr>
<tr>
<td></td>
<td>I. Project Location</td>
<td>3-1</td>
</tr>
<tr>
<td></td>
<td>II. Description of Proposed Action</td>
<td>3-1</td>
</tr>
<tr>
<td></td>
<td>III. Goals and Objectives of the Proposed Action</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>IV. Phasing and Funding</td>
<td>3-11</td>
</tr>
<tr>
<td></td>
<td>A. Phasing</td>
<td>3-11</td>
</tr>
<tr>
<td></td>
<td>B. Funding</td>
<td>3-11</td>
</tr>
<tr>
<td><strong>SECTION 4:</strong></td>
<td>EXISTING ENVIRONMENT</td>
<td>4-1</td>
</tr>
<tr>
<td></td>
<td>I. Topographical Characteristics</td>
<td>4-1</td>
</tr>
<tr>
<td></td>
<td>A. Geology</td>
<td>4-1</td>
</tr>
<tr>
<td></td>
<td>B. Soils</td>
<td>4-1</td>
</tr>
<tr>
<td></td>
<td>II. Climatic Characteristics</td>
<td>4-3</td>
</tr>
<tr>
<td></td>
<td>A. Rainfall</td>
<td>4-3</td>
</tr>
<tr>
<td></td>
<td>B. Wind</td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>C. Temperature</td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>D. Humidity</td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>III. Hydrological Characteristics</td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>A. Surface Water</td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>B. Groundwater</td>
<td>4-7</td>
</tr>
<tr>
<td></td>
<td>IV. Biological Characteristics</td>
<td>4-7</td>
</tr>
<tr>
<td></td>
<td>A. Flora</td>
<td>4-7</td>
</tr>
<tr>
<td></td>
<td>B. Fauna</td>
<td>4-11</td>
</tr>
<tr>
<td></td>
<td>V. Archaeological Sites</td>
<td>4-12</td>
</tr>
<tr>
<td></td>
<td>VI. Flood Hazard</td>
<td>4-14</td>
</tr>
<tr>
<td></td>
<td>A. Flooding</td>
<td>4-14</td>
</tr>
<tr>
<td></td>
<td>B. Tsunami Inundation</td>
<td>4-14</td>
</tr>
<tr>
<td></td>
<td>VII. Infrastructure and Utilities</td>
<td>4-14</td>
</tr>
<tr>
<td></td>
<td>A. Water</td>
<td>4-14</td>
</tr>
<tr>
<td></td>
<td>1. Domestic System</td>
<td>4-14</td>
</tr>
<tr>
<td></td>
<td>2. Waimanalo Irrigation System</td>
<td>4-17</td>
</tr>
<tr>
<td></td>
<td>B. Electrical</td>
<td>4-19</td>
</tr>
<tr>
<td></td>
<td>C. Gas</td>
<td>4-19</td>
</tr>
<tr>
<td></td>
<td>D. Liquid Waste</td>
<td>4-21</td>
</tr>
<tr>
<td></td>
<td>E. Solid Waste</td>
<td>4-21</td>
</tr>
<tr>
<td></td>
<td>VIII. Public Facilities and Services</td>
<td>4-21</td>
</tr>
<tr>
<td></td>
<td>A. Police Protection</td>
<td>4-21</td>
</tr>
<tr>
<td></td>
<td>B. Fire Protection</td>
<td>4-21</td>
</tr>
<tr>
<td></td>
<td>C. Health Services</td>
<td>4-24</td>
</tr>
<tr>
<td></td>
<td>D. Education Services</td>
<td>4-24</td>
</tr>
<tr>
<td></td>
<td>E. Access</td>
<td>4-24</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS  
(continued)

<table>
<thead>
<tr>
<th>IX.</th>
<th>Economic Characteristics</th>
<th>4-26</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SECTION 5:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.</td>
<td>REGULATORY CONSIDERATIONS</td>
<td>5-1</td>
</tr>
<tr>
<td>II.</td>
<td>County</td>
<td>5-1</td>
</tr>
<tr>
<td></td>
<td>A. General Plan</td>
<td>5-1</td>
</tr>
<tr>
<td></td>
<td>B. Development Plan</td>
<td>5-2</td>
</tr>
<tr>
<td></td>
<td>C. Zoning</td>
<td>5-2</td>
</tr>
<tr>
<td>II.</td>
<td>State</td>
<td>5-2</td>
</tr>
<tr>
<td></td>
<td>A. State Land Use Designation</td>
<td>5-2</td>
</tr>
<tr>
<td></td>
<td>B. Hawaii State Plan</td>
<td>5-3</td>
</tr>
<tr>
<td><strong>SECTION 6:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.</td>
<td>ANTICIPATED ENVIRONMENTAL IMPACTS</td>
<td>6-1</td>
</tr>
<tr>
<td>II.</td>
<td>Introduction</td>
<td>6-1</td>
</tr>
<tr>
<td></td>
<td>Primary Impacts</td>
<td>6-1</td>
</tr>
<tr>
<td></td>
<td>A. Short-Term Impacts</td>
<td>6-1</td>
</tr>
<tr>
<td></td>
<td>1. Economical</td>
<td>6-1</td>
</tr>
<tr>
<td></td>
<td>2. Air Quality</td>
<td>6-1</td>
</tr>
<tr>
<td></td>
<td>3. Water Quality</td>
<td>6-2</td>
</tr>
<tr>
<td></td>
<td>4. Traffic</td>
<td>6-2</td>
</tr>
<tr>
<td></td>
<td>5. Noise</td>
<td>6-3</td>
</tr>
<tr>
<td></td>
<td>6. Biological</td>
<td>6-3</td>
</tr>
<tr>
<td></td>
<td>7. Archaeological</td>
<td>6-5</td>
</tr>
<tr>
<td></td>
<td>B. Long-Term Impacts</td>
<td>6-5</td>
</tr>
<tr>
<td></td>
<td>1. Economical</td>
<td>6-5</td>
</tr>
<tr>
<td></td>
<td>2. Air Quality</td>
<td>6-6</td>
</tr>
<tr>
<td></td>
<td>3. Water Quality</td>
<td>6-6</td>
</tr>
<tr>
<td></td>
<td>a) Surface Water</td>
<td>6-6</td>
</tr>
<tr>
<td></td>
<td>b) Groundwater</td>
<td>6-7</td>
</tr>
<tr>
<td></td>
<td>4. Erosion</td>
<td>6-7</td>
</tr>
<tr>
<td></td>
<td>5. Noise</td>
<td>6-9</td>
</tr>
<tr>
<td></td>
<td>6. Biological</td>
<td>6-9</td>
</tr>
<tr>
<td></td>
<td>7. Archaeological</td>
<td>6-9</td>
</tr>
<tr>
<td></td>
<td>8. Utilities</td>
<td>6-9</td>
</tr>
<tr>
<td></td>
<td>a) Irrigation</td>
<td>6-9</td>
</tr>
<tr>
<td></td>
<td>b) Fire Protection Water Flow</td>
<td>6-16</td>
</tr>
<tr>
<td></td>
<td>c) Liquid Waste Disposal</td>
<td>6-16</td>
</tr>
<tr>
<td></td>
<td>d) Solid Waste Disposal</td>
<td>6-17</td>
</tr>
<tr>
<td></td>
<td>e) Potable Water</td>
<td>6-17</td>
</tr>
<tr>
<td></td>
<td>f) Drainage</td>
<td>6-19</td>
</tr>
<tr>
<td></td>
<td>g) Gas, Electrical, and Telephone</td>
<td>6-20</td>
</tr>
<tr>
<td></td>
<td>9. Public Facilities and Services</td>
<td>6-20</td>
</tr>
<tr>
<td></td>
<td>a) Traffic/Access</td>
<td>6-20</td>
</tr>
<tr>
<td></td>
<td>b) Security and Emergency</td>
<td>6-21</td>
</tr>
<tr>
<td></td>
<td>c) Social</td>
<td>6-21</td>
</tr>
<tr>
<td></td>
<td>d) Agricultural Industry</td>
<td>6-21</td>
</tr>
<tr>
<td>III.</td>
<td>Secondary Impacts</td>
<td>6-21</td>
</tr>
<tr>
<td></td>
<td>A. Land Use</td>
<td>6-21</td>
</tr>
<tr>
<td></td>
<td>B. Educational Opportunity</td>
<td>6-22</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS (continued)

<table>
<thead>
<tr>
<th>SECTION 7: ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction</td>
<td>7-1</td>
</tr>
<tr>
<td>II. Primary Short-Term Impacts</td>
<td>7-1</td>
</tr>
<tr>
<td>A. Adverse Impacts and Mitigative Measures</td>
<td>7-1</td>
</tr>
<tr>
<td>B. Reasons for Proceeding</td>
<td>7-2</td>
</tr>
<tr>
<td>III. Primary Long-Term Impacts</td>
<td>7-2</td>
</tr>
<tr>
<td>A. Adverse Impacts and Mitigative Measures</td>
<td>7-2</td>
</tr>
<tr>
<td>B. Reasons for Proceeding</td>
<td>7-4</td>
</tr>
<tr>
<td>IV. Secondary Impacts</td>
<td>7-4</td>
</tr>
<tr>
<td>A. Adverse Impacts and Mitigative Measures</td>
<td>7-4</td>
</tr>
<tr>
<td>B. Reasons for Proceeding</td>
<td>7-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION 8: ALTERNATIVES TO THE PROPOSED ACTION</th>
<th>9-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction</td>
<td>8-1</td>
</tr>
<tr>
<td>II. No Action</td>
<td>8-1</td>
</tr>
<tr>
<td>III. Alternative Sites</td>
<td>8-1</td>
</tr>
<tr>
<td>IV. Alternative Uses and Development Concepts</td>
<td>8-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION 9: IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES</th>
<th>9-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction</td>
<td>9-1</td>
</tr>
<tr>
<td>II. Irreversible and Irretrievable Commitment of Resources</td>
<td>9-1</td>
</tr>
</tbody>
</table>

| SECTION 10: RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY | 10-1 |

| SECTION 11: AN INDICATION OF WHAT OTHER INTERESTS AND CONSIDERATIONS OF GOVERNMENTAL POLICIES ARE THOUGHT TO OFFSET THE ADVERSE ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION | 11-1 |

| SECTION 12: LIST OF NECESSARY APPROVALS                       | 12-1 |

| SECTION 13.1: ORGANIZATIONS AND PERSONS CONSULTED DURING THE NOTICE OF PREPARATION REVIEW PROCESS | 13-1 |

| SECTION 13.2: REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE DRAFT EIS REVIEW | 13-25 |

REFERENCES
### TABLE OF CONTENTS (continued)

#### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>Recommended Agricultural Uses</td>
<td>3-5</td>
</tr>
<tr>
<td>3-2</td>
<td>Expression of Interest</td>
<td>3-12</td>
</tr>
<tr>
<td>4-1</td>
<td>Offenses by Rate Per 100,000 Resident Population</td>
<td>4-23</td>
</tr>
<tr>
<td>4-2</td>
<td>Public Education Facilities Servicing Waimanalo</td>
<td>4-25</td>
</tr>
<tr>
<td>4-3</td>
<td>Value of Agricultural Commodities 1980</td>
<td>4-27</td>
</tr>
<tr>
<td>4-4</td>
<td>Hawaii Diversified Agriculture Ranked by Value, 1978 to 1980</td>
<td>4-28</td>
</tr>
<tr>
<td>6-1</td>
<td>Waimanalo Irrigation System</td>
<td>6-11</td>
</tr>
<tr>
<td>6-2</td>
<td>Crop Type and Water Requirements</td>
<td>6-14</td>
</tr>
<tr>
<td>8-1</td>
<td>Statewide Agricultural Park Status Report</td>
<td>8-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8-3</td>
</tr>
<tr>
<td>13-1</td>
<td>Organizations and Agencies Consulted During the EIS Preparation Notice</td>
<td>13-2</td>
</tr>
<tr>
<td>13-2</td>
<td>Comments Received on the EIS Preparation Notice</td>
<td>13-3</td>
</tr>
<tr>
<td>13-3</td>
<td>Organizations and Agencies Consulted During the Draft EIS</td>
<td>13-26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13-27</td>
</tr>
</tbody>
</table>

#### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>General Location Map</td>
<td>3-2</td>
</tr>
<tr>
<td>3-2</td>
<td>Site Location Map</td>
<td>3-3</td>
</tr>
<tr>
<td>3-3</td>
<td>Site Plan</td>
<td>3-6</td>
</tr>
<tr>
<td>3-4</td>
<td>Improvements for Phase I Agricultural Subdivision</td>
<td>3-8</td>
</tr>
<tr>
<td>4-1</td>
<td>Rainfall Isohyetes</td>
<td>4-4</td>
</tr>
<tr>
<td>4-2</td>
<td>Waimanalo Watershed and Drainage Basin</td>
<td>4-6</td>
</tr>
<tr>
<td>4-3</td>
<td>Agricultural Lands of Importance in State of Hawaii (ALISH)</td>
<td>4-8</td>
</tr>
<tr>
<td>4-4</td>
<td>Archaeological Site</td>
<td>4-13</td>
</tr>
<tr>
<td>4-5</td>
<td>Flood Hazard Map</td>
<td>4-15</td>
</tr>
<tr>
<td>4-6</td>
<td>Board of Water Supply's Domestic Water System</td>
<td>4-16</td>
</tr>
<tr>
<td>4-7</td>
<td>Existing Electrical and Gas Lines</td>
<td>4-20</td>
</tr>
<tr>
<td>4-8</td>
<td>Existing Sewered Areas</td>
<td>4-22</td>
</tr>
<tr>
<td>6-1</td>
<td>Construction Equipment Noise Ranges</td>
<td>6-4</td>
</tr>
<tr>
<td>6-2</td>
<td>Board of Water Supply's &quot;Pass/No Pass Line&quot;</td>
<td>6-8</td>
</tr>
<tr>
<td>6-3</td>
<td>Waimanalo Farm Lots Irrigation Water Consumption (1973 to 1977)</td>
<td>6-10</td>
</tr>
<tr>
<td>6-4</td>
<td>Irrigation Improvements - U.S. Department of Agriculture and Soil Conservation Service Watershed Plan</td>
<td>6-13</td>
</tr>
<tr>
<td>6-5</td>
<td>Proposed Solid Waste Collection Sites</td>
<td>6-18</td>
</tr>
</tbody>
</table>
SECTION 1: SUMMARY

I. Description of Proposed Project

The State of Hawaii, Department of Land and Natural Resources proposes the development of a ±475 acre Agriculture Subdivision at Waimanalo on the island of Oahu. This proposed action will represent the Phase I increment for the complete development of the 1,800 acre Waimanalo Agricultural Park. The project site is located on the north-western face of the proposed Agricultural Park and is approximately 14 miles from central Honolulu over the Pali Highway.

The primary objective of the Agricultural Subdivision is to facilitate the development of diversified agriculture in Hawaii, a goal set in the Hawaii State Plan. Similar to an industrial park, the immediate completion of the Agricultural Subdivision and eventual completion of the Waimanalo Agricultural Park would bring together agricultural enterprises with compatible interests. By centralizing agricultural activities, operating and capital improvement costs can be lowered.

The Agricultural Subdivision will be comprised of 15 lots, of which only 14 possess the potential for crop production. The 14 lots will be leased to farmers for 55 years. Under Ag-1 zoning, the farmers will be allowed to produce bananas, flowers, tomatoes, and/or nursery products. Farmers will select which crop to produce according to: (1) the physical capacities of the individual lot, including water, soil, climate, and tillability, (2) the cost and quality of other resources brought to the land, with particular emphasis on water, management, and labor, and (3) the potential market that can be developed without lowering prices significantly.

The 14-lot Agricultural Subdivision will include the construction of a 24-foot wide asphalt concrete pavement within a 44-foot wide right-of-way. Irrigation water will be provided by a new 16-inch pipe system. Other utilities included in the subdivision development will be electric,
telephone and street lighting systems. The State will finance the capital improvement costs for the roadway and water lines. On-site improvements will be funded by each individual farmer.

One single dwelling unit per lot will be allowed, consistent with the Ag-1 zoning.

Estimated costs for the subdivision is $1,617,000. Funds will be provided from Act 300 SLH 1980, Item IV-A-14, Agricultural Park Subdivision, Statewide.

II. Existing Environment

A. Topographical Characteristics

Geology. The Phase I Agricultural Subdivision development of the Waimanalo Agricultural Park is located on land formed by the lava flows of the Koolau Volcanic Series.

Soil. The soils in the project area belong to the Lolekaa, Hanalei, and Alaeoloa series. For the Lolekaa soils, permeability is moderately rapid, runoff is slow, and the erosion hazard is slight. For the Hanalei soils, permeability is moderate, runoff is slow, and the erosion hazard is slight. For the Alaeoloa soils, permeability is moderately difficult, runoff is rapid, and the erosion hazard is severe.

B. Climatic Characteristics

Rainfall. The mean annual rainfall is approximately 44 inches a year. Occurrences of heavy rainfall are infrequent.

Wind. The prevalent winds blow from the northeast, 80 percent of the time.
Temperature. Daily temperatures are mild and uniform, ranging from 70°F. in January to 78°F. in August. The average annual temperature is 74°F.

Humidity. Relative humidity ranges from 70-80 percent, with the winter months being more humid than the summer months.

C. Hydrological Characteristics

Surface Water. The perennial Waimanalo Stream is the only surface water that runs through the project site. Other waterways in the immediate vicinity are the Inoaole and the Kahawai Streams.

Groundwater. Groundwater occurs as brackish basal water, dike-impounded water, and alluvial water.

D. Biological Characteristics

Flora. A field investigation of the project site revealed nine major plants units. The majority of the species were introduced and were not considered threatened or endangered by State or Federal agencies.

Fauna. Terrestrial fauna in the project site include introduced species associated with urbanized areas. The site does not contain any significant wildlife habitats or any endangered species of birds and mammals.

E. Archaeological Sites

A heiau was identified adjacent to the project site and the Kailua Ditch was located on the project site.
F. Flood Hazards

Flooding. Flooding at the site is infrequent. However, two of the lots are located within the United States Department of Housing and Urban Development (HUD) 100-year flood boundary.

Tsunami Inundation. Tsunami inundation along the coastline of Waimanalo Bay, as recorded from the 1946, 1952, and 1960 tsunamis, indicated that runup ranged from 6 to 9 feet over the mean lower-low water level.

G. Infrastructure and Utilities

Domestic System. Water is transported to the fringes of the project area by the Board of Water Supply (BWS) domestic system, which maintains a system of source, wells, storage, mains, and fire hydrants within the Waimanalo Valley.

Waimanalo Irrigation System. The Waimanalo Irrigation System currently provide irrigation resources to the Waimanalo area. Water, mostly from springs, is collected by a series of ditches and transferred from Maunawili Valley, down to farm lands in Waimanalo.

Electrical. Electricity to areas adjacent to the project site is supplied by Hawaii Electric Company from overhead 4.16 kilo volt, solidly grounded lines along Kalanianaole Highway, Flamingo Road, Kumuhau Street, and Waikupanaha Street.

Gas. The only gas lines located within the immediate vicinity of the project site are within the Waimanalo Village Subdivision, southeast of the site.

Sewage. The Waimanalo Sewage Treatment Plant (STP) is located northeast of the project site. The STP provides secondary treatment, as effluent is discharged into three deep injection wells.
Solid Waste Disposal. Solid waste from adjacent areas is picked up by the Refuse Collection and Disposal Division of the City and County of Honolulu, and disposed at the Kapaa Sanitary Landfill.

H. Public Facilities and Services

Police Protection. The project area is serviced by the Kailua Police Substation and is patrolled by Police Beats Nos. 420 and 421. Response time to the project area is within ±5 minutes.

Fire Protection. The project area is serviced by the Waimanalo Fire Station and Kailua Fire Station. Response time for both stations is within ±5 minutes.

Health Services. Castle Memorial Hospital is located approximately 3 miles from the project site.

Education Services. The Waimanalo area is served by three public schools. These include Blanche Pope Elementary, Waimanalo Elementary and Intermediate, and Kailua High School.

Access. The Kumuhau and Waikupanaha Streets provide access to the outer fringes of the project site. The mass transit system servicing the Waimanalo area is the No. 57 route, Waimanalo-Honolulu.

I. Economic Characteristics

Diversified agriculture in the State climbed to a high of $152 million in 1979, up 13 percent from the previous year. During these times, Oahu produced only 34 percent of the State's total value of diversified agriculture commodities. The total value of diversified agriculture commodities for Oahu was $51 million. Waimanalo has contributed significantly to the diversified agricultural industry of Oahu. It was estimated that the total 1976 farm value of crop and livestock
sales from Waimanalo was approximately $6 million. Further confirmation of Waimanalo's importance to the diversified agricultural industry can be extrapolated from a document prepared by the Hawaii Agricultural Reporting Service. The report showed that the Koolaupoko District, of which Waimanalo is the major production center, ranked the second highest in value of diversified agricultural production on Oahu. The variety of commodities which are produced in Waimanalo is extensive and includes: dairy operations, poultry operations, nurseries, and truck crops.

III. Regulatory Considerations

A. County

Zoning. The project site is zoned Ag-1, Restricted Agricultural District.

General Plan. The proposed Agricultural Subdivision is in conformance with several objectives and policies of the General Plan. The City and County of Honolulu's Detailed Land Use Map (DLUM) designates the project site as providing for agriculture, residential, open space, and park uses.

Development Plan. The project site is designated "agriculture" by the proposed Development Plan.

B. State

State Land Use Designation. The State Land Use Designation for the project site is "agriculture."

Hawaii State Plan. The Agricultural Subdivision is in direct compliance with several policies and policy directions detailed in the Hawaii State Plan.
IV. Anticipated Environmental Impacts and Mitigative Measures

A. Primary Short-Term Impacts and Mitigative Measures

Activities related and limited to the duration of the construction period.

Economic. During the construction of the Agricultural Subdivision, there will be a short-term infusion of cash into the State and County economy.

Air Quality. Dust will be generated, but not at significant levels, since the majority of soil type found at the site is not subject to excessive wind and water erosion.

Exhaust emissions from construction equipment are not expected to significantly affect the air quality of the area. The prevailing winds in the area should disperse any exhaust gas concentrations.

Water Quality. Erosion and sedimentation problems are not expected to significantly impact the Waimanalo Stream located on the project site, since the soils are characterized by slight erosive activity. The impact of construction can be further mitigated by adhering to current County, State, and Federal controls.

Traffic. Impacts of increased traffic due to construction will be minor because of limited adjacent development and the confinement of clearing activities to the project site.

Noise. Noise generated by construction machinery will be mitigated by utilizing acceptable methods.
Biological. No vegetation or fauna found at the project site are considered threatened or endangered by State and Federal agencies. Fauna in the immediate vicinity may relocate into adjacent areas, but would be able to return, upon completion of construction.

Archaeological. A heiau was identified adjacent to the project site. It is anticipated though, that construction activity will not possess any adverse impact, due to the distance between the project area and the heiau. The Kailua Ditch located on the project site will be minimally impacted, since the Ditch has been recorded, possesses insignificant architectural features, and is currently abandoned.

B. Primary Long-Term Impacts and Mitigative Measures

Economic. The long-term economic impact from the proposed project is difficult to ascertain at this time. However, there will be an increase in agricultural jobs; purchases of agricultural supplies; revenue to the State from the long-term leasing of the land and taxes on the sale of supplies and produce; and revenue to the County from increased property taxes on agricultural lots.

Air Quality. Impacts on ambient air quality are not anticipated to be significant. Each of the farmers will use EPA approved herbicides and pesticides and will be required to take courses and receive instructions before being granted a permit to use herbicides and pesticides. Certain agricultural crops may require the burning of excess vegetation. As noted, a permit would be required.

Water Quality

Surface Water. Impact to the surface water quality of Waimanalo Stream should be insignificant due to the "flashy" characteristics of the stream and the infrequent occurrence of rainfall in the Waimanalo area.

Groundwater. No impact on the groundwater quality is anticipated, since there has been no adverse impact on groundwater from existing agricultural land uses.
Erosion. Erosion will occur normally on agricultural lands. Farmers will be advised to follow Federal erosion controls.

Noise. High levels of noise will not be generated.

Biological. The project area is not considered to be a sensitive wildlife habitat area, nor does the site contain any endangered species of plants or animals.

Archaeological. A heiau was identified adjacent to the project site. It is anticipated that the Agricultural Subdivision will not adversely impact the heiau.

Utilities

Irrigation. Estimating water demand for the Agricultural Subdivision requires consideration of a complex interaction of changes in wind, rainfall, isolation, and plant growth rates. However, it was estimated that a demand of 275,000 gallons per acre during August, the most arid month, and 55,000 gallons per acre during December, the most wet month could be found.

Irrigation resources to the project site will be provided by a new 16-inch pipe system from the tunnel portal. However, this will be a temporary arrangement.

The USDA Soil Conservation Service, in their Watershed Plan and Draft Environmental Impact Statement, will provide necessary irrigation resources to the Agricultural Subdivision by constructing a 60-million gallon capacity reservoir located at the end of Mahailua Street.

Fire Protection Water Flow. The project's proposed action will include provisions for fire protection and appurtenances. Resources will be provided by the Kailua Reservoir and the proposed reservoir located at the end of Mahailua Street.
Liquid Waste Disposal. The Agricultural Subdivision may be serviced by cesspools since the project site is located makai of the Board of Water Supply's "Pass/No Pass Line." However, final determination for allowing cesspools must be made jointly, by the Department of Land and Natural Resources and the Department of Health, in addition to the Board of Water Supply.

Solid Waste Disposal. The bridge located on Waikupanaha Street was determined by the County Refuse Division as being adequate in providing access for refuse collection vehicles. All solid waste will be disposed at the Kapaa Sanitary Landfill.

Potable Water. Potable water will be furnished subsequent to BWS approval.

Drainage. To minimize adverse impacts resulting from the 100-year flood and other natural flood hazards, lease documents will be worded to prevent encroachment into the flowage easements. The proposed action will provide for culverts and additional drainage appurtenances. Runoff water should also percolate naturally.

Gas, Electric and Telephone. There exists sufficient gas, electrical, and telephone services to satisfy demands.

Public Facilities and Services

Traffic/Access. The impact of additional traffic to the project site will be minimal. Access to the project site will be provided by a 24-foot wide asphalt concrete pavement within a 44-foot wide right-of-way.

Security and Emergency. Each individual farmer would be responsible for providing security for his farm equipment and his parcel of land. Emergency facilities are located within the immediate vicinity for medical services, police and fire protection.
Social. The Agricultural Subdivision will have no significant impact on the adjacent communities, since it will respect the agricultural and rural atmosphere of the completed Waimanalo Agricultural Park development and the entire Waimanalo area.

Agricultural Industry. Operation of the Agricultural Subdivision will aid in promoting diversified agriculture in the State, and will not negatively impact other farming operations.

C. Secondary Impacts

Use of this area as an Agricultural Subdivision will preclude other actions for the land. The proposed subdivision will also provide educational opportunity to those individuals interested in agricultural production.

V. Alternatives to the Proposed Action

No Action

A "no action" alternative would not accomplish the objectives of the Department of Land and Natural Resources. These objectives are to provide land for diversified agriculture, to provide land for practical experience in the areas of agriculture, and to provide an opportunity for the small farmers.

Alternative Sites

Presently, there are nine committed Agricultural Park projects in various stages of planning, design, construction, or completion.

However, the project site should be utilized as an Agricultural Park since the land is available for immediate use, minimal land acquisition costs are involved, and the parcel is located in close proximity to the Honolulu market and to shipping facilities in Honolulu Harbor.
Alternative Uses and Development Concepts

The project site is designated "agriculture" according to the State Land Use District boundary, the City and County of Honolulu General Plan and proposed Development Plan, and is zoned Ag-1. Alternative uses of the land other than those compatible with the agricultural land use designations would require changes in the State Land Use designation as well as the County General Plan, Development Plan and Zoning Designation.

VI. Irreversible and Irretrievable Commitment of Resources

Labor, construction building materials and fuel will be committed to the project. Additional manpower, fuel, fertilizer and pesticides will be utilized by the individual farmers for cultivation of the agricultural products.

VII. The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The proposed project will not involve trade-offs between short-term environmental gains at the expense of long-term losses, narrow the range of beneficial use of the environment, or propose long-term risks to health and safety.

VIII. An Indication of What Other Interests and Considerations of Governmental Policies are Thought to Offset the Adverse Environmental Effects of the Proposed Action

The development of an agricultural park in this area will be in accordance with the goals and objectives presented in the objective of the Agricultural Park set forth in Chapter C, 171, Part V of the Hawaii Revised Statutes, to strengthened diversified agriculture in Hawaii by a plan that "combines and concentrates in a common location agricultural activities for the purpose of production and distribution of the economy."

The proposed action is also in accordance to the County General Plan, the State Plan, and proposed Agricultural Functional Plan. All of these plans possess policies supporting the need for diversified agricultural activities to strengthen the State economic base.
SECTION 2: INTRODUCTION TO WAIMANALO AGRICULTURAL PARK

I. Definition of an Agricultural Park

Chapter 171, of the Hawaii Revised Statutes, enables the creation of "agricultural parks" and defines them as any agricultural complex which combines and concentrates in a common location agricultural activities for the purpose of production and distribution economics. Agricultural structures (farm and employee dwellings) necessary to the production and distribution of agricultural commodities are considered part of the agricultural park.

The Department of Land and Natural Resources (DLNR) has been authorized to acquire by lease, exchange, direct purchase, or eminent domain, private property for disposition as agricultural parks. Such disposition shall be by lease only and may be by negotiation, drawing a lot, or by public auction.

The DLNR is also empowered to develop, on behalf of the State or County in partnership with others, agricultural parks which shall be exempt from governmental regulation regarding zoning, subdivision, construction and building standards, providing that:

A. The development is situated within a State Land Use Agricultural District;

B. The development does not contravene any safety standard or tariff approved by the Public Utilities Commission for public utilities;

C. The DLNR shall have first presented the plans and specifications for the development to the legislative body of the County where the development is proposed. The County shall then have the right to approve or disapprove the development within forty-five days after presentment. If no action is taken within forty-five days after presentment, the development shall be deemed approved;
D. The final plans and specifications for the development approved by the legislative body shall constitute the zoning, building, construction and subdivision standards for the development. No action shall be prosecuted or maintained against any County, its officials or employees, due to the actions taken by them in reviewing, approving, or disapproving such plans and specifications. The Chairman of the DLNR or the responsible County official may certify maps and plans of lands connected with the development as having complied with applicable laws and ordinances relating to consolidation and subdivision of lands. Such maps and plans shall be accepted for registration by the Land Court and Registrar;

E. The State shall assume the responsibility of maintaining all roads within State-sponsored agricultural parks except for dedicable standard roads accepted by the County for their maintenance.

II. Historic Overview

It was concurrently resolved by the 1977 Regular Session of the State House of Representatives and Senate that the State Department of Agriculture perform a study to ascertain the need for an agricultural park in Waimanalo. The completed study, "Recommendations for a Waimanalo Agricultural Park", resulted from this Legislative mandate and provided a thorough assessment of implications of any agricultural action taken in Waimanalo. This report also provided a more detailed overview of the past and present condition of the Waimanalo area and is the source of information contained in the following:

Historically, Waimanalo has been an important agricultural area for Oahu. From about 1850 to 1880, Waimanalo was a cattle, sheep, and horse ranch. Between 1880 and 1947, sugarcane was grown by the Waimanalo Sugar Company. After 1947, agricultural lots ranging from one to 20 acres were created. They were leased to various individuals and farmers for the growing of diversified agricultural products. In
1953, the leases (which were purchased by the Waimanalo Agricultural Development Company) expired; the Territorial government (at that time), terminated the old leases issued under the Development Company and began developing the Waimanalo Farm Lot Subdivision.

The Territorial government developed a total of 63 lots of about 9 acres each. Presently 59 of the 63 lots are held in fee simple ownership. The lots were sold at a public auction with preference given to farmers already located in Waimanalo. The lots were sold for less than $1,500 per acre. Conditions of the sale required that for a period of 25 years, no more than one dwelling could be located on each lot; the lots could not be subdivided into parcels of less than 5 acres, and the lots would be exclusively used for agriculture.

III. Phasing Overview

The Department of Land and Natural Resources (DLNR), in cooperation with the State Department of Agriculture, proposes to establish a large-scale Agricultural Park on approximately 1,800 acres of State land at Waimanalo.

The development of the Agricultural Park will be in five (5) phases. Phase I of the development shall include the subdivision of approximately 475 acres (portion of Tax Map Key: 4-1-08:13) into 15 lots of which only 14 lots, or 120 acres, possess the potential for crop production. Construction of an internal roadway, an 16-inch pipe system to provide water, improvements to the Maunawili Collection System, and improvements to electric and street lighting systems will also be included in this phase. Phase II includes construction of a 60-million gallon (MG) reservoir and replacement of ditches with pipes. Phases III and IV include further replacement of ditches. Development of the remaining agricultural lands shall be included in Phase V.

This Environmental Impact Statement will address only the Phase I development increment for the Waimanalo Agricultural Park. The scope of work and
proposed action will therefore, be limited to such analysis. Items consistent with the remaining phasing increments for the complete development of the Park are currently addressed in the Department of Agriculture's "Recommendations for a Waimanalo Agricultural Park"; DLNR's Waimanalo Agricultural Park Development Plan, Report R61", prepared by Park Engineering, Inc.; USDA Soil Conservation Service's "Waimanalo Watershed Plan and Environmental Impact Statement"; DLNR's "Environmental Assessment for Waimanalo Agricultural Park", prepared by Environmental Communications, Inc.; and DLNR's "The Economic Possibilities of an Agricultural Park for Banana Production in Waimanalo", prepared by Evaluation Research Consultants.
SECTION 3. DESCRIPTION OF PROPOSED PROJECT

I. Project Location

The Waimanalo Agricultural Park is located in Waimanalo, the southern-most valley on Oahu's windward coast (Figure 3-1). The valley is shaped roughly as an equilateral triangle approximately three and one-half (3.5) miles to a side. The entire ahupa'a of Waimanalo include an area of approximately 6,970 acres.

This Environmental Impact Statement is being prepared for the Phase I Agricultural Subdivision development of the Waimanalo Agricultural Park. The Phase I development is situated on the north-western face of the proposed Waimanalo Agricultural Park located on Tax Map Key: 4-1-08:13 and is approximately 14 miles from central Honolulu over the Pali Highway (Figure 3-2).

II. Description of Proposed Action

The first phase of development for the proposed Agricultural Park will include the subdivision of approximately 475 acres into 15 lots (Figure 3-3). The lots will be subdivided into approximately 5- and 10-acre areas. Only lot 15 will be subdivided in excess of these areas, at 355 acres. Lots 1 through 14 will be utilized for diversified agricultural use. However, lot 15 is not suited for agricultural cultivation, due to adverse slopes, and will probably be utilized for grazing. Diversified agricultural use will include the production of bananas, flowers, tomatoes, and nursery products. These crops were selected due to their respective economical and physical viability (Evaluation Research Consultants, 1981).
FIGURE 3-1
GENERAL LOCATION MAP

OAHU

Ko‘olau

Kahuku Pt.

Kaneohe Bay

Makapu’u Pt.

Kailua Bay

Waimanalo Agricultural Park

Waimanalo

Koko Head

Diamond Head

Ewa

Pearl Harbor

Lualualei Nanakuli

Poke’ Bay

Waianae

Haleiwa

Kahana

Laie

Ko‘olina

Ko‘olau

Barbers Pt.

Honolulu
FIGURE 3-2
SITE LOCATION

Phase I
Agricultural Subdivision

Waimanalo Agricultural Park
Viability was based on (1) the physical capacities of the individual lot, including water, soil, climate, and tillability, (2) the cost and quality of other resources brought to the land, with particular emphasis on water, management, and labor, and (3) the potential market that can be developed without lowering prices significantly. The results of these considerations cannot be precise, for variations in weather, labor quality, and the levels of production by other farmers cannot be accurately predicted. Nevertheless, the uncertainties of initiating agricultural enterprises can be lessened by avoiding certain crops and by designing the overall project in a manner that will result in efficient use of available resources, particularly in the long run. Table 3-1 presents the recommended agricultural uses to be cultivated on the subdivided lots.

The rationale utilized for determining lot size dimensions was a tedious one that required constant communication between the environmental engineering consultants. The final lot size determination was based on the Evaluation Research Consultants' report entitled "Potential Agricultural Uses of Phase I of the Proposed Waimanalo Agricultural Park", specifically analyzing tillable lands, adversity of slopes, and minimum lot sizes necessary to cultivate recommended agricultural uses.

Construction of single-family detached dwellings in conformance with current zoning, will be allowed per lot. The lots will be leased for 55 years. The State also proposes to set leasing conditions which will assist in retaining the agricultural nature of the Waimanalo area. These conditions will include the proliferation of diversified agricultural use (i.e. bananas, flowers, tomatoes, and/or nursery products) upon the leased lots and the encouragement of crop production which will be economically viable and will not adversely impact the market prices of other Hawaiian agricultural goods.
<table>
<thead>
<tr>
<th>Lot Number</th>
<th>Lot Size (in acres)</th>
<th>Recommended Agricultural Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.7</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>2</td>
<td>6.2</td>
<td>Nursery</td>
</tr>
<tr>
<td>3</td>
<td>9.2</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>4</td>
<td>10.1</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>5</td>
<td>9.9</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>6</td>
<td>10.7</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>7</td>
<td>10.1</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>8</td>
<td>10.1</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>9</td>
<td>9.3</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>10</td>
<td>9.9</td>
<td>Diversified Agricultural</td>
</tr>
<tr>
<td>11</td>
<td>8.0</td>
<td>Nursery</td>
</tr>
<tr>
<td>12</td>
<td>7.1</td>
<td>Nursery</td>
</tr>
<tr>
<td>13</td>
<td>5.9</td>
<td>Nursery</td>
</tr>
<tr>
<td>14</td>
<td>5.6</td>
<td>Nursery</td>
</tr>
</tbody>
</table>
The 14-lot agricultural subdivision will include the construction of a 24-foot wide asphalt concrete pavement within a 44-foot wide right-of-way. This road will begin at the intersection of Kumuhau and Waikupanaha Streets, extending mauka. From that extension, a road to serve the 14-lot subdivision will be built. The road will conform to the City and County of Honolulu's Typical Agricultural Road section and will be dedicated to the City for maintenance. The bridge located approximately 100 feet from the Kumuhau Street and Waikupanaha Street intersection has been determined by the Department of Public Works as being adequate in providing access for heavy vehicles to the project site.

Irrigation water to the 14-lot subdivision will be provided by a new 16-inch pipe system extending from the tunnel portal to the subdivision. The existing ditches from the tunnel to the Kailua and Maunawili Reservoirs will remain in use until construction of the new 60-million gallon reservoir, located at the end of Mahailua Street, is completed (Figure 3-4). Water for the Phase I lots will be issued only on Tuesday, Thursday, and Saturday, while the remainder of existing agricultural lots will continue its Monday, Wednesday, and Friday schedule. Planned improvements to the Maunawili source will increase the total irrigation flow available to Waimanalo. Other utilities to be provided include electric and street lighting systems.

Construction of storage structures to house farm equipment and supplies will be permitted. Fire protection for these structures will be provided with the installation of fire hydrants connected to the irrigation pipeline. Water for fire flow will be pumped into this system from the Kailua Reservoir.

Potable water will be furnished subsequent to Board of Water Supply (BWS) approval.

III. Goals and Objectives of the Proposed Action

In 1972, Act 110, Session Laws of Hawaii, documented that:
FIGURE 3-4
IMPROVEMENTS FROM PHASE I DEVELOPMENT PLAN--WAIMANALO AGRICULTURAL PARK
"There is a growing scarcity of agricultural lands throughout the State caused by urban encroachment which has made it difficult for agricultural enterprises to survive and has caused the erosion of the agricultural base of the economy; that urban encroachment has caused the unplanned relocation of livestock operations many times in the past twenty years; that urban plans have not placed the necessary emphasis in agriculture and location of agricultural enterprises to ensure the survival of agriculture; that there is a need for agricultural land-use planning... and that the acquisition of private property for agricultural purposes is a public purpose or use necessary to facilitate sound agricultural land use planning."

The demise of such actions could be considered as one of the primary objectives of the Phase I development for the Waimanalo Agricultural Park. Establishment of an Agricultural Subdivision in Waimanalo could be expected to:

a) represent a firm commitment on the part of the State to the preservation of agriculture in Waimanalo.
b) provide planning and policy direction for agencies at all levels of government responsible for physical infrastructure development.
c) enhance agricultural production in Waimanalo by providing long-term tenure at reasonable lease terms.
d) be expected to have a "dampening" affect on rising land values - values which are primarily the result of speculation that Waimanalo's future will be non-agricultural.
e) in the long-run, be expected to influence the decisions of governmental bodies responsible for land use and zoning decisions.

Other goals and objectives, economic in nature, may be achieved with the Phase I development for the Waimanalo Agricultural Park. The State of Hawaii needs numerous productive industries to ensure a stable economy and agricultural activity can provide further assistance in
facilitating these productive industries. Currently, the two largest economic factors in Hawaii are tourism and Federal expenditures. As was pointed out in the State Agriculture Plan, agricultural activities can assist in enhancing these economic factors. The tourist industry can be intensified by agriculture, since agricultural enterprises can serve as visitor attractions and can provide to the Hawaiian environment, the benefits associated with rural characteristics and open space. Agriculture can also enhance Federal expenditure by providing to the Federal defense establishment, local grown agricultural produce for consumption. However, both tourism and Federal expenditures are vulnerable to political and social changes. In contrast, agriculture apparently disregards such changes, and continues to meet a steady rising demand. Subsequently, it is the goal of the State to make Hawaii as self-sufficient in as many foods as possible and to provide a stable economic base by exporting agricultural products, which will ensure economic stability in the future. The project will, therefore, assist in achieving these goals and will aid the continuance of diversified agriculture in Hawaii, an objective set forth in the Hawaii State Plan. The Agricultural Subdivision will bring together agricultural enterprises with compatible interests by combining a number of relatively small independent agricultural operations into one area. By localizing such agricultural activities, operating costs and capital improvements such as water lines, irrigation lines, storage facilities, and road systems can be lowered.

The proposed project will assist in satisfying local demand of diversified agricultural crops, specifically banana and ornamental potted plants. Banana production within the islands has progressively declined over the years. Harvested acreage in Hawaii decreased from 1,120 acres in 1968 to 630 acres in 1979. Oahu provides 460 acres, or 67% of the total state acreage (University of Hawaii, 1980). As a result, during various times of the year, there is not an adequate supply of local bananas to meet local retail market demands.

The ornamental potted plant industry has grown tremendously in the last four years. Figures indicate that the wholesale value of the industry...
has increased from $621,000 in 1972 to $4,452,000 in 1978 (University of Hawaii, 1980). A number of factors have contributed to Hawaii's growth in ornamental potted plant production. Foremost has been the high demand for green plants on the U.S. mainland and in Hawaii. Another factor has been the influx of several large producers who have expressed interest on the export potential for Hawaiian ornamental potted plants. This is due, in part, to energy problems on the mainland. Hawaii's competitors on the mainland must heat their nurseries during the winter, thus increasing production costs. The proposed action then, will supply land area to further facilitate the ornamental potted plant industry and to increase banana production to meet local demands.

There also is significant need to situate an Agricultural Park specifically in Waimanalo, based on the Department of Agriculture "Expression of Interest Form." Table 3-2 presents the amount of Oahu residents expressing interest in cultivating Banana, Truck Crops, and Nursery Crops in Waimanalo and on the island of Oahu. According to the figures presented in this table, a high percentage of Oahu residents, which completed the form, have expressed interest in leasing agricultural lots for the purposes of cultivating the above crops.

IV. Phasing and Funding

A. Phasing

Development time for the proposed Agricultural Subdivision is estimated at 18 months after all approvals have been given.

B. Funding

The State will finance all off-site capital improvement costs, utilizing funds for construction from Act 300 SLH 1980, Item IV-A-14, Agricultural Park Subdivision, Statewide. Each tenant will be responsible for funding his own respective on-site improvements.
### TABLE 3-2

**EXPRESSION OF INTEREST**  
(1979–1981)

<table>
<thead>
<tr>
<th>Location</th>
<th>Banana</th>
<th>Truck Crops</th>
<th>Nursery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Island of Oahu</td>
<td>15</td>
<td>40</td>
<td>43</td>
</tr>
<tr>
<td>Waimanalo</td>
<td>10 (67%)</td>
<td>13 (33%)</td>
<td>21 (49%)</td>
</tr>
</tbody>
</table>

**SOURCE:** Department of Agriculture, Expression of Interest Form
Total Estimated cost for the Phase I development of the Waimanalo Agricultural Park is approximated at $1,617,000. The specific costs are as follows:

- Land Acquisition $12,000
- Roadway 409,000
- Drainage System 285,000
- Irrigation System with Fire Hydrants 468,000
- Electrical and Street Lighting Systems 47,000
- Water System 249,000

$1,470,000

- Contingency Fund 147,000

$1,617,000

In addition to the above on-site development cost, a portion of the cost for the Maunawili Watershed Collection System Improvement, which is estimated at $1,760,000, will be attributable to the Agricultural Park Phase I project.
SECTION 4: EXISTING ENVIRONMENT

I. Topographical Characteristics

A. Geology

The geology of the project site is essentially that as described by Takasaki, et al. for the Waimanalo area.

"The Waimanalo area is at the southeast end of Windward Oahu. Eroded southward-dipping thin-bedded lava flows of the Koolau Volcanic Series from steep mountain slopes along the southern margin, and ridges composed of dike complex of the Koolau and Kailua Volcanic Series separate the area from the Maunawili Valley on the northwest. Older and younger alluvium overlies the eroded basalt at the foot of the slopes and over much of the lowland. Consolidated and unconsolidated dune sand and calcareous beach deposits overlie the alluvium below sea level at areas a little more than a mile from the shore. Scattered dikes in the Koolau Range along the southern part of the area have mostly a north-south strike about normal to the trend of the crest of the range."

B. Soils

The Agricultural Subdivision is located northwest of Kumuhau Street. Approximately 30 percent of the land area are classified by the Hawaii Department of Agriculture as "prime" agricultural lands and another 30 percent are classified as "other important" agricultural lands with the remaining 40 percent "unclassified" because of slopes in excess of 35 percent. The fairly level land designated in the category of "prime" agricultural land and "other important"
agricultural land is suitable and easily workable for crop cultivation. The land with slopes of 0 to 8 percent provides for slow water runoff and slight erosion hazard.

The steeper portion of the land designated as "other important" agricultural land with slopes of 10 to 35 percent provides for medium runoff and medium erosion hazard. Land workability is difficult because of the slope.

The soils designated as "prime" agricultural lands are of the soil series Lolekaa silty clay, with 3 to 8 percent slope, in the Lolekaa-Waikane association of the family Clayey, Kaolinitic, isohyperthermic; subgroup Humoxic tropohumults; great group Tropohumults; suborder Humults; order Ultisols (Humic latosols in the 1938 classification). This soil has a surface layer of dark-brown silty clay about 16 inches thick. The subsoil is 46 to more than 70 inches thick. The upper part is dark-brown silty clay and the lower part is dark yellowish-brown loam. The soil is strongly acid to extremely acid in the subsoil. Permeability is moderately rapid. Runoff is slow and the erosion hazard is slight.

The soils designated as "other important" agricultural lands are basic types. Hanalei silty clay, with 0 to 6 percent slope is in the Kaena-Walalua association of the family Very fine, oxidic, nonacid, isohyperthermic; subgroup Typic Fluvaquents; great group Fluvaquents; suborder Aquent; order Entisols (Alluvial in the 1939 classification). These lands also are Alaeloa silty clay, with 15 to 35 percent slope, in the Lolekaa-Waikane association of the family Clayey, oxidic, isohyperthermic; subgroup Orthoxic Tropohumults; great group Tropohumults; suborder Humults; order Ultisols (Humic latosols in the 1928 classification).
The Hanalei silty clay soil has a surface layer about 10 inches thick, is dark gray and very dark gray silty clay that has dark brown and reddish mottles. The subsurface layer is very dark gray and dark-gray silty clay about 3 inches thick. The subsoil is mottled, dark-gray and dark grayish-brown silty clay loam about 13 inches thick. This soil is strongly, to very strongly acid in the surface layer and neutral in the subsoil. Permeability is moderate. Runoff is slow and the erosion hazard is slight. Flooding is a hazard in some portions.

The Alaeloa silty clay, with less than 15 percent slope, has a surface layer about 10 inches thick of a dark reddish-brown silty clay. The subsoil is dark-red and red silty clay about 48 inches thick. The soil is of medium acidity in the surface layer and strongly acid in the subsoil. Permeability is moderately difficult because of the slope.

The "unclassified" land is also Alaeloa silty clay, but with 40 to 70 percent slope. This land has characteristics similar to the other Alaeloa soil. The most common slope range is 45 to 53 percent. Runoff is rapid to very rapid and the erosion hazard is severe. This soil typically is used for pasture, wildlife habitat and woodland. The natural vegetation is similar to other Alaeloa soils.

II. Climatic Characteristics

A. Rainfall

At the project site, the mean annual rainfall is approximately 44 inches a year (Figure 4-1). Wetter months occur during the months between November through April.
FIGURE 4-1
RAINFALL ISOHYETES
ISLAND OF OAHU

AGRICULTURAL
SUBDIVISION
B. **Wind**

Climatic wind data from the Kaneohe Marine Corp Air Station indicates that prevalent winds, blowing 80 percent of the time, are from the northeast, with velocities of 0 to 22 knots. Wind velocity is as follows: 0-3 knots, 9 percent of the time; 4-10 knots, 43 percent of the time; 11-22 knots, 48 percent of the time, and over 22 knots, 1 percent of the time.

C. **Temperature**

The temperatures at the project site are mild and uniform, ranging from a monthly average of 70°F. in January to 78°F. in August. The average annual temperature is 74°F.

D. **Humidity**

Relative humidity ranges from 70-80 percent with the winter months being somewhat more humid than the summer months. However, the overall climate is generally comfortable as a result of the cooling effect of the northeastern trade winds.

III. **Hydrological Characteristics**

A. **Surface Water**

The project site is located in the immediate vicinity of the Waimanalo watershed and Waimanalo stream drainage basin (Figure 4-2). The Waimanalo watershed is drained by two major stream systems. Waimanalo stream, which is a gaged perennial stream with an average annual discharge of 1.17 billion gallons, and Inoaole stream, which is intermittent. The quality of both streams was evaluated as part of the "Flood Management Plans and Preliminary Engineering Studies for the Waimanalo Flood Control Project," Department of Land and Natural Resources, Division of Water and Land Development, October 1976. Water quality was generally satisfactory.
FIGURE 4-2
WAIMANALO WATERSHED AND DRAINAGE BASIN
The Waimanalo Stream drainage basin possesses a total drainage area of 5 square miles or 3,200 acres, and is located on the northwest side of Waimanalo town, bounded by the Koolau Range, Aniani Nui Ridge and Waimanalo Bay. The drainage basin consists of a network of water courses, including the Kahawai and Waimanalo Streams and two reservoirs, the Kailua and Maunawili Reservoirs on the upper slope of the basin. The network of water courses, including Kahawai Stream, merge into Waimanalo Stream at different locations in the drainage basin and drain into the Waimanalo Bay.

B. Groundwater

Groundwater in Waimanalo occurs as brackish basal water, dike-impounded water, and alluvial water (Department of Agriculture, 1977). The dike-impounded groundwater is in dike-intruded lava flows in the Koolau Mountains, and is high-quality water suitable for domestic use without treatment. The permeable rock containing the brackish basal water is overlain by caprock materials. Although not presently considered suitable for domestic use, brackish basal water may be important for future needs. The alluvial groundwater is generally lower quality than the dike-impounded water and also important primarily as a resource for future use.

IV. Biological Characteristics

A. Flora

Field investigation of the project site was conducted for the purposes of assessing potential agricultural uses for the Phase I Agricultural Subdivision development of the Waimanalo Agricultural Park. A walk-through survey technique was employed and the relative abundance of each flora species observed was recorded. To further substantiate the vegetation types, the project site was apportioned into three sub-areas, paralleling the land classifications detailed in the Department of Agriculture's Agricultural Lands of Important in the State of Hawaii (ALISH) Maps (Figure 4-3).
The natural vegetation observed in the "prime" agricultural lands, or sub-area 1 consisted of guava, Christmas berry, California grass, Hilo grass and rice grass; "other important" agricultural lands, or sub-area 2 included paragrass, sensitive plant, honohono, java plum, guava, Christmas berry, Japanese tea, and Hilo grass; "unclassified" agricultural lands, or sub-area 3 included guava, Java plum, Christmas berry, Japanese tea, and Hilo grass.

The following details a description of the respective vegetation units found at the project site:

**Guava (Psidium guajava).** A low evergreen tree or shrub 6 to 25 feet high, with wide-spreading branches and square, downy twigs. Layers of smooth, reddish-brown bark sometimes scale off from the lighter inner bark and produce a mottled pattern on the trunk. The oblong or oval, blunt leaves are prominently feather-veined, more or less hairy beneath, 3 to 6 inches long. The flowers are somewhat fragrant and an inch or more across, the calyx bell-shaped and splitting irregularly, the four to six petal white, the numerous stamens white with yellow anthers. The outside of the fruit resembles a lemon in size, shape, and color, though some fruits are brownish yellow, and all are tipped with remnants of the calyx lobes (Neal, 1965).

**Christmas berry (Schinus terebinthifolius).** A wide, ornamental tree. The leaves are coarse, with five to nine broad, paired leaflets, one to nearly three inches long (Pope, 1968).

**California Grass (Brachiaria mutica).** A spreading, long-lived perennial, rooting at the lower joints. Stems are 6 to 8 feet or sometimes as much as 15 feet long, trailing and intertwining, forming dense masses; the joints and sheaths hairy. Leaves are 1/4 to 1/2 inch wide, with stiff hairs at the base. Flowering heads are 5 to 12 inches long, open, usually purplish, with spike-like spreading one-sided branches (Pope, 1968).
The Kailua Reservoir contained Bullfrogs (Rana catesbeiana), Tilapia (Tilapia mossambica), and Mosquito Fish (Gambusia affinis).

Waimanalo Stream contained Hawaiian Prawn (Macrobrachium grandimanus), Tahitian Prawn (Macrobrachium lar), Goby (Awaous stamineus), Guppy (Poecilia reticulata), and Green Swordtail (Xiphophorus helleri).

V. Archaeological Sites

A field reconnaissance conducted by the Historic Sites Program, Department of Land and Natural Resources, has identified a site adjacent to the project area (Figure 4-4). Sites of Oahu, by the Department of Anthropology, Department of Education, and Bernice P. Bishop Museum; compiled by Elspeth P. Sterling and Catherine C. Summers, designated this as Site No. 381 and provided the following description:

Heiau, Waimanalo side of Olomana, on the edge of the Waimanalo cane field facing Koolau Range.

Remains indicate that the heiau was probably 250 feet long and 130 feet wide, of two terraces. The upper terrace, 75 by 130 feet, is hidden in a heavy growth of lantana. It was 10 feet higher than the lower terrace and was faced with large 2-foot and 3-foot stones; the mountain side was filled with small 2-inch and 3-inch stones for a space of about 20 feet. The remainder of the terrace was paved with dirt. A low line of small stones marks the extent of this terrace on the mountain side. The plantation flume now skirts the lower edge. Some waterworm pebbles and an amazing amount of old coral are scattered throughout the rocks. North of the site the hill presents a huge barren face of black rock. The lower terrace, which is now in cane, was probably 170 feet long with a facing of large stones on the lower end, which is a rather steep slope. The heiau was indicated by E. P. Kaniaupio, but the name is not known.

The project area does contain the Kailua Ditch portion of the Waimanalo Ditch system which has been determined eligible for the National Register because of its historic significance (Figure 4-4).
**FIGURE 4-4**
ARCHAEOLOGICAL SITE

*Designation of site from SITES OF OAHU; compiled by: Elspeth P. Sterling and Catherine C. Summers.*
VI. Flood Hazard

A. Flooding

The United States Department of Housing and Urban Development (HUD), Flood Insurance Rate Maps indicate a portion of the project site is within the 100 year flood boundary (Figure 4-5). The land within these boundaries can be farmed but at some risk of flooding. The proposed project is subject to the provisions of Ordinance No. 80-62 relating to Flood Hazard Districts.

B. Tsunami Inundation

Tsunami inundation along the coastline of Waimanalo Bay, as recorded from the four major tsunamis that have occurred in Hawaii during historic times (1946, 1952, and 1960) showed that runup ranged from 6 to 9 feet over the mean lower-low water level. As Waimanalo has a southeastern coast, it is considered potentially vulnerable to tsunamis from any direction; however, Waimanalo has a wide, shallow reef structure extending approximately a quarter mile to sea, resulting in good tsunami protection in the project area.

Therefore, the project site is not located within the tsunami inundation zone.

VII. Infrastructure and Utilities

A. Water

Areas adjacent to the project site are currently serviced by both a public domestic water system and the State-operated Waimanalo Irrigation System.

1. Domestic System. The lands at Waimanalo are served by the Board of Water Supply (BWS) domestic system, which maintains a system of source, wells, storage, mains and fire hydrants (Figure 4-6). The following existing water lines are located on streets directly adjacent to the project site.
Waimanalo Agricultural Park

Project Site

FIGURE 4-5
FLOOD HAZARD MAP

☐ 100-Year Flood
FIGURE 4-6
BOARD OF WATER SUPPLY'S DOMESTIC WATER SYSTEM

- Water Pipelines

Waimanalo Agricultural Park

Project Site

Ko'olauloko/Honolulu District Reserve

Scale: 1:24000
The water is used by approximately 44 farm lots engaged in nursery, flowers, poultry, dairy, ranching, truck crops and banana operations. Although these farmers utilize this system for agricultural purposes, the system was designed to supply water for domestic use only and is subsequently being taxed to the maximum. Therefore, the BWS is reluctant to approve additional laterals and hookups, since the existing system is not sized to accommodate any additional urban growth. However, if such hookups are made, present BWS policy requires that the landowner bear the costs of upgrading the service facilities.

Within the Waimanalo ahupua'a, the BWS has one deep water well and four high level tunnels with a combined capacity of approximately .9 million gallons daily. In addition, the BWS is planning to drill a well at the existing Waimanalo 364 Reservoir site. No further water resource development is planned in Waimanalo by the BWS (Board of Water Supply, 1975). Field investigations indicate however, that several users of domestic water are in the process or contemplating installation of small private reservoirs with water from the irrigation ditch because of the high cost of domestic water (Department of Land and Natural Resources, Division of Water and Land Development, 1980).

2. Waimanalo Irrigation System. The irrigation system serving the Waimanalo Farm Lots was installed by the Waimanalo Sugar Company, which received its original charter in April 5, 1978.

Water, mostly from springs, is collected by a series of ditches and transferred from Maunawili Valley, down to farm lands in Waimanalo. This water is obtained from the Kaneohe Ranch Company, with a yearly license at approximately $8,000.00 per
year for 1.8 million gallons per day. Realizing that this is a tenuous situation to ensure the viability of agriculture in Waimanalo, the State has embarked on a study to appraise alternatives to obtain full control over the water rights from Maunawili to Waimanalo. It was recommended that the State proceed to secure long-term rights to the use of the Maunawili water supply to alleviate this tenuous situation. The source, referred to as Maunawili Ditch, is comprised of earth and lined ditches, wooden flumes on wooden trestles, which intercept stream flows and springs, and transports water through a 1000 foot long tunnel through Aniani Nui Ridge to Waimanalo.

Between the years of 1954 to 1968, recorded flows from the Maunawili Ditch were measured at nearly 100,000,000 gallons per month to nearly zero flow (Department of Land and Natural Resources, Division of Water and Land Development, 1980). A field inspection conducted on December 5, 1978, a day after heavy rainfall in Maunawili Valley, revealed near full flow conditions along portions of the earth ditches. Flow measured at the flume section located upstream of the confluence with the Fault Tunnel ditch read 4.5 mgd.

During periods of low flows from the Maunawili Ditch, the Waimanalo Irrigation System is unable to meet the demands of the farm lots. This is largely due to the earth transmission ditches with their high seepage losses, and to the limited reservoir capacities which result in overflows during high flows. The Kailua and Maunawili Reservoirs possess capacities of 7.3 and 2.0 million gallons, respectively.

At the present time, the Waimanalo Irrigation System releases approximately 1.9 million gallons from the reservoirs every Monday, Wednesday and Friday to the farmers. The other days are needed to refill the reservoirs. This amounts to only
296,400,000 gallons per year that are released. Since 550,000,000 gallons per year are received from the Maunawili Ditch, approximately 253,600,000 gallons per year are lost through (1) overflowing of the reservoirs into adjoining streams, (2) seepage and evaporation at the reservoirs, and (3) seepage from the ditches between the tunnel portal and the reservoirs.

Of the 1.9 million gallons released, approximately 25 to 45 percent flow into the farms. The remainder is lost primarily through seepage through the ditch walls and the rest wasted because the initial flow is dirty water filled with leaves and branches which have fallen into the earth ditches. Also since gates to the individual farms were built up to raise the water level in the ditch in order to deliver water by gravity flow, when the gates are closed, the water remaining in the ditch is wasted to the streams.

B. Electrical

Electricity to areas adjacent to the project site is supplied by Hawaii Electric Company from overhead 4.16 kilo volt solidly grounded lines along Kalanianaole Highway, Flamingo Road, Kumuhau Street, and Waikupanaha Street (Figure 4-7).

C. Gas

Gas is not currently available to the project site. The only gas lines located within the immediate vicinity are within the Waimanalo Core Subdivision southeast of the project site (Figure 4-7). However, gas supplies are adequate to serve the Agricultural Subdivision. Installation of storage tanks will have to be coordinated and funded by the party requesting service. The consumer shall pay their own annual charge for the tanks.
FIGURE 4-7
EXISTING ELECTRICAL AND GAS LINES

- Electrical Lines
- Gas Lines

Waimanalo Agricultural Park
Project Site

Scale: 1:24000
D. Liquid Waste

The Waimanalo Sewage Treatment Plant (STP), located at the northeast corner of the Waimanalo Farm Lots, services areas adjacent to the project site (Figure 4-8). The STP provides secondary treatment, as effluent is discharged into three deep injection wells. The STP is designed for 1.10 million gallons per day (mgd) average flow and 5.18 mgd peak flow. The system is presently operating at 350,000 gallons per day.

E. Solid Waste

Solid waste from adjacent areas is picked up by the Refuse Collection and Disposal Division of the City and County of Honolulu, and disposed at the Kapaa Sanitary Landfill.

VIII. Public Facilities and Services

A. Police Protection

No police substation is located within the immediate vicinity of Waimanalo. However, the project area will be serviced by the Kailua Police substation and patrolled by Police Beats No. 420 and 421. The Kailua substation is located on 219 Kuulei Road. Response time to the project area will be within ±5 minutes.

The most prevalent types of crime in the area are larceny and vandalism. Table 4-1 details major type of offenses reported within the Waimanalo area and the island of Oahu.

B. Fire Protection

The project area is serviced by the Waimanalo Fire Station, located at 45-1301 Kalanianaole Highway. Response time to the project site is ±5 minutes. Vehicles found at the station include a 1,250 gallon per minute pumper and a 1,250 gallon per minute relief pumper.
### TABLE 4-1

OFFENSES BY RATE PER 100,000 RESIDENT POPULATION

**WAIMANALO:** 1978 (Police Beats 420 & 421)\(^1\)

**OAHU:** 1978

<table>
<thead>
<tr>
<th>OFFENSE</th>
<th>WAIMANALO</th>
<th>OAHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murder/Manslaughter</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Negligent Homicide</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Forcible Rape</td>
<td>--</td>
<td>26</td>
</tr>
<tr>
<td>Robbery</td>
<td>188</td>
<td>207</td>
</tr>
<tr>
<td>Assault - 1st and 2nd</td>
<td>50</td>
<td>42</td>
</tr>
<tr>
<td>Burglary</td>
<td>1,213</td>
<td>1,906</td>
</tr>
<tr>
<td>Larceny - Over $200</td>
<td>7,275</td>
<td>1,116</td>
</tr>
<tr>
<td>Larceny - Over $50</td>
<td>3,513</td>
<td>1,201</td>
</tr>
<tr>
<td>Larceny - $5 to $50</td>
<td>2,725</td>
<td>1,352</td>
</tr>
<tr>
<td>Larceny - Under $5</td>
<td>1,200</td>
<td>643</td>
</tr>
<tr>
<td>Auto Theft</td>
<td>463</td>
<td>658</td>
</tr>
<tr>
<td><strong>TOTAL - PART I</strong></td>
<td>16,650</td>
<td>7,168</td>
</tr>
<tr>
<td>Other Assaults</td>
<td>563</td>
<td>947</td>
</tr>
<tr>
<td>Arson</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>Forgery</td>
<td>--</td>
<td>104</td>
</tr>
<tr>
<td>Fraud</td>
<td>25</td>
<td>201</td>
</tr>
<tr>
<td>Embezzlement</td>
<td>--</td>
<td>5</td>
</tr>
<tr>
<td>Stolen Property</td>
<td>38</td>
<td>10</td>
</tr>
<tr>
<td>Vandalisms</td>
<td>1,513</td>
<td>1,168</td>
</tr>
<tr>
<td>Weapons Offenses</td>
<td>50</td>
<td>62</td>
</tr>
<tr>
<td>Prostitution</td>
<td>--</td>
<td>60</td>
</tr>
<tr>
<td>Sex Offenses</td>
<td>--</td>
<td>70</td>
</tr>
<tr>
<td>Narcotic Drug Laws</td>
<td>288</td>
<td>324</td>
</tr>
<tr>
<td>Gambling</td>
<td>750</td>
<td>62</td>
</tr>
<tr>
<td>Family Offenses</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Driving Under Influence</td>
<td>13</td>
<td>354</td>
</tr>
<tr>
<td>Liquor Laws</td>
<td>13</td>
<td>32</td>
</tr>
<tr>
<td>Disorderly</td>
<td>150</td>
<td>858</td>
</tr>
<tr>
<td>All Other Offenses(^2)</td>
<td>1,250</td>
<td>4,401</td>
</tr>
<tr>
<td>Delinquent Child/Minor</td>
<td>500</td>
<td>547</td>
</tr>
<tr>
<td><strong>TOTAL - PART II</strong></td>
<td>5,200</td>
<td>9,275</td>
</tr>
<tr>
<td><strong>GRAND TOTAL - PARTS I AND II</strong></td>
<td>21,850</td>
<td>16,443</td>
</tr>
<tr>
<td><strong>RESIDENT POPULATION</strong></td>
<td>7,779</td>
<td>729,084</td>
</tr>
</tbody>
</table>

\(^1\) Includes entire Police Beats of No. 420 and 421.

\(^2\) Includes harassment, indecent exposure, spouse abuse, barking dogs and others.

**SOURCE:** City and County of Honolulu, Honolulu Police Department, Research and Development Division, 1978 Annual Statistical Report, August 1979.
The Kailua Fire Station will be available to provide supportive service to the project area. The station is located at 211 Kuulei Road. Vehicles include a 1,250 gallon per minute pumper and an aerial ladder truck.

Future plans call for a new fire station in the Olomana area, which will also be providing supportive service to the project area, with a 1,250 gallon per minute pumper.

C. Health Services

Health Services within the Waimanalo area are limited. The nearest hospital is Castle Memorial Hospital located at 640 Ulukahiki Street, approximately 3 miles from the project site.

The hospital is in possession of 135 beds and 450 staff members (i.e. nurses, secretaries, cooks, etc.). Services provided include: surgery, X-ray, lab, radiology, emergency room, outpatient, pharmacy, and ambulatory.

D. Education Services

At present, the Waimanalo area is served by three public schools. These include Blanche Pope Elementary, Waimanalo Elementary and Intermediate, and Kailua High School. Table 4-2 presents the annual enrollment, design capacities, and number of classrooms at each of these schools. As noted, schools within this area are operating below capacity.

E. Access

There exists no interior access into the Agricultural Subdivision. However, the Kumuhau and Waikupanaha Streets does provide access to the outer boundaries of the project site.
### TABLE 4-2

PUBLIC EDUCATION FACILITIES SERVICING WAIMANALO

<table>
<thead>
<tr>
<th>School</th>
<th>Number of Classrooms</th>
<th>Enrollment</th>
<th>Design Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanche Pope Elementary School</td>
<td>24</td>
<td>418</td>
<td>550</td>
</tr>
<tr>
<td>Waimanalo Elementary and Intermediate School</td>
<td>47</td>
<td>751</td>
<td>1,026</td>
</tr>
<tr>
<td>Kailua High School</td>
<td>85</td>
<td>1,675</td>
<td>1,815</td>
</tr>
</tbody>
</table>
The mass transit system servicing the Waimanalo area is the No. 57 route, Waimanalo-Honolulu. The buses provide daily service and possess an average headway of approximately 30 minutes during peak and off-peak hours.

IX. Economic Characteristics

Agriculture's most significant contribution to the State's economy lies in its ability to either bring new money into the State or keep money in the State. Translated into markets, this means that commodities which are sold in out-of-state markets bring new money into the State, while commodities which are sold in the local market keep money in the State.

The farm value of Hawaii's agriculture surged upward in 1980 with cash receipts totaling $633.6 million. Returns from diversified agriculture rose to $171.9 million, 11 percent above the previous year. Receipts from cattle marketings, at $28.1 million, retained the number one position among diversified agriculture, edging out flowers and nursery products which tallied a record of $27.4 million. Macadamia nut growers received a record $24.2 million for their crop. Farm earnings from milk totaled $27.1 million and from poultry, $18.2 million. Vegetables and melons had receipts of $18.5 million.

The City and County of Honolulu leads the State in the production of pork, milk, eggs, broilers, and chickens (Department of Agriculture, 1981). However, in 1980, Oahu produced only 34 percent of the State's total value of diversified agriculture commodities. Total value of diversified agriculture commodities for Oahu was $58.8 million. Table 4-3 details a breakdown of the value of agricultural commodities by County of production.

Waimanalo has contributed significantly to the diversified agricultural industry on Oahu. It was estimated that the total 1976 farm value of crop and livestock sales from Waimanalo was approximately six million dollars. Although recent figures are not available, in 1974 the Hawaii Crop and Livestock Reporting Service reported the 1973 value of Waimanalo agriculture as follows:
### TABLE 4-3

**VALUE OF AGRICULTURAL COMMODITIES**

*By County, 1980*

*(Thousand Dollars)*

<table>
<thead>
<tr>
<th>COMMODITY</th>
<th>STATE</th>
<th>HAWAII</th>
<th>MAUI</th>
<th>OAHU</th>
<th>KAUAHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUGAR</td>
<td>385,100</td>
<td>137,500</td>
<td>100,800</td>
<td>63,200</td>
<td>83,600</td>
</tr>
<tr>
<td>PINEAPPLE</td>
<td>76,596</td>
<td>--</td>
<td>36,404</td>
<td>40,192</td>
<td>--</td>
</tr>
<tr>
<td>LIVESTOCK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td>28,074</td>
<td>17,973</td>
<td>5,580</td>
<td>1,403</td>
<td>3,118</td>
</tr>
<tr>
<td>Dairy</td>
<td>27,071</td>
<td>--</td>
<td>21,719</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Poultry &amp; Eggs</td>
<td>18,186</td>
<td>a</td>
<td>15,850</td>
<td>a</td>
<td>--</td>
</tr>
<tr>
<td>Swine</td>
<td>7,457</td>
<td>892</td>
<td>4,026</td>
<td>674</td>
<td>--</td>
</tr>
<tr>
<td>Field Crops</td>
<td>3,971</td>
<td>60</td>
<td>1,183</td>
<td>954</td>
<td>--</td>
</tr>
<tr>
<td>Misc. Livestock Products</td>
<td>461</td>
<td>312</td>
<td>11</td>
<td>34</td>
<td>--</td>
</tr>
<tr>
<td>ORCHARD CROPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macadamia Nuts</td>
<td>24,174</td>
<td>24,071</td>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>Papaya</td>
<td>9,979</td>
<td>8,127</td>
<td>(Kauai)</td>
<td>571</td>
<td>1,286</td>
</tr>
<tr>
<td>Banana</td>
<td>1,099</td>
<td>295</td>
<td>47</td>
<td>591</td>
<td>166</td>
</tr>
<tr>
<td>Other Fruits</td>
<td>1,905</td>
<td>1,197</td>
<td>337</td>
<td>232</td>
<td>84</td>
</tr>
<tr>
<td>VEGETABLES &amp; MELONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lettuce</td>
<td>1,950</td>
<td>708</td>
<td>631</td>
<td>611</td>
<td>--</td>
</tr>
<tr>
<td>Tomato</td>
<td>2,387</td>
<td>1,642</td>
<td>589</td>
<td>92</td>
<td>64</td>
</tr>
<tr>
<td>Other Vegetables &amp; Melons</td>
<td>14,164</td>
<td>4,924</td>
<td>4,056</td>
<td>4,711</td>
<td>473</td>
</tr>
<tr>
<td>FLOWERS &amp; NURSERY PRODUCTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potted Plants</td>
<td>9,757</td>
<td>2,796</td>
<td>a</td>
<td>5,485</td>
<td>a</td>
</tr>
<tr>
<td>Anthuriums</td>
<td>6,878</td>
<td>6,596</td>
<td>a</td>
<td>269</td>
<td>11</td>
</tr>
<tr>
<td>Lel Flowers</td>
<td>3,210</td>
<td>534</td>
<td>1,142</td>
<td>629</td>
<td>a</td>
</tr>
<tr>
<td>Other Flowers, Foliage</td>
<td>7,596</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>and Nursery Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIQUE COMMODITIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td>2,175</td>
<td>2,175</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Taro</td>
<td>1,280</td>
<td>162</td>
<td>253</td>
<td>(Maui)</td>
<td>365</td>
</tr>
<tr>
<td>AQUACULTURE PRODUCTS</td>
<td>1,710</td>
<td>--</td>
<td>--</td>
<td>1,390</td>
<td>320</td>
</tr>
<tr>
<td>FOREST PRODUCTS</td>
<td>150</td>
<td>135</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL VALUE OF ALL COMMODITIES</td>
<td>635,330</td>
<td>210,099</td>
<td>153,588</td>
<td>162,220</td>
<td>19,653</td>
</tr>
<tr>
<td>TOTAL VALUE OF DIVERSIFIED COMMODITIES</td>
<td>173,634</td>
<td>72,599</td>
<td>16,384</td>
<td>58,828</td>
<td>8,053</td>
</tr>
</tbody>
</table>

---

*Data combined under County indicated or under State total to avoid disclosure of individual operations.*

*Includes seed corn and feed and forage crops.*

*Includes sheep, wool, turkeys, horses, honey, and beeswax.*

*Total figures from Statistics of Hawaiian Agriculture 1980, pages 8 and 9, do not agree with sum of individual commodity figures due to minor crops not listed separately.*

*Sum of island estimates may not add to State total due to rounding.*

*Includes watercress and lotus root.*

*County/State figures differ due to listing of only certain flowers on County basis.*

*Source: Written communication from John Corbin, DLNR, September 8, 1981.*

*Source: State Agriculture Plan, Department of Agriculture, September 1981.*
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>24,370</td>
<td>28,356</td>
<td>28,074</td>
<td>18.1</td>
<td>18.4</td>
<td>16.3</td>
</tr>
<tr>
<td>Flowers and nursery products</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>17,458</td>
<td>20,778</td>
<td>27,441</td>
<td>13.0</td>
<td>13.5</td>
<td>16.0</td>
</tr>
<tr>
<td>Milk</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>23,715</td>
<td>24,894</td>
<td>27,071</td>
<td>17.6</td>
<td>16.2</td>
<td>15.7</td>
</tr>
<tr>
<td>Macadamia nuts</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>11,287</td>
<td>16,769</td>
<td>24,174</td>
<td>8.4</td>
<td>10.9</td>
<td>14.1</td>
</tr>
<tr>
<td>Vegetables and melons</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>16,535</td>
<td>18,337</td>
<td>18,501</td>
<td>12.3</td>
<td>11.9</td>
<td>10.8</td>
</tr>
<tr>
<td>Eggs</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>12,699</td>
<td>14,007</td>
<td>14,005</td>
<td>9.4</td>
<td>9.1</td>
<td>8.1</td>
</tr>
<tr>
<td>Fruits (excluding pineapple)</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>10,321</td>
<td>11,788</td>
<td>12,983</td>
<td>7.7</td>
<td>7.6</td>
<td>7.6</td>
</tr>
<tr>
<td>Hogs</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>7,961</td>
<td>7,027</td>
<td>7,457</td>
<td>5.9</td>
<td>4.6</td>
<td>4.3</td>
</tr>
<tr>
<td>Broilers and chickens</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>3,335</td>
<td>3,655</td>
<td>4,181</td>
<td>2.5</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Forage, grain, and forest products</td>
<td>9</td>
<td>9</td>
<td>10</td>
<td>3,344</td>
<td>3,707</td>
<td>4,071</td>
<td>2.5</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Coffee</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>2,117</td>
<td>3,132</td>
<td>2,175</td>
<td>1.6</td>
<td>2.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Taro</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>1,029</td>
<td>1,089</td>
<td>1,280</td>
<td>.7</td>
<td>.7</td>
<td>.7</td>
</tr>
<tr>
<td>Other Livestock</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>477</td>
<td>525</td>
<td>461</td>
<td>.3</td>
<td>.3</td>
<td>.3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>134,648</strong></td>
<td><strong>154,064</strong></td>
<td><strong>171,874</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>


* Those commodities in Waimanalo.
Commodity Group | 1973 Value of Sales ($1,000's)
---|---
Vegetables and fruits | 380
Horticultural specialties | 700
Livestock | 4,060
TOTAL: | $5,140

Further confirmation of Waimanalo's importance to the diversified agricultural industry can be extrapolated from a document prepared by the Hawaii Agricultural Reporting Service. The report showed that the Koolaupoko District, of which Waimanalo is the major production center, ranked the second highest in value of diversified agricultural production on Oahu (the Waianae District ranked first).

The variety of commodities which are produced in Waimanalo is extensive. Table 4-4 presents agricultural products produced in Waimanalo and ranks them according to the value of production within the State.

The following is a brief summary of the major agricultural activities in Waimanalo.

a) **Dairy Operations:** Two dairies are located in Waimanalo. One of the largest State leases in Waimanalo is for a dairy operation. The lease encompasses 338 acres, and the parcel is used for pasture, milking operations and calving. This dairy operation is one of the largest in the State of Hawaii.

b) **Poultry Operations:** Poultry operations include both layer and broiler-stewer operations. The Waianae, Ewa, and Waimanalo Districts are the primary producers in the Koolaupoko District. However, Waimanalo is the more economically viable producer since it is closest to the Honolulu market.
c) **Nurseries:** An increase of general interest in indoor and outdoor plants, cut and loose flowers, and flowers grown especially for leis has resulted in an expansion of the flower and nursery industries by individual growers. Flowers, foliage, and other nursery products account for a major portion of the total dollars that are realized by the Koolaupoko District, of which Waimanalo is the major production area.

d) **Truck Crops:** Existing marketable truck crops in Waimanalo include snap beans, cucumbers, eggplant, sweet potatoes, sweet corn, daikon, radishes, oriental squash (togan and hyotan), dasheen, green onions, peanuts, bell peppers, ginger root, and some tomatoes. In total, Waimanalo produces these crops on approximately 140 acres or on 70 percent of the total acreage in the Koolaupoko District.
SECTION 5: REGULATORY CONSIDERATIONS

I. County

A. Zoning

The project site is zoned Ag-1, Restricted Agricultural District. The purpose of this district is to protect and preserve agricultural lands for the performance of agricultural functions and to encourage concentration of such uses in areas where potential friction with urban uses will be minimized (City and County of Honolulu, 1978).

Principal uses allowable within these districts are agricultural, apiary and horticultural uses, including orchards, vineyards, and nurseries. Accessory structures include dwelling units for employees working on the premises, provided that only one such unit will be permitted per lot.

Ag-1 zoning also stipulates that minimum lot size must exceed two (2) acres. The five- to ten-acre lots proposed are therefore, in conformance.

B. General Plan

The proposed project is in conformance with several objectives and policies of the 1977 Revised General Plan. These include:

Objective: "To maintain the viability of agriculture on Oahu."

Policies: "Assist private businesses and individual farmers to ensure the continuation of agriculture as an important source of income and employment."
"Support agricultural diversification."

"Maintain agricultural land along the Windward and Waianae coasts for truck farming, flower growing, livestock production, and other types of diversified agriculture."

"Encourage the more intensive use of productive agricultural land."

"Support the development of local markets for local products."

The City and County of Honolulu's Detailed Land Use Map (DLUM) designates the project site as providing for agriculture, residential, open space, and park uses. Nevertheless, the proposed action should be implemented, due to conformance with the existing Ag-1 zoning.

C. Development Plan

The project site is designated "agriculture" by the proposed Development Plan. Therefore, the Agricultural Subdivision is in conformance.

II. State

A. State Land Use Designation

The State Land Use Designation for the project site is "agriculture" (State Land Use Commission, 1975). This specifies the project area as:

a) Lands with a high capacity for agricultural production.

b) Lands with significant potential for grazing or for other agricultural uses.

c) Lands surrounded by or contiguous to agricultural lands.
B. Hawaii State Plan

The Agricultural Subdivision is in direct compliance with several policies and policy directions detailed in the Hawaii State Plan (Department of Planning and Economic Development, 1978). Among those relating directly or indirectly to diversified agriculture are the following:

Objective:

Section 7(a)(2): Continued growth and development of diversified agriculture throughout the State.

Policies:

Section 7(b)(4): Support research and development activities that provide greater efficiency and economic productivity in agriculture.

Section 7(b)(6): Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.

Section 7(b)(8): Expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, feed grains, forestry, food crops, aquaculture and other potential enterprises.

Section 7(b)(10): Promote economically competitive activities that increase Hawaii's agricultural self-sufficiency.

Policy directions pertinent to the proposed project, from Part III, Section 103(d) of the Hawaii State Plan include:
(3) Assist small independent farmers in securing land and loans.

(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.

(6) Encourage the use of public and private resources to develop agricultural and aquacultural activities which have economic growth potential.

(7) Explore new agricultural industries and encourage the expansion of existing agricultural industries that can provide jobs and profitable long-term use of land.

(9) Continue the development of agricultural parks.

(10) Expand vocational training programs in agriculture and aquaculture.

(11) Assist in providing adequate, reasonably priced water for existing agricultural activities.

(12) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.
SECTION 6: ANTI-CIPATED ENVIRONMENTAL IMPACTS

I. Introduction

The proposed project will generate primary and secondary environmental impacts. Primary impacts are those resulting directly from construction activities and from the agricultural uses on the proposed project site. Secondary impacts are those which are anticipated over the duration of the agricultural subdivision use and which may include potential use conflicts and indirect benefits arising from the proposed action.

II. Primary Impacts

A. Short-Term Impacts

Short-term impacts, beneficial and adverse, generally result from construction-related activities. Consequently, these impacts are of short duration and should not last longer than the duration of the construction.

1. Economical: During the construction of the Agricultural Subdivision, which will require land clearing, installation of drainage, irrigation, domestic water, electric and street lighting systems, and roads for internal circulation, there will be increased revenue to the County due to the higher property tax assessed on agricultural lots. There will also be increased revenue to the State due to the taxes accrued from the sale of supplies. Finally, the project will increase the number of agricultural and construction jobs and purchases of agricultural supplies.

2. Air Quality: During construction of the Agricultural Subdivision some dust may be generated. This problem, however, is not anticipated to be significant since the soil type at the site is predominantly of the Lolekaa, Hanalei, and Alaeloa...
series and erosive activity is slight. If dust is a significant problem, it will be mitigated in the field by the use of appropriate water sprinkling methods, limiting the area being worked at any one time, and immediate seeding of the graded area.

Exhaust emissions from construction equipment are not expected to significantly affect the air quality of the area. The prevailing winds in the area should help to quickly disperse any exhaust gas concentrations.

3. **Water Quality:** The soil type found at the project site is characterized by slight erosive activity. During construction then, significant erosion and sedimentation problems are not expected to impact the Waimanalo Stream located on the project site. However, increased constituent loads, including nitrogen, phosphorus and suspended solids, can be expected to result from construction activities, especially if a significant storm occurs. The impact of construction activities can be mitigated by conforming to strict erosion control measures, particularly those specified in the City and County of Honolulu's Grading, Grubbing, and Stockpiling Ordinance No. 3968, 1972; the State Department of Health's Water Quality Standards, Chapter 37-A, Public Health Regulations, 1968; and the USDA Soil Conservation Service's Erosion and Sediment Control Guide for Hawaii, 1981.

4. **Traffic:** The project area is presently designated by the State and County as "agriculture." The area has, therefore, maintained this type of agricultural setting and has been characterized by limited adjacent urbanization. The impacts of increased traffic due to construction activities will be minor because of this limited adjacent development and the confinement of clearing activities to the project site.
Standard precautions will be written into the construction specifications to ensure for the safe movement of traffic during construction activities.

5. Noise: During site preparation, clearing, and construction activities, an increase of ambient noise is inevitable. Noise levels generated by construction machinery are presented in Figure 6-1.

The following are methods for minimizing noise produced during construction:

- Placing mufflers on construction machinery, equipment, etc.
- Instruct workers to avoid unnecessary "gunning" of construction equipment and to turn off equipment when not in use.
- Create earth berms which would absorb some of the noise.
- Conduct construction activity during daylight hours, between 8:00 a.m. to 5:00 p.m.

The contractor will ensure that all construction equipment is in proper condition and will attempt to enforce the methods mentioned above.

6. Biological: Vegetation in the project area is not considered threatened or endangered by State and Federal agencies. The majority of species are introduced and significant impacts on existing botanical communities are not expected.

Terrestrial fauna in the project area include introduced species associated with urbanized areas. The site does not contain any significant wildlife habitats for any endangered species of birds and mammals.
# Figure 6-1

## Construction Equipment Noise Ranges

<table>
<thead>
<tr>
<th>Noise Level (dB) at 50 ft</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stationary</strong> Materials Handling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front Loaders</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backhoes</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tractors</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrapers, Graders</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavers</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trucks</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete Mixers</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete Pumps</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cranes (Movable)</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cranes (Derrick)</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumps</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generators</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compressors</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Impact Equipment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumatic Wrenches</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jack Hammers and Rock Drills</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pile Drivers (Peaks)</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibrator</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saws</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Based on Limited Available Data Samples

Source: Noise From Construction Equipment and Operations, Building Equipment, and Home Appliances, EPA, 1971
During construction, fauna in the immediate vicinity of the project site may relocate into adjacent areas. However, upon completion of construction, the fauna may adapt to the proposed action and return to the site for food and shelter.

7. **Archaeological:** It is anticipated that the proposed project will minimally impact site No. 381 during construction activities, due to the distance between the project area and the archaeological site.

Short-term impacts to Kailua Ditch are also anticipated to be minimal, since its recording, the Historic Sites Program has indicated that the Ditch possesses insignificant architectural features and is currently abandoned.

However, in the event that any unanticipated sites or remains such as artifacts, shells, bones, or charcoal deposits; human burials; rock or coral alignments, pavings, or walls are encountered, the contractor will halt work and the State Historic Preservation Officer will be notified.

**B. Long-Term Impacts**

Long-term impacts, beneficial and adverse, result from the implementation and operation of the Agricultural Subdivision.

1. **Economical:** Based on the recommended cultivation of diversified agriculture and nursery products, the following economic impacts may result:

   a) There will be an increase in agricultural jobs, purchases of agricultural supplies, and revenue to the State from the long-term leasing of the land and taxes on the sale of the supplies and produce.

   b) There will be an increase in revenue to the County, resulting from higher property taxes.
2. **Air Quality:** The long-term environmental impacts on the ambient air quality are not anticipated to be significant. The use of pesticides and herbicides in the area should not present a significant problem if applied according to prescribed methods. Each of the farmers will use EPA approved herbicides and pesticides and will be required to take courses and receive instructions before being granted a permit to use the EPA approved herbicides and pesticides.

As a practical matter, these chemical agents are expensive and, therefore, most of the farmers will use the chemicals judiciously. It is also anticipated that the use of wind-breaks and a buffer strip around the project area will be a means of mitigating any fugitive chemicals and/or dust from leaving the project area.

Certain agricultural crops may require the burning of excess vegetation for disposal. Any burning would require a permit from the Fire Department of the Department of Health.

3. **Water Quality**

a) **Surface Water:** Surface water runoff from the site will be channelled by the Waimanalo Stream. Use of soil conditioners, fertilizers, herbicides, and pesticides, which will be utilized to enhance the growth of agricultural crops may alter the chemical constituents of the stream's surface.
runoff, depending on the chemical amount, frequency of use, dilution, solubility, amount of rainfall, and frequency. However, the Waimanalo Stream is characterized by "flashy" attributes, high turbidity and suspended sediment concentration occurring during heavy rainfall and the swift reversion of the stream back to clear base flow conditions which distinguished the stream prior to the storm (Department of Land and Natural Resources, 1980). Therefore, it is anticipated that the stream will disperse some of the soil conditioners, fertilizers, etc., subsequently, minimizing adverse impact to the surface water quality. In addition, due to the generally infrequent occurrence of rainfall in the Waimanalo area, the total volume of runoff in the stream is expected to be minimal, therefore, impact on surface water quality should be insignificant.

b) **Groundwater:** The use of soil conditioners, fertilizers, herbicides, and pesticides on the project site may eventually have some impact on groundwater resources in the area. However, based on the minimal adverse impacts from existing agricultural land uses, impacts from the Agricultural Subdivision should be insignificant. To further protect groundwater quality, the Board of Water Supply has established a "pass/no pass line" that approximately parallels the Waimanalo Forest Reserve Boundary (Figure 6-2). The line is just downslope or towards the sea (makai) of the boundary. No cesspools will be allowed mauka of this line.

4. **Erosion:** In agricultural areas, erosion normally occurs at low rates over long periods of time (USDA Soil Conservation Service, 1981). Damage on farms may include: loss of topsoil and plant nutrients, and sedimentation in fields, ponds and
FIGURE 6-2
BOARD OF WATER SUPPLY
"PASS/NO PASS LINE"

Waimanalo
Agricultural
Park

Project Site

Scale: 1:2,400

KOOLAU
HONOLULU
DISTRICT
RESERVE

Waimanalo Bay

FIGURE 6-2
BOARD OF WATER SUPPLY
"PASS/NO PASS LINE"
streams. Reduced plant vigor and crop yield may result from severe soil erosion. Farmers will be advised to consult with the USDA Soil Conservation Service Erosion and Sediment Control Guide for Hawaii, 1981, for erosion control.

5. **Noise**: It is not anticipated that noise generated from the proposed project will have a significant impact on the adjacent areas. There are no schools, churches, or hospitals located directly adjacent to the project area.

6. **Biological**: The project area is not considered to be a sensitive wildlife habitat area, nor does the site contain any endangered species of plants or animals. Therefore, long-term adverse impacts are not anticipated from the proposed action.

The use of the project area for agricultural activities may present potential vector problems. These vectors would include mice, rats, flies and mongoose. Vector problems can usually be controlled through trapping, and more importantly, through the use of sanitary agricultural practices. It will be to the benefit of the individual farmer to practice sanitary agricultural techniques, not only to keep down the vectors, but to increase his yields by preventing crop damage by these vectors.

7. **Archaeological**: The Agricultural Subdivision will minimally impact site No. 381, due to the distance between the project area and the heiau.

8. **Utilities**

   a) **Irrigation**: Estimating water demand for the Agricultural Subdivision requires consideration of a complex interaction of changes in wind, rainfall, insolation, and plant growth rates, which will lead to a peak demand typically occurring in the arid month, May through September, and much lower
FIGURE 6-3
WAIMANALO FARM LOTS IRRIGATION WATER CONSUMPTION (1973 to 1977)

HIGHEST MONTHLY
(G.A.O.)

- JAN. 393
- FEB. 626
- MAR. 941
- APR. 975
- MAY 1177
- JUNE 1325
- JULY 1392
- AUG. 1437
- SEP. 1262
- OCT. 1048
- NOV. 552
- DEC. 610

HIGHEST MONTHLY
5-YEAR AVE.

LOWEST MONTHLY

NOTE: NUMBER OF FARMS IRRIGATED VARIES FROM 30 TO 90 WITH TOTAL ACREAGE IRRIGATED VARISS BETWEEN 204,500 TO 477,100 ACRES.

Source: Waimanalo Agricultural Park, Department of Land and Natural Resources, Division of Water and Land Development. April 1980
TABLE 6-1

WAIMANALO IRRIGATION SYSTEM

Irrigation Water Distribution (In Gallons)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>JANUARY</td>
<td>5,717,322</td>
<td>---</td>
<td>3,537,889</td>
<td>3,840,608</td>
<td>5,913,422</td>
<td>318</td>
</tr>
<tr>
<td>FEBRUARY</td>
<td>8,277,810</td>
<td>2,253,207</td>
<td>1,767,090</td>
<td>1,574,183</td>
<td>6,003,933</td>
<td>297</td>
</tr>
<tr>
<td>MARCH</td>
<td>13,786,457</td>
<td>1,549,898</td>
<td>9,856,009</td>
<td>1,233,287</td>
<td>10,682,478</td>
<td>495</td>
</tr>
<tr>
<td>APRIL</td>
<td>13,824,870</td>
<td>5,068,375</td>
<td>10,236,109</td>
<td>7,903,971</td>
<td>4,296,411</td>
<td>572</td>
</tr>
<tr>
<td>MAY</td>
<td>16,234,486</td>
<td>11,242,459</td>
<td>18,235,265</td>
<td>16,286,164</td>
<td>6,896,423</td>
<td>925</td>
</tr>
<tr>
<td>JUNE</td>
<td>16,642,556</td>
<td>10,551,933</td>
<td>19,865,066</td>
<td>17,904,875</td>
<td>13,811,752</td>
<td>1091</td>
</tr>
<tr>
<td>JULY</td>
<td>13,122,597</td>
<td>17,465,449</td>
<td>21,555,558</td>
<td>18,021,899</td>
<td>18,154,875</td>
<td>1185</td>
</tr>
<tr>
<td>AUGUST</td>
<td>21,056,528</td>
<td>17,794,637</td>
<td>20,569,967</td>
<td>20,013,543</td>
<td>18,824,230</td>
<td>1330</td>
</tr>
<tr>
<td>SEPTEMBER</td>
<td>16,254,960</td>
<td>14,535,337</td>
<td>18,909,200</td>
<td>12,429,381</td>
<td>15,561,930</td>
<td>1068</td>
</tr>
<tr>
<td>OCTOBER</td>
<td>12,214,411</td>
<td>11,729,784</td>
<td>16,231,114</td>
<td>4,259,110</td>
<td>13,345,406</td>
<td>774</td>
</tr>
<tr>
<td>NOVEMBER</td>
<td>6,428,720</td>
<td>2,718,302</td>
<td>8,276,522</td>
<td>4,354,033</td>
<td>7,366,881</td>
<td>402</td>
</tr>
<tr>
<td>DECEMBER</td>
<td>1,231,148</td>
<td>8,919,192</td>
<td>2,516,066</td>
<td>5,485,900</td>
<td>2,528,030</td>
<td>282</td>
</tr>
<tr>
<td>TOTAL</td>
<td>144,791,865</td>
<td>103,828,573</td>
<td>151,555,855</td>
<td>113,306,954</td>
<td>123,405,771</td>
<td></td>
</tr>
</tbody>
</table>

ACREAGE
IRRIGATED: | 472.615| 464.569| 499.608| 477.100| 485.870|
No. of farms irrigated: | (38) | (37) | (38) | (36) | (37) |

Source: Waimanalo Agricultural Park, April, 1980
levels of demand in the wetter months, December through February. However, the actual total amount of water required by the Agricultural Subdivision cannot be projected at this time, since the exact mix of crop production is unknown. It is possible though, to estimate the seasonal range in irrigation demands for the proposed project by utilizing past seasonal patterns of irrigation in Waimanalo and by assuming bananas as the crop to be produced. Figure 6-3 presents a summary of the Waimanalo Farm Lots Irrigation Water Consumption between 1973 to 1977. Table 6-1 details the actual Irrigation Water Distribution during the same years. Based on the assumption that approximately 120 acres will be utilized for cultivation and that the average application of water in the peak month of August may be as high as 10 acre-inches, or 275,000 gallons per acre, a water demand for the month of August of about 33 million gallons for the proposed project may be estimated (Evaluation Research Consultants, 1981). At the other extreme of December when irrigation demands are minimal, only about 2 acre-inches (55,000 gallons per acre) could be used. (These figures can be reduced by approximately 50 percent if drip irrigation methods are employed).

Water requirements for each individual crop may be inventoried to provide further assistance in estimating irrigation water demand for the project and to provide basic reference to the farmers in selecting the most economical crop production mix. Table 6-2 present the crops most commonly adapted to the project area and their respective water requirements. Water requirements for vegetables, fruit crops, nursery, and flower products are fairly consistent. However, water requirements range from the 45 acre-inches per year for cucumbers to the 100 acre-inches per year for bananas. Respective farmers may utilize these figures on water requirements as reference for assessing their own individual needs for crop production.
FIGURE 6-4
IRRIGATION IMPROVEMENTS-
U.S. DOA AND SCS
WATERSHED PLAN

LEGEND:
- Reservoir Supply
- Pipeline
- Irrigation Line
- Booster Pumps
TABLE 6-2

CROP TYPE AND WATER REQUIREMENTS

<table>
<thead>
<tr>
<th>Crop Type</th>
<th>Water Requirement (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable</td>
<td></td>
</tr>
<tr>
<td>Cucumber</td>
<td>45 acre-inches (1,215,000 gal.)</td>
</tr>
<tr>
<td>Eggplant</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Green Peppers</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Lettuce</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Sweet Corn</td>
<td>40 acre-inches (1,080,000 gal.)</td>
</tr>
<tr>
<td>Green or Snap Beans</td>
<td>40 acre-inches (1,080,000 gal.)</td>
</tr>
<tr>
<td>Green Onions</td>
<td>84 acre-inches (1,440,000 gal.)</td>
</tr>
<tr>
<td>Daikon (White Turnips)</td>
<td>72 acre-inches (1,944,000 gal.)</td>
</tr>
<tr>
<td>Edible Ginger Root</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Red Radish</td>
<td>96 acre-inches (2,592,000 gal.)</td>
</tr>
<tr>
<td>Dasheen</td>
<td>50 acre-inches (1,350,000 gal.)</td>
</tr>
<tr>
<td>Taro</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Edible Podded Peas</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Oriental Gourds</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Fruit Crops</td>
<td></td>
</tr>
<tr>
<td>Bananas</td>
<td>100 acre-inches (2,750,000 gal.)</td>
</tr>
<tr>
<td>Guava</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Yellow Passion Fruit</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Limes</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Nursery and Flower Products</td>
<td></td>
</tr>
<tr>
<td>Anthuriums</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
<tr>
<td>Dendrobium Orchid</td>
<td>60 acre-inches (1,620,000 gal.)</td>
</tr>
</tbody>
</table>

Irrigation water to the Agricultural Subdivision will be provided by the new 16-inch pipe system from the tunnel portal to the 14-lot subdivision (Figure 3-4). Appurtenances will follow the proposed internal roadway and connect to meters to be placed in each subdivided lot. However, water provided by this resource will only be a temporary arrangement.

The USDA Soil Conservation Service, in their Watershed Plan and Draft Environmental Impact Statement for the Waimanalo Watershed have proposed to provide all irrigation resources to the Agricultural Subdivision by upgrading the Waimanalo Irrigation System (Figure 6-4). The Watershed Plan and Draft Environmental Impact Statement describes plan formulation, discloses the expected environmental and economic impacts, and provides the basis for authorizing Federal assistance for implementation. The Watershed Plan covers the Waimanalo Watershed area and will irrigate a total of 1,252 acres (Figure 4-2). The Plan was prepared to integrate with the Waimanalo Agricultural Park Plan and will provide all the irrigation water necessary for the entire Agricultural Subdivision.

Improvements will start at the east portal of the Aniani Nui Ridge Tunnel where water from the Maunawili Watershed is picked up in a 16-inch pipe and carried 1.8 miles under gravity pressure to a fenced 60 million gallon, reinforced concrete lined reservoir at the mauka end of Mahailua Street. Visual treatment will be applied to the reservoir site to minimize adverse visual effects. Flow into the reservoir will be screened and discharged to minimize aeration. Releases will be from near the bottom of the reservoir. This arrangement will tend to control plant-parasitic nematodes by reducing the available oxygen. The delivery system below the reservoir will be a closed, pressurized
b) Fire Protection Water Flow: The project's proposed action will include provisions for fire protection and appurtenances. Resources for fire protection will be provided by the Kailua Reservoir via outlet pipe appurtenances and fire hydrants. During fire emergencies, fire truck boosters will connect to these pipes and provide the necessary water pressure to fire hydrants, to be located within the Agricultural Subdivision. The consulting engineers are currently finalizing construction plans which will detail the various pipe appurtenances necessary for fire protection.

The USDA Soil Conservation Service's 60-million gallon capacity reservoir located at the end of Mahailua Street will also provide fire protection services after its completed construction. Fire hydrants will be connected to the irrigation line which will stem from the proposed reservoir.

Both sources of fire protection will possess sufficient water pressure, will be designed to satisfy a fire flow requirement of 30,000 gallons per minute (gpm), and will be subject to approval by the Fire Department.
c) **Liquid Waste Disposal:** Municipal sewers are not available at the project site, nor are any planned for the future. However, the project is located makal of the BWS "Pass/No Pass Line", thereby allowing residents to be serviced by cesspools. Allowance of cesspools, though, must be determined jointly by the Department of Land and Natural Resources (DLNR) and the Department of Health (DOH), in addition to the BWS. Currently, the DLNR and DOH are in the process of rendering a determination on this matter of allowing cesspools for the Agricultural Subdivision.

Each lessee would be responsible for providing his own cesspool and conforming to the DOH's regulations on cesspools.

d) **Solid Waste Disposal:** The existing bridge located on Waikupanaha Street was originally designed to carry railroad loads. Therefore, the width and carrying capacity are currently adequate for one-way traffic and for servicing the needs of large construction and refuse collection vehicles. The lessees, then, will be serviced by the City and County Division of Refuse Collection and Disposal. All solid waste from the project area will be removed to the Kapaa Sanitary Landfill. The USDA Soil Conservation Service, in their Watershed Plan, also propose to locate two additional sites for solid waste disposal (Figure 6-5).

e) **Potable Water:** Assuming a potable water demand of 750 gallons per day maximum per lot, 10,500 gallons per day is necessary to service the residents of the proposed project.

Potable water will also be necessary to irrigate certified nursery crops, recommended to be grown on five specified lots. These include Lots 2, 11, 12, 13, and 14. The lots were selected according to land suitability and lot size.
FIGURE 6-5
PROPOSED SOLID WASTE COLLECTION SITES FROM WAIMANALO WATERSHED PLAN
It is anticipated that a maximum per day demand of 72,000 gallons per day is necessary to irrigate the five nursery lots.

Potable water will only be furnished subsequent to BWS approval.

The lessees residing on the lots will be responsible for paying the subsequent water rates.

**f) Drainage:** Only two of the subdivided lots will be impacted by runoff resulting from the 100-year flood. To minimize adverse impacts resulting from such an occurrence, residential dwellings will not be constructed within the floodways.

Runoff water should also percolate naturally.

The proposed action will provide: culvert crossings at roads to convey flood waters beneath the road, an additional drainage system to capture and convey water along the roadways, and drainage easements throughout the lots. To substantiate such improvements, the consulting engineers are currently finalizing calculations defining stream flow evaluations, flowage easements, determination of setbacks, and minimum floor elevations. The lease documents will disclose the results of these calculations, will notify the lessees of their responsibility for maintenance and clearance of the flowage easements, and will be worded to prevent encroachment into the drainage ways. All improvements will comply with City and County of Honolulu drainage standards.
g) Gas, Electrical, and Telephone: Gas, electrical, and telephone demands are anticipated to be minimal, since use of the Agricultural Subdivision will primarily be limited to farm activities.

Gas, electrical, and telephone services should be adequate to satisfy all demands stemming from the proposed project.

9. Public Facilities and Services

a) Traffic/Access: The impact of additional traffic to the project site should be very minimal and should not present any long-term traffic problems, since the proposed action will consist of subdividing 14 lots and leasing them to only farm residents.

Access to the project site will be provided by a 24-foot wide asphalt concrete pavement within a 44-foot wide right-of-way. This road will begin at the intersection of Kumuhau and Waikupanaha Streets, extending mauka. From that extension, a road to serve the Agricultural Subdivision development will be built.

The road will conform to the City and County of Honolulu's Typical Agricultural Road Section and will be dedicated to the City for maintenance.

A portion of the roadway will cross privately-owned lands of approximately 12,150 square feet. Acquisition cost for this land is estimated at $12,000.

The existing Kumuhau and Waikupanaha Streets are paved thoroughfares with no curbs.
b) Security and Emergency: Security should not present a major problem to the project area. Each individual farmer would be responsible for providing security for his farm equipment and his parcel of land. In the event that emergency services are required, excellent facilities are located within the vicinity of the project site at the Castle Memorial Hospital, for medical services; the Kailua substation, for police protection; and the Waimanalo and Kailua fire stations for fire protection.

c) Social: The Agricultural Subdivision will cultivate 120 acres of land and will represent the initial increment of development for the total 1,800-acre Waimanalo Agricultural Park. Activities on the project site then, will be in conformance with the activities of the completed Agricultural Park. Therefore, the Phase I Subdivision will have no significant impact on the adjacent communities, since it will respect the agricultural and rural atmosphere of the completed Waimanalo Agricultural Park development and the entire Waimanalo area.

d) Agricultural Industry: The project will make farm lots available to both experienced and new farmers. It will aid in promoting diversified agriculture in the State, and will not negatively impact other farming operations. There is also ready access to a large market, the Honolulu area.

III. Secondary Impacts

A. Land Use

Use of this area as an agricultural park will preclude other actions for the land. Therefore, actions incompatible with the intent of the Agricultural Subdivision will not be permitted.
B. Educational Opportunity

Currently, there is a limited amount of Agricultural Subdivisions located on the island of Oahu. The proposed project then, will provided needed educational opportunity to those individuals interested in agricultural production.
Adverse Environmental Effects
SECTION 7: ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

I. Introduction

This section will briefly discuss probable adverse environmental impacts and mitigative measures, when applicable, and the rationale for proceeding with a proposed action, notwithstanding unavoidable effects.

II. Primary Short-Term Impacts

A. Adverse Impacts and Mitigative Measures

During the construction phase of the Agricultural Subdivision, a temporary increase in the existing noise level can be expected. This impact will be of short duration, lasting only for the construction period. The noise level can be reduced by the contractor by ensuring proper functioning of mufflers on all equipment, instructing workers to avoid unnecessary "gunning" of equipment, creating earth berms to absorb noise, and conducting construction activity only during daylight hours, between 3:00 a.m. to 5:00 p.m.

The grubbing and clearing of the existing vegetation may result in dust problems. If dust becomes a serious problem, it can be mitigated to a large extent by water sprinkling, limiting the area being work at any one time, and immediate seeding of the graded area. However, it is anticipated that dust will not be a significant problem, due to the slight erosive characteristics of the soil types existing at the project site.

Exhaust emissions from construction equipment and smoke from burning activity will undoubtedly occur. However, prevailing winds in the area should help to quickly disperse any concentratons of exhaust emissions and smoke. Air quality of the area should therefore, not be significantly affected.
Increased constituent loads into the Waimanalo Stream can be expected to result from construction activities, especially if a significant storm occurs. The impact of construction activities can be mitigated by conforming to strict erosion control measures, particularly those specified in the City and County of Honolulu's Grading, Grubbing, and Stockpiling, Ordinance No. 3968, 1972; the State Department of Health's Water Quality Standards, Chapter 37-A, Public Health Regulations, 1968; and the USDA Soil Conservation Service Erosion and Sediment Control Guide for Hawaii, 1981.

B. Reasons for Proceeding

The probable short-term adverse impacts encountered during the construction phase of the proposed Agricultural Subdivision are minor and can be controlled by using acceptable mitigative measures.

III. Primary Long-Term Impacts

A. Adverse Impacts and Mitigative Measures

Clearing and grubbing of the existing vegetation will be required for the implementation of the proposed Agricultural Subdivision. The removal of the vegetation will have an impact on the existing wildlife. However, the proposed project site does not contain endangered species of plants and/or animals, nor does it contain sensitive wildlife habitats. The existing wildlife will undoubtedly relocate to the adjacent areas and, in some instances, adapt to the proposed action by returning to the project site for food and shelter after clearing activities have been completed.

The use of pesticides and herbicides on the project site is not anticipated to present any significant problems to the air quality. Each of the farmers will use EPA approved herbicides and pesticides and will be required to take courses and receive instructions before granted a permit to use these herbicides and pesticides.
Erosion will normally occur on agricultural areas. Therefore, farmers will be advised to consult with the USDA Soil Conservation Service Erosion and Sediment Control Guide for Hawaii, 1981, for erosion control.

Soil conditioners, fertilizers, herbicides, and pesticides will alter the chemical constituents of the Waimanalo Stream. However, impact on the surface water quality should be insignificant due to the "flashy" characteristics of the stream and the generally infrequent occurrence of rainfall in the Waimanalo area.

Irrigation sources to the project site will be provided by a new 16-inch pipe system from the tunnel portal. However, this will be a temporary arrangement. The USDA Soil Conservation Service, in their Watershed Plan and Draft Environmental Impact Statement, will provide necessary irrigation resources by constructing a 60-million gallon capacity reservoir located at the end of Mahallua Street.

Potable water will be furnished subsequent to BWS approval.

Only two of the subdivided lots will be impacted by runoff resulting from the 100-year flood. To minimize adverse impacts resulting from such an occurrence, lease documents will be worded to prevent encroachment into the flowage easement. The proposed action will provide for culverts and additional drainage appurtenances. Runoff should also percolate naturally.

The Agricultural Subdivision may be serviced by cesspools since the project is located makai the BWS "Pass/No Pass Line". However, determination for allowing cesspools must be made jointly by the Department of Land and Natural Resources and Department of Health, in addition to the BWS.
The bridge located on Waikupanaha Street was determined by the County Refuse Division as being adequate in providing access for refuse collection vehicles.

Adverse impacts to groundwater quality, fire protection water flow, gas, electrical, telephone, traffic, security, emergency, and surrounding communities are not anticipated.

B. Reason for Proceeding

The long-term adverse impacts encountered during the operation of the Agricultural Subdivision will be insignificant and can be mitigated by utilizing acceptable measures.

Establishing an Agricultural Subdivision will be in keeping with the overall State goal of providing for a diversified agricultural economic base.

IV. Secondary Impacts

A. Adverse Impacts and Mitigative Measures

Adverse secondary impacts are not anticipated.

B. Reasons for Proceeding

The long-term beneficial impacts of securing this parcel of land for agricultural purposes would be realized for many generations. The proposed action would set aside this land for the people of the State for agricultural purposes and will assist in providing for the diversified agricultural economic base on the Island of Oahu.
Alternatives
SECTION 8: ALTERNATIVES TO THE PROPOSED ACTION

I. Introduction

This section will discuss alternatives to the proposed action which have been considered.

II. No Action

A no action alternative would not accomplish the objectives of the Department of Land and Natural Resources. These objectives are to provide land for diversified agriculture, to provide land for practical experience in the areas of agriculture, and to provide an opportunity for the small farmers.

III. Alternative Sites

Agricultural Park projects are joint programs cooperatively developed by the Departments of Agriculture and Land and Natural Resources. Presently, there are nine committed projects in various stages of planning, design, construction, or completion. Table 8-1 presents the total acreage, number and size of lots, uses, and current status of each respective Agricultural Park, as of December 1981.

However, the project site should be utilized as an Agricultural Park since the land is available for immediate use, minimal land acquisition costs are involved and the parcel is located in close proximity to the Honolulu market and to shipping facilities in Honolulu Harbor.

IV. Alternative Uses and Development Concepts

The project site is designated "agriculture" according to the State Land Use District boundary, the City and County of Honolulu General Plan and Development Plan, and is zoned Ag-1. Alternative uses of the land other than those compatible with the agricultural land use designations would require changes in the State Land Use designation as well as the County General Plan, proposed Development Plan and Zoning Designation.
TABLE 8-1

STATEWIDE AGRICULTURAL PARK STATUS REPORT (FEBRUARY, 1982)

<table>
<thead>
<tr>
<th>Agricultural Parks</th>
<th>Total Acreage</th>
<th>No. and Size of Lots</th>
<th>Uses</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAHOA (Hawaii)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase I</td>
<td>410</td>
<td>27, 10 to 30-acre lots</td>
<td>Flower, foliage and nursery production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>Phase II</td>
<td>175</td>
<td>33, 5-acre lots</td>
<td>Flower, foliage and nursery production.</td>
<td>Under construction; estimated completion date January 1982.</td>
</tr>
<tr>
<td>KE-AHOLE (Hawaii)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase I</td>
<td>65</td>
<td>12, 5-acre lots</td>
<td>Flower and foliage production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>Phase II</td>
<td>114</td>
<td>22, 5-acre lots</td>
<td>Flower and foliage production.</td>
<td>Design stage completed. Estimated construction completion date November 1982.</td>
</tr>
<tr>
<td>PANAEWA (Hawaii)</td>
<td>460</td>
<td>28, 10 to 20-acre lots</td>
<td>Orchard and nursery production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>LALAMISO (Hawaii)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAIMANALO (Oahu)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase I</td>
<td>126</td>
<td>16, 5 to 10-acre lots</td>
<td>Banana, diversified crops including nurseries.</td>
<td>Development plan and preliminary engineering report completed. EIS in process. Estimated construction completion date August 1983.</td>
</tr>
<tr>
<td>Agricultural Parks</td>
<td>Total Acreage</td>
<td>No. and Size of Lots</td>
<td>Uses</td>
<td>Current Status</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------</td>
<td>---------------------</td>
<td>------</td>
<td>---------------</td>
</tr>
<tr>
<td>WAIANAE (Oahu)</td>
<td>150</td>
<td>15, 5 to 10-acre lots</td>
<td>Mix of swine and poultry operations and shade house commodities.</td>
<td>Development plan and preliminary engineering report completed. EIS in process. Estimated construction completion date 1983.</td>
</tr>
<tr>
<td>WAIAHOLE (Oahu)</td>
<td>410</td>
<td>71 lots of various acreage</td>
<td>Banana, papaya, taro nursery and diversified crops.</td>
<td>51 lots already encumbered by existing tenants. Design to be completed by late 1982; construction completion by mid-1984-1985. (HHA Project)</td>
</tr>
<tr>
<td>KULA (Maui)</td>
<td></td>
<td></td>
<td>Vegetable and truck crops.</td>
<td>County of Maui project. State will assist in construction of agricultural water system and land acquisition. Estimated completion date 1982 (Phase I).</td>
</tr>
</tbody>
</table>
Various crop types to be produced on the project site were also considered. Consideration was based on (1) the physical capacities of the site, including water, soil, climate, and tillability, (2) the cost and quality of other resources brought to the land, with particular emphasis on water, management, and labor, and (3) the potential market that can be developed without lowering prices significantly. The array of crop types possessing optimum economical and physical feasibility include the production of bananas, flowers, nursery products, and tomatoes. It has been agreed upon that each individual farmer will determine the actual crop type to be produced on his lot.

It is recommended that each farmer formulate plans for crop type for each respective lot, based on soil type and slope. Farmers may be advised to consult with the Windward Oahu Soil and Water Conservation District and the Erosion and Sediment Control Guide for Hawaii, 1981, prepared by Soil Conservation Service, for technical assistance.
SECTION 9: IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

I. Introduction

This section considers the commitment of resources that is made once a project is implemented.

II. Irreversible and Irretrievable Commitment of Resources

Labor, construction building materials, and fuel will be committed to the project. Additional manpower, fuel, fertilizer and pesticides will be utilized by the individual farmers for cultivation of the agricultural products. The exact amount of fertilizer, pesticides and fuel which will be required by the individual farmers cannot be quantified at the present time.
10

Short-Term Uses/
Long-Term Productivity
SECTION 10: RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

I. Introduction

This section will include a brief discussion of the extent to which the proposed action involves trade-offs between short-term environmental gains at the expense of long-term losses, or vice-versa, and a discussion of the extent to which the proposed action narrows the range of beneficial uses of the environment, or poses long-term risks to health or safety.

II. Short-Term Uses and Enhancement of Long-Term Productivity

The proposed project, the Phase I development of the Waimanalo Agricultural Park, has considered the environmental attributes of the area, evaluated existing infrastructural items, and the farmers' desire for agricultural lands. The proposed action, when implemented, will enhance the economic resources of this area. The proposed action will enable small farmers to obtain land for their agricultural endeavors, thereby, strengthening the diversified economic base of the project area. Providing land for the small farmers will enable them to have the opportunity to participate in the overall agricultural efforts of the State.

The proposed project will not involve trade-offs between short-term environmental gains at the expense of long-term losses, narrow the ranges of beneficial use of the environment, or propose long-term risks of health and safety.
II

Government Policy

Offsetting Adverse Effects
SECTION 11: AN INDICATION OF WHAT OTHER INTERESTS AND CONSIDERATIONS OF GOVERNMENTAL POLICIES ARE THOUGHT TO OFFSET THE ADVERSE ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

As indicated in Section 7, Adverse Environmental Effects Which Cannot Be Avoided, a few short- and long-term impacts resulting from the proposed action may occur. The short-term impacts, or those relating to construction activities, are considered insignificant and can be controlled by utilizing acceptable mitigative measures.

Long-term impacts, or those occurring during the operation of the proposed action will also be minor and alleviated by utilizing acceptable mitigative measures.

The development of an agricultural subdivision and park in this area will be in accordance with the goals and objectives presented in the objective of the Agricultural Park set forth in Chapter C, 171, Part V of the Hawaii Revised Statutes, to strengthen diversified agriculture in Hawaii by a plan that "combines and concentrates in a common location agricultural activities for the purpose of production and distribution of the economy."

The proposed action is also in accordance to the County General Plan, the State Plan, and proposed Agricultural Functional Plan. All of these plans possess policies supporting the need for diversified agricultural activities to strengthen the State economic base.
SECTION 12:  **LIST OF NECESSARY APPROVALS**

The following is a general list of approvals needed to complete the construction of the Agricultural Subdivision:

<table>
<thead>
<tr>
<th>Approval Needed</th>
<th>Approving Agency or Body</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subdivision Approval</strong></td>
<td></td>
</tr>
<tr>
<td>1) Tentative Approval of Preliminary Map</td>
<td>Department of Land Utilization</td>
</tr>
<tr>
<td>2) Approval of Final Map</td>
<td>State Surveyor, Land Court</td>
</tr>
<tr>
<td>3) Approval of Stamped Map</td>
<td></td>
</tr>
<tr>
<td><strong>Grading Permit</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Department of Public Works Division of Engineering</td>
</tr>
<tr>
<td><strong>Refuse</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Department of Public Works Division of Refuse Collection and Disposal</td>
</tr>
<tr>
<td><strong>Street Construction, Signing, and Pavement Markings</strong></td>
<td>Department of Transportation Services</td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td>Hawaiian Electric Company</td>
</tr>
<tr>
<td><strong>Telephone</strong></td>
<td>Hawaiian Telephone Company</td>
</tr>
<tr>
<td><strong>Street Signs</strong></td>
<td>Department of Transportation Services</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>Board of Water Supply</td>
</tr>
<tr>
<td><strong>Building Permit</strong></td>
<td>Building Department</td>
</tr>
<tr>
<td><strong>Fire Hydrant Installation</strong></td>
<td>Fire Department</td>
</tr>
<tr>
<td><strong>Cesspools</strong></td>
<td>Board of Water Supply</td>
</tr>
<tr>
<td></td>
<td>Department of Land &amp; Natural Resources</td>
</tr>
<tr>
<td></td>
<td>Department of Health</td>
</tr>
</tbody>
</table>
SECTION 13.1: ORGANIZATIONS AND PERSONS CONSULTED DURING THE EIS PREPARATION PERIOD

The EIS Preparation Notice. The EIS Preparation Notice was prepared by the Department of Land and Natural Resources (DLNR), State of Hawaii, based on the information obtained from the Environmental Assessment submitted by the applicant. In accordance with the "Environmental Impact Statement Regulations," the Notice was filed with the State Environmental Quality Commission (EQC). The Notice was included in the EQC Bulletin of September 8, 1981. The Regulations call for the Notice to appear in the EQC Bulletin; interested parties may then request a copy of the EIS Preparation Notice. If a request is received to review the Notice, the reviewer is given 30 days (from the date of the request) to provide comments. In addition to reviewers requesting a copy of the Notice, the applicant or his representative is expected to circulate to various governmental and civic agencies, and other interested parties a copy of the Notice. In conforming with the latter process, the environmental consultants, Environmental Communications, Inc. (ECI) distributed copies of the EIS Preparation Notice to various agencies identified in Table 13-1. The Notice was mailed out on August 20, 1981 and requested comments before September 22, 1981.

Comments Received on the EIS Preparation Notice. A total of seventeen (17) letters were received in response to the EIS Preparation Notice. Of these written responses, four (4) agencies had no comments to provide at this time. In most cases the comments identified specific concerns that should be addressed in the EIS. These concerns included: the traffic congestion problem, water quality impact, detailed discussion on the sewage treatment plant, and socioeconomic impact. Table 13-2 identifies the agencies to whom copies of the EIS Preparation Notice were sent, the date of the comment, and the date of the response to the comment (if necessary).

Reduced, half-size copies of the letters received and DLNR's responses to the comments are provided in the following section.
<table>
<thead>
<tr>
<th>ORGANIZATIONS/AGENCIES</th>
<th>Date Notice Mailed</th>
<th>Date of Comments</th>
<th>Date of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>City and County</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honolulu Police Department</td>
<td>8/20/81</td>
<td>8/26/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Honolulu Fire Department</td>
<td>8/20/81</td>
<td>9/04/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Department of Public Works</td>
<td>8/20/81</td>
<td>9/04/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Department of General Planning</td>
<td>8/20/81</td>
<td>9/15/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Department of Transportation Services</td>
<td>8/20/81</td>
<td>9/13/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Board of Water Supply</td>
<td>8/20/81</td>
<td>10/02/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Department of Parks and Recreation</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Agriculture</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Transportation</td>
<td>8/20/81</td>
<td>8/28/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Department of Education</td>
<td>8/20/81</td>
<td>8/31/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Department of Health</td>
<td>8/20/81</td>
<td>9/14/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Department of Planning and Economic Development</td>
<td>8/20/81</td>
<td>9/16/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Office of Environmental Quality Control</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Army Corps of Engineering</td>
<td>8/20/81</td>
<td>9/11/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td>8/20/81</td>
<td>9/13/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>U.S. Soil Conservation Service</td>
<td>8/20/81</td>
<td>9/21/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Department of the Air Force</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Lung Association of Hawaii</td>
<td>8/20/81</td>
<td>8/24/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Hawaii Federation of Farm Bureau</td>
<td>8/20/81</td>
<td>9/02/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>The Sierra Club, Hawaii Chapter</td>
<td>8/20/81</td>
<td>10/03/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Joint Planning Committee of the Waimanalo Council of Community Organizations and the Waimanalo Neighborhood Board</td>
<td>8/20/81</td>
<td>10/15/81</td>
<td>10/19/81</td>
</tr>
<tr>
<td>Hawaii Association of Nurseryment</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawaii Audubon Society</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawaii Banana Industry Association</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life of the Land</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oahu Banana Growers Association</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pacific Banana Growers Cooperative</td>
<td>8/20/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORGANIZATIONS/AGENCIES</td>
<td>Date of Comment Received</td>
<td>Date of Response</td>
<td>Copy of Comment on Page</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td><strong>City and County</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honolulu Police Department</td>
<td>9/01/81</td>
<td>10/19/81</td>
<td>13-4</td>
</tr>
<tr>
<td>Honolulu Fire Department</td>
<td>9/09/81</td>
<td>10/19/81</td>
<td>13-5</td>
</tr>
<tr>
<td>Department of Public Works</td>
<td>9/08/81</td>
<td>10/21/81</td>
<td>13-6</td>
</tr>
<tr>
<td>Department of General Planning</td>
<td>9/16/81</td>
<td>10/21/81</td>
<td>13-8</td>
</tr>
<tr>
<td>Department of Transportation Services</td>
<td>9/24/81</td>
<td>10/19/81</td>
<td>13-9</td>
</tr>
<tr>
<td>Board of Water Supply</td>
<td>10/06/81</td>
<td>10/19/81</td>
<td>13-10</td>
</tr>
<tr>
<td><strong>State</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Transportation</td>
<td>8/31/81</td>
<td>10/19/81</td>
<td>13-12</td>
</tr>
<tr>
<td>Department of Education</td>
<td>9/03/81</td>
<td>10/19/81</td>
<td>13-13</td>
</tr>
<tr>
<td>Department of Health</td>
<td>9/16/81</td>
<td>10/19/81</td>
<td>13-14</td>
</tr>
<tr>
<td>Department of Planning and Economic Development</td>
<td>9/21/81</td>
<td>10/19/81</td>
<td>13-16</td>
</tr>
<tr>
<td><strong>Federal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Army Corps of Engineering</td>
<td>9/14/81</td>
<td>10/19/81</td>
<td>13-17</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td>9/21/81</td>
<td>10/19/81</td>
<td>13-18</td>
</tr>
<tr>
<td>U.S. Soil Conservation Service</td>
<td>9/24/81</td>
<td>10/19/81</td>
<td>13-19</td>
</tr>
<tr>
<td><strong>Organizations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Lung Association of Hawaii</td>
<td>8/25/81</td>
<td>10/19/81</td>
<td>13-20</td>
</tr>
<tr>
<td>Hawaii Federation of Farm Bureau</td>
<td>9/08/81</td>
<td>11/30/81</td>
<td>13-21</td>
</tr>
<tr>
<td>The Sierra Club, Hawaii Chapter</td>
<td>10/05/81</td>
<td>10/19/81</td>
<td>13-23</td>
</tr>
<tr>
<td>Joint Planning Committee of the Waimanalo Council of Community Organizations and the Waimanalo Neighborhood Board</td>
<td>10/15/81</td>
<td>10/19/81</td>
<td>13-24</td>
</tr>
</tbody>
</table>
August 26, 1981

Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Gentlemen:

Subject: Consultation Process Prior to Filing the EIS for the Proposed Waimanalo Agricultural Park, Phase I

We have reviewed your environmental impact statement preparation notice and have no comments on or objections to the proposed project.

Sincerely,

FRANCIS KEALA
Chief of Police

By

EARL THOMPSON
Assistant Chief
Administrative Bureau

cc: Department of Land and Natural Resources

February 19, 1981

Mr. Francis Keala
Chief of Police
Police Department
City and County of Honolulu
1655 South Beretania Street
Honolulu, Hawaii 96814

Dear Chief Keala:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of August 26, 1981, regarding the aforementioned project.

We thank you for your concern regarding the appropriateness of the proposed agricultural use for this site.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

SUSUHU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez
Department of Agriculture
Attention: Paul Schwind
Park Engineering, Inc.
Attention: George Yokota
September 4, 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

The major concern of the Honolulu Fire Department is the availability of adequate water supply for fire protection in the proposed project.

The EIS Preparation Notice under "A" Technical Characteristics: Items 3, 4 and 5 on Pages 2 and 3, make reference to the installation of fire hydrants; the inclusion of a domestic water supply system and two irrigation water systems.

Fire protection for the proposed project will be provided by the Waimanalo Station, which is approximately two miles from the proposed site, with supportive service from the Kailua station. Our Capital Improvement Program for the fiscal year 1982-83 calls for a new fire station in the Olooma area, which is approximately 3 miles from the proposed site.

With the installation of the fire hydrants and the addition of the new fire station, the fire protection for the proposed project will be more than adequate.

Sincerely,

Melvin M. Nonaka,
Fire Chief

cc: Environmental Communications, Inc.
   Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwaid

Park Engineering, Inc.
Attention: George Yokota
Gentlemen:

Re: EIS Preparation Notice, Proposed Waimanalo Agricultural Park, Phase I

In response to your letter of August 20, 1981, requesting information on the proposed project, we have the following comments.

1. The proposed site is located on and adjacent to a location where we are planning to establish a landfill site. (See attached map.) The amount of landfill area on Oahu is limited, particularly in view of the State's new Underground Injections Control (UIC) program. For this reason, some consideration should be given in the design and the areal magnitude of the proposed agricultural park at this particular site (Tax Map Key 4-1-08: 13).

2. Municipal sewers are not available at the proposed site nor planned for in the future. The suitability of cesspools in the project area should be addressed in the EIS.

3. There are downstream flood problems and this matter should be discussed in the EIS. Flood determination studies are required and the Drainage Section of the Division of Engineering should be consulted.

4. If the roads are to be designed as agricultural road and dedicated to the City, the design of the pavement should be based on vehicular loads and soil conditions instead of a typical road section.

Me ke aloha pumehana,

Michael J. Chun
Director and Chief Engineer

cc: DLNR
Engineering
Refuse
Wastewater Management
Octoben 21, 1981

Dr. Michael J. Oun
Director & Chief Engineer
Department of Public Works
City & County of Honolulu
650 South King St.
Honolulu, Hawaii 96813

Dear Dr. Oun:

EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of September 4, 1981, regarding the aforementioned project. The following are responses to your concerns:

1. As discussed and agreed upon at a meeting with my staff, I understand that the City will be reconsidering the siting of a solid waste disposal landfill at this location and that the development of the agricultural park can proceed as planned.

2. Residential use will be allowed on the project site. Suitability of cesspools will be addressed in the EIS.

3. Only a portion of a single lot is located within a floorway. According to the Federal Flood Plain Management, agricultural activity is allowed within these areas. Home and farm buildings will not be constructed in the floorways. This will be discussed in the EIS.

4. The roadways are planned to be dedicated to the City and will be designed to City standards.

We appreciate your concerns on this matter.

Very truly yours,

SUSUMU ONO
Chairman of the Board

cc: Environmental Communication, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
September 15, 1981

Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Gentlemen:

EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We have reviewed the EIS preparation notice and feel that further discussion on the sewer disposal method should be included in the EIS. The type of information may require data on hydrogeologic conditions in order to determine the suitability of cesspool use on the proposed site for the protection of our existing and future water resources. Department of Public Works cesspool pumping survey data show a number of defective cesspools existing in that vicinity.

Sincerely,

RALPH KAWAMOTO
Planner

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schind

Park Engineering, Inc.
Attention: George Yokota

SEP 10 1981
September 18, 1981

Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Attention: Mr. F. J. Rodriguez, President

Gentlemen:

Subject: Waimanalo Agricultural Park Phase I
EIS Consultation Phase

We have the following comments on the proposed project:

1. We do not anticipate any significant traffic impact from the 16
farm lots in Phase I. However, the ultimate development of the 1800
acres will generate additional traffic that will tax the existing
highway facilities in the area. In this regard, we recommend that
the need for improvements, such as a left-turning lane at Kalanianaole
Highway and Kauhau Street, be studied in conjunction with
development of the entire project area.

2. Bus service is available on Kalanianaole Highway on Route 57 to/from
Honolulu via Ka'ahua or Hawaii Kai with 30-60 minute headway in each
direction.

If you have any questions, please contact Kenneth Hirata of my staff at
523-4190.

Very truly yours,

ROY A. PARKER
Director

cc: State Dept. of Land and
Natural Resources

---

October 19, 1981

Mr. Roy A. Parker, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Parker:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter of September 18, 1981, regarding the
aforementioned project.

The EIS presently being prepared, addresses only the Phase I development
increment of the Waimanalo Agricultural Park. The scope of work and proposed
action will therefore be limited to such analyses. Items consistent with the
remaining phasing increments for the complete development of the Park will be
addressed in the Draft EIS referencing Soil Conservation Service's Watershed
Plan and EIS, the Waimanalo Agricultural Park and the Environmental Assessment.

We appreciate your concerns on these matters.

Very truly yours,

SUSUHI ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez
Department of Agriculture
Attention: Paul Schwoen
Park Engineering, Inc.
Attention: George Yokota
Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Your Letter of August 20, 1981, on the Proposed Waimanalo Agricultural Park, Phase I

The following comments on the proposed project include conditions discussed with Park Engineering, Inc., the design consultants for the project.

1. The boundary limits of Phase I is within an area where cesspools are acceptable.

2. Our approval of the agricultural subdivision will note that because a domestic water system will not be installed, no residential units will be allowed. This restriction shall be made known to the prospective lessees and documented in their lease agreement.

3. The use of the piped irrigation system for fire protection should be approved by the Fire Department.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

RAZU HAYASHIDA
Manager and Chief Engineer

cc: Department of Land and Natural Resources
We thank you for your comments on the Preparation Notice and your continuing interest in this project.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
August 28, 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
1152 Bishop Building, Suite 407
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Consultation Process Prior to Filing the EIS for the Proposed Waimanalo Agricultural Park, Phase I

We have reviewed your initial proposal and found that your report would be enhanced if you were to address the traffic impact not only for the 125 acres in Phase I, but for the entire 1,800 acres which will eventually be the ultimate scale of your development. Any assessment on traffic impact for less than the total development would be totally inadequate.

Very truly yours,

Ryokichi Higashionna
Director of Transportation

October 19, 1981

Dr. Ryokichi Higashionna, Director
Department of Transportation
State of Hawaii
859 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Higashionna:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We have received and reviewed your letter of August 28, 1981, regarding the abovementioned project.

The EIS presently being prepared, addresses only the Phase I development increment of the Waimanalo Agricultural Park. The scope of work and proposed action will, therefore, be limited to such analyses. Items consistent with the remaining phasing increments for the complete development of the Park are addressed in the Soil Conservation Service's Watershed Plan and EIS, and the Waimanalo Agricultural Park Environmental Assessment.

We appreciate your concern on these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: Mr. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
Mr. F. J. Rodriguez  
Environmental Communications, Inc.  
1152 Bishop Building, Suite 407  
Honolulu, Hawaii  96813  

Dear Mr. Rodriguez:  

SUBJECT: EIS, Waimanalo Agricultural Park, Phase I  

The subject EIS for the proposed 16-lot Agricultural Park in Waimanalo, TMK: 4-1-08:13 will not have any significant impact on student enrollment on our Waimanalo Elementary-Intermediate and Kailua High Schools.  

Should there be any questions, please contact Mr. Howard Lau at 737-5231.

Sincerely,  

Charles G. Clark  
Superintendent  

CGC:NL:J1  
cc: Windward District  
Mr. James Edington

-----

Mr. Charles G. Clark, Superintendent  
Department of Education  
State of Hawaii  
P. O. Box 2360  
Honolulu, Hawaii  96804  

Dear Mr. Clark:  

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I  

We are in receipt of your letter of August 31, 1981, regarding the aforementioned project.  

We thank you for your informing us that the subject project will not have any significant impact on student enrollment.

Very truly yours,  

Charles G. Clark  
Superintendent  

cc: Environmental Communications, Inc.  
Attention: F. J. Rodriguez  
Department of Agriculture  
Attention: Paul Schuld  
Park Engineering, Inc.  
Attention: George Yokota
Subject: Request for Comments on Proposed Environmental Impact Statement (EIS) for Waimanalo Agricultural Park, Phase I

Thank you for allowing us to review and comment on the subject proposed EIS.

The following comments are submitted for your information and consideration:

1. The only existing dirt road and wooden bridge to this subdivision are not capable of supporting heavy loads and sizes comparable to the City and County refuse trucks. At the present time, due to this reason, the City and County refuse trucks do not provide refuse pickup service for the families living in the proposed subdivision. Consequently, there are many promiscuous dumpings along side the road.

2. The use of individual wastewater disposal systems is acceptable provided these systems are installed at least 50 feet away from any body of water.

3. A portion of proposed Lot 12 is subject to flooding.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

Sincerely,

MELVIN K. KOIZUMI
Deputy Director for Environmental Health

Mr. F. J. Rodriguez
Environmental Communications, Inc.
1152 Bishop Building, Suite 407
P. O. Box 236
Honolulu, Hawaii 96809

September 14, 1981

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We have received and reviewed your letter of September 14, 9181, relating to the abovementioned EIS Preparation Notice. The following are responses to your concerns:

1. The engineering consultants involved with the project will be conducting economic feasibility studies on the redesigning of said bridge to allow adequate access to the project site for refuse collection. Decisions resulting from these studies will be discussed in the EIS.

2. This item will be addressed in the EIS.

3. According to the Federal Flood Plain Management, agricultural activity is allowed in floodways. Therefore, no home and farm buildings will be constructed in the floodways.

Mr. Melvin K. Koizumi
Deputy Director
Department of Health
State of Hawaii
P. O. Box 1378
Honolulu, Hawaii 96801

October 19, 1981
Mr. Melvin K. Koizumi, Deputy Director 

October 19, 1981

All of these items will be addressed in the EIS. We appreciate your concerns on these matters.

Very truly yours,

SUSUMU ONO
Chairman of the Board

cc: Environmental Communication, Inc.
    Attention: F. J. Rodriguez

    Department of Agriculture
    Attention: Paul Schwind

    Park Engineering, Inc.
    Attention: George Yokota
September 16, 1981

Ref. No. 3621

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

SUBJECT: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

Our agency has reviewed the EIS Preparation Notice for the above agricultural park and has no comments to make at this time.

We would appreciate the opportunity to review the draft EIS at a later date.

Sincerely,

Hideto Kono

cc: Dept. of Land & Natural Resources

Mr. Hideto Kono, Director
Department of Planning and Economic Development
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Kono:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of September 16, 1981, regarding the aforementioned project.

The Draft EIS will be sent to you upon its completion at a later date.

We appreciate your concern on this matter.

Very truly yours,

Susumu Oho
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F.J. Rodriguez
Department of Agriculture
Attention: Paul Schwind
Park Engineering, Inc.
Attention: George Yokota
Dear Mr. Rodriguez:

Thank you for the opportunity to review the Environmental Impact Statement Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase 1, Oahu, sent to us on 20 August 1981. Based on our review, we provide the following comments:

a. Based on information provided to date, it appears that the subject agricultural subdivision does not require a Department of the Army permit; however, any future discharge of dredged or fill material into waters of the US, including wetlands, will require a Department of the Army permit. Operations Branch staff will gladly provide assistance regarding permit requirements and jurisdictional boundary determinations. You may call them at 438-9258.

b. Since part of the proposed agricultural park lies within a known flood hazard area, floodplain management concepts should be considered. Agricultural activity within floodways is an accepted and compatible use. However, farm buildings should, however, be located outside the floodway and preferably outside the floodplain. Included in a brochure (Incl 1), Flood Plain Management, which may clarify floodplain concepts for you. Please consult the Federal Flood Insurance Maps for the floodplain limits.

Sincerely,

[Signature]

RICHARD M. CHUN
Acting Assistant Chief, Engineering Division

[Debt of Land and Natural Resources]

Mr. Fred Rodriguez
Environmental Communications, Inc.
1152 Bishop Bldg, Suite 407
PO Box 536
Honolulu, HI 96809

Mr. Richard M. Chun
Acting Assistant Chief
Engineering Division
Department of the Army
U.S. Army Engineer District
Fort Shafter, Hawaii 96858

Dear Mr. Chun:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase 1

We are in receipt of your letter of September 11, 1981, regarding the aforementioned project.

The following are responses to your concerns:

a. If any future discharge of dredged or fill material into the waters is necessary, we will apply for a Department of the Army permit and consult with the Operations Branch staff for assistance.

b. Only agricultural activity will be located within the floodway of Waimanalo Stream. Therefore, home and farm buildings will not be permitted inside the floodway. If these structures are placed within the floodway, a method of flood proofing would be required.

We appreciate your concerns on these matters.

Very truly yours,

[Signature]

[Debt of Land and Natural Resources]

Mr. Richard M. Chun
Acting Assistant Chief
Engineering Division

Mr. Richard M. Chun
Acting Assistant Chief
Engineering Division

Mr. Richard M. Chun
Acting Assistant Chief
Engineering Division

CC: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
Mr. F. J. Rodriguez, President  
Environmental Communications, Inc.  
P.O. Box 536  
Honolulu, Hawaii 96809

Re: EIS Preparation Notice -  
Phase I, Waimanalo  
Agricultural Park, Oahu, Hawaii

Dear Mr. Rodriguez:

We have reviewed the referenced EIS Preparation Notice, forwarded by your letter dated August 20, 1981. The proposed project will have little if any significant adverse impacts on fish and wildlife resources; therefore, we have no further comments at this time.

Please provide us a copy of the DEIS when it becomes available.

We appreciate this opportunity to comment.

Sincerely yours,

Ernest Kosaka  
Project Leader  
Office of Environmental Services

c: RHS  
HIPAG  
EPA, San Francisco
September 21, 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P.O. Box 536
Honolulu, HI 96809

Dear Mr. Rodriguez:

Subject: Environmental Impact Statement Preparation Notice, Proposed Waimanalo Agricultural Park, Phase I

We have reviewed the above-mentioned notice as you requested. Since the land in the proposal is classified as prime agricultural land and other important agricultural land, we feel that the proposal is appropriate. We would appreciate the opportunity to review the draft EIS when it is available.

Sincerely,

JACK P. KANALZ
State Conservationist

October 19, 1981

Mr. Jack P. Kanalz
State Conservationist
Soil Conservation Service
U.S. Department of Agriculture
P. O. Box 50094
Honolulu, Hawaii 96850

Dear Mr. Kanalz:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of September 21, 1981, regarding the aforementioned project. We thank you for your comment regarding the appropriateness of the agricultural use for this site.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Tokota
August 24, 1981

F. J. Rodrigues
Environmental Communications Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodrigues:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park

We have reviewed the subject EIS Preparation Notice and have the following comments:

1. Since the project is Phase I of a large-scale agricultural park development on approximately 1,800 acres of State land, the EIS should address the entire project in accordance with Section 1:22b of the Environmental Quality Commission's EIS Regulations.

2. The EIS should address the following air quality-related impacts:
   a. Temporary construction/development related effects on air quality.
   b. Long-term effects on traffic and traffic induced air pollution.
   c. Effects of agricultural operations on air quality.

Thank you for providing a copy of the Notice for our review.

Sincerely yours,

James W. Morrow
Director
Environmental Health

October 19, 1981

Mr. James W. Morrow, Director
Environmental Health
American Lung Association of Hawaii
245 North Kuakini Street
Honolulu, Hawaii 96817

Dear Mr. Morrow:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We have received and reviewed your comments of August 24, 1981 on the abovementioned EIS Preparation Notice. In reply to your comments, the following information is provided:

1) The EIS presently being prepared, address only the Phase I development increment of the Waimanalo Agricultural Park. The scope of work and proposed action will, therefore, be limited to such analyses. Items consistent with the remaining phasing increments for the complete development of the Park are addressed in the Soil Conservation Service's Watershed Plan and EIS, and the Waimanalo Agricultural Park Environmental Assessment.

2) The EIS will address the mentioned air quality-related impacts.

Thank you for your comments. We appreciate your concern on these matters.

Very truly yours,

SUSUHO ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodrigues
Department of Agriculture
Attention: Paul Schwind
Park Engineering, Inc.
Attention: George Yokota
Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
September 2, 1981 - Page 2

With respect to the leasing of the lots, we agree that the leases should be long term but wonder what length is to be recommended as this could be critical with respect to the long term viability of the proposed Agricultural Park.

We appreciate the opportunity to respond to the notice.

Yours truly,

Dicky Nitta
President
Mr. Dickey Nitta, President  
Hawaii Farm Bureau Federation  
215 Mokaua St.  
Honolulu, Hawaii 96819

Dear Mr. Nitta:

EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

Thank you for your comments of September 2, 1981 commenting on our EIS Preparation Notice for the Waimanalo Agricultural Park, Phase I project.

Your letter was forwarded to the Department of Agriculture for response and comments. As you know all of the Agricultural Park projects throughout the State is jointly planned and coordinated between our departments. Their assistance was solicited in this instance since your questions dealt with agricultural policies and economics.

Attached for your information is a copy of the Department of Agriculture’s response to our request for comments on your letter.

Your input during this planning process and your concern for the project is appreciated.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Scheindl

Park Engineering, Inc.
Attention: George Yokota

November 30, 1981
Ms. Susan E. Miller
Conservation Chairman
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of October 3, 1981, regarding the aforementioned project.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

Susan E. Miller
Conservation Chairman, Honolulu Group

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

3 October 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

I am writing to indicate the interest of the Honolulu Group of the Sierra Club, Hawaii Chapter, in being a consulted party for the Environmental Impact Statement for "Waimanalo Agricultural Park, Phase I, Waimanalo, Oahu" as reported in the 23 September 1981 issue of the EQC Bulletin.

Sincerely,

Susan E. Miller
Conservation Chairman, Honolulu Group

OCT 5 1981

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 611
HONOLULU HAWAII 96808

October 19, 1981

Mr. Susan E. Miller
Conservation Chairman
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of October 3, 1981, regarding the aforementioned project.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

Susan E. Miller
Conservation Chairman, Honolulu Group

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

OCT 5 1981

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 611
HONOLULU HAWAII 96808

October 19, 1981

Mr. Susan E. Miller
Conservation Chairman
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of October 3, 1981, regarding the aforementioned project.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

Susan E. Miller
Conservation Chairman, Honolulu Group

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

OCT 5 1981

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 611
HONOLULU HAWAII 96808

October 19, 1981

Mr. Susan E. Miller
Conservation Chairman
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of October 3, 1981, regarding the aforementioned project.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

Susan E. Miller
Conservation Chairman, Honolulu Group

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

OCT 5 1981

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 611
HONOLULU HAWAII 96808

October 19, 1981

Mr. Susan E. Miller
Conservation Chairman
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of October 3, 1981, regarding the aforementioned project.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

Susan E. Miller
Conservation Chairman, Honolulu Group

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

OCT 5 1981
Environmental Communications Inc  
P.O. Box 536  
Honolulu, Hawaii 96809

Gentlemen:

This is in regards to the "Consultation Process Prior to Filing the EIS for the Proposed Waimanalo Agricultural Park, Phase I", your memo of August 20, 1981 and its enclosures.

We have reviewed the document and offer the following comments:

1. In view of the demography of the general area, we suggest that the sponsors consider the possibility of setting aside a reasonable percentage of the developed lots for use by the Department of Hawaiian Homelands for placement of Hawaiian farmers that they select. This recommendation is based in consideration of the high probability that screening of applicants under the point system used in recent Ag Park placements would almost automatically result in excluding this group.

2. We continue to actively support the need for more active agricultural use of lands in this area.

Thank you for the opportunity to comment.

Sincerely,

Dr. Robert E. Gibson and Ms. Diane Esias
C/o Joint Planning Committee of the Waimanalo Council of Community Organizations, and
The Waimanalo Neighborhood Board
49-019 Puunene Street
Waimanalo, Hawaii 96795

Dear Dr. Gibson and Ms. Esias:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter regarding the aforementioned project.

We appreciate your concern for the possibility of setting aside a percentage of developed lots for Hawaiian farmers. However, the Legislature has already set qualification standards for lessee selection, which the State is obligated to follow. Please refer to Section 171-68 HRS, (a) and (c), or to the new farmer program, pursuant to Section 155-1 (3) HRS, for the complete listing of qualification standards.

Thank you for your interest in this matter.

Very truly yours,

Chairman of the Board

Attachment

cc: Environmental Communications, Inc.  
Attention: F. J. Rodriguez

Department of Agriculture  
Attention: Paul Schwind

Park Engineering, Inc.  
Attention: George Yokota

October 19, 1981
SECTION 13.2: REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE DRAFT EIS REVIEW

Pages 13-28 to 13-68 contain reduced sized copies of the comments and responses to the comments during the Draft EIS Review Period. Where a substantial comment was received, the written responses immediately follow the letter.
### TABLE 13-3

**ORGANIZATIONS/AGENCIES CONSULTED DURING THE DRAFT EIS**

<table>
<thead>
<tr>
<th>ORGANIZATIONS/AGENCIES</th>
<th>Date Received</th>
<th>Date of Comments</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>City and County</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Parks and Recreation</td>
<td>1/14/82</td>
<td>1/04/82</td>
<td>13-23</td>
</tr>
<tr>
<td>Honolulu Police Department</td>
<td>1/13/82</td>
<td>1/08/82</td>
<td>13-29</td>
</tr>
<tr>
<td>Department of Transportation Services</td>
<td>1/28/82</td>
<td>1/11/82</td>
<td>13-30</td>
</tr>
<tr>
<td>Honolulu Fire Department</td>
<td>1/22/82</td>
<td>1/13/82</td>
<td>13-31</td>
</tr>
<tr>
<td>Department of Housing and Community Development</td>
<td>1/21/82</td>
<td>1/15/82</td>
<td>13-32</td>
</tr>
<tr>
<td>Department of Public Works</td>
<td>1/21/82</td>
<td>1/15/82</td>
<td>13-33</td>
</tr>
<tr>
<td>Building Department</td>
<td>1/25/82</td>
<td>1/18/82</td>
<td>13-35</td>
</tr>
<tr>
<td>Department of Land Utilization</td>
<td>1/25/82</td>
<td>1/20/82</td>
<td>13-36</td>
</tr>
<tr>
<td>Board of Water Supply</td>
<td>1/28/82</td>
<td>1/21/82</td>
<td>13-38</td>
</tr>
<tr>
<td>Department of General Planning</td>
<td>1/27/82</td>
<td>1/22/82</td>
<td>13-40</td>
</tr>
<tr>
<td><strong>State</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Agriculture</td>
<td>1/05/82</td>
<td>12/31/82</td>
<td>13-41</td>
</tr>
<tr>
<td>Department of Social Services and Housing - HHA</td>
<td>1/15/82</td>
<td>1/11/82</td>
<td>13-44</td>
</tr>
<tr>
<td>Department of Accounting and General Services</td>
<td>1/15/82</td>
<td>1/12/82</td>
<td>13-45</td>
</tr>
<tr>
<td>Department of Defense</td>
<td>1/25/82</td>
<td>1/19/82</td>
<td>13-46</td>
</tr>
<tr>
<td>Department of Transportation</td>
<td>1/27/82</td>
<td>1/21/82</td>
<td>13-47</td>
</tr>
<tr>
<td>Department of Planning and Economic Development</td>
<td>1/28/82</td>
<td>1/22/82</td>
<td>13-48</td>
</tr>
<tr>
<td>Environmental Center, University of Hawaii at Manoa</td>
<td>1/28/82</td>
<td>1/22/82</td>
<td>13-50</td>
</tr>
<tr>
<td>Water Resources Research Center, University of Hawaii at Manoa</td>
<td>1/27/82</td>
<td>1/22/82</td>
<td>13-52</td>
</tr>
<tr>
<td>Office of Environmental Quality Control</td>
<td>2/04/82</td>
<td>1/25/82</td>
<td>13-54</td>
</tr>
<tr>
<td>Department of Education</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>Federal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of the Army</td>
<td>1/13/82</td>
<td>1/11/82</td>
<td>13-57</td>
</tr>
<tr>
<td>Department of the Navy-Pearl Harbor</td>
<td>1/15/82</td>
<td>1/12/82</td>
<td>13-58</td>
</tr>
<tr>
<td>U.S. Corps of Engineers</td>
<td>1/25/82</td>
<td>1/13/82</td>
<td>13-59</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td>1/25/82</td>
<td>1/21/82</td>
<td>13-61</td>
</tr>
<tr>
<td>U.S. Department of the Interior, Geological Survey</td>
<td>1/25/82</td>
<td>1/19/82</td>
<td>13-60</td>
</tr>
<tr>
<td>Department of the Air Force</td>
<td>2/01/82</td>
<td>1/25/82</td>
<td>13-62</td>
</tr>
</tbody>
</table>
TABLE 13-3
(continued)

<table>
<thead>
<tr>
<th>Organizations</th>
<th>Date Received</th>
<th>Date of Comments</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oahu Banana Growers Association</td>
<td>1/25/82</td>
<td>1/20/82</td>
<td>13-63</td>
</tr>
<tr>
<td>The Sierra Club, Hawaii Chapter</td>
<td>1/27/82</td>
<td>1/21/82</td>
<td>13-65</td>
</tr>
<tr>
<td>Joint Planning Committee of the Waimanalo Council of Community Organizations and the Waimanalo Neighborhood Board</td>
<td>2/25/82</td>
<td>2/23/82</td>
<td>13-66</td>
</tr>
<tr>
<td>American Lung Association of Hawaii</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Hawaii Federation of Farm Bureau</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>
January 4, 1982

Mr. Donald Bremner, Chairman
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

SUBJECT: EIS FOR THE WAIMAHALO AGRICULTURAL PARK, PHASE 1 INCREMENT

The proposed agricultural park will not have any impact on our existing or proposed parks in the Waimanalo area.

Thank you for the opportunity to review the EIS.

Sincerely yours,

ROBERT K. MASUDA, Director

RKM: vc

cc: DLNR

January 29, 1982

Mr. Robert K. Masuda, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Masuda:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase 1 Increment

We are in receipt of your letter of January 4, 1982, regarding the aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural Park.

Very truly yours,

SUZUKO ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez
Department of Agriculture
Attention: Paul Schwind
Park Engineering, Inc.
Attention: George Tokota
Dear Mr. Koizumi:

We have reviewed the environmental impact statement for the first phase of the Waimanalo Agricultural Park and have no objections to the proposed development.

Sincerely,

FRANCIS KEALA
Chief of Police

cc: Dept. of Land and Natural Resources

Mr. Francis Keala
Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Dear Chief Keala:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 8, 1982, regarding the aforementioned project.

Thank you for informing us that your agency has no objections to our proposed development.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Tokota
January 11, 1982

Office of Environmental Quality Control
550 Haukulau Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement for Phase I Increment of Waimanalo Agricultural Park

It is our understanding that this EIS addresses only the Phase I increment of the Waimanalo Agricultural Park. We do not anticipate any significant traffic impact from the 16 farm lots in Phase I.

However, we are concerned about the ultimate development of the 1800-acre Agricultural Park. The ultimate development will generate traffic that will tax the existing highway facilities in the area.

We recommend that provisions be made at this time to study the need for highway improvements, such as a left-turning lane at Kalanianela Highway and Kamehameha Street, to service the development of the entire project area.

Very truly yours,

ROY A. PARKER
Director

February 26, 1982

Mr. Roy A. Parker, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Parker:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 11, 1982, regarding the aforementioned project.

The EIS addresses only the Phase I development increment for the Waimanalo Agricultural Park. The scope of work and proposed action will therefore, be limited to such analysis. Items consistent with the remaining phasing increments for the complete development of the Park is addressed in the Soil Conservation Service’s Watershed Plan and EIS, and the Waimanalo Agricultural Park Environmental Assessment.

As recommended by your agency, we will provide for technical studies relating to traffic generation and highway improvements when planning and design for the remaining increments of the Agricultural Park commences.

We appreciate your concerns on these matters.

Very truly yours,

SUISOH OCHO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez
Department of Agriculture
Attention: Paul Schwind
Park Engineering, Inc.
Attention: George Yokota
Dear Mr. Takemoto:

As stated in your EIS, the proposed project will be serviced by the Waimanalo Fire Station, which is located at 45-1301 Kalanianaole Highway. Fire apparatuses found at this station include a 1,250 gallon per minute pumper and a 1,250 gallon per minute relief pumper.

The second section of your EIS should be corrected to read as follows:

Supportive service from Kailua Fire Station will include a 1,250 gallon per minute pumper and an aerial ladder truck.

Our future plans call for a new fire station in the Olomana area, which will also be providing supportive service to this project with a 1,250 gallon per minute pumper. Our major concern now regarding this project is availability of water supply and/or fire hydrants.

Very truly yours,

Melvin H. Nonaka,
Fire Chief

February 26, 1982

Mr. Melvin H. Nonaka
Fire Chief
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, Hawaii 96814

Dear Mr. Nonaka:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 13, 1982, regarding the aforementioned project.

We appreciate your informing us of future plans for the new fire station in the Olomana area. Mention of this proposal has been included in the EIS on page 4-24, as has the other revisions detailed in your letter.

In regard to the availability of water supply and/or fire hydrants, the project’s proposed action will include provisions for fire protection and appurtenances. The irrigation pipeline will be used for this purpose. Resources for fire protection will be provided by the Kailua Reservoir via outlet pipe appurtenances and fire hydrants. During fire emergencies, fire truck boosters will connect to these pipes and provide the necessary water pressure to fire hydrants, to be located within the Agricultural Subdivision. The consulting engineers are currently working with your department in finalizing construction plans which will detail the various pipe appurtenances necessary for fire protection.

The USDA Soil Conservation Service’s 60-million gallon capacity reservoir located at the end of Mahalo Road will also provide fire protection services after its completed construction. Fire hydrants will be connected to the irrigation line which will stem from the proposed reservoir.
Both sources of fire protection will possess sufficient water pressure, will be designed to satisfy fire flow requirements and will be subject to approval by the Fire Department. Please refer to page 6-16 of the EIS for an amended discussion of fire protection.

We appreciate your concerns on these matters.

Very truly yours,

Chairman of the Board

Mr. Roy R. Takemoto
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Takemoto:

Subject: Waimanalo Agricultural Park, Phase I Increment Environmental Impact Statement (EIS)
Waimanalo, Koolaupoko District, Oahu

We have reviewed the EIS for the subject project and have no comment.

We are retaining this EIS for our files.

Sincerely,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodrigues
Department of Agriculture
Attention: Paul Schwend
Park Engineering, Inc.
Attention: George Yokota

cc: Department of Land & Natural Resources
Division of Water and Land Development
P. O. Box 621
Honolulu, HI 96809
Mr. Joseph K. Conant, Director  
Department of Housing and  
Community Development  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Conant:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 15, 1982, regarding the aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural Park.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.  
Attention: F. J. Rodriguez  
Department of Agriculture  
Attention: Paul Schwind  
Park Engineering, Inc.  
Attention: George Tokota

Office of Environmental Quality Control  
State of Hawaii  
550 Halekauwila Street, Room 301  
Honolulu, Hawaii 96813

Gentlemen:

Re: EIS for Waimanalo Agricultural Park, Phase I Increment, Waimanalo, Koolaupoko, Oahu, Hawaii

We have reviewed the subject EIS and have the following comments.

1. According to the EIS (page 3-4), the reconstruction of the existing bridge will cost $102,000 if built to City standards. Notwithstanding, are the width and carrying capacity of the bridge adequate to serve the needs of the proposed subdivision? Also, is it adequate to support construction vehicles and equipment?

2. Drainage systems built as part of the dedicated roadway should conform to the City drainage standards. Drainage system outside the right-of-way can become a source of problems if their dedication and maintenance responsibility are not clearly defined.

3. Due to potential flooding (page 6-18), stream flow evaluation and determination of setback and minimum floor elevations are required.

4. Plans and/or arrangement for refuse collection by the City (page 6-16) must be approved by the City Refuse Division. No plans and/or arrangements have yet been submitted for approval. The City collects household refuse but does not collect agricultural refuse.

Me ke aloha pumehana,

Chairman and Chief Engineer

cc: DLNR

JAN 21 1982
Subject: Environmental Impact Statement for the Proposed Waimauno Agricultural Park, Phase I Increment

We are in receipt of your letter of January 15, 1982, regarding the aforementioned project.

We offer the following responses to your comments:

1. The existing bridge was originally designed to carry railroad loads. Field inspection by our consultant and discussion with your staff indicate that the width is currently adequate for one-way traffic and that the carrying capacity of the said bridge is adequate to serve the needs of large construction and refuse collection vehicles.

2. All drainage system improvements will comply with City and County of Honolulu drainage standards.

The consulting engineers are currently finalising their calculations defining the paths of stormwater and its respective "flowage easement." The final subdivision maps will show these easements and the drainage ways. Consequently, the lease documents will notify the lessees of their responsibility for maintenance and clearance of the flowage easements and will be worded to prevent encroachment into the drainage ways. Please refer to page 6-1, paragraph 4, for an amended discussion of drainage improvements.

3. Stream flow evaluation and determination of setback and minimum floor elevations are currently being calculated by the consulting engineers and will be submitted to your office for approval. The results of these calculations will be disclosed to the lessees in the lease documents.

4. The plans and/or arrangements for refuse collection will be submitted to your office, for approval. Informal discussions were held with your Refuse Division in order to identify and correct current road deficiencies.

Regarding agricultural refuse, the Individual farmer lessee will be responsible for disposal.

We appreciate your concerns on these matters.

Very truly yours,

[Signature]
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
January 18, 1982

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Waimanalo Agriculture Park
Phase I Increment
Environmental Impact Statement

We have reviewed the Environmental Impact Statement for the subject project and we are concerned about the water pressure for fire protection.

The subdivision should be designed so that the fire flow requirement will be met.

Very truly yours,

ROY H. TANJI
Director and Building Superintendent

cc: J. Harada
Dept. of Land & Natural Resources

February 26, 1982

Mr. Roy H. Tanji, Director and
Building Superintendent
Building Department
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Tanji:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 18, 1982, regarding the aforementioned project.

In regard to your concerns, the project's proposed action will include provisions for fire protection and appurtenances. The design for these facilities is being coordinated with the Fire Department.

Fire protection will be provided from the irrigation system. Resources for fire protection will be supplied by the Kailua Reservoir via outlet pipe emergencies, fire truck boosters will connect to these pipes and provide the necessary water pressure to fire hydrants to be located within the Agricultural Subdivision. The consulting engineers are currently finalizing construction plans which will detail the various pipe appurtenances necessary for fire protection.

The USDA Soil Conservation Service's 60-million gallon capacity reservoir, located at the end of Mahalius Street, will also provide fire protection services after its completed construction. Fire hydrants will be connected to the irrigation line which will stem from the proposed reservoir.

JAN 25 1982
Both sources of fire protection will possess sufficient water pressure, will be designed to satisfy fire flow requirements, and will be subject to approval by the Fire Department. Please refer to page 6-16 of the EIS for an amended discussion of fire protection.

We appreciate your concerns on these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
Offw of Environmental Qwality Control
Page 2

Water Quality

The discussion on surface water (Page 6-4) should be clarified. What does the first sentence mean...?

"Surface water runoff from the site will be
channeled by the Waianae Stream, where soil
conditioners, fertilizers, herbicides, and
pesticides will be utilized to enhance the
growth of agricultural crops."

What, exactly, are "flashy" attributes of a stream, and how do
they affect surface runoff?

Maps

The Draft EIS includes many good maps. However, there are no
maps which show the 17 lots, the internal roadways, the
irrigation system, and Waianae Stream in relation to each
other. A map including all these features should be included in
the Revised EIS.

Should you have any questions, please contact Marge Kimmerer of
our staff at 523-4077.

Very truly yours,

MICHAEL M. McELROY
Director of Land Utilization

Subject: Environmental Impact Statement for the Proposed
Waianae Agricultural Park, Phase I Increment

We are in receipt of your letter of January 20, 1981, regarding the
aforementioned project, and we offer the following replies to your concerns:

Drainage

Please refer to page 6-19 and to figures 1-3 and 4-2, for an amended
discussion of drainage.

The consulting engineers are currently finalizing calculations defining
stream flow evaluations, flowage easements, determination of setbacks, and
minimum floor elevations. The lease documents will utilize the results of
these calculations and will notify the lessees of their responsibility for
maintenance and clearance of the flowage easements and prevention of
encroachment into the drainage ways. All improvements will comply with
City and County of Honolulu drainage standards. The engineers are also
preparing a drainage plan which will detail the existing drainage pattern,
proposed drainage facilities, including dimensions and an estimate of
surface runoff. You will be welcomed to view these plans, upon completion.

Grading

The land is being cleared only for the installation of infrastructure
and not for future farming activities.

The engineers are currently finalizing construction plans, which
include the amounts of cut and fill for all proposed grading activities.
Should there be any questions, you will be welcomed to view them after
they have been approved.

Flooding

We appreciate your informing us of Ordinance No. 80-62 and have
included it in the EIS.
Mr. Michael M. McElroy, Director
February 26, 1982

Water Quality

The first sentence has been revised and included in the EIS on page 6-6.

"Flashy" attributes of the Waimanalo Stream, as stated in the EIS, are high turbidity and suspended sediment concentration occurring during heavy rainfall and the swift reversal of the stream back to the clear base flow conditions which distinguished the stream prior to the storm. Therefore, it is anticipated that the stream will disperse some of the soil conditioners, fertilizers, etc., subsequently minimizing adverse impact to the surface water quality. Please refer to page 6-6 for an amended discussion on surface water quality.

Maps

Figure 3-3, on page 3-4, presents the 15 lots and the Internal roadway. Figure 4-2, on page 4-6, presents the Waimanalo Stream in relationship to the project site, Waimanalo Watershed and Drainage Basin. Regarding the irrigation system, the consulting engineers are currently finalizing drafts of the appurtenance. You will be welcomed to view them upon completion.

We appreciate your concerns on these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

January 21, 1982

Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement for
Waimanalo Agricultural Park, Phase I
Increment Waimanalo, Koolaupoko District, Oahu

We have the following comments on the environmental impact statement:

1. A water master plan for the ultimate development of the agricultural park must be submitted to us for approval.

2. Advance water commitments are not being issued for proposed development projects. The availability of water will be determined when the construction drawings are submitted for our review and approval.

3. Water system improvements that must be borne by the developer include a new 200,000-gallon reservoir at the 364-foot elevation and appurtenant eight-inch mains.

4. Our water development charge for source and transmission facilities are applicable to the project.

5. On page 4-7, 2nd paragraph, the term "perched water" should be changed to "alluvial water."

6. On page 4-17, 2nd paragraph, the BWS is planning to drill a well at the existing Waimanalo 364 Reservoir site (TMK: 4-1-27: 15).

7. On page 6-7, 1st paragraph, the document should explicitly indicate that ground disposal of sewage wastes will be permitted on the seaward side (maka'i) of the "pass-no pass line." The statement that "No cesspools will be allowed below this line" is incorrect.
On page 6-16, 2nd paragraph, the area where ground disposal of sewage is not permitted is referred to as the "no pass zone." Likewise, the area where ground disposal is permitted is referred to as the "pass zone."

On page 6-16, 5th paragraph, the water demand should clearly indicate whether the water requirements mentioned are on a per lot basis or a per capita basis and if it is based on an average day or maximum day demand. Anticipated BWS water used for irrigation must be included in the total demand.

On page 6-18, 1st paragraph, the document should indicate that lots 11, 13, 14, 15 and 16 will be able to use potable water for only certified nursery crops based on the assumption that the BWS will furnish water.

On page 7-3, 5th paragraph, the same comment as Item nine applies.

On page 8-1, a discussion should be included on the status of the project if improvements to the irrigation system are deferred or deleted.

We have existing meters and mains that may need to be relocated to the public right-of-way at the development's cost.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Dept. of Land and Natural Resources
7 & 8. The EIS has been amended to explicitly indicate that ground disposal of sewage wastes is permitted on the makai side of the "pass-no pass line" and that cesspools will be disallowed on this side. Please refer to page 6-7, paragraph 2; page 6-17, paragraph 1; and page 7-3, paragraph 6.

9. The potable water requirements detailed on page 6-17, paragraph 4, are mentioned on a per lot basis and based on a maximum demand day. In addition, 72,000 gallons per day will be required to meet maximum day irrigation demand for five nursery lots. The EIS has been amended to reflect such additional detail.

10. The fact that potable water will only be furnished for nursery use, subsequent to BWS approval, has been included on page 6-19, paragraph 2.

11. The EIS has been amended to explicitly indicate that ground disposal of sewage wastes is permitted on the makai side of the "pass-no pass line."

12. The proposed action of the Agricultural Subdivision includes the provision of irrigation water via a 16-inch pipe system from the tunnel portal. Therefore, the project can be serviced with irrigation water even if the USDA Soil Conservation Service irrigation improvements are deferred or deleted from the Watershed Plan.

13. Existing meters that require relocation due to project action will be relocated at developer's cost.

We appreciate your concerns on these matters.

Very truly yours,

SUSUMO ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

January 22, 1982

Office of Environmental Quality Control
550 Halskaawila Street
Room 301
Honolulu, Hawaii 96813

Attention Mr. Mel Koizumi, Interim Director

Dear Sir:

We have reviewed the subject EIS and direct your attention to page 5-1, where an "agriculture" General Plan use is identified for the project site. The proposed Development Plan also indicates the site for agriculture. However, the Detailed Land Use Map for Waimanalo (Ordinance No. 2473), which presently covers the particular Waimanalo area, also provides for residential, open space, and park uses on the site. Since these nonagricultural uses are not specified in the report, it may be necessary to discuss in the EIS their relevance to the proposed subdivision action.

Ralph Kawamoto
Planner

APPROVED:

WILLARD T. CHOW
Chief Planner Office

cc: Dept. of Land & Natural Resources
February 26, 1982

Mr. Ralph Kawamoto, Planner
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Kawamoto:

Subject: Environmental Impact Statement for the Proposed Walmanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 22, 1982, regarding the aforementioned project.

The DLNR designations, (i.e. residential, open space, and park) that you referred to, have been discussed in the EIS on page 5-2.

We appreciate your concerns on these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

---

JAN 5 1982
# STATEWIDE AGRICULTURAL PARK STATUS REPORT

Agricultural park projects are a joint program cooperatively developed by the Departments of Agriculture and Land and Natural Resources. Presently there are nine committed projects in various stages of planning, design, construction, or completion.

<table>
<thead>
<tr>
<th>Agricultural Parks</th>
<th>Total Acreage</th>
<th>No. and Size of Lots</th>
<th>USES</th>
<th>CURRENT STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAHOA (Hawaii)</td>
<td>410</td>
<td>27, 10 to 30-acre lots</td>
<td>Flower, foliage and nursery production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>KI'AHOI (Hawaii)</td>
<td>65</td>
<td>12, 5-acre lots</td>
<td>Flower and foliage production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>PANAELA (Hawaii)</td>
<td>460</td>
<td>28, 10 to 20-acre lots</td>
<td>Orchard and nursery production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>WAIMANALO (Oahu)</td>
<td>126</td>
<td>16, 5 to 10-acre lots</td>
<td>Banana, diversified crops including nurseries.</td>
<td>Development plan and preliminary engineering report completed. EIS in preparation. Estimated construction completion date August, 1983.</td>
</tr>
<tr>
<td>VATAHOLE (Oahu)</td>
<td>410</td>
<td>75 lots of various acreage</td>
<td>Banana, papaya, taro, nursery and diversified crops.</td>
<td>65 lots already encumbered by existing tenants. Design to be completed by late 1983; construction completion by mid-1983. (HHA Project)</td>
</tr>
<tr>
<td>KULA (Maui)</td>
<td>325</td>
<td>22, 15 to 25-acre lots</td>
<td>Vegetable and truck crops.</td>
<td>County of Maui project. State will assist in construction of agricultural water system and land acquisition. Estimated completion date 1982 (Phase I).</td>
</tr>
</tbody>
</table>

December, 1981
### STATEWIDE AGRICULTURAL PARK STATUS REPORT

Agricultural park projects are a joint program cooperatively developed by the Departments of Agriculture and Land and Natural Resources. Presently there are nine committed projects in various stages of planning, design, construction, or completion.

<table>
<thead>
<tr>
<th>Agricultural Parks</th>
<th>Total Acreage</th>
<th>No. and Size of Lots</th>
<th>USES</th>
<th>CURRENT STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAHO (Hawaii)</td>
<td>410</td>
<td>27, 10 to 30-acre lots</td>
<td>Flower, foliage and nursery production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>Phase I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase II</td>
<td>175</td>
<td>33, 5-acre lots</td>
<td>Flower, foliage and nursery production.</td>
<td>Under construction; estimated completion date January, 1982.</td>
</tr>
<tr>
<td>RE-AHOLE (Hawaii)</td>
<td>65</td>
<td>12, 5-acre lots</td>
<td>Flower and foliage production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>Phase I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase II</td>
<td>114</td>
<td>22, 5-acre lots</td>
<td>Flower and foliage production.</td>
<td>Design stage completed. Estimated construction completion date November, 1981.</td>
</tr>
<tr>
<td>PANAMA (Hawaii)</td>
<td>460</td>
<td>28, 10 to 20-acre lots</td>
<td>Orchard and nursery production.</td>
<td>Completed, lots leased.</td>
</tr>
<tr>
<td>Phase I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAIAKALO (Oahu)</td>
<td>126</td>
<td>16, 5 to 10-acre lots</td>
<td>Banana, diversified crops including nurseries.</td>
<td>Development plan and preliminary engineering report completed. EIS in preparation. Estimated construction completion date August, 1983.</td>
</tr>
<tr>
<td>Phase I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATANAE (Oahu)</td>
<td>410</td>
<td>71 lots of various acreage</td>
<td>Banana, papaya, taro, nursery and diversified crops.</td>
<td>65 lots already encumbered by existing tenants. Design to be completed by late 1981; construction completion by mid-1983. (HHA Project)</td>
</tr>
<tr>
<td>KULA (Maui)</td>
<td>325</td>
<td>22, 15 to 25-acre lots</td>
<td>Vegetable and truck crops.</td>
<td>County of Maui project. State will assist in construction of agricultural water system and land acquisition. Estimated completion date 1982 (Phase I).</td>
</tr>
<tr>
<td>Phase I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase II</td>
<td>125</td>
<td>9, 15 to 25-acre lots</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

December, 1981

---

February 14, 1982

Publication Jack R. Jorn, Chairman

The cost of the Collection System Improvement, estimated at $1,750,000, is placed in the annual capital improvement budget. A portion of this cost is attributable to

The attached copy of the Statewide Agricultural Park Status Report has been included in this report on Pages 54 and 55.

We appreciate your concern on these matters.

Very truly yours,

Chairman of the Board

Attachment: Environmental Commissions, Inc.

cc: Department of Agriculture, Agricultural Water Systems, Attention: P. J. Reddick

Park Engineering, Inc., Attention: George Tabata

13-43
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Waimanalo Agricultural Park, Phase I Increment - Environmental Impact Statement

We have reviewed the EIS for subject matter and have no specific comments to offer relative to the proposed action.

Thank you for the opportunity to comment on this matter.

Sincerely,

Paul A. Tom
Executive Director

cc: DSSH
DHAR, Division of Water & Land Development

Mr. Paul A. Tom
Executive Director
Department of Social Services and Housing
Hawaii Housing Authority, State of Hawaii
P. O. Box 17907
Honolulu, Hawaii 96817

Dear Mr. Tom:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 11, 1982, regarding the aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural Park.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
Office of Environmental Quality Control
550 Molalaumila Street
Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement
Waimanalo Agricultural Park
Phase I Increment

Thank you for this opportunity to review and comment on the subject project.

The project will not have any adverse environmental effect on any existing or planned facilities serviced by our department.

Very truly yours,

HIDEO MURAKAMI
State Comptroller

January 29, 1982

Mr. Hideo Murakami
State Comptroller
Department of Accounting and General Services
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Murakami:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 12, 1982, regarding the aforementioned project.

We appreciate your informing us that the project will not have any adverse impacts on any existing or planned facilities serviced by your department.

Very truly yours,

SUBUHO ONG
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
January 29, 1982

Captain Jerry M. Matsuda  
HANG, Contract & Engineering Officer  
Department of Defense, State of Hawaii  
Office of the Adjutant General  
3949 Diamond Head Road  
Honolulu, Hawaii 96816

Dear Captain Matsuda:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 19, 1982, regarding the aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural Park.

Very truly yours,

[Signature]

Chairman of the Board

cc: Environmental Communications, Inc.  
Attention: F. J. Rodriguez  
Department of Agriculture  
Attention: Paul Schwind  
Park Engineering, Inc.  
Attention: George Yokota

JAN 25 1982
January 21, 1982

MEMORANDUM

TO: Office of Environmental Quality Control  
FROM: Director of Transportation
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT  
WAIMANALO AGRICULTURAL PARK, PHASE I INCREMENT

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

JST: jk

cc: HWY-P
    HWY-C
    DLNR

Ryokichi Higashionna

January 29, 1982

Dr. Ryokichi Higashionna, Director  
Department of Transportation  
State of Hawaii  
869 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Dr. Higashionna:

Subject: Environmental Impact Statement for the Proposed  
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 21, 1982, regarding the aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural Park.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.  
   Attention: F. J. Rodriguez  
Department of Agriculture  
   Attention: Paul Schwind  
Park Engineering, Inc.  
   Attention: George Tokota

JAN 27 1982
Office of Environmental Quality
Control
550 Halkeakula Street, Rm. 301
Honolulu, Hawaii 96813
Attention: Mr. Helvin Koi t mi
Dear Mr. Koi t mi:

Subject: Environmental Impact Statement (EIS) for Waimanalo Agriculture Park, Phase I Increment

We have reviewed the subject EIS and have the following comments to offer with respect to the relevant objectives and policies of the Hawaii Coastal Zone Management Program.

Coastal Ecosystems:

Preserve valuable coastal ecosystems of significant biological or economic importance; minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs.

Waimanalo Stream is a perennial stream of moderate to high quality as rated by the Fish and Wildlife Service Stream Channel Modification Study. Although this stream traverses the project site, the EIS fails to identify the relative location of the stream on any map. We note further that the discussion of water quality on page 6-6 appears to indicate that potential adverse impacts may occur only during the infrequent periods of heavy rainfall. This fails to recognize the long term adverse effects of irrigation on instream water quality, which supports at least one endemic species of fish. The relative location of the downstream wetlands and any adverse water quality impacts on the waterbird habitat should also be disclosed, as appropriate. Finally, the EIS should indicate whether any stream channelization or any significant reductions in instream flow is expected to result from the proposed activity.

Ref. No. 4147

January 22, 1982

We appreciate this opportunity to comment. Should any questions arise concerning our response, please feel free to contact the Hawaii Coastal Zone Management Office at 548-3026.

Sincerely,

[Signature]

Hideto Kono

cc: Department of Land & Natural Resources
February 26, 1982

The Honorable Hideto Kono, Director
Department of Planning and Economic Development
State of Hawaii
250 South King Street
Honolulu, Hawaii 96813

Dear Mr. Kono:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 22, 1982, regarding the aforementioned project.

In reply to your comments, the following information is provided:

Please refer to Figure 4-2, page 4-6 for an exhibit identifying the relative location of Waimanalo Stream and downstream wetlands.

The long-term impact on the Waimanalo Stream water quality and downstream wetland should be minimal since the proposed action excludes animal husbandry activities and proposes use of the land for nursery and diversified agricultural use. Consequently, adverse impact to surface waters resulting from animal waste, feed, etc., should be absent. Drip and sprinkler irrigation techniques should also minimize adverse impact to the Waimanalo Stream and the downstream wetlands since irrigation runoff should be substantially limited.

No stream channelization nor stream flow diversions are planned. Therefore, significant reductions in stream flow will not be expected. The U.S. Fish and Wildlife Service in their comments to the EIS has informed us that the four endangered Hawaiian waterbirds which inhabit Bellows Air Force Station should not be impacted if the flow of Waimanalo Stream is left unaffected.

We appreciate your concerns on these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwand

Park Engineering, Inc.
Attention: George Yokota
Mr. Melvin Koizumi

Office of Environmental Quality Control

530 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

January 22, 1982

Dear Mr. Koizumi:

Draft Environmental Impact Statement
Waimanalo Agricultural Park, Phase I Increment
Waimanalo, Koolau District, Oahu

The Environmental Center has reviewed the above cited document with the assistance of Harold Baker, Agricultural Economics; Don Bell, Real Estate; and Robert Rowland, Environmental Center. The proposed project seems to be a well planned and potentially beneficial asset to the people of Waimanalo and Oahu. The agricultural park would provide an essential service by creating opportunities for small scale diversified agriculture. The EIS for the proposed project is fairly comprehensive and contains sufficient information on the impacts of the development of Phase I. There are, however, a few questions that we have formulated concerning this document and they are presented below.

Our first question was prompted by the discussion of the phasing overview outlined on page 2-3. Why is the entire project of five phases not included in one Environmental Impact Statement? It would seem appropriate given the magnitude of this project and its effect on the water distribution system of the Waimanalo watershed that the entire project should have its cumulative impacts disclosed in a single document. If the funding and time intervals for implementation of the remaining phases is uncertain this should be stated in the document.

Secondly, what is the situation with regard to residential units and potable water to service them in the proposed project? On page 6-16 it is stated that 12,000 gpd of potable water will service residents but on page 13-10 the Board of Water Supply states in their letter that no domestic water will be furnished.

The short and long term economic impacts of the proposed project deserve to be more fully discussed in the revised document. The creation of the proposed subdivision and the commercial impact of the resultant agricultural activities on the economy of Oahu appears to be more significant than would be apparent from the discussion contained in Section 6. This is particularly true when the entire 1,800 acre project is considered. Will the economic implications of development of the agricultural park for the Waimanalo region be more comprehensively discussed in the revised EIS?

Your truly,

Doak C. Cox
Director

cc: Dept. of Land & Natural Resources
Donald Bell
Harold Baker
Robert Rowland
Jacquelin Miller

AN EQUAL OPPORTUNITY EMPLOYER

JAN 28 1982
Mr. Doak C. Cox, Director

February 26, 1982

Dr. Doak C. Cox, Director
Environmental Center
University of Hawaii at Manoa
Crawford 317
2550 Campus Road
Honolulu, Hawaii 96822

The land that comprised Lot 15, which was formerly Lot 17 of the previous layout and characterized by adverse slope conditions, was the balance of land remaining after the entire parcel was subdivided into 14 agricultural lots. Lot 15 is not part of the project and is not planned to be leased for cultivation.

We appreciate your concerns on these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez
Department of Agriculture
Attention: Paul Schwind
Park Engineering, Inc.
Attention: George Yokota

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 22, 1982, regarding the aforementioned project.

In reply to your e-mail, the following information is provided:

The EIS addresses only the Phase I development increment for the Waimanalo Agricultural Park. The scope of work and proposed action will, therefore, be limited to such analyses. Items consistent with the remaining planning increments for the complete development of the Park is addressed in the Soil Conservation Service's Watershed Plan and EIS, and the Waimanalo Agricultural Park Environmental Assessment. The EIS was revised to include discussions of these two documents and their relationship to this action (see page 6-15 of the EIS).

Regarding the subject of potable water availability, the proposed project will demand 12,000 gallons per day to adequately service the domestic demand of the residents of the proposed project. In addition, five of the fourteen lots proposed for nursery use will be provided with a larger sized meter and the option to use Board of Water Supply water for irrigation.

Further discussion on long term economic impacts, based on recommended crops, has been included in the EIS on page 5-3.

The rationale utilized for determining lot size dimensions was a tedious one that required constant communication between the environmental consultants and the engineering consultants. The engineering consultants based its design on the Environmental Research Consultant's report, specifically analyzing the recommended agriculture uses, slopes, and tillable lands.
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

SUBJECT: Draft EIS Waimanalo Agricultural Park Phase I Increment, Waimanalo, Koolau County, Oahu, DLNR, DONALD, December 1981

We have reviewed the subject DEIS and have no comment to offer at this time. Thank you for the opportunity to comment. This material was reviewed by WRRC personnel.

Sincerely,

Edwin T. Murabayashi
EIS Coordinator

cc: Y.S. Fok
    H. Gee
    DONALD

Mr. Edwin T. Murabayashi
EIS Coordinator
Water Resources Research Center
University of Hawaii at Manoa
Holmes Hall 263
2540 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Murabayashi:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 22, 1982, regarding the aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural Park.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
    Attention: F. J. Rodriguez

    Department of Agriculture
    Attention: Paul Schwind

    Park Engineering, Inc.
    Attention: George Yokota

AN EQUAL OPPORTUNITY EMPLOYER
MEMORANDUM

To: Office of Environmental Quality Control
From: Deputy Director for Environmental Health
Subject: Environmental Impact Statement (EIS) for Waimanalo Agricultural Park, Phase 1 Increment, Koolauloko District, Oahu

January 25, 1982

Thank you for allowing us to review and comment on the subject EIS.

We reiterate our earlier comment of September 14, 1981: The only existing dirt road and wooden bridge to this subdivision are not capable of supporting heavy loads and sizes comparable to the City and County refuse trucks. At the present time, due to this reason, the City and County refuse trucks do not provide refuse pickup service for the families living in the proposed subdivision.

Consequently, a litter problem may be created by the lack of a more accessible route for the City's refuse pickup service.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

For

cc: Div. of Water & Land Dev., DLNR

February 26, 1982

Mr. Melvin K. Koizumi, Deputy Director for Environmental Health
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase 1 Increment

We are in receipt of your letter of January 25, 1982, regarding the aforementioned project.

The State Department of Land and Natural Resources (DLNR) has committed itself into implementing a plan which will provide to the farmer lessees, all the conveniences necessary for a healthy environment.

The project plan proposes an improved roadway from the existing intersection of Kumuhau and Vaipavanaha Streets to service the planned development. The subdivision will have streets dedicated to the City. The City and County Refuse Division has informed us that refuse pickup service will be provided.

We appreciate your concerns on these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
MEMORANDUM

TO: Susumu Ono, Chairman
Department of Land and Natural Resources

FROM: Director for Office of Environmental Quality Control

SUBJECT: Environmental Impact Statement for Waimanalo Agricultural Park Phase I

January 25, 1982

We have reviewed the subject statement and offer the following comments:

The title page should be amended to read that the Governor is the accepting authority for this statement, not the Governor's office. This office will process the revised statement for acceptance by the Governor.

Page 3.1. In the second paragraph, the words "... northwestern face," appear twice. A correction is recommended.

Page 3-4. It is not clear whether the present bridge can support heavy trucks, such as fire trucks or trucks used in agricultural operations.

Page 6-16. A specific site should be proposed for solid waste collection and pick-up that would be generated by the leases of this agricultural park.

Page 8-2. In the column of uses there is something missing for Lalamilo Agricultural Park. We believe it is "... vegetable and truck crops."

Page 13-2. The title of this page should read, "Organizations and agencies consulted during EIS preparation." We note that our comments on the EIS Preparation Notice are not included in this section and should be. A copy of those comments is enclosed.

FEB 4 1982

Susumu Ono
January 25, 1982
Page 2

The EIS Regulations allow the accepting authority or his authorized representative to consider responses received after the fourteen day response period. This office will exercise the option and will consider responses after the fourteen day period.

We are enclosing copies of comments not previously forwarded to you.

Thank you for allowing us to review this statement.
September 21, 1981

Susumu Ono, Chairman
Department of Land and Natural Resources
Kalanikukaua Building
1151 Punchbowl Street
Honolulu, Hawaii

SUBJECT: Environmental Impact Statement Preparation Notice for Waimanalo Agricultural Park, Phase I

Dear Mr. Ono:

We have reviewed the subject preparation notice and offer the following comments:

We note that the intention of the subject EIS preparation notice is focused on Phase I of large-scale agricultural park for Waimanalo. We believe that the statement should also cover in a general way the overall agricultural park development as required by section 1:12 of the EIS Regulations. This would aid in long-term planning of the total area not only by your agency but by other agencies having responsibilities in the area.

The use of information from other agricultural park environmental impact statements is recommended.

Yours truly,

Melvin K. Koizumi
Deputy Director for Environmental Health

MEMORANDUM

To: Office of Environmental Quality Control
From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Waimanalo Agricultural Park, Phase I Increment, Koolaupoko District, Oahu

Thank you for allowing us to review and comment on the subject EIS.

We reiterate our earlier comment of September 14, 1981: The only existing dirt road and wooden bridge to this subdivision are not capable of supporting heavy loads and sizes comparable to the City and County refuse trucks. At the present time, due to this reason, the City and County refuse trucks do not provide refuse pickup service for the families living in the proposed subdivision.

Consequently, a litter problem may be created by the lack of a more accessible route for the City’s refuse pickup service.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

For

Melvin K. Koizumi
Deputy Director for Environmental Health

cc: Div. of Water & Land Dev., DLNR
February 26, 1982

Honorable George Yuen, Director
Department of Health
State of Hawaii
1250 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Yuen:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 25, 1982, regarding the aforementioned project, and offer the following responses to your concerns in the order presented in your letter.

The EIS has been amended to indicate that the Governor and not the Governor's Office will act as accepting authority.

The words "....northeastern face of the...." has been deleted.

Field inspection by our consultant and discussions with City and County of Honolulu Department of Public Works' staff indicate that the width is currently adequate for one-way traffic and that the carrying capacity of said bridge is adequate to serve the needs of large construction and refuse collection vehicles.

Upon completion of improvements to the existing road, access to the site by refuse collection trucks will be made possible. Therefore, each lot will be serviced and a specified site for refuse pickup will be unnecessary. Please refer to pages 1-10, 6-17, and 7-4 of the EIS for amended discussions on solid waste disposal.

Uses found at Lalemilo Agricultural Park will include diversified agricultural products with an emphasis on truck crops. The EIS has been amended to reflect such uses.

The title on page 3-2 has been amended to read "ORGANIZATIONS AND AGENCIES CONSULTED DURING EIS PREPARATION."

In regards to the enclosed comments on the EIS Preparation Notice that was submitted by your office, we regret that they were deleted from the Draft EIS. In view of this oversight, we will answer your concerns at this time. The EIS addresses only the Phase I development increment for the Waimanalo Agricultural Park. The scope of work and proposed action will, therefore, be limited to such analysis. Items consistent with the remaining phasing increments for the complete development of the Park are addressed in the Soil Conservation Service's Watershed Plan and EIS and the Waimanalo Agricultural Park Environmental Assessment.

We appreciate your concerns on these matters.

Very truly yours,

SUSUKE OHO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: P. J. Rodriguez
Department of Agriculture
Attention: Paul Schwind
Park Engineering, Inc.
Attention: George Yokota
Office of Environmental Quality Control  
State of Hawaii  
550 Halekauwila Street, Room 301  
Honolulu, Hawaii 96813  

Gentlemen:  
The Environmental Impact Statement for the Waimanalo Agricultural Park,  
Phase I Increment, Waimanalo, Koolaupoko District, Oahu, Hawaii has been  
reviewed and we have no comments to offer. There are no Army installations or  
activities in the vicinity of the proposed project.  

Sincerely,  

[Signature]  

Director of Engineering and Housing  

Copy Furnished:  
Department of Land and Natural  
Resources  
Division of Water and Land Development  
P.O. Box 621  
Honolulu, Hawaii 96809  

January 29, 1982  

Colonel Adolph A. Bight  
Director of Engineering and Housing  
Department of the Army  
Headquarters U.S. Army Support Command,  
Hawaii  
Fort Shafter, Hawaii 96858  

Dear Colonel Bight:  

Subject: Environmental Impact Statement for the Proposed  
Waimanalo Agricultural Park, Phase I Increment  

We are in receipt of your letter of January 11, 1982, regarding the  
above mentioned project.  

We thank you for your letter of no comment on the proposed Agricultural  
Park.  

Very truly yours,  

[Signature]  

Chairman of the Board  

cc: Environmental Communications, Inc.  
Attention: F. J. Rodriguez  
Department of Agriculture  
Attention: Paul Schulte  
Park Engineering, Inc.  
Attention: George Yokota
Environmental Quality Commission
550 Halekauila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Environmental Impact Statement
Waimanalo Agricultural Park, Phase 1 Increment

The EIS for the Waimanalo Agricultural Park has been reviewed
and the Navy has no comments to offer. As this command has no further
use for the EIS, the EIS is being returned.

Thank you for the opportunity to review the EIS.

Sincerely,

R. L. Elsernd

Enclosure

Copy to:
State DLNR

cc: Environmental Communications, Inc.
Attention: F. J. Rodrigues

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Tokota

Lt. Commander R. L. Elsernd, CEC, USN
Deputy Facilities Engineer
Headquarters, Naval Base, Pearl Harbor
P. O. Box 110
Pearl Harbor, Hawaii 96860

January 29, 1982

Dear Commander Elsernd:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase 1 Increment

We are in receipt of your letter of January 12, 1982, regarding the
aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural
Park.

Very truly yours,

SUSURU ONO
Chairman of the Board
Mr. George Yuen, Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, HI 96813

Dear Mr. Yuen:

Thank you for the opportunity to review the Environmental Impact Statement (EIS) for Waimanalo Agricultural Park, Phase I Increment, sent to us on 21 December 1981. Based on our review, we provide the following comments.

a. Based on information provided to date, it appears that the subject agricultural subdivision does not require a Department of the Army permit; however, any future discharge of dredged or fill material into waters of the US, including wetlands, will require a Department of the Army permit. Operations Branch staff will gladly provide assistance regarding permit requirements and jurisdictional boundary determinations. You may call them at 436-9253.

b. The detailed flood hazard maps (incl 1) identify the flood-prone areas in Waimanalo. A portion of the project site is situated within the Waimanalo Stream flood plain, more specifically within the flood fringe and floodway areas. We recommend that proposed structures and facilities be located outside of the floodway, which is defined as the channel of a river or watercourse and adjacent land areas that must be reserved to discharge the base flood. The attached maps, the Flood Insurance Rate Map, and the Flood Boundary and Floodway Map for the Waimanalo area, have been prepared as part of the Flood Insurance Study for the Island of Oahu by the Federal Insurance Administration.

Sincerely,

KISUK CHEUNG
Chief, Engineering Division

cc: Environmental Communications, Inc.

Attention: F. J. Rodriguez
Department of Agriculture
Attention: Paul Schluind
Park Engineering, Inc.
Attention: George Yokota

JAN 25 1982
Office of Environmental Quality
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96815

January 29, 1982

Mr. Benjamin L. Jones
District Chief
U. S. Department of the Interior
Geological Survey
Water Resources Division
P. O. Box 50166
Honolulu, Hawaii 96850

Dear Mr. Jones:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 19, 1982, regarding the
aforementioned project.

Your comments have been noted and revisions to the EIS have been
completed accordingly.

We appreciate your concerns in these matters.

Very truly yours,

[Signature]

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Tokota
Re: Waimanalo Agricultural Park, Phase I Increment, Oahu, Hawaii

Dear Sir:

We have reviewed the subject Environmental Impact Statement (EIS) and offer the following comments.

The proposed action is not expected to have adverse impacts on significant fish and wildlife resources in the project area. The four endangered Hawaiian waterbirds mentioned in Section 4, IV, B. of the EIS which inhabit Bellows Air Force Station should not be impacted unless the flow of Waimanalo Stream is affected.

We appreciate this opportunity to comment.  

Sincerely yours,

Ernest Kosaka  
Project Leader  
Office of Environmental Services

cc: MNFS  
HIFAC  
EPA, San Francisco  
DLNR - DONALD

Mr. Ernest Kosaka  
Project Leader  
U.S. Department of the Interior  
Fish and Wildlife Service  
300 Ala Moana Boulevard  
P. O. Box 50167  
Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 21, 1982, regarding the aforementioned project.

We thank you for your informing us of the subject project's insignificant impact on the fish and wildlife resources.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.  
Attention: F. J. Rodriguez  
Department of Agriculture  
Attention: Paul Schwind  
Park Engineering, Inc.  
Attention: George Yokota
DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853

FEB - 1 1982

DEEV (Mr. Saito, 449-1831)

23 JAN 1982

RECEIVING OFFICER

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P.O. BOX 981
HONOLULU, HAWAII 96809

February 26, 1982

Colonel Kenneth W. Cowan, USAF
Director of Civil Engineering
Department of the Air Force
Headquarters, 15th Air Base Wing (PACAF)
Hickam Air Force Base, Hawaii 96853

Dear Colonel Cowan:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 25, 1982, regarding the aforementioned project and offer the following responses to your concerns:

1a. We question how the change in use of 120 acres of idle scrub land into productive agricultural use from a watershed containing 6,132 acres can significantly increase the chances of flash floods.

1b. The Department of Land and Natural Resources, in the State Water Resources Development Plan, has defined "flashy" as being characterized by high turbidity and suspended sediment concentration occurring during heavy rainfall and the swift reversion of the stream back to the clear base flow conditions which distinguished the stream prior to the storm. This term then, does not connote "flushing" of vegetative and other debris in the Waimanalo Stream. On the contrary, the flashy attributes of the stream will minimize impacts the project may have on water quality.

1c. The lease documents will notify the farmer lessees of their responsibility for maintenance and clearance of flouage easements and will be worded to prevent encroachment into the drainage ways.
February 26, 1982

2.

As stated in item b. above, this project will not significantly affect the flooding problems of Waimanalo Stream. We, therefore, cannot justify constructing a flood control project to resolve existing flood problems with agricultural park development funds. Further, the cleaning and maintenance of streams which are generally the responsibility of the abutting land owner is beyond the scope of this project.

Thank you for your concerns on these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: P. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
Mr. Harry Okumura, Committee Chairman
and Mr. Grant Hamachi, President
Oahu Banana Growers Association
45-269 Walkalia Road
Kaneohe, Hawaii 96744

Dear Messrs. Okumura and Hamachi:

Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 20, 1982 to the Office of Environmental Quality Control commenting on the EIS for the subject project. Reference is also made to your letter of December 7, 1981 expressing concern that the lot sizes were too small for banana production.

Lot sizes for the proposed subdivision were based, as you know, on our consultant's recommendation as reported in "Potential Agricultural Uses of Phase I of the Proposed Waimanalo Agricultural Park" and on the information contained on the College of Tropical Agriculture and Human Resources' Industry Analyses for Banana and Ornamental Potted Plants. The banana industry analysis states as follows: "A banana farm of 10 acres is a viable farm."

In view of the concern expressed by you, we reexamined the lot layout of the proposed agricultural park and replotted a portion of the layout. Figure 3-4 shows the revised lot layout which eliminates two cul-de-sacs and rearranges eight lots (lots 4 through 11) into six lots, each approximately ten acres in size. The original eight lots consisted of 3- to 5-acre lots, four lots ranging in size from 7.9 to 9.3 acres and one 10.7 acre lot. The advantages of the new revised layout are:

1. Eliminate small lots and create more 10-acre lots.
2. Reduction in construction costs of approximately $220,000 due to elimination of two cul-de-sacs. One of the cul-de-sacs required a costly culvert crossing which will not be required under the new scheme.

3. Elimination of having drainage run-off flowing from the upper lot onto the lower lot.

Thank you for reviewing the EIS and for your comment of no objections on the statement.

Very truly yours,

SUSUMU OONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: Mr. Fred Rodriguez

Department of Agriculture
Attention: Mr. Paul Schwind

Park Engineering, Inc.
Attention: Mr. George Yokota
Subject: Waimanalo Agricultural Park, Phase I Increment

The Honolulu Group of the Hawaii Chapter of the Sierra Club appreciates the opportunity to comment on this EIS. Most of our concerns seem to have been adequately addressed, with the exception of insecticides in the streams.

We feel that this should be taken more seriously, with possible solutions being proposed. Also we would hope that every preventative measure is taken to protect against soil erosion during the clearing and pre-planting phase.

Perhaps our remaining questions are better addressed to the Board of Agriculture. These are questions concerning the careful selection of agricultural products to the site and to the available water supply, since none of the sites seem to present a problem because of slope. The concept of Agricultural Parks seems excellent, yet a good deal of planning and care must go into them if they are to be successful, resulting in productive land. The farmers accepted for use of these lands are also critical to the success of the Agricultural Parks.

In the development of later increments, the cumulative impacts should be discussed, as has been suggested by some of the commenting parties.

Mrs. Lola Hinch
Acting Conservation Chairman
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

February 26, 1982
Finally, the EIS addresses only the Phase I development increment for the Waimanalo Agricultural Park. The scope of work and proposed action will therefore be limited to such analyses. Items consistent with the remaining phasing increments for the complete development of the Park is addressed in the Soil Conservation Service's Watershed Plan and EIS, and the Waimanalo Agricultural Park Environmental Assessment.

We appreciate your concerns on all of these matters.

Very truly yours,

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: P. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

Department of Land and Natural Resources
Division of Water and Development
P.O. Box 621
Honolulu, Hawaii 96809

February 23, 1982

Gentlemen:

The Waimanalo Joint Planning Committee has studied the Environmental Impact Statement that was prepared by the Environmental Quality Commission for the Waimanalo Agricultural Park Phase I Increment. We welcome the proposed action, for we believe that it will enhance the economic resources of this area. Its action will enable small farmers to obtain land for their agricultural endeavors thereby, strengthening the diversified economic base of Waimanalo.

We particularly desire that Waimanalo youth be given every opportunity to be involved in acquiring farming lots in this Park. We hope our youth will have every opportunity to participate in the overall agricultural efforts of the State.

Since an adequate water supply is most necessary to the success of this project, we urge that Phase II, which includes the construction of a 60-million gallon reservoir and the replacement of ditches with pipes, follow Phase I at the earliest.

You state: "the lots will be subdivided into approximately 5- and 10-acre areas". It is possible that a viable nursery could be operated on a 7- acre lot.

You select certain crops which you state are economically and physically viable in this area. We trust that these are merely suggestive and are not meant to be prescriptive. We think there should be large opportunities for farmers to be experimental and not discouraged from branching out into unknown fields. We note with pleasure the availability of expert advice and help through such agencies as the Soil Conservation Service. We suggest that all agencies of national and state governments relevant to this project be encouraged to help make it a success.

In your zeal to encourage "crop production which will be economically viable and will not adversely impact the market prices of other Hawaiian agricultural goods," let's not be too patronizing. We need to remember the States policy position of striving for more self-sufficiency in diversified agriculture. We will increase Hawaii's agricultural self-sufficiency by promoting economically competitive activities as well as comparative activities where possible. For example, we praise such pertinent advisory directions to the proposed project as "Assist in the.

FEB 25 1902
formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs."

Please be assured of the utmost cooperation by our Joint Planning Committee in implementing this project.

Sincerely,

Joint Planning Committee of the Waimanalo Council of Community Organizations and the Waimanalo Neighborhood Board

By

Diane Elias
Chairman, Joint Planning Committee

Robert E. Gibson
Member

Waimanalo Joint Planning Committee
and the Waimanalo Neighborhood Board
41-619 Puuone Street
Waimanalo, Hawaii 96795

Gentlemen:

Waimanalo Agricultural Park, Phase I

Thank you for your supportive statements for the Waimanalo Agricultural Park, Phase I project, and your comments on the Environmental Impact Statement. Our response to your comments follows:

1. We share your concern regarding giving young farmers the opportunity to acquire agricultural park lots and to farm the land. In order to provide this opportunity, the State is entering into a new farmers program wherein qualified new farmers are given preferential treatment in the selection process of awarding leases to the agricultural park lots. We encourage the youths of Waimanalo to participate in this program.

2. Adequate water supply will be provided to the development. To assure this, our department is currently preparing plans to rehabilitate the Maunawili Ditch collection system. The cost to make these improvements is estimated at $1,760,000. Further, our department has applied with the U. S. Department of Agriculture, Soil Conservation Service for federal cost-sharing to improve and expand the Waimanalo Irrigation System. The report, "Watershed Plan and Environmental Impact Statement, Waimanalo Watershed", prepared by the Soil Conservation Service, describes the proposed improvements.

3. Five of the lots, ranging in size from 5.6 to 8.0 acres, are intended for nursery use and the balance of the lots will be leased for diversified agricultural use. The lots identified for nursery use are odd-shaped with steep terrains and require a larger area to accommodate the two-acre shade house operation. The larger lot also allows the farmer to expand his operation in the future should he so desire.
Walmanalo Joint Planning Committee
and the Waimanalo Neighborhood Board -2- February 26, 1982

4. As stated above, five of the lots will be leased for nursery use and the remaining nine farm lots will be leased for diversified agricultural use. Diversified agriculture includes uses such as truck crops, field crops and orchards. The crops selected for discussion in the EIS are those that are identified as having the potential for this particular site and were used as the basis for the planning of the project. The farmer is free to choose the crop to plant within the constraints of the lease covenants.

We appreciate your concerns on these matters.

Very truly yours,

SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodrigues

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota
REFERENCES

1. Board of Water Supply, City and County of Honolulu; Oahu Water Plan; July 1975.
2. City and County of Honolulu; Comprehensive Zoning Code; 1978.
3. City and County of Honolulu; General Plan Objectives and Policies; January 1977.
15. USDA Soil Conservation Service; Draft Watershed Plan and Environmental Impact Statement; July 1981; prepared by State of Hawaii, Department of Land and Natural Resources, Division of Water and Land Development; Windward Oahu Soil and Water Conservation District; and USDA Soil Conservation Service.
17. University of Hawaii, College of Tropical Agriculture and Human Resources; Banana Industry Analysis; September 17, 1980.
18. University of Hawaii, College of Tropical Agriculture and Human Resources; Ornamental Potted Plant Industry Analysis; June 7, 1979.