



EXECUTIVE CHAMBERS

HONOLULU

GEORGE R. ARIYOSHI
GOVERNOR

March 1, 1984

Ms. Letitia N. Uyehara
Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Based on the recommendation of your office, I accept the revised environmental impact statement for the Waianae Agricultural Park in Waianae, Oahu, as a satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes.

This environmental impact statement will be a useful tool in deciding whether this project should be allowed to proceed. My acceptance of the statement is an affirmation of its adequacy under applicable laws and does not constitute an endorsement of the proposal.

When the decision is made regarding this action, I expect the proposing agency to carefully weigh the societal benefits against the environmental impact which will likely occur. This impact is adequately described in the statement, and, together with the comments made by reviewers, provides a useful analysis of alternatives to the proposed action.

With warm personal regards, I remain,

Yours very truly,


George R. Ariyoshi

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REVISED
ENVIRONMENTAL IMPACT STATEMENT
for
WAIANAE AGRICULTURAL PARK

JANUARY 1984
STATE of HAWAII
DEPARTMENT of AGRICULTURE

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REVISED

ENVIRONMENTAL IMPACT STATEMENT

FOR

WAIANAE AGRICULTURAL PARK

Waianae, Oahu, Hawaii
TMK: 8-5-06:portion of 4
TMK: 8-5-23:portion of 21 and 41

Proposing Agency
State of Hawaii
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Accepting Authority
Governor, State of Hawaii

Submitted Pursuant to Chapter 343, Hawaii Revised Statutes

Responsible Official:

Jack R. Suwa Date: *Jan. 31, 1984*
Jack Suwa
Chairman, Board of Agriculture

Prepared by:
VTN Pacific
1164 Bishop Street, Suite 906
Honolulu, Hawaii 96813

and

Engineers-Surveyors Hawaii, Inc.
1020 Auahi Street, Building 1
Honolulu, Hawaii 96814

SUMMARY

Waianae Agricultural Park is a proposal by the State Department of Agriculture (DOA). The agricultural park will provide low cost long term leases of farm lots for Hawaii's farmers. The 150 acre project site is a portion of a 1,272 acre State owned parcel located in Waianae Valley on the slope of Kamaileunu Ridge. The entire parcel is currently under lease until 1987 by Waianae Valley Ranch as a pasture for cattle. A single-family housing development, rural homesteads, and large areas of idle lands are adjacent to the proposed agricultural park.

The Board of Land and Natural Resources (BLNR) has designated the 150 acre project site as Waianae Agricultural Park. It is proposed that the agricultural park be improved by the State Department of Land and Natural Resources (DLNR) at a cost of about \$1.1 million and subdivided into 17 lots for nurseries, poultry farms, and swine farms. Eight makai and four mauka lots are intended only for nurseries, while either animal husbandry or nurseries will be permitted on five mauka lots. Since swine and poultry farms will generate flies, odors, and noise, nurseries will be sited as a buffer between animal husbandry operations and the nearby residential area on Piliuka Place.

The DLNR will establish lease conditions, rents, and lessees' duties in the agricultural park. Minimum rents for the lots will be set by appraisal and leases may include a provision for fixed rental or a percentage of lessee gross proceeds, whichever is greater. In order to minimize environmental impacts, it is proposed that the DLNR require lessees:

- o to protect the known archaeological site in the project area;
- o to stop construction and contact the State Historic Preservation Office (SHPO) if the tenant uncovers any archaeological resources when he develops agricultural facilities;
- o to keep poultry manure from getting wet by collecting, drying, composting, and storing it under cover, off the ground on raised impermeable pads;
- o to keep structures, feed, chemicals, sewage effluent, and manure out of the 50-year Kawiwi Stream floodway;

- o to build swales to divert storm runoff and to design facilities for treating, storing, drying, or composting manure so that rain can not wash manure into Kawiwi gulch or tributary gullies;
- o to comply with applicable statutes and regulations of other agencies.

Individual farmers will be responsible for providing waste treatment and disposal systems which are acceptable to both the County Board of Water Supply (BWS) and the State Department of Health (DOH). These agencies will be responsible to enforce their own permit requirements. Possible waste treatment methods for animal husbandry include collection, drying, and composting of poultry wastes on covered, raised, impermeable slabs and treatment of swine wastes in impermeable oxidation ditches or anaerobic lagoons. However, pig farms may be excluded from the agricultural park unless the BWS can be convinced that treated effluent from swine waste treatment facilities can be disposed of on grass in the project area without risk of contaminating basal ground water underlying Waianae Valley.

Water for the project will be supplied by a new DLNR well with a sustainable yield of 0.72 mgd. This well will be turned over to the BWS to expand the water supply for agriculture in Waianae. On the average, if there are only nurseries, about 0.34 mgd of potable water will need to be supplied to the proposed agricultural park. Water also will be made available from a 5/8" meter at the eastern end of the project site for use by the tenant of the balance of the State parcel from which the agricultural park will be subdivided.

The primary unavoidable adverse impacts of Waianae Agricultural Park will be noise and odors from livestock operations and traffic through Piliuka Place.

Traffic will increase on Piliuka Place and Waianae Valley Road as a result of the project, but no traffic congestion will result.

A maximum of about 127 jobs will be either directly or indirectly created as a result of the agricultural park.

UNRESOLVED ISSUES

- o The specific methods of waste collection, treatment, and disposal to be used will be determined when individual farmer tenants apply for permits from the BWS and DOH. Stringent measures will be necessary to prevent pollution of ground water and surface water resources. Apart from lease covenants, enforcement of proper maintenance and operation of waste systems will be the responsibility of the DOH.
- o It is not possible at this time to assess whether use of pesticides by nurseries in the agricultural park will pose a significant long-term risk to ground water underlying the project site. The DOH, BWS, and DOA all have legal authority to restrict use of pesticides which might contaminate ground water.
- o The exact mix of tenants in the agricultural park is not known at this time although the project is intended for swine, poultry, and nursery operations. The tenant selection process gives preference to new and displaced farmers.

**REVISED ENVIRONMENTAL IMPACT STATEMENT
FOR
WAIANAE AGRICULTURAL PARK**

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I. DESCRIPTION OF THE PROPOSED PROJECT

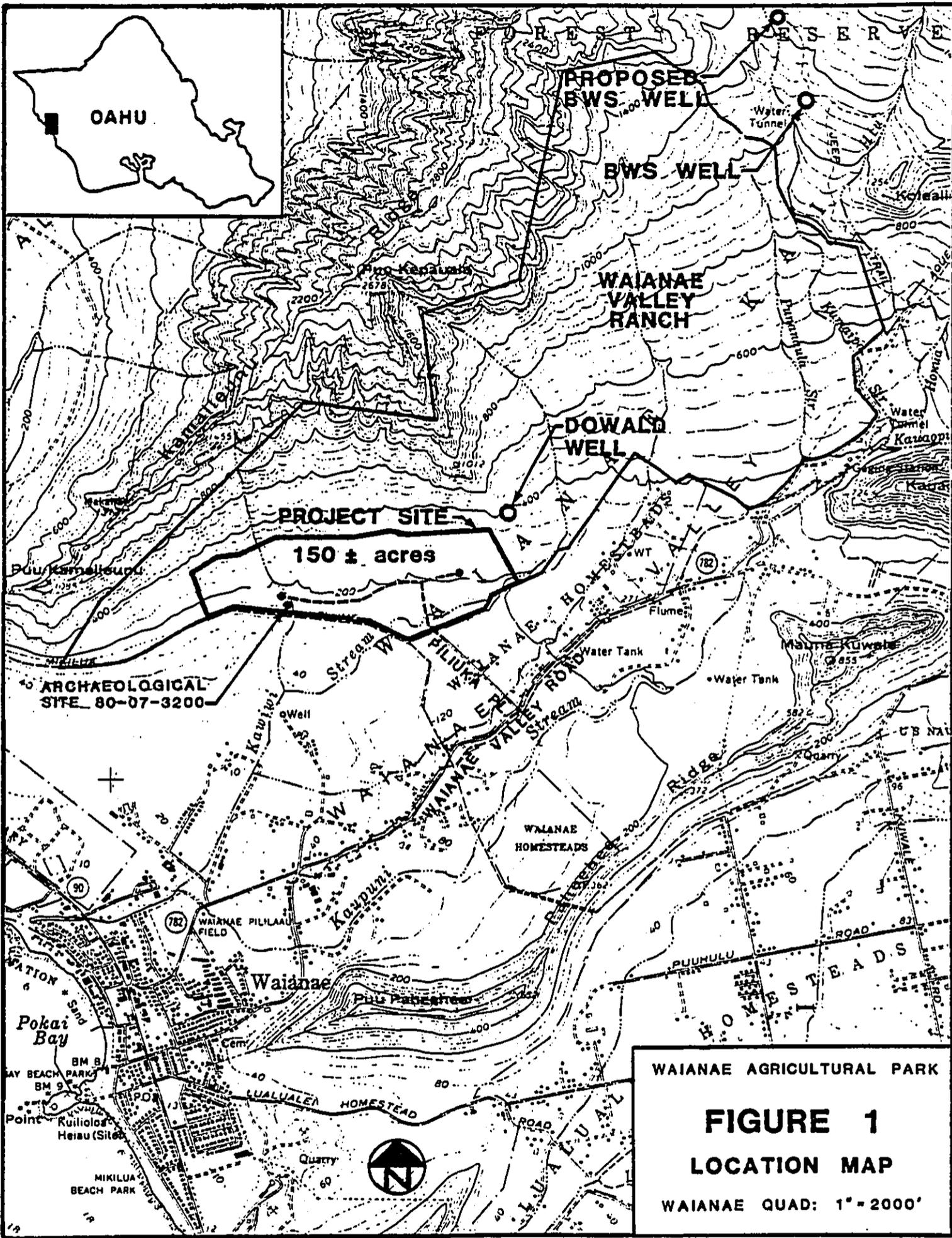
A. LOCATION AND LAND OWNERSHIP

Waianae Agricultural Park is a proposal by the State Department of Agriculture (DOA). The agricultural park will be located in Waianae Valley on the leeward coast of the island of Oahu. The park site is at the northern edge of the valley approximately 1.5 miles inland from Pokai Bay and Waianae Town. [Figure 1] The area surrounding the site is used for cattle grazing, limited single family housing developments, and open space. The site is a 150 acre portion of a 1,272 acre parcel of State owned land, identified by Tax Map Key 8-5-06:4. Waianae Valley Ranch, Inc. currently uses the parcel for pasture under General Lease S-4131. This lease, which expires in 1987, gives the State the right to withdraw portions of the parcel for higher use.

Waianae Valley Road extends to the eastern end of the parcel. An unnamed government road also provides access to the eastern half of the parcel. Although there is no road access to the western half of the parcel, Piliuka Place ends approximately 80 feet from the project site's southern property line. [Figure 2] Extension of Piliuka Place to provide access to the agricultural park would necessitate purchase of about 3,500 square feet of privately owned land (TMK:8-5-23: portion of 21 and 41).

B. PUBLIC ACTIONS

1. **Subdivision Plan.** The Board of Land and Natural Resources (BLNR) has designated the 150 acre project site as Waianae Agricultural Park. It is proposed that the agricultural park be improved by the State Department of Land and Natural Resources (DLNR) and subdivided into 17 lots. [Figure 3] The balance of the parcel will continue in its existing state as one lot for cattle ranching.



The proposed subdivision is a two-tiered design. Five lots on the mauka tier (numbers 6, 8, 10, 12 and 14 on Figure 3) will be used for either swine farms, poultry farms, or nurseries. All other lots in the agricultural park will be used for nurseries. This design is intended to minimize the risk of disease spreading between animal husbandry operations and to buffer the existing residential area on Piliuka Place from flies, odors, and noise from animal husbandry.

As shown in Table 1, because of the Kawiwi Stream Drainageway, other gullies, water service limits, roadway easements, and an archaeological site, the net usable area of the agricultural park is about 106 acres. This includes about 7 acres with slopes ranging between 25% to 35%. The net usable area of subdivision lots ranges between 2.7 and 11.8 acres. The subdivision layout will comply with the City and County of Honolulu's Comprehensive Zoning Code for AG-2 zoning. Since the current AG-1 zoning does not allow piggeries, a zoning change will be needed to allow raising of swine in the upper tier of lots.

2. **Facilities and Improvements.** Total public costs for development of Waianae Agricultural Park are about \$2.9 million. The DLNR Division of Water and Land Development (DOWALD) will spend an estimated \$1.8 million for a well, pump, storage tanks, access road, and ancillary facilities necessary to provide water service. The DOA will spend an estimated \$1.1 million for other infrastructure to be constructed by the DLNR to service the agricultural park. Infrastructure improvements will be built at one time to County standards.

a. **Waste Treatment.** No public facilities will be built for collecting or treating human or animal wastes.

b. **Water.** DOWALD has drilled and successfully test-pumped an exploratory well (2810-02) immediately northeast of the agricultural park. [Figure 1] The environmental impacts resulting from development of facilities to bring this well into production will be addressed by DOWALD in a separate

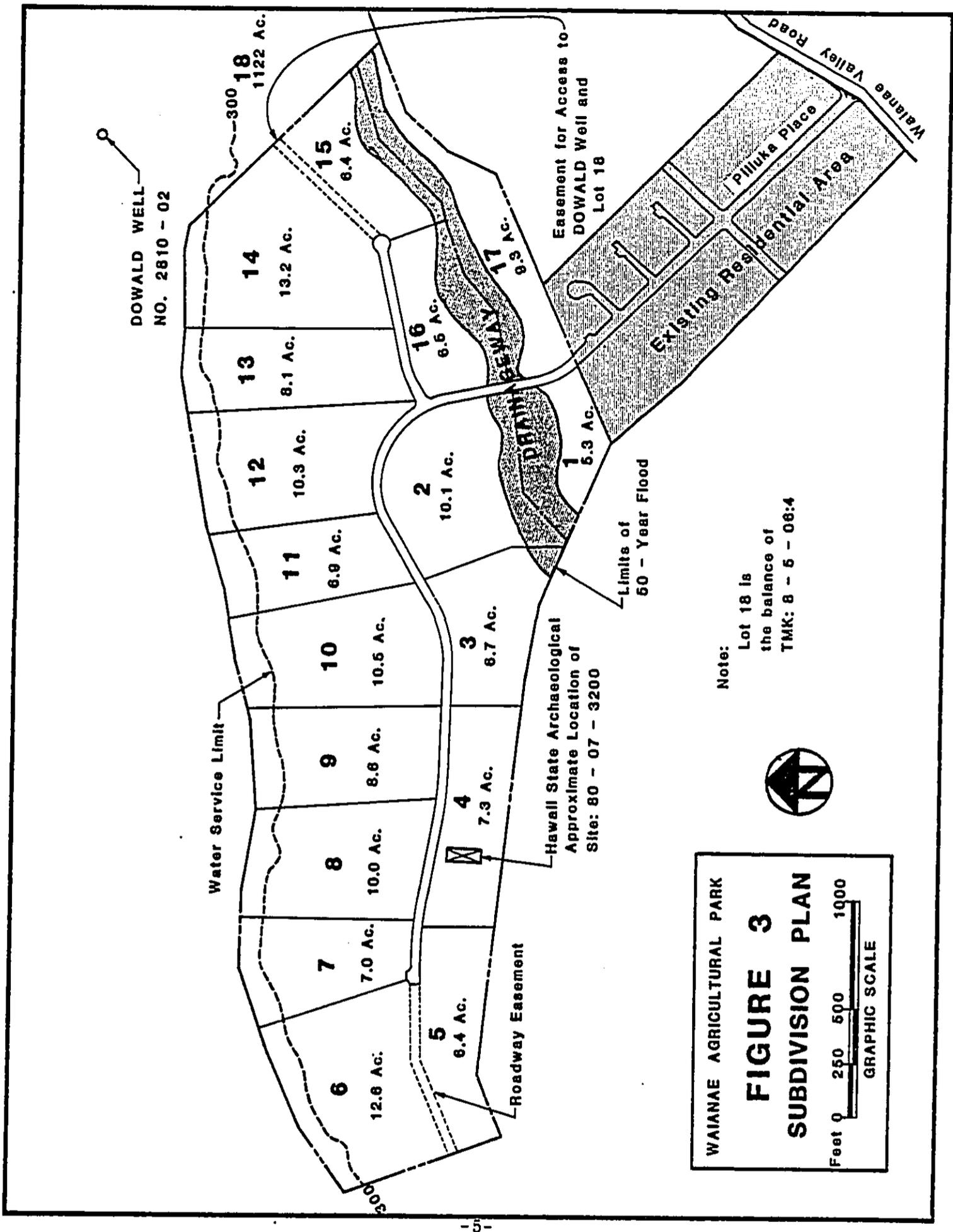


TABLE 1
NET USABLE AREA AND SLOPE
WAIANAE AGRICULTURAL PARK
[Acres]

Lot Number	Gross Area	CONSTRAINT						SLOPE OF NET USABLE AREA						
		Kawili Drainageway	Other Gullies	Above Service Elev.	Water	Roadway Easement	Archaeological Site	Net Usable Area	Under 10%	10-15%	15-20%	20-25%	25-30%	30-35%
1	5.3	2.6	---	---	---	---	---	2.7	---	1.7	1.0	---	---	---
2	10.1	1.7	2.7	---	---	---	---	5.7	0.1	3.7	1.3	0.3	---	0.3
3	6.7	0.2	0.5	---	---	---	---	6.0	0.2	4.5	0.9	0.6	---	---
4	7.3	---	1.9	---	---	0.5	---	4.9	0.2	4.2	0.4	0.1	---	---
5	6.4	---	1.3	---	---	---	---	5.1	1.7	1.8	0.5	1.1	---	---
6	12.6	---	1.5	2.0	---	---	---	8.2	---	---	3.3	0.2	3.8	0.9
7	7.0	---	---	1.2	---	---	---	5.8	---	1.0	1.8	1.7	1.1	0.2
8	10.0	---	2.0	1.3	---	---	---	6.7	---	0.8	2.5	3.4	---	---
9	8.6	---	1.6	1.2	---	---	---	5.8	---	2.3	2.9	0.6	---	---
10	10.5	---	1.1	1.3	---	---	---	8.1	---	3.2	4.8	0.1	---	---
11	6.9	---	1.2	1.3	---	---	---	4.4	---	0.2	3.3	0.9	---	---
12	10.3	---	1.1	1.6	---	---	---	7.6	---	1.8	4.7	0.9	---	0.2
13	8.1	---	---	0.9	---	---	---	7.2	---	3.7	1.7	1.1	0.4	0.3
14	13.2	---	---	1.1	---	---	---	11.8	---	4.7	3.5	3.5	0.1	---
15	6.4	1.1	---	---	---	---	---	5.0	0.3	2.7	2.0	---	---	---
16	6.5	1.9	---	---	---	---	---	4.6	2.1	1.8	0.7	---	---	---
17	9.3	3.3	---	---	---	---	---	6.0	0.9	4.3	0.8	---	---	---
Roadway	4.8	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	150.0	10.8	14.9	11.9	1.5	0.5	105.6	5.3	42.4	36.1	14.5	5.4	1.9	

Environmental Assessment. [Ref. 54] Test results show a potential sustainable potable water supply of 720,000 gallons per day. The DLNR will turn the production well over to the County Board of Water Supply (BWS) with conditions to ensure that the first priority for water use is agriculture. DOWALD will first prepare a water master plan for approval by the BWS.

A storage tank is proposed for water from the new DOWALD well at an elevation of about 400 feet. Therefore, the water service limit in the agricultural park will be at approximately the 300 foot elevation. A private booster system would be needed to provide water above the 300 foot elevation.

An easement will be created within the agricultural park so that DOWALD can develop an access road for maintenance of the storage tank and production well. [Figure 3] DOWALD will probably develop a pipeline in the easement for water supply to the agricultural park.

Water lines in the agricultural park will be sized to handle the maximum daily flow plus required fire flow and will be dedicated to the BWS. Average daily water demand is estimated at 0.34 mgd. A water hookup for use outside the agricultural park by the lessee of the balance of TMK:8-5-06:4 will be installed in the access easement for the DOWALD well.

c. Other Infrastructure. An access road will be constructed to connect the agricultural park with the end of Piliuka Place. Extension of Piliuka Place will require public acquisition of TMK: 8-5-23: portion 21 and 41. The access roadway will have a 44 foot right-of-way with a 20 foot A.C. pavement width and 12 foot wide grassed shoulders (agricultural roadway). The entire roadway will be dedicated to the County for maintenance. Telephone service and electricity will be provided as an overhead system. The Department of Land Utilization will be asked to waive requirements for street lighting.

d. **Drainage.** The 1980 Federal Flood Insurance Rate Maps include the project site within "Zone D" which is an area of undefined flood hazard. A drainageway with intermittent flows (Kawiwi Stream) crosses the project site. Although the drainageway is normally dry except during heavy rains, special engineering measures and a drainage culvert will be required beneath the access road where it crosses the drainageway. No other public or private structures will be allowed within the 11 acre 50-year drainageway flood limits. [Figure 3] Storm runoff north of the proposed access road will be intercepted by swales along the road. This runoff will be carried under the access road in culverts and discharged on the downhill side where it will sheet flow over the ground.

3. Tenant Selection and Lease Requirements. The DOA and DLNR cooperate in the development and implementation of the agricultural park program. Generally, the DOA is involved in project planning and financing while the DLNR handles land acquisition, design, engineering, construction, and land disposition.

The DOA and DLNR have jointly formulated criteria for selecting tenants in agricultural parks. Preference in leasing has recently been given to new and displaced farmers. A tenant selection committee with representatives from the DLNR, DOA, and Hawaii Farm Bureau Federation reviews all potential tenant applications according to the following criteria:

- a) Minimum Qualifications
- b) Agricultural Experience
- c) Financial Capability
- d) Status as New or Displaced Farmer

Each application is assigned points by the Committee based on the tenant selection criteria. The weighted point system may vary according to the agricultural park project.

The DLNR establishes lease conditions, rents, and duties of lessees. Rents for agricultural lots are the higher of either (a) base rents set by appraisal or (b) a percentage of lessee

income. For example, as of 1982, the minimum annual base rents for Panaewa Agricultural Park on the Big Island were \$100.00 per acre for a 20 acre lot and \$120 per acre for a 10 acre lot. The minimum "percentage" rent is 1.5% of gross proceeds but may be higher depending on the agricultural use. A rate of 2% of gross proceeds for fruit orchards and 3.5% of gross proceeds for macadamia nuts have been required at Panaewa Agricultural Park.

Leases for Waianae Agricultural Park will probably have a 55 year term. The DLNR will be responsible to enforce lease covenants. Lease covenants will need to include a number of conditions in order to prevent adverse environmental impacts. Violations of such covenants could be grounds for eviction from the agricultural park. In particular, it is proposed that the DLNR require lessees:

- o to protect the known archaeological site in the project area;
- o to stop construction and contact the State Historic Preservation Office (SHPO) if the tenant uncovers any archaeological resources when he develops agricultural facilities;
- o to keep poultry manure from getting wet by collecting, drying, composting, and storing it under cover, off the ground on raised impermeable pads;
- o to keep structures, feed, chemicals, sewage effluent, and manure out of the 50-year Kawiwi Stream drainageway;
- o to build swales to divert storm runoff and to design facilities for treating, storing, drying, or composting manure so that rain can not wash manure into Kawiwi gulch or tributary gullies;
- o to comply with applicable statutes and regulations of other agencies.

C. PRIVATE ACTIONS

1. **Agricultural Operations and Waste Management.** As planned, the 17 agricultural lots will accommodate poultry farms, swine farms, and nurseries. Each of the farms will need to utilize a waste management system which complies with requirements of both the State DOH and County BWS. The BWS has established a "No Pass" Line around the island's perimeter to protect ground water resources from potential contamination from disposal of domestic and animal wastes. The agricultural park site is located on the mauka side of the "No-Pass" Line where the BWS generally prohibits both surface and subsurface disposal of sewage and wastes. [See Figure 4] Because of the site's location, the BWS will not accept the use of injection wells, permeable oxidation ditches, permeable aerobic or anaerobic lagoons, and leaching fields.

a. **Poultry Farms.** A viable size for a broiler farm is about 60,000 birds (raised simultaneously), which could fit on 6 to 12 acres of land. The poultry pens may be staggered on terraces to best utilize the hilly lots. Poultry houses will need to have raised concrete pads for collecting manure and need to be covered to prevent manure from getting wet or being washed offsite by storm runoff. Because lease covenants will prohibit drying or storing manure on the ground, poultry farmers will need to regularly collect and dispose of their manure. Dry or composted manure can be used as fertilizer. However, sale of poultry wastes through garden shops has become difficult on Oahu and may not be an economically viable option.

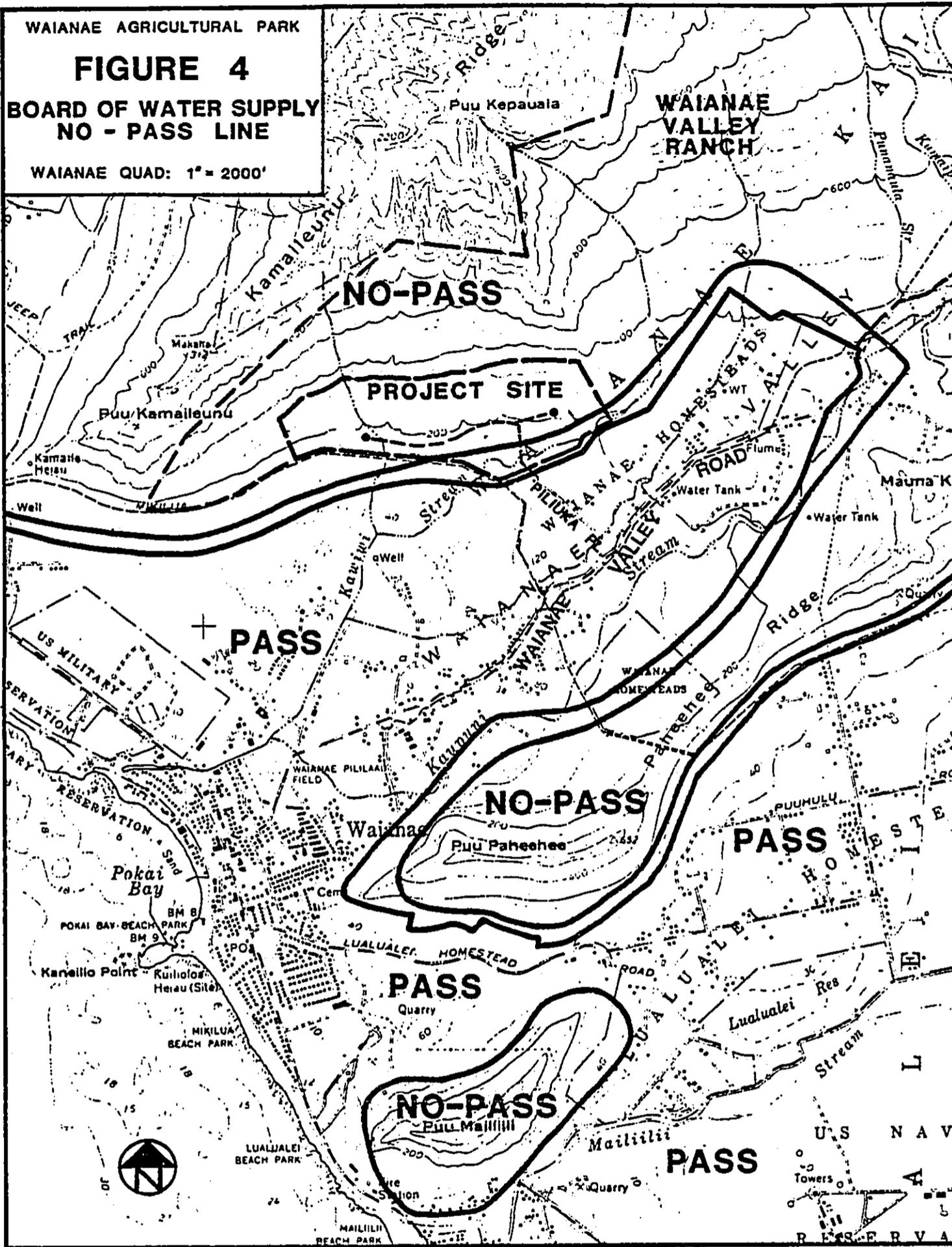
b. **Piggeries.** A viable pig farm requires at least 6 acres and about 1,000 pigs according to the Hawaii Farm Bureau Federation. Swine farmers will construct silos and other structures for feed storage and farm equipment. Swine will be housed in enclosed buildings, staggered and terraced along the slopes of the lot. The swine farmers will probably collect and treat animal wastes in impermeable oxidation ditches under slotted floors in covered swine-confinement buildings. It also would be feasible to treat animal wastes

WAIANAE AGRICULTURAL PARK

FIGURE 4

BOARD OF WATER SUPPLY NO - PASS LINE

WAIANAE QUAD: 1" = 2000'



in impermeable anaerobic lagoons. With oxidation ditches, less storm runoff would need to be handled as compared with larger unroofed lagoons. If the BWS can be convinced that there is no significant risk of contaminating basal ground water underlying Waianae Valley, then treated effluent from oxidation ditches or anaerobic lagoons may be spread on grass on the slopes of Kamaileunu Ridge. However, if such an approach continues to be unacceptable to the BWS, then it is unlikely that piggeries can locate in Waianae Agricultural Park. A swine waste management system for a pig farm in the agricultural park, including oxidation ditches and infrastructure for land application of effluent, would cost about \$100,000.

c. Nurseries. Viable nurseries can be as small as 3 to 5 acres, depending on the types of plants produced. Nursery owners will construct buildings to house supplies and may construct saran or screened buildings for plants. Nurseries have great flexibility in construction of facilities and can locate almost anywhere. Their major requirement is a good source of water. For nursery products to be certified for export, the water source must be of high quality and free of disease agents.

2. Other Facilities and Improvements. Various types of facilities and improvements associated with farm uses are expected to be developed in the Waianae Agricultural Park.

a. Residences. Farm houses will be permitted in the agricultural park if lessees do not own or lease any other land suitable for residential use, or if a need is clearly demonstrated. A lessee may be allowed to construct employee dwellings if DLNR requirements are met.

Individual farm residences will probably utilize holding tanks for sewage, but could use dry or composting toilets if the BWS allows ground disposal of "gray water" from sinks, washing machines, etc. The BWS and the DOH will need to approve

individual farm waste disposal systems, of which a number of self contained units are available on the market. Private companies will have to be hired when holding tanks need pumping. It does not appear likely that the BWS will accept the use of cesspools or other ground disposal methods which may have adverse effects on ground water resources.

b. **Drainage.** Drainage facilities for individual lots will probably be handled with swales. As previously discussed, poultry and pig farms will have covered pens and will be required to take necessary measures to prevent contamination of storm runoff.

c. **Water.** Individual farms in the agricultural park will connect to the public water main along the access road for water service. Typical nurseries will require a 1-1/2" water meter, typical piggeries will require a 1" meter, and typical poultry farms will require a 3/4" meter. In addition, a 5/8" meter for water use outside the project site will be provided at the eastern end of the agricultural park. In order to use water from this meter, the lessee of the balance of TMK:8-5-06:4 will need to develop a private water booster system and construction road outside of the agricultural park and satisfy applicable permit requirements including preparation of an Environmental Assessment.

D. PUBLIC EXPENDITURES AND REVENUES

The DLNR would be satisfied with about \$900/year in revenues if the unimproved 150 acre project site were leased as a cattle pasture. Without irrigated pasture, the general area has a year-round carrying capacity of about 6.7 acres/animal. Pasture use of State land can justify about \$40/animal per year in rental income if prices are not inflated by public auction. [Ref. 7]

State expenditures for improvement of the project site will be recovered in the form of rent and taxes. The total public cost for developing Waianae Agricultural Park will be about \$1.1 million excluding costs of the offsite water source being developed by the DLNR. As previously mentioned, minimum annual rents for a comparable agricultural park on Hawaii are the higher of either \$120 per acre or a percentage of gross tenant income. On that basis, in the worst case, the agricultural park will generate in excess of \$18,000 per year in rent payments to the State. By comparison, if only 40 acres of shade houses are built, assuming a conservative \$100,000 per acre gross revenues from sale of flowers and plants raised in shade houses, then the agricultural park will generate \$60,000 per year in rent payments to the State at 1.5% of gross proceeds. (Some established nurseries can generate as much as \$0.25 million in gross revenues per acre of shade house.) [Ref. 46, Ref. 47] In addition, the "State Input Output Model" estimates that on the average, a total of \$1.22 of direct, indirect and induced taxable household income would be generated for every \$1.00 of gross revenues from sale of nursery and greenhouse products. [Ref. 52] In 1981, State excise, income, and liquor tax collections combined were roughly 11.6% of State-wide labor and proprietor's income combined. [Ref. 55, Tables 2 and 13] On this basis, 40 acres of nursery shade houses (with gross revenues of \$100,000 per acre) would generate roughly \$4.88 million in additional household income and \$0.57 million per year in State tax revenues. While this is only a crude order of magnitude analysis, it shows that tax revenues generated by the agricultural park will far exceed State rental income.

Off-site water costs including the new DOWALD well are estimated at \$1.8 million. Agricultural park tenants will not pay for the cost of offsite water development, storage, and transmission. The BWS will charge agricultural water rates for water from the DOWALD well. Assuming BWS water rates for large users will continue at \$690 per million gallons, sale of 0.7 mgd from the DOWALD well will generate revenues of about \$0.18 million per year.

E. PHASING AND TIMING

The agricultural park is planned for development in the 1984-85 fiscal year. All public facilities and infrastructure will be developed at one time. Roadways, water lines, easements, and drain culverts will be provided on site. Lease negotiations are dictated according to statutory requirements. A notice that agricultural leases and tenant selection will occur is placed in the newspaper for three consecutive weeks. Shortly thereafter, applications are filed, tenants are selected, and leases are negotiated. Farmers will be required to construct their facilities and begin operations within a specified period after award of leases.

F. PURPOSE AND NEED

The purpose of Waianae Agricultural Park is to develop part of a parcel of existing agricultural land for a variety of agricultural uses including nurseries, poultry farms, and swine farms. As defined by Section 171-113, HRS, an agricultural park is

... any agricultural or aquacultural complex which combines and concentrates in a common location agricultural or aquacultural activities, or both for the purpose of production and distribution economies. Agricultural buildings, farm residences, and employee dwellings necessary to the production and distribution of agricultural or aquacultural commodities shall be considered part of the agricultural park.

Agricultural parks are intended to encourage farmer cooperatives which can market farm products, purchase volume supplies, and share in use of farm machinery and facilities. The intent is to aid established farmers in expanding operations as well as beginning farmers, and to help in relocating displaced farmers.

High land prices have hampered diversified agriculture on private lands in Hawaii. Problems facing the agricultural sector also include the displacement of farms by urbanization, high initial capital costs, and a lack of animal waste management facilities. The State's

agricultural park program is geared towards providing low cost long term land leases for Hawaii's farmers. Increased farm production is most appropriate on Oahu since it has 80% of the State's population and provides the largest market. Relocation of farms to the neighbor islands would add to farm costs and result in increases in consumer prices. Locally grown farm products would then become less competitive with imports.

The Department of Agriculture has received numerous expressions of interest by farmers seeking space in an agricultural park. Table 2 summarizes the latest list of applications for agricultural park lots on file at the DOA.

TABLE 2

APPLICATIONS FOR FARM LOTS IN AGRICULTURAL PARKS ON OAHU

	Oahu *		Total	Acreage per Farm	
	(Location Unspecified)	Waianae		Minimum	Maximum
Nursery	5	25	30	2	200
Orchard	2	5	7	50	---
Truck Farm	12	21	33	5	50
Orchids	0	5	5	---	---
Dairy	1	3	4	25	150
Dairy-Goat	0	1	1	---	10
Hog	4	11	15	1	10
Poultry	0	2	2	5	10
Misc. (Feedlot)	0	1	1	---	---

* Additional applications have specified a preference for other Oahu Agricultural Park locations, such as Waimanalo and Kahuku.

G. HISTORIC PERSPECTIVE

Table 3 provides an overview of trends in Oahu piggeries, nurseries, poultry farms, and cattle operations since 1974. While the cost of feed has historically been a major bottleneck to expansion of broiler, pork, and feedlot cattle production in Hawaii, there has recently been dramatic growth in flower and nursery production. The Statewide Agricultural Park Action Plan Phase I estimates that if recent growth trends continue, then within the next decade there will be demand for approximately 2,200 additional acres statewide for use by the flower and nursery industry. Approximately 1,600 additional acres for pork production and 150 additional acres for poultry production would be needed to completely replace imports to Hawaii. [Ref. 53, Appendix F]

TABLE 3

SELECTED AGRICULTURAL ACTIVITIES ON OAHU

HOGS ON OAHU

Year	No. of Farms	Pig Crop (1,000 head)		Pounds Sold Live Weight (1,000 pounds)
		Dec-May	June-Nov	
1974	290	20.5	19.8	6,557
1976	325	24.1	21.4	5,946
1978	355	23.7	20.9	8,411
1980	350	22.5	21.8	6,110
1982	360	21.7	23.3	6,919

TABLE 3 (Continued)

NURSERIES ON OAHU

	1974	1976	1978	1980	1982
Number of Farms	170	160	180	220	235
Greenhouses (1,000 sq.ft.)	165	205	575	651	918
Artificial Shade					
Structure (1,000 sq.ft.)	1,948	2,150	2,650	3,494	4,871
Natural Shade (acres)	16	25	10	7	12
Open Field (acres)	250	275	202	272	263
Total (acres)	315	354	286	374	408

POULTRY ON OAHU

	1974	1976	1978	1980	1982
Number of Broiler Farms	12	9	8	8	8
Ready to Cook - Weight of Broilers and Laying Hens (1,000 pounds)	5,508	5,667	6,450	7,550	8,214

CATTLE ON OAHU

Year	No. of Farms	Pounds Sold Live Weight (1,000 Pounds)	
		Range Cattle	Pen Fed Cattle
1974	140	2,842	1,039
1976	120	1,698	1,521
1978	85	2,352	853
1980	80	2,183	740
1982	70	1,479	255

Source: Ref. 41 and Hawaii Agricultural Reporting Service

II. DESCRIPTION OF THE ENVIRONMENTAL SETTING

A. PHYSICAL SETTING:

1. **Physiography.** The project site is located on the rocky southeast slope of Kamaileunu Ridge which divides Makaha and Waianae Valleys. Kawiwi Stream forms a dry gulch across the southern portion of the site. The elevation of the site ranges from 100 feet at the southern boundary to 325 feet (above mean sea level) at the northern boundary. Most of the usable project area has a slope of 10% to 20%. [Table 1]

2. **Soils.** The soils on the project site are primarily classified by the Soil Conservation Service as stony steep land and Lualualei extremely stony clay. None of the soils at the 150 acre site are considered to be prime, unique, or important agricultural lands, and none are suitable for cultivation of crops. Soils at the project site are very rocky, have high shrink-swell potential and low shear strength, and are susceptible to sliding on steep slopes. Because of poor soil conditions, special measures will be needed to ensure the stability of building foundations. However, soil conditions will not pose a significant problem for development of relatively small impermeable oxidation ditches or anaerobic lagoons in the agricultural park.

3. **Climate.** Waianae is located on the leeward coast of Oahu, where rainfall is low compared to the rest of the island. Annual rainfall at the agricultural park site averages 20 to 30 inches and increases with elevation to over 75 inches at the summit of the Waianae Range. Temperatures are warm, with an average high of 85 degrees fahrenheit (slightly higher than most other areas on Oahu) and an average low of 67 degrees fahrenheit.

Wind data is not available for the project area. Unpublished data from the National Weather Service for Maili Beach (south of the project site) shows a high frequency of calms (30.8% to 38.7%) and northeast to east winds (45.2% to 66.7%) during early morning

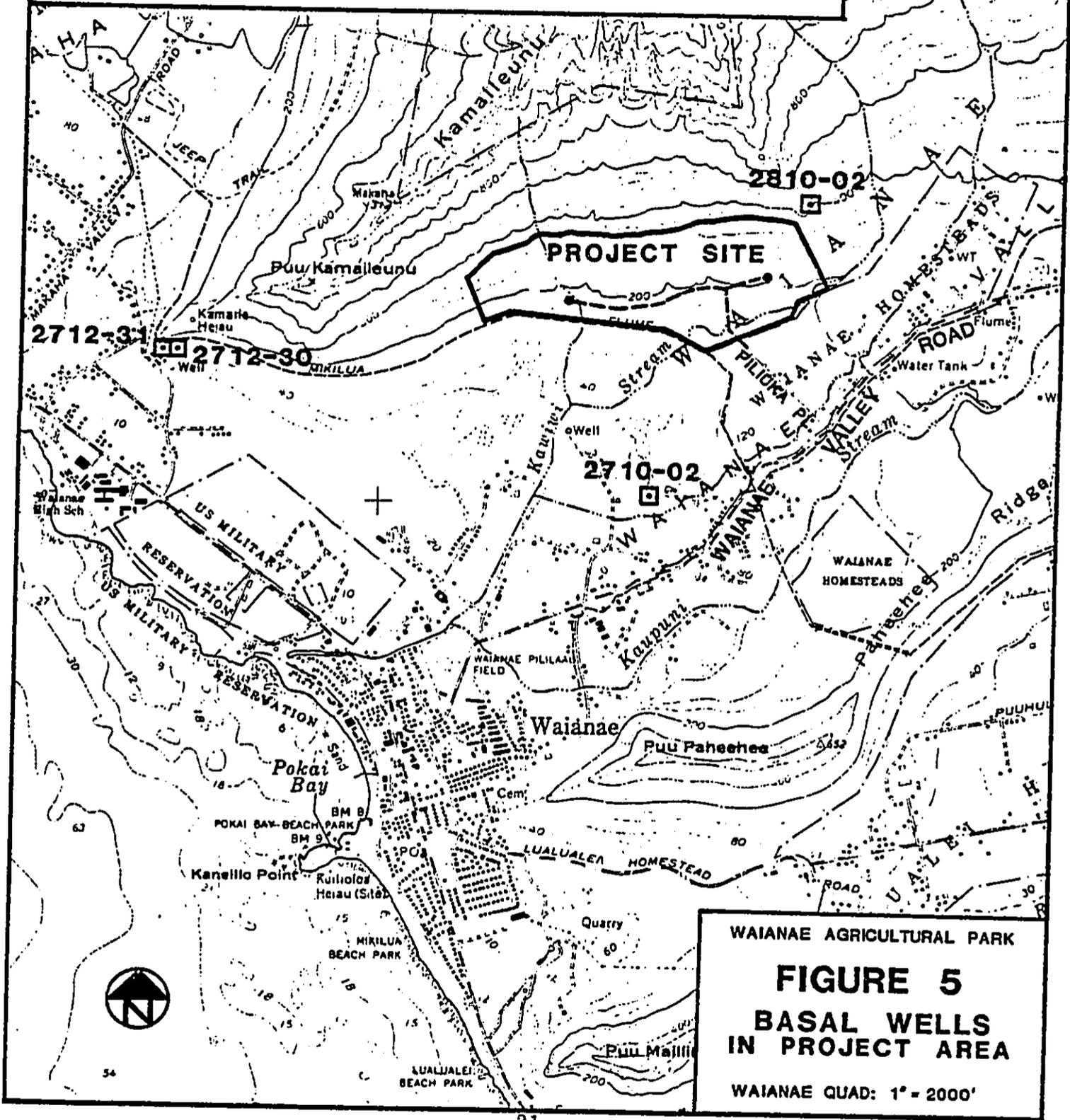
hours. Wind directions often shift to a light on-shore sea-breeze in the afternoon. Measurements taken on a hillside behind the Kahe Point Generating Station indicate that winds from the northeast quadrant predominate during the night, but at sharply reduced velocities. The average wind speed was 3.6 mph, which probably is comparable to night-time flows in Waianae Valley. [Ref. 48]

4. **Water Resources.** Potable ground water occurs in Waianae Valley as (low level) basal water impounded by coastal caprock and as (high level) perched water impounded by lava dikes. Caprock was formed by deposits of terrestrial and marine sediments. Dikes were formed by molten rock which solidified in the fissures of volcanoes. Dike confined water slowly moves into lower dike compartments or down to the basal aquifer. The basal aquifer is also partially recharged by direct infiltration of rainfall. A DOH study of the effects of surface impoundments on potable ground water identified the area surrounding the project site as having moderate potential for additional water source development. [Ref. 51]

Three public wells located in the project vicinity withdraw potable water from the basal aquifer underlying the agricultural park. Figure 5 shows the location of the wells and their static head (water elevation measured from mean sea level) prior to pumping. The new DOWALD well (2810-02) will supply the proposed agricultural park. DOWALD test results indicate the well can produce about 0.72 million gallons per day (mgd). [Ref. 49]

The DOWALD well produces high quality potable water, with chloride levels of 36 parts per million (ppm) as compared to a recommended limit of 250 ppm. Other water quality parameters of concern include nitrates and agricultural chemicals. The DOWALD well has not yet been tested for organic chemicals or nitrates. Nitrates in the BWS Kamaile wells have been measured at 7-8 ppm, which is well below the 45 ppm limit established by the DOH. The DOH annually tests for organic chemicals in drinking water throughout the State, but has not found appreciable levels from Waianae water sources. Agricultural chemicals which are used by various nurseries in Hawaii include temik, nemacur, and terrachlor.

Wells	Well Number	Ground Elevation	Year Drilled	Static Head (Water Elevation)
BWS Kamaile Wells	2712-30	34'	1975	12'
	2712-31	51'	1976	12'
T. Au (Private)	2710-02	48'	1958	14'
DOWALD	2810-02	413'	1980	13'



These and other toxic chemicals are of concern, as they represent a potential source of ground water contamination.

All drainageways in the agricultural park are tributary to Kaupuni Stream. All drainageways in the project area including Kawiwi Stream are naturally dry most of the year, except during rainstorms. Northeast of the project site, Waianae Valley Ranch diverts all flow from Kumaipo Stream at an elevation of about 840 feet to provide drinking water for cattle. Dry weather flow was measured at 0.01 mgd in October 1981. [Ref. 25]

A DOH study of surface impoundments found records of only one case of surface water contamination related to surface impoundments in Waianae Valley. In 1975, a dairy was found illegally discharging about 5 to 10 gallons per minute of brown wastewater into the Kaupuni Stream drainage canal. (The dairy was subsequently fined and directed to comply with DOH regulations.) Otherwise, the DOH study concluded that there is no evidence presently available to indicate that existing surface impoundments are a significant threat to either streams or existing drinking water sources. [Ref. 51]

A study by Dr. Amadeo Timbol of aquatic macrofauna in Kaupuni and three tributary streams (Kawiwi, Kumaipo, and Hiu) found that all provide poor habitat for fish and crustacea. None of the aquatic macrofauna in these streams is found in the Federal list of endangered or threatened species. The endemic diadromous shrimp, 'opae (Atya bisulcata), is present in Kumaipo Stream above the point of diversion to Waianae Valley Ranch. Juvenile o'opu nakea (Awaous stamineus), a native goby that migrates between the ocean and fresh water, were found in abundance in the concrete lined channel of Kawiwi Stream about 1,700 feet inland from Kaupuni Stream flood control channel. The absence of several common species of native stream fauna at lower channelized sections of Kaupuni Stream suggests that the estuary is highly polluted. [Ref. 25, Appendix B]

5. **Flora and Fauna.** The original vegetation of the project site has mostly been replaced with introduced species. Existing vegetation is primarily common grasses, 'ilima, koa haole,

'opiuma, and kiawe. At higher elevations, northeast of the project area, there is a mature secondary forest including such exotic species as monkeypod, silk oak, java plum, kukui nut, coffee, macadamia nut, koa haole, and guava. [Ref. 25, Appendix B] Endangered species of plants located on the upper slopes of Kamaileunu Ridge mauka of the project site include Hesperomannia arbuscula ssp. oahuensis, Hedyotis degeneri var. coprosmafolia, Sophora chrysophylla var. grisea, Diellia erecta, and Gouania gagnei. [Ref. 1]

Mongoose, rats, mice, feral pigs, feral dogs, and feral cats are probably present on the agricultural park site. Because of the extent of human alterations of the native vegetation in Waianae Valley, it is unlikely that rare or endangered endemic species of birds are ever present in the project area. A number of common introduced species were observed or heard during a site survey including lace-necked dove, barred dove, Chinese thrush, Japanese white-eye, and cardinal. Other common introduced species which probably frequent the area include ring-necked pheasant, chukar partridge, red-billed leiothrix, bulbul, shama thrush, and ricebird.

B. SOCIAL SETTING

1. Land Use. The mauka sections of Waianae Valley are used primarily for agricultural purposes. Urban uses are concentrated on the shoreline along Farrington Highway. The mountain slopes are generally too steep for any kind of development. The project site is presently leased by Waianae Valley Ranch and used as pasture for cattle. A single family housing development and homesteads are located on State Agricultural District lands between the southeast border of the site and Waianae Valley Road.

There are no large-scale industrial or commercial land uses which would lead to heavy traffic, sustained noise, or air pollution in Waianae Valley. According to the October 1981 Building Digest, the only housing development planned in Waianae Valley through

1984 is an ongoing 500 lot Department of Hawaiian Home Lands (DHHL) subdivision with road access from Kaneaki Street. [Ref. 23] Although this subdivision is located on agricultural zoned land, Federal law exempts DHHL lands from State and County land use controls. Other than this subdivision, because of existing agricultural zoning, no large-scale development is likely to take place in Waianae Valley within the next decade. However, it is possible that the DHHL may eventually develop another 400-500 house lots on DHHL lands makai of Haleahi Road. These lands are currently leased to dairies through the early 1990s.

2. Infrastructure. The Waianae Homesteads adjoining the agricultural park site have water, electric and telephone lines, but no sanitary or storm sewer service. HECO has a powerline easement which crosses the project site. Regular refuse collection is provided by the County Department of Public Works. The BWS maintains an 8 inch water line along Piliuka Place which extends to nearly the southeast boundary of the agricultural park site.

The bulk of the water used on the Waianae Coast is imported from the Pearl Harbor aquifer. In order to provide for the area's future needs and reduce the amount of water import, the State and the BWS are presently exploring the untapped ground water sources in the Makaha-Waianae area. Test results of DOWALD well 2810-02 indicate that 0.72 mgd is available from this well. This well will be turned over to the BWS to expand the water supply for agriculture in Waianae. BWS Waianae exploratory well 2909-01 at an elevation of 1,150 feet has a sustainable yield of about 0.4 mgd. A second BWS exploratory well is proposed in Waianae Valley during F.Y. 1983-84 at an elevation of approximately 1,375 feet. [Figure 1]

Residents of the Waianae Homesteads are among the estimated 9,600 Waianae residents who depend on cesspools for wastewater treatment. Most other Waianae residents are served by the Waianae Sewage Treatment Plant. Sewer service will not be available to the agricultural park site within the foreseeable future.

The principal transportation link between Waianae and the rest of Oahu is Farrington Highway. Honolulu's central business district can be reached by a 30 mile drive along the coast. Municipal bus service is available along Waianae Valley Road.

Although Waianae Valley Road is the primary means of access to mauka Waianae Valley, the road is sub-standard and hazardous for both vehicular and pedestrian traffic. Within the existing road right-of-way, the pavement is mostly 16 to 21 feet wide and the road's shoulders frequently are covered with dense vegetation and/or rock walls. The road currently has no sidewalks and no recognizable center line. The County DPW is developing plans for upgrading the road to County standards, but because improvements will need to be funded by the State Legislature, there now is no timetable for improving Waianae Valley Road.

The Waianae Fire Station and police substation are located on Farrington Highway in Waianae Town. The nearest emergency medical facility is the Waianae Coast Comprehensive Health Center and the nearest hospital is Leeward Hospital in Aiea. Commercial facilities for gasoline, shopping, and dining are available in Waianae Town.

3. History and Archaeology. The Waianae Coast (Kahe Point to Kaena Point) was one of the earliest places of Hawaiian settlement. Although accessible fresh water was scarce, settlers were attracted by good fishing in the nearshore waters. The Hawaiians raised taro, sweet potatoes, and gourds in the vicinity of streams and springs. A relatively large expanse of terraces was cultivated in upper Waianae Valley. The estimated Waianae Coast population at the time of first European contact was 4,000 to 6,000 people. By 1854, disease had reduced the Hawaiian population to less than 1,000.

Private ownership of land followed the Great Mahele in the late 1840s. Within fifteen years, commercial ranches occupied almost half (over 17,000 acres) of the Waianae region. In 1878, Herman Wideman began a sugar plantation in Waianae, which used surface water to irrigate 60 acres of cane. The McCandless brothers drilled the plantation's first irrigation wells in 1882-83. The

plantation ultimately grew to 2,000 acres, but was forced to retrench to 1,200 acres because of insufficient water.

In 1946, Waianae Sugar Company was forced to close because of problems with labor supply, production costs, water supply, military takeover of productive acreage, and discontinuance of the railroad. Waianae Development Company purchased 9,150 acres of land from Waianae Sugar Company in 1948 and made much of it available for purchase for housing and farming. There was an influx of both subdivisions and vegetable, fruit, dairy, hog, and poultry farms. Today most of Oahu's poultry, dairy, and pork production comes from the Waianae Coast.

A reconnaissance survey of the project area located one small archaeological site near the Kawiwi Stream drainageway. This site was probably used for dry land agriculture. Because of its research potential, the site is considered significant in terms of criteria used by both the National and State Registers of Historic Places. [Appendix A, Archaeological Reconnaissance Survey].

4. Demographics. Waianae Valley comprises the largest part of Census Tract 97. [Figure 6] As shown in Table 4, the population of Census Tract 97 (and the Waianae Coast in general) has grown much faster than the population of Oahu as a whole. Since the region's economy has not kept up with population growth, most employed Waianae residents must commute outside of the Waianae Coast to work. However, as shown in Table 5, unemployment is so high that in 1980 almost one out of every three Waianae residents received some form of direct welfare assistance such as payments, food stamps, or subsidy of medical bills.

While recent detailed demographic data is not available for Census Tract 97, Waianae Valley residents are probably similar to other residents of the Waianae Coast. As shown in Table 6, the population of the Waianae Coast tends to be poorer, less well educated, younger, and more ethnically part-Hawaiian than the population of Oahu as a whole.

TABLE 4

POPULATION GROWTH OF CENSUS TRACT 97
AS COMPARED TO THE WAIANAE COAST AND OAHU

Area	Population			% Increase 1970-1980
	1960	1970	1980	
Waianae Valley Census Tract 97	4,109	6,020	11,847	97%
Waianae Coast Census Tracts 96,97,98	16,452	24,077	32,810	36%
Oahu	500,409	630,528	762,874	21%

Source: Ref. 21

TABLE 5

WELFARE RECIPIENTS IN CENSUS TRACT 97
AS COMPARED TO THE WAIANAE COAST AND OAHU

Area	Population in April 1980	Welfare Recipients in April 1980	%
Census Tract 97	11,847	3,562	30%
Waianae Coast Census Tracts 96,97,98	32,810	11,022	34%
Oahu	762,874	95,508	12%

Sources: Ref. 21, Ref. 22

TABLE 6

POPULATION CHARACTERISTICS OF THE WAIANAE COAST
AS COMPARED TO OAHU IN 1979

	WAIANAE COAST (Census Tracts 96,97,98)	OAHU
Median Family Income	\$10,000 to \$14,999	\$15,000 to \$19,999
% of Population Age 25-54 Who Graduated from High School	73%	88%
AGE OF POPULATION		
19 Years or Less	53%	35%
20-59 Years	40%	55%
60 Years or More	7%	10%
ETHNICITY OF POPULATION		
Caucasian	17%	27%
Japanese	6%	25%
Part or All Hawaiian	48%	18%
Filipino	14%	10%
Chinese	1%	5%
Other	14%	15%

Note: Data is based on a 1979 household survey which excluded all persons living on military bases and all persons living in group quarters such as dormitories.

Source: Ref. 19

III. PROJECT ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. CONSTRUCTION RELATED IMPACTS

Construction related impacts such as dust, noise, and erosion will be minimal because the State and agricultural park tenants will comply with applicable State and County codes. Standard mitigation measures will be employed, and no special measures are thought to be necessary.

B. AESTHETICS

The agricultural park will be compatible with the rural character of Waianae Valley. Development of public and private improvements will replace 150 acres of shrub covered pasture land with farm facilities consisting primarily of one story structures. The agricultural buildings will not be visible except from the nearby residential area on Piliuka Place and from higher elevations in Waianae Valley.

C. NOISE

Piliuka Place will be the only road access to Waianae Agricultural Park. Daytime traffic noise from cars and farm trucks driving through Piliuka Place can not be mitigated by project design. At maximum development, as discussed in Appendix B, Waianae Agricultural Park might generate up to 320 one-way vehicle trips per day on Piliuka Place, most of which would be in light vehicles. This would be in addition to the approximately 880 one-way vehicle trips per day generated by residents of the existing subdivision. Pursuant to Chapter 42 of Title 11, DOH Administrative Rules, at a distance of 50 feet, vehicles using Piliuka Place which weigh more than 10,000 lbs. are allowed to generate up to 84 dBA and other vehicles are allowed to generate up to 69 dBA. By comparison, typical ambient sound levels of

rural settings such as the dead-end of Piliuka Place are only 40 to 45 dBA.

Noise from agricultural operations within the project site will be substantially less than the 70 dBA property line limit for agricultural zoned lands established by Chapter 43 of Title 11, DOH Administrative Rules. Crops will be cultivated in pots and none of the land will be tilled at Waianae Agricultural Park. While animal noises are not loud by urban standards, they will be audible in the rural environment of Waianae Valley. As a mitigation measure, animal husbandry operations will be a minimum of over 800 feet from the closest house on Piliuka Place. Another possible mitigation measure not incorporated in the project would be to feed animals after 7:00 A.M. in the morning, rather than earlier.

D. ODORS

Periodic daytime application of pesticides within shade houses on the project site may generate odors that can be smelled by residents living at the northern end of Piliuka Place. Nurseries south of the Kawiwi Stream drainageway on lots 1 and 17 are most likely to be the cause of any complaints by subdivision residents. However, use of pesticides in nurseries in accordance with manufacturers' instructions will not affect air quality to the extent of causing a health hazard for animal husbandry in the agricultural park or for residents outside the project area.

Livestock operations potentially could be a major source of odors both inside and outside the project area. DOH experience is that because of local wind patterns, complaints about odors from existing poultry and swine farms on the Waianae Coast do not necessarily decline with the increasing distance from animal husbandry. Under dry conditions, odors from chicken wastes are relatively tolerable. However, if chicken manure gets rained on and is exposed to sunlight, then a nauseating stench results. The primary causes of odors from swine farms are hydrogen sulfide and other malodorous gasses released by anaerobic decomposition of manure. In pens where pigs are allowed to

come into contact with wet manure, animal heat accelerates bacterial growth and then vaporizes the odorous by-products of manure decomposition. If anaerobic lagoons are properly used to treat swine wastes, then obnoxious odors will be noticeable at times within a few hundred feet. The natural mixing of air and water near lagoon surfaces helps to reduce odors. By comparison, treatment of swine wastes in oxidation ditches typically produces only a slight localized ammonia smell. However, overloading of either aerobic or anaerobic waste treatment facilities can create severe widespread odor problems which persist for several weeks.

The subdivision plan and lease covenants are the principal measures proposed to mitigate impacts of odors from livestock operations. Livestock will be at least 800 feet from the closest house on Piliuka Place. It also is proposed that the DLNR require agricultural park lessees to keep poultry manure off the ground and under cover and to design waste management facilities to prevent swine and poultry manure from washing into Kawiwi gulch and tributaries. Enforcement of such lease covenants would minimize smells from wet poultry manure and would prevent aggravation of current odor and pollution problems resulting from accumulation of animal wastes in Kaupuni Flood Control Channel.

E. NUISANCES

Wet manure and dead animals can generate flies. As previously described, lease covenants are proposed to minimize wet poultry manure. Swine and poultry farmers will need to resolve how to dispose of their own dead animals.

F. GROUND WATER AND STREAMS

The new DOWALD well 2810-02 will be turned over to the BWS with conditions to ensure that water is available for Waianae Agricultural Park. The impacts on the environment resulting from the development of production facilities for this well will be addressed by DOWALD in a separate Environmental Assessment. [Ref. 54] Since there are no wetlands or perennial streams in Waianae Valley makai of the DOWALD well, pumping of the DOWALD well will not affect surface water resources.

The DOWALD well has a sustainable yield of 0.72 mgd. Assuming that nursery shade houses will occupy 80% of the 106 usable acres in the project site, infrastructure for the agricultural park will be designed to accommodate an average daily water demand of 0.34 mgd. A 5/8" water meter will also be made available for use by the tenant of the balance of TMK:8-5-06:4 outside the agricultural park. Since the exact mix of uses at the agricultural park is not known, it is not possible to precisely forecast future water needs. By way of comparison, 10 acres of nursery shade houses would have an average daily water demand of about 40,000 gallons per day (gpd), a 10-acre pig farm would require about 10,000 gpd, and a 10-acre poultry farm would require about 4,000 gpd. [Ref. 33]

Impacts to ground and surface water from intensive animal husbandry in the agricultural park will depend on the method of waste handling, collection, and disposal. If adequate waste treatment and disposal measures are not used, then the agricultural park would pose significant risks to water resources. In particular, the BWS is concerned that nitrates, bacteria, and viruses from animal wastes might percolate into the ground and contaminate potable basal ground water underlying the project site. The DOH also is concerned that organic materials from animal wastes might be washed into and pollute Kaupuni Flood Control Channel.

To protect surface water resources, it is proposed that lease covenants require agricultural park tenants to keep poultry wastes off the ground and under cover and to design animal waste treatment facilities so that rain can not wash manure into Kawiwi gulch or other gullies tributary to Kaupuni Flood Control Channel. In addition, the BWS and the DOH have authority to require waste collection, treatment,

and disposal methods which are stringent enough to ensure that there is no risk of ground water or surface water contamination. Individual applicants must submit specific plans for the discretionary approval or denial by these agencies. Apart from lease covenants, the DOH will be responsible to enforce proper maintenance and operations of waste management systems.

Although the specific treatment and disposal methods to be used by individual farmers for animal wastes are not known in detail at this time, it seems likely that animal confinement buildings will need to be covered and swales will be necessary to divert storm runoff away from facilities which collect and treat animal wastes. Chicken manure will probably be collected on raised impermeable slabs beneath pens and moved to other covered slabs for drying or composting. The most probable method of piggery waste treatment is the use of impermeable oxidation ditches or anaerobic lagoons. A study of a model swine waste oxidation ditch concluded that with proper design and operation, up to 80% of the total nitrogen can be removed from piggery wastes. [Ref. 50] Use of an anaerobic lagoon can be equally effective, either by itself or following treatment of animal wastes in an anaerobic digester. (Although anaerobic digesters generate usable methane and provide excellent odor control, they do not remove nitrogen from manure.) Controlled land application of treated chlorinated effluent from ditches or lagoons by thin dispersal over grass on the slopes of Kamaileunu Ridge appears to be an environmentally safe disposal method. Impacts to ground water and surface water would be negligible since most or all of the nitrogen remaining in the effluent would be absorbed by the grass. [Ref. 56]

As of the publication date of this Revised EIS, the BWS will not permit spreading of treated piggery effluent on grass mauka of the "No Pass" Line unless the DOA guarantees to replace or purify water from affected basal wells in the event contamination can be traced to Waianae Agricultural Park. [See Appendix C] The DOA is exploring the possibility of conducting lysimeter tests to measure the nitrogen and microbiological content of percolate from grass irrigated with effluent from swine waste treatment facilities. Comparable tests conducted using wastewater from Mililani Wastewater Treatment Plant have produced potable percolate. [Ref. 56]

Nurseries use a number of agricultural chemicals to aid in rapid plant and flower production. Pesticides are frequently applied in order to keep flowers and foliage blemish free. If persistent and highly toxic pesticides were used in Waianae Agricultural Park and percolated into the soil, then there would be a risk of contaminating basal ground water tapped by the BWS Kamaile Wells. However, without site specific leaching tests, it is not possible to assess whether pesticide use poses a significant long-term risk.

The DOH, DOA, and BWS all have legal authority to restrict use of pesticides which might contaminate ground water. Section 342-33(a), HRS, provides that

No person ... shall ... cause or allow any pollutant to enter into State waters except as in compliance with the provisions of this Chapter, rules adopted pursuant to this Chapter, or a permit issued by the Director [of Health].

Section 149A-32, HRS, provides that

... the Chairman [of the Board of Agriculture] ... may ban the use of certain pesticides or specific uses of certain pesticides when such usage is deemed to have unreasonable adverse effects on the environment.

Section 3-303(2), BWS Rules and Regulations, provides that

The Manager [of the Board of Water Supply] may prohibit or restrict the use of pesticides in any area when there is a reasonable basis to expect the pesticide will affect the quality of water resources used or expected to be used for domestic water.

Promulgation of more specific requirements, precautions, and regulations to restrict pesticide use will require more complete information than is currently available about percolation of pesticides. The present approach is to monitor water quality in wells, pesticides in soils, and pesticide use practices, with regulatory action following as appropriate to mitigate identified problems. Such efforts are ongoing programs of the DOA and DOH.

Contamination of ground water is a possibility anytime pesticides, herbicides, or fungicides are used mauka of the BWS "No Pass" Line. Since most agriculture on Oahu takes place mauka of the "No Pass" Line, the issue needs to be resolved on a regional basis.

G. FLORA AND FAUNA

Existing vegetation in the project area will be cleared for pasture improvements, structures, and access roads; however, only common plant species will be affected. Removal of vegetation at the project site may cause minor displacement of common introduced species of birds, but will not affect rare or endangered endemic species.

H. ARCHAEOLOGICAL RESOURCES

An archaeological reconnaissance survey was conducted for the agricultural park and is attached to the EIS as Appendix A. There is one small archaeological site located in the 150 acre project area. This site is similar to other pre-Contact dry agricultural complexes at Makaha Valley. The site is considered significant in terms of criteria of the National and State Registers of Historic Places. For that reason, lease restrictions are proposed to protect the area from development. In the event any other archaeological sites or artifacts are uncovered during construction, work will be stopped and the State Historic Sites Office notified.

I. TRAFFIC

As discussed in Appendix B, at maximum development, Waianae Agricultural Park ultimately will generate up to 160 vehicles per day (vpd) of mauka-bound traffic and 160 vpd of makai-bound traffic on Waianae Valley Road and Piliuka Place. This amounts to about a 5% increase in projected 1990 traffic on Waianae Valley Road just makai of Piliuka Place. Projected total traffic volumes could easily be accommodated provided that Waianae Valley Road were upgraded to meet County standards for rural roadways. Planning for road improvements is currently underway. However, funds for construction of road improvements have not yet been appropriated.

J. ECONOMIC ACTIVITY

Prices for feed in Hawaii make locally grown broiler chickens, pigs, and pen fed cattle more expensive per pound than mainland imports. However, there is a "pocket" market for fresh meat in Hawaii. As reflected by Statewide sales trends over the past decade, market conditions currently appear to permit enormous growth in nursery sales, gradual limited growth in sales of broiler chickens, and no growth in sales of fresh pork. [Ref. 41, 42, 43, 46, 47, 53] Hence it is likely that nurseries and broiler farms in Waianae Agricultural Park will be "new" economic activity and pig farms in the agricultural park will have been forced to relocate from some other part of Oahu.

Gross nursery revenues typically range between \$0.1 million and \$0.3 million per year per acre of shade house. [Ref. 46, Ref. 47] Up to 80% of the usable area of any lot might be developed as shade houses. A 60,000-bird poultry farm on one large agricultural park lot could produce up to 1,000,000 lbs. of broilers a year with a wholesale value of about \$0.5 million. [Ref. 13, 39, 41, 42] A 1,000-pig farm on one large agricultural park lot could produce about 320,000 lbs. of pigs a year with a wholesale value of about \$0.23 million. [Ref. 14, 41, 44]

Assuming that the 106 usable acres in the agricultural park are entirely developed for nurseries, then a maximum of about 80 people will report to work there on a daily basis. [See Appendix B] These jobs probably would not have existed without the agricultural park. In addition, roughly 47 additional jobs will be induced in other parts of Oahu as a result of economic activity at Waianae Agricultural Park. [Ref. 52]

K. POPULATION GROWTH

Population growth on Oahu is tied to births and in-migration less deaths and out-migration. Over the long term, out-migration is likely to stabilize the size of Oahu's labor force in proportion to the number of jobs on Oahu. While Waianae Agricultural Park will not affect either fertility or mortality, it may directly and indirectly result in over 125 jobs on Oahu. These jobs would permit a net Oahu population growth of roughly 250 people.

L. UNAVOIDABLE ADVERSE IMPACTS AND OFFSETTING GOVERNMENT POLICIES

The primary unavoidable adverse impacts of Waianae Agricultural Park will be noise and odors associated with livestock operations and traffic through Piliuka Place. The economic benefits of the proposed project are considered sufficient to justify its unavoidable effects. Intensification of agricultural use of the project site is appropriate in that it is a rural agricultural area, almost half a mile from the closest lands within the State Urban District.

M. COMMITMENT OF RESOURCES, FUTURE OPTIONS, AND LONG-TERM PRODUCTIVITY

The proposed agricultural park will increase the long-term productivity of rocky marginal pasture land which now can only be used for low intensity cattle grazing. Provided that the balance of TMK:8-5-06:4 is leased to its existing user, then there will be no adverse effects on Waianae Valley Ranch which now uses the entire parcel as a pasture. Development of the agricultural park will entail a commitment to supply tenants with water and to grant long-term leases. Provided that adequate measures are used for management of pesticides and for treatment and disposal of human and animal wastes, then the project will not pose significant risk of environmental degradation.

IV. RELATIONSHIP OF THE PROJECT TO LAND USE PLANS, POLICIES, AND CONTROLS

Provided that adequate measures are used for treatment and disposal of human and animal wastes, then the proposed agricultural park would be in conformance with applicable land use plans and policies. A zoning change by the Honolulu City Council would be necessary to permit raising of swine in the agricultural park. Also, BWS approval would be necessary for land disposal of treated wastes mauka of the BWS "No Pass" line. The following paragraphs describe applicable land use plans, policies, and controls as they relate to the project.

A. STATE PLAN AND LAND USE CONTROLS

The Hawaii State Plan, enacted by Act 100, SLH 1978, indicates legislative intent to:

Enhance agricultural growth by providing public incentives and encouraging private initiatives. [Section 226-7(b)(5), HRS]

Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs. [Section 226-7(b)(6), HRS]

Assist small independent farmers in securing land and loans. [Section 226-103(d)(3), HRS]

Continue the development of agricultural parks. [Section 226-103(d)(9), HRS]

Direct future development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimal. [Section 226-104(c)(4), HRS]

Identify critical environmental areas in Hawaii to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas

particularly sensitive to reduction in water and air quality; and scenic resources. [Section 226-104(c)(5)(d), HRS]

In conformance with State Plan policies, the proposed agricultural park will provide incentives, land, and water for nurseries and livestock farms in an area currently designated for agricultural use. Appropriate mitigation measures will be used to protect historic resources, ground water, and streams from adverse environmental impacts.

The primary State land use control designated in Section 226-52, HRS, to implement the State Plan is district boundary classification by the State Land Use Commission. Most of Waianae Valley including the project site is classified within the State Agricultural District. Pursuant to Sections 205-4.5 and 205-5, HRS, raising of livestock and all forms of agriculture are permitted uses provided that the minimum lot size is at least one acre.

In addition to State regulation of land use with district boundary classification, Section 6E-8, HRS, prohibits public agencies from undertaking any project which may affect historic property unless the DLNR State Historic Preservation Officer gives written approval. Since archaeological remains are present on the agricultural park site, the DOA will need to obtain the SHPO's approval of construction plans. As recommended by Mr. Hamilton Ahlo, Jr. of Hawaii Marine Research, Inc., tenants will be required to leave historic resources undisturbed.

Pursuant to Chapter 342, HRS, the DOH regulates treatment and disposal of liquid and solid wastes throughout the State. At the present time, the criteria used for DOH permits are intended to prevent public health problems from surface runoff and malfunctioning treatment facilities rather than to protect ground water from contamination. Regardless, DOH standards will be met by all waste treatment systems at Waianae Agricultural Park.

B. COUNTY GENERAL PLAN AND LAND USE CONTROLS

The City and County of Honolulu General Plan Objectives and Policies, adopted in December 1982 by Resolution Number 82-188, indicates County intent to:

Encourage the growth and diversification of Oahu's economic base.
[Economic Activity Objective A Policy 1]

Maintain agricultural land along the Windward, North Shore, and Waianae coasts for truck farming, flower growing, aquaculture, livestock production, and other types of diversified agriculture.
[Economic Activity Objective C Policy 5]

The City and County has implemented its General Plan with a Development Plan for the Waianae coast. The adopted Development Plan (DP) proposes that the project site be zoned for agricultural use.

County zoning by the Honolulu City Council is the primary land use control used to implement County land use plans. The project site currently is zoned AG-1. While nurseries, cattle raising, and poultry operations are permitted uses in an AG-1 district, piggeries are not. In order to permit raising of swine in Waianae Agricultural Park, lots on which piggeries are proposed would need to be rezoned to AG-2. Such a zone change would be in conformance with the intent of the 1982 General Plan and the 1983 DP.

The County Comprehensive Zoning Code (CZC) currently sets a 3 acre minimum on lots used for raising of livestock, sets a 2 acre minimum for other agricultural lots, and allows 1 dwelling unit for employees for each 2 acres of lot size. No zone change would now be necessary to accommodate farm dwelling units in Waianae Agricultural Park.

Apart from County zoning, pursuant to Section 54-33, HRS; Article VII, Section 7-105(j), Honolulu County Charter; and Section 3-301, BWS Rules and Regulations; the BWS has authority to regulate all forms of sewage and waste disposal on Oahu. Based on available data about the slope, thickness and permeability of alluvium overlying basalts containing potable ground water, the BWS has established a "No Pass" Line around the perimeter of the island. Makai of the "No Pass" Line, the BWS allows cesspools, leaching fields, and various forms of

surface disposal of domestic and animal wastes. However, mauka of the "No Pass" Line, except for dung from low intensity cattle grazing, surface and subsurface disposal of sewage and wastes are usually prohibited. Exceptions are made only when (a) new boring logs and percolation tests justify relocation of the "No Pass" Line, or (b) proposed treatment and disposal practices are sufficiently stringent to satisfy the BWS that there is no risk of ground water contamination.

As shown in Figure 4, virtually all of the project site is mauka of the existing "No Pass" Line. Hence, the BWS will not accept use of cesspools, injection wells, permeable oxidation ditches, permeable anaerobic lagoons, and leaching fields. Unless wide surface dispersal of treated effluent on grass on the slopes of Kamaileunu Ridge is acceptable to the BWS, it is unlikely that the BWS will approve waste disposal facilities necessary for piggeries to locate in Waianae Agricultural Park.

Other County land use controls such as building, grubbing, and grading permits are ministerial and must be granted provided that environmental, health, and safety performance standards are met. The State and tenants of the agricultural park will comply with applicable County codes and secure all necessary permits.

V. NECESSARY APPROVALS

1. The Revised EIS for Waianae Agricultural Park will need to be approved by the Governor before other permits and approvals are given for development of the agricultural park.
2. The DOA will need written approval from the State Historic Preservation Officer (SHPO) of plans for the agricultural park.
3. The Department of Land and Natural Resources (DLNR) will need to execute an agreement with the Board of Water Supply (BWS) for transfer of the new DOWALD well to the BWS with conditions to ensure first priority for agricultural water use.
4. The City and County of Honolulu Department of Land Utilization will need to approve subdivision of a 1,272 acre State owned parcel (TMK:8-5-06:4) to create agricultural park lots for lease by farmers.
5. Agricultural park lots on which piggeries are proposed will need to be rezoned from AG-1 to AG-2 by the Honolulu City Council.
6. Portions of TMK: 8-5-23: 21 and 41 will need to be acquired for a public roadway and utilities to service the agricultural park.
7. The DLNR will need building, grubbing, and grading permits from the City and County Building and Public Works Departments to construct agricultural park infrastructure.
8. The BLNR will need to dispose of agricultural park lots by long-term lease.
9. Individual lessees of agricultural park lots will need BWS approval for water meters and City and County building, grubbing, and grading permits for all improvements to their lots.
10. Individual lessees of agricultural park lots will need both Department of Health (DOH) and BWS approval of their system for treatment and disposal of human and animal liquid and solid wastes.

VI. ALTERNATIVES TO THE PROPOSED PROJECT

A. NO PROJECT

If Waianae Agricultural Park were not developed, then no adverse impacts would result and no economic benefits would occur. The proposed agricultural park probably would continue to be used for low intensity cattle grazing. The DOA rejected this option because it is State policy to encourage growth of diversified agriculture.

B. LARGER PROJECT AREA

Representatives of Waianae Valley Ranch have expressed interest in having the balance of the existing Ranch (TMK:8-5-06:4) designated as part of an agricultural park. The Ranch's present lease expires in 1987 and cannot be extended. If the BLNR designates the area as an agricultural park, the Ranch could apply for a negotiated lease. Otherwise, the site will have to be leased to the highest bidder at public auction.

The Ranch has made substantial capital improvements including dwelling and other ranch structures, 8 miles of fencing, 1.5 miles of water pipeline and appurtenances, 15 watering troughs, and boulder removal. If the Ranch were unsuccessful in obtaining a new lease in 1987, then they would lose this investment.

Although the Draft EIS for Waianae Agricultural Park proposed that all of TMK:8-5-06:4 be included within the agricultural park, for the time being the BLNR has rejected this approach. Consequently, there will need to be another Environmental Assessment prior to disposition of the balance of the parcel outside the 150 acre project site designated by the BLNR. BLNR Agenda Item F-13, approved October 21, 1983, questioned whether it was appropriate to designate the bulk of the parcel "for grazing purposes only". Item F-13 also questioned the justification and feasibility of supplying water for pasture irrigation by Waianae Valley Ranch. However, without any dependable water supply, the bulk of TMK:8-5-06:4 can only be used for grazing.

Because of cost, the DOA does not consider it economically feasible to develop a public water system, meeting County Department of Public Works (DPW) and BWS standards, to pump water from DOWALD well 2810-02 to service Waianae Valley Ranch. In order to service about 400 acres of TMK:8-5-06:4 below an elevation of 950 feet, a public water booster system from the DOWALD well at 413 feet would cost an estimated \$7.3 million. (Cost estimates include 3 booster stations, 3 reservoirs, 3 altitude valves, and about 8,600 feet of road and utility lines.)

High level BWS wells are another potential source of water to service the balance of TMK:8-5-06:4. BWS exploratory well 2909-01 at an elevation of 1,150 feet has a sustainable yield of about 0.4 mgd. A second exploratory well is proposed at an elevation of approximately 1,375 feet during F.Y. 1983-84. [Figure 1] If the second well does not yield sufficient water to be economically feasible, then the BWS may not develop production facilities at either exploratory well. But if the second well is successful, then water from the BWS wells could be made available for expansion of the agricultural park in exchange for BWS use of water from DOWALD well 2810-02. A cost estimate has not been prepared for this hypothetical alternative.

C. ALTERNATIVE SITES

Although alternative sites probably exist, the State considers it reasonable to make more intensive use of rocky State owned pasture land in Waianae Valley. The strong points of the proposed project site are availability, accessibility from existing roads, rural setting, favorable climate, and inexpensive land. Ample water is available for the proposed agricultural park.

D. ALTERNATIVE USES OF THE AGRICULTURAL PARK SITE

Because of poor soils, hilly terrain, and remote location, there are no other competing uses for Waianae Agricultural Park.

1. Dairy. The majority of dairies in the State are located on Oahu, with the highest concentration in Waianae. Because of land tenure problems, some of these dairies are looking for sites in which to relocate. Since the project site is of limited area, the drylot type of operation where cows are raised in a high density confinement might be a feasible use. However, the hilly terrain would make the initial capital costs for a confinement operation at this location more than twice as expensive as compared to a level site. Also, a dairy would result in frequent heavy truck traffic through a residential area.

Heifer replacement (for dairies) is a possible use. However, such an operation would face many of the same drawbacks as a dairy.

2. Truck Crops. Raising truck crops or other field crops is precluded because of the site's soil composition and slope. The soil cannot be cleared of stones and boulders and economically modified to support such crops. The slope of land would make cultivation by machinery difficult and harvesting expensive, although papaya and avocado orchards conceivably might be feasible.

3. Beef Cattle. Waianae Valley Ranch considers the project site to be of only marginal value as a cattle pasture. Grazing of beef cattle is not the most economically intensive use due to the extensive amount of land needed per head.

4. Aquaculture. The steep slopes and rocky soil conditions at the site would not permit economical development of the relatively large flat-bottomed ponds required for aquaculture.

5. Eggs. There is very limited growth potential for production of eggs in Hawaii. [Ref. 42, p. 21] There also is no demand for use of Waianae Agricultural Park by existing egg producers.

E. ALTERNATIVE INFRASTRUCTURE

1. **Central Sewage Treatment Plant.** A centralized sewage treatment plant (STP) has been considered for the agricultural park, but has been rejected because it would be much more costly than waste treatment facilities operated by individual farmers given the small number and scattered location of livestock operations. There also would be the unresolved question of how to dispose of treated effluent from a centralized STP. By comparison, it clearly is economically feasible for individual farmers to store domestic wastewater in holding tanks; for poultry farms to dry or compost poultry manure; and for pig farms to dispose of treated swine waste effluent by land application.

2. **Off-Site Waste Disposal.** The BWS has recommended that domestic and animal wastes from Waianae Agricultural Park be collected for disposal makai of the "No Pass" Line. [See Figure 4] However, this method would require waste effluent to be piped some distance off-site for either surface application or subsurface injection. No suitable site has been identified as available for this purpose. Acquisition of land to allow for surface disposal of treated effluent would add substantially to project costs. Particulates in animal waste effluent would clog an injection well too quickly to make this a practical solution.

3. **Non-Potable Water System.** Although potable water is in short supply in Waianae, because of costs, a non-potable water system is not under consideration at this time. Depending upon land use and the waste management system used at the agricultural park, a large amount of washdown and irrigation water may be needed. Therefore, the additional costs for a dual piping system has been analyzed for the project site. Potable water and non-potable

(washdown and/or irrigation) water would be delivered to each lot through separate pipes.

Listed below are the requirements for a centralized non-potable water system for a 150 acre agricultural tract, constructed in accordance with current DPW Standard Specifications:

=====

TABLE 7

NON-POTABLE WATER SYSTEM COSTS

SOURCE AND TRANSMISSION	\$1,500,000
RESERVOIR (for non-potable water) including service access road, and other facilities and equipment.	\$ 500,000
WATER LINE	\$ 200,000
TOTAL	\$2,200,000

CHAPTER VII. SUMMARY OF UNRESOLVED ISSUES

The principal unresolved issue is specifically how human and animal wastes will be treated and disposed of by agricultural park tenants. Adequate waste management is necessary in the agricultural park to prevent risk of either ground water contamination or pollution of Kaupuni Flood Control Channel. The BWS and DOH have authority to regulate waste collection, treatment, and disposal practices and will be responsible to enforce their own permit requirements. Lease requirements for Waianae Agricultural Park will also be used to ensure that rain can not wash manure into drainageways tributary to Kaupuni Stream.

A second unresolved issue concerns regulation of pesticide use by nurseries in the agricultural park. It is not possible at this time to assess whether pesticide use will pose a significant long-term risk to potable ground water underlying the project site. The DOH, BWS, and DOA all have legal authority to restrict use of pesticides which might contaminate ground water.

A third unresolved issue is the exact mix of swine, poultry, and nursery farms in the agricultural park. At the present time, the BWS will not permit the land application of treated swine waste effluent without a guarantee against possible ground water contamination. Preference will be given to new and displaced farmers when the tenant selection process begins. Animal husbandry will be limited to five mauka lots.

VIII. AGENCIES AND ORGANIZATIONS CONSULTED

A. LIST OF CONSULTED PARTIES

U.S. GOVERNMENT

- Department of Agriculture
- * Soil Conservation Service
- Department of the Air Force
- # Headquarters 15th Air Base Wing
- Department of the Army
- # Corps of Engineers
- # Directorate of Facilities Engineering
- Department of the Interior
- * # Fish and Wildlife Service
- * Geological Survey
- Department of the Navy
- # Headquarters Naval Base Pearl Harbor
- Department of Transportation
- # Fourteenth Coast Guard District

STATE OF HAWAII

- # Department of Accounting and General Services
- # Department of Defense
- * # Department of Hawaiian Home Lands
- * # Department of Health
- * # Department of Land and Natural Resources
- Department of Planning and Economic Development
- * Department of Social Services and Housing
- Department of Transportation
- # Office of Environmental Quality Control
- Office of Hawaiian Affairs
- Progressive Neighborhoods Program
- University of Hawaii
- * # Environmental Center
- # Water Resources Service Center

CITY AND COUNTY OF HONOLULU

- * # Board of Water Supply
- # Building Department
- * # Department of General Planning

- * # Department of Housing and Community Development
- * # Department of Land Utilization
- * # Department of Parks and Recreation
- * # Department of Public Works
- * # Department of Transportation Services
- # Fire Department
- # Police Department
- Waianae Neighborhood Board No. 24

ORGANIZATIONS

- * American Lung Association of Hawaii
- Dendrobium Orchid Growers Association of Hawaii
- # Fiftieth State Dairy Farmers' Cooperative
- GASCO, Inc.
- Hawaii Association of Nurserymen
- Hawaii Cattlemen's Council
- Hawaii Egg Producers' Association
- Hawaii Farm Bureau Federation
- Hawaii Fryers' Council
- * # Hawaiian Electric Company, Inc.
- Hawaiian Historical Society
- * # Hawaiian Telephone Company
- Island Pork Producers Cooperative Association
- Life of the Land
- Sierra Club, Hawaii Chapter
- The Outdoor Circle
- Waianae Valley Ranch
- West Oahu County Farm Bureau

- * Indicates Response Received to the EIS Preparation Notice
- # Indicates Response Received to the Draft EIS

B. REPRODUCTION OF COMMENTS AND RESPONSES



United States
Department of
Agriculture

Soil
Conservation
Service

P. O. Box 51004
Honolulu, Hawaii
96850

RECEIVED

OCT 11 1981

October 8, 1981

2

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
P. O. Box 22159
Honolulu, Hawaii 96822

We would appreciate an opportunity to review the draft EIS when it is completed. If we can be of assistance by providing information, please contact Mr. Stratford Whiting our District Conservationist for Oahu. Mr. Whiting's office is located in Room 3170, Prince Kuhio Federal Bldg., telephone: 546-8328.

Sincerely,

Handwritten signature

JACK P. KAHALZ
State Conservationist

cc: S. Whiting

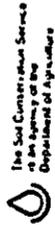
Dear Mr. Shiroma:

Subject: Environmental Impact Statement Preparation Notice
Malanae Agricultural Park, Malanae, Oahu, HI

We have reviewed the subject preparation notice as you requested. The proposal for the types of agricultural operations mentioned are appropriate from a land use standpoint on the site itself. However, there are several potential problem areas that should be considered in the draft environmental impact statement:

1 2 3 4

1. The preparation notice states that the area is classified as an area of undetermined, but possible, flood hazard. Since Kawiwi Stream and its flood plain do traverse the site, the degree of flood hazard should be determined and appropriate flood control measures provided for. This is especially important since Kawiwi Stream outlets into the K-3 flood control channel which was installed as part of the Malanae Iki Watershed Flood Control Project (PL-566). Any sediment or animal waste material reaching the stream could potentially impact on coastal water quality.
2. Erosion and sediment control measures will also be needed both during and after development of the site.
3. The notice of intent states that the soils are not suited for septic tanks and that no sewer will be available. Possible alternatives such as sealed tanks should be addressed in the EIS. Alternatives for safe storage and disposal of animal waste should also be included.
4. The notice recognizes the high shrink-swell and sliding potential of the Lualualei extremely stony clay soil for buildings and other structures on the site. Methods to alleviate these problems should also be considered.
5. We agree that potential animal noise and waste odors should be studied, especially in view of the proximity of the adjacent Hawaiian homes residences.



The Soil Conservation Service
Department of Agriculture

SCS-AS-1
10-79

GEORGE R. ARYANISHII
GOVERNOR



JACK K. SUIVA
CHAIRMAN, BOARD OF AGRICULTURE

State of Hawaii
DEPARTMENT OF AGRICULTURE
1128 So. King Street
P. O. Box 22159
Honolulu, Hawaii 96822

November 17, 1981

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NOV 20 1981

VIN PACIFIC

Mr. Jack P. Kanalz
State Conservationist
Soil Conservation Service
U.S. Department of Agriculture
P. O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Kanalz:

Subject: Your letter of October 8, 1981
re: Maianae Agricultural Park

Thank you for reviewing and commenting on the EIS Preparation Notice. The issues you raised concerning flood hazard, erosion control, disposal of animal wastes, disposal of domestic sewage, and soil problems will be addressed in the EIS.

Sincerely yours,

JACK K. SUIVA
Chairman, Board of Agriculture



United States Department of the Interior

RECEIVED
ISLAND WILDLIFE SERVICE
100 A LA MOANA BOULEVARD
P. O. BOX 50167
HONOLULU, HAWAII 96850

OCT 14 1981

VIN PACIFIC

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
P.O. Box 22159
Honolulu, Hawaii 96822

Re: EIS Preparation Notice
Maianae Agricultural
Park, Maianae, Oahu,
Hawaii

Dear Mr. Shiroma:

We have reviewed the Environmental Impact Statement (EIS) Preparation Notice for the Maianae Agricultural Park.

This report has been prepared under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and other authorities mandating Department of the Interior concern for environmental values. It is also consistent with the intent of the National Environmental Policy Act.

We recommend that the EIS present a discussion of potential effects caused by runoff of livestock manure and agricultural chemicals into Kawiwi Stream and the receiving waters of Pokai Bay. This discussion should include an assessment of aesthetic and public health impacts caused by elevated nutrient concentrations and biological oxygen demand in stagnant stream waters, and of periodic discharge of these polluted waters into Pokai Bay. Alternatives for the disposal of polluted runoff waters (i.e., storm drains and sewer systems) should be evaluated.

To the best of our knowledge, there are no endangered or threatened species listed, proposed, or candidate for listing in the proposed project area.

We appreciate this opportunity to comment.

Sincerely yours,

Ernest Kosaka
Project Leader
Office of Environmental Services

cc: INPS
IDF&G
EPA, San Francisco



"Support Hawaiian Agricultural Products"

Save Energy and You Serve America!

GEORGE M. ANNEVISHI
GOVERNOR



JACK K. SUMA
CHAIRMAN, BOARD OF AGRICULTURE

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
P. O. Box 22159
Honolulu, Hawaii 96822
November 17, 1981

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NOV 20 1981

VIN PACIFIC

Mr. Ernest Kosaka, Project Leader
Office of Environmental Services
U.S. Department of the Interior
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Subject: Your letter of October 7, 1981
re: Maianae Agricultural Park

Thank you for reviewing and commenting on the EIS Preparation Notice. The issues you raised concerning potential water quality problems and mitigation measures will be addressed in the EIS.

Sincerely,

JACK K. SUMA
Chairman, Board of Agriculture



"Support Hawaiian Agricultural Products"



United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

September 29, 1981

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
P.O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Shiroma:

Subject: Maianae Agricultural Park
Tax Map Key: 8-5-06: portion 4

There is a good supply of ground water in the coralline aquifer at lower altitudes. This water was once developed and used by the Maianae Sugar Plantation to irrigate cane. The chloride concentration of the water is about 1000 mg/L.

This supply should be mentioned in the Environmental Impact Statement Preparation Notice as a possible substitute and eventual replacement for most of the water needs of the agricultural park.

The need for water of potable quality appears to be small at the proposed agricultural park. This might be an excellent opportunity for the State to develop a non-potable supply of ground-water for agricultural use and thus effectively to increase the supply of potable water.

Yours truly,

Benjamin C. Jones
District Chief

RECEIVED

OCT 2 1981

VIN PACIFIC

ONE HUNDRED YEARS OF EARTH SERVICE IN THE PUBLIC SERVICE

GEORGE R. ANTONINI
GOVERNOR

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 S. KING STREET
HONOLULU, HAWAII 96822

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NOV 20 1981
VTN PACIFIC



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96822

RECEIVED
OCT 21 1981
VTN PACIFIC

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96822

GEORGE A. S. SMITH
DIRECTOR OF HEALTH
JOHN J. CHAMBERS, M.D.
DEPUTY DIRECTOR OF HEALTH
WALTER M. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH
MAYNARD B. SUBUDAK
DEPUTY DIRECTOR OF HEALTH
SHEILA M. MURPHY, M.A., J.D.
DEPUTY DIRECTOR OF HEALTH

November 17, 1981

October 14, 1981

MEMORANDUM

To: His. Georgiana K. Padeten
Chairman, Hawaiian Homes Commission

Subject: Waianae Agricultural Park - HRL letter to DVA of
October 19, 1981

Mr. Jack K. Suwa
Chairman, Board of Agriculture
1428 S. King St.
Honolulu, Hawaii 96822

Dear Mr. Suwa
Subject: Waianae Agricultural Park

Thank you for allowing us to review and comment on the subject proposed EIS. We submit the following comments for your information and consideration.

Thank you for reviewing the EIS Preparation notice. Your cooperation is appreciated.

Noise

There are some reservations to the proposed project due to the potential for adverse noise impacts upon the Waianae residential community. The Environmental Impact Statement on the Waianae Agricultural Park should address the potential noise problem from livestock, farming equipment, stationary noise equipment and the anticipated increase of truck traffic.

Waste Disposal

1. The intermixing of poultry and swine farm operations with nurseries is not conducive to good farming practices because of their incompatible nature. This is reflected in different ways.
The use of insecticide and fungicide sprays in nursery operations will have adverse effects on animals and fowls unless separated by a buffered zone.
The offensive odors generated by the swine and poultry farms may be unbearable on the nursery farms.
2. The proposal to resolve the liquid and solid waste matters from the livestock farms by means of oxidation ponds for swine farms and collection and sale of manure for poultry farms appears sound and commendable. In reality, this is not true.
The removal of animal and poultry wastes is one of the major problems associated with livestock farming. Although recycling is one of the solutions, only token recycling has been undertaken by the farmers because of economic unfeasibility.

GEORGE R. ARYOSHIN
GOVERNOR

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1475 SO KING STREET
HONOLULU, HAWAII 96813

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NOV 17 1981

VTN PACIFIC

October 14, 1981

-2-

Mr. Jack K. Suwa

Without recycling, many of the poultry farmers as well as dairy and swine farmers, have problems disposing of huge quantities of manure. Some of the large farms have accumulated "mountains" of manure on their farms. Under normal dry conditions, the odors are minimal, but during the rainy season, the odors become strong and at times, unbearable. Also, following every rain, the fly population has increased considerably.

Oxidation ponds, during their relatively short years of implementation, have had only minimal successes due to poor operation and maintenance. Also, the overloading of these ponds have caused malfunctionings.

3. The segregation of animal wastes and rain water run-offs will be quite impossible under current farming practices. Presumably, large portions of the animals' pens and barns will not be under cover. Consequently, the run-offs consisting of pasture manure and rain water will accumulate in the low areas below and may possibly overflow into the Federal Flood Control Canal (Kaupuni Stream). When this overflow occurs, basing from past observations, sedimentation will take place in the Canal near the vicinity of Lihue Street in Waianae Town. The resulting effects will be intolerable odors especially during the hot summer months.

4. As of this date, no livestock farm has been made odor-proof. As such, odors are prevalent everywhere, in varying degrees. This is because the prevailing winds which blow generally from the north and northeast become variable when these winds strike and rebound against the mountain sides. Therefore, the odors generated will not be concentrated only in one specific area.

5. The use of cesspools to effectively dispose of domestic sewage remains questionable. The type of subsurface structure prevalent in this area appears to be of hard pan and boulders. This type of formation has poor percolation capabilities. It is also our understanding that public sewer connections are not available in the foreseeable future.

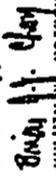
6. This parcel is located in a Board of Water Supply's "NO PASS" zone.

Conclusion

Unless a more viable alternative for satisfactory disposal of animal and poultry wastes other than the current ones are designed and implemented, livestock and poultry farming should be discouraged. Also, the designation of no ground disposal of sewage by the Board of Water Supply should be taken into consideration before development.

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,


For HELVIN K. KOIZUMI
Deputy Director for
Environmental Health

MEMORANDUM

To: Mr. Helvin K. Koizumi
Deputy Director for Environmental Health
Department of Health

Subject: Waianae Agricultural Park - Your letter (EPHS-SS)
of October 14, 1981

Thank you for reviewing and commenting on the EIS Preparation Notice. The issues you raised concerning noise, odors, disposal of animal wastes, and disposal of domestic sewage will be addressed in the EIS. It is our belief that adequate impact mitigation measures can be incorporated as part of lease conditions and permit requirements.

JACK K. SUWA
Chairman, Board of Agriculture

GEORGE R. AMIYUSIU
GOVERNOR

RECEIVED
DEC 16 1981
VIN PACIFIC



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 921
HONOLULU HAWAII 96809

DEC 8 1981

WALTER S. CHAMBERLAIN
DIRECTOR OF LAND & NATURAL RESOURCES

EDGAR A. HAU'AI
DIRECTOR OF THE COMMISSION

CONSERVATION
LAND USE
PLANNING AND
DEVELOPMENT
COMMITTEES
FISH AND GAME
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT



State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
P. O. Box 22159
Honolulu, Hawaii 96822

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

December 23, 1981

Mr. Seiko Shiroma
Department of Agriculture
1428 South King Street
Honolulu, HI 96814

Dear Mr. Shiroma:

We have reviewed the EIS preparation notice for the
Maanane Agricultural Park and have some comments to offer.

Kawiwi and Kaupuni Streams are intermittent and support
no significant aquatic resources. Stream flow is dependant
on runoff.

The notice states sewer service will not be available
to residents of the agriculture park and that clay soils are
not suitable for septic tank fields. The notice states that
swine farms are likely to employ oxidation lagoons or ditches
(sic) although flood potential exists at selected portions
of the site. The notice also mentions the likelihood of
collecting and selling hog manure but offers no other alter-
native for manure disposal.

We suggest the forthcoming EIS should address the following
questions relating to suitability of the site for the proposed
use: soil suitability for oxidation pond construction (sheer
strength, permeability, etc.), slope and flooding, especially
as these may relate to possible contamination of stream and
shoreline aquatic environments by human and animal wastes and
by agricultural chemicals.

A final item of concern is that soil erosion be minimized
during site work through careful grading practices.

Sincerely,

Susuru Ono
SUSURU ONO, Chairman
Board of Land and Natural Resources

MEMORANDUM

TO: Mr. Susumu Ono, Chairman
Board of Land and Natural Resources

SUBJECT: Your letter of December 3, 1981, Concerning
Maanane Agricultural Park

Thank you for reviewing and commenting on the EIS Preparation
Notice.

Your concerns about disposal of human and animal wastes and soil
erosion will be addressed in the EIS for Maanane Agricultural Park. We
anticipate that adequate measures to control adverse impacts can be
incorporated as part of lease restrictions by your Department.

JACK K. SUWA
Chairman, Board of Agriculture

"Support Hawaiian Agricultural Products"

GEORGE R. ARITOSHI
GOVERNOR

RECEIVED
DEC 16 1981
VIN PACIFIC



STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND INDUSTRY
December 1, 1981

FRANKLIN Y. SUNN
DIRECTOR
RICHARD PACIFICANAN
DEPUTY DIRECTOR
ALFRED K. SUGA
DEPUTY DIRECTOR

Seiko Shiroma

GEORGE R. ARITOSHI
GOVERNOR



JACK K. SIWA
CHAIRMAN, BOARD OF AGRICULTURE

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
P.O. Box 22159
Honolulu, Hawaii 96822
December 23, 1981

MEMORANDUM:

TO: Mr. Seiko Shiroma, Agricultural Development Specialist
Department of Agriculture

FROM: Franklin Y. K. Sunn, Director

SUBJECT: Waianae Agricultural Park
Tax Map Key: 8-5-06: Portion of 4

The Hawaii Housing Authority has reviewed the Environmental Impact Statement Preparation Notice for the subject project and has no specific comments to offer relative to the proposed action.

Thank you for the opportunity to comment on this matter.

Richard K. Pacificanana
FRANKLIN Y. K. SUNN
for Director

MEMORANDUM

TO: Mr. Franklin Y.K. Sunn, Director
Hawaii Housing Authority

SUBJECT: Your letter of December 1, 1981, Concerning Waianae Agricultural Park

Thank you for reviewing and commenting on the EIS Preparation Notice.

JACK K. SIWA
Chairman, Board of Agriculture

"Support Hawaiian Agricultural Products"



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7261

Office of the Director

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
P.O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Shiroma:

Preparation Notice
Environmental Impact Statement
Waiānae Agricultural Park
Waiānae, Oahu

The Environmental Center has conducted a brief in-house review of the above document. The following areas of concern have been cited by our staff reviewers, Diana Shepherd and Jacquelin Miller.

Impacts and mitigation measures which should be addressed in the EIS include those associated with the existing flora and fauna, economics of small farms, water resources, traffic - roadway and access considerations, and disposal systems for both liquid and solid wastes.

cc: Diana Shepherd
Jacquelin Miller

Yours truly,

Doak C. Cox
Doak C. Cox
Director

AN EQUAL OPPORTUNITY EMPLOYER

GEORGE R. ARTUSH
DIRECTOR



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1205 SO KING STREET
HONOLULU, HAWAII 96814

November 17, 1981

October 23, 1981

PN:0010

MEMORANDUM

To: Mr. Doak C. Cox, Director
Environmental Center

Subject: Waiānae Agricultural Park
Letter (PN:0010) of October 23, 1981

Thank you for reviewing and commenting on the EIS Preparation Notice. The EIS will address potential impacts and appropriate mitigation measures associated with flora and fauna, farm viability, water resources, traffic, and waste disposal.

JACK K. SUMA
Chairman, Board of Agriculture

JACK K. SUMA
CHAIRMAN, BOARD OF AGRICULTURE

RECEIVED

NOV 20 1981

VIN PACIFIC

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HAWAII
DEPARTMENT OF THE LAND
HONOLULU, HAWAII

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NOV 19 3 32 PM '81
NOV 20 11 11 AM '81
PLANNING
FILLMORE ADMIN BLDG
KAZUO HAYASHIDA
Manager and Chief Engineer

RECEIVED
November 10, 1981

NOV 11 1981
VTN PACIFIC

Mr. Jack K. Suwa, Chairman
Board of Agriculture
State of Hawaii
P. O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Suwa:

Subject: Your Letter of September 25, 1981,
on the Maianae Agricultural Park,
TMK: 8-5-06: Por. 4

We have the following comments on the Environmental
Impact Statement Preparation Notice for your proposed project:

1. The area is located in the "No-Pass" zone where ground disposal of human or animal wastes is not permitted. Oxidation ponds are also not permitted in the "No-Pass" zone.
2. We have no objections to the stockpiling of manure on lined and properly drained pavement.
3. Our Kamailie Wells are located about 4,000 feet downgradient from the proposed agricultural park and could be affected by the disposal of waste material and effluent.
4. We have discussed with the Department of Land and Natural Resources the possibility of operating and maintaining the new wells which will be installed for the proposed agricultural park. If the State agrees to turn over the wells to the Board, this should be noted in the Environmental Impact Statement.

Mr. Jack K. Suwa

-2-

November 10, 1981

5. A development and water master plan for the project should be submitted for our review and approval.
6. The water system should be designed and constructed in accordance with our standards.

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

Very truly yours,

KAZUO HAYASHIDA
Manager and Chief Engineer

For Water...man's greatest need - use it wisely

For Water...man's greatest need - use it wisely

GEORGE B. ANTONIO
GOVERNOR



JACK K. SUMA
DEPARTMENT OF AGRICULTURE
HONOLULU, HAWAII 96822

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1250 KAMAHANUI STREET
HONOLULU, HAWAII 96820



ELLEN P. ANDERSON
SECRETARY

WILLARD T. CHOW
CHIEF PLANNING OFFICER

APR 11 1982

RECEIVED
APR 14 1982

DGP99/81-3321

VTVN PACIFIC

October 13, 1981

Mr. Kazuo Hayashi
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
633 South Beretania Street
Honolulu, Hawaii 96813

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
State of Hawaii
P. O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Hayashi:

Subject: Your letter of November 10, 1981
Re: Maianae Agricultural Park

We regret the delay in responding to your comments on the subject Environmental Impact Statement Preparation notice. As a result of your letter and other similar concerns, we have reconsidered aspects of the project that relate to water quality. Our revised proposal will be described in the LIS along with a discussion of water quality problems and mitigation measures.

Sincerely,

Jack K. Suma
Jack K. Suma
Chairman, Board of Agriculture

cc: WILLARD T. CHOW
WTVN PACIFIC

Dear Mr. Shiroma:

Maianae Agricultural Park
Environmental Impact Statement Preparation Notice

The preparation notice adequately identifies the various environmental concerns on a broad basis. Discussion of these concerns, with the inclusion of information from other detailed studies enumerated in the report regarding the extent and magnitude of each problem, and provisions of measures to minimize adverse effects should constitute an adequate basis for evaluation of the proposed project.

Sincerely,
Ralph Kawanishi
RALPH KAWANISHI
Planner

APPROVED:
Willard T. Chow
WILLARD T. CHOW

GEORGE R. ARTOSHO
GOVERNOR

JACK K. SUIJA
CHAIRMAN, BOARD OF AGRICULTURE



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SOUTH KING STREET
HONOLULU, HAWAII 96813

November 17, 1981

RECEIVED
NOV 20 1981
VTN PACIFIC

EILEEN R. ANDERSON
MAILER

h. 121

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 521-0101



JOSEPH K. COHART
DIRECTOR
CHARLES R. EDRISE
SENIOR DIRECTOR

October 28, 1981

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

Dear Mr. Kawamoto:

Subject: Your letter (DGP 9/81-3321) of
October 13, 1981 - re: Waianae Agricultural
Park

Thank you for reviewing the EIS preparation notice. Your
cooperation is appreciated.

Sincerely,

JACK K. SUIJA
Chairman, Board of Agriculture

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
1428 South King Street
P. O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Shiroma:

Thank you for the opportunity to review your
Environmental Impact Statement Preparation Notice for the
Waianae Agricultural Park. We have no comment to make on
the notice.

We wish you well in your efforts to develop the Waianae
Agricultural Park and look forward to your success. Please
keep us informed of the progress and let us know if we can
be of any assistance.

Sincerely,

Joseph K. Cohart
JOSEPH K. COHART

RECEIVED
NOV 12 1981

William Hise & Associates

re: VTN Pacific

GEORGE R. ANTONIO
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1435 SOUTH KING STREET
HONOLULU, HAWAII 96813

October 30, 1981

RECEIVED

NOV 21 1981

VTA PACIFIC

JACK K. SUWA

CHAIRMAN, BOARD OF AGRICULTURE

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



SILEEN R. ANDERSON
ASSISTANT

October 30, 1981

Mr. Jack K. Suwa, Chairman
Board of Agriculture
State of Hawaii
P.O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Suwa:

Your letter of October 29, 1981
regarding the proposed development
of the site located at the intersection of
Kalia Avenue and Kalia Road in Honolulu
is being reviewed.

65

The Department of Agriculture is currently
conducting a study of the site and will
provide you with a report on the results
of the study.

Sincerely,
Michael M. McElroy

Michael M. McElroy
Director of Land Utilization

Very truly yours,
Michael M. McElroy

HMW:sl

HAWAIIAN DEPT OF AGR
Nov 4 7 48 AM '81

Yes: V-22
with a - 100

Mr. Jack K. Suwa, Chairman
Board of Agriculture
State of Hawaii
P.O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Suwa:

Environmental Impact Statement (EIS) Preparation Notice
Maianae Agricultural Park
Tax Map Key: 8-5-06: Portion of 4

We have reviewed the Preparation Notice for the subject project.
In Section F. Infrastructure, the text states that there are no
sanitary or storm water facilities. In Section D. Soils, the
text states that the soils are unsuitable for septic tank filter
fields. However, these problems are not addressed in the summary
of impacts and mitigation measures.

We hope that the EIS will address the problems of human and ani-
mal waste treatment and waste disposal.

If you have any questions or comments, please contact John Machol
of our staff at 523-4077.

Very truly yours,

Michael M. McElroy

MICHAEL M. McELROY
Director of Land Utilization

GEORGE ARIYOSHI
GOVERNOR

JACK K. SUJIA
CHAIRMAN, BOARD OF AGRICULTURE



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1235 SOUTH KING STREET
HONOLULU, HAWAII 96814

RECEIVED

NOV 20 1981

VIN PACIFIC

November 17, 1981

Mr. Michael H. McElroy, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. McElroy:

Subject: Your letter (01/EC-8) of
October 30, 1981 - re:
Waianae Agricultural Park

Thank you for reviewing and commenting on the LIS Preparation
Notice. The EIS will address treatment and disposal of human and
animal wastes.

Sincerely,

JACK K. SUJIA
Chairman, Board of Agriculture

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



GILKES R. ANDERSON
MANAGER

ROBERT K. MASUDA
DIRECTOR

October 1, 1981

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
State of Hawaii
P. O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Shiroma:

SUBJECT: WAIANAЕ AGRICULTURAL PARK

The proposed Waianae Agricultural Park will not have any impact
on our existing or proposed parks in Waianae.

Thank you for the opportunity to review the EIS Preparation
Notice.

Sincerely yours,

ROBERT K. MASUDA, Director

RKM:vc

GEORGE B. ANTONINI
CIVIL ENGINEER



JACK K. SUMA
CHAIRMAN, BOARD OF AGRICULTURE

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1655 SOUTH KING STREET
HONOLULU, HAWAII 96813

November 17, 1981

RECEIVED
NOV 20 1981
VTN PACIFIC

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

Dear Mr. Matsuda:

Subject: Your letter of October 1, 1981
re: Maianae Agricultural Park

Thank you for reviewing the EIS Preparation Notice. Your
cooperation is appreciated.

Sincerely,

JACK K. SUMA
Chairman, Board of Agriculture

Dear Mr. Shiroma:

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
State of Hawaii
P. O. Box 22159
Honolulu, Hawaii 96822

SUBJECT: EIS PREPARATION NOTICE FOR MAIANAE
AGRICULTURAL PARK, MAIANAE, OAHU
TRK: 8-5-06: PORTION OF 4

We are submitting comments in response to your letter dated
September 25, 1981, concerning the subject project.

1. The Department of Health has jurisdiction over household cess-
pools and waste lagoons. Our past records indicate that cesspool
failure rates in the project area are high.
2. Kawiwi Stream's floodway and flood elevations must be determined
to establish building setback lines and minimum floor elevations.
This is a requirement for subdivision approval.
3. 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.
4. Refuse collection services for domestic solid waste will be
available provided there is adequate access for collection
vehicles.

cc: Engineering
Refuse
MWH

Me ke aloha pumehana,
Michael J. Chun
MICHAEL J. CHUN
Director and Chief Engineer

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
OCT 11 1981
VTN PACIFIC



ELLEN M. ANDERSON
MANAGER

October 8, 1981

MICHAEL J. CHUN, P.E.
DIRECTOR AND CHIEF ENGINEER
ENV 81-374

Yc to VTI

GEORGE R. ARITOSH
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
100 SOUTH KING STREET
HONOLULU, HAWAII 96813

JACK K. SURIA
CHAIRMAN, BOARD OF AGRICULTURE

RECEIVED
NOV 21 1981
VTN PACIFIC

November 17, 1981

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

Dear Mr. Parker:

Subject: Your letter (TC 10/31-3212) of October 15, 1981
re: Waianae Agricultural Park.

Thank you for reviewing and commenting on the EIS Preparation
notice. The EIS will address both potential traffic problems and
potential impact mitigation measures.

Sincerely,

JACK K. SURIA
Chairman, Board of Agriculture

345 North Kukui Street, Honolulu, Hawaii 96817, Telephone (808) 537-5966

AMERICAN LUNG ASSOCIATION of Hawaii

October 23, 1981

Mr. Seiko Shiroma
Department of Agriculture
1428 So. King Street
Honolulu, Hawaii 96822

Dear Mr. Shiroma:

Subject: EIS Preparation Notice for the Proposed Waianae
Agricultural Park

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

1. The EIS should address the following potential local and regional 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
James W. Morrow
Director
Environmental Health

JWH:jm
C2/138

GEORGE R. ANDERSON
DIRECTOR

JACK K. SUMA
CHAIRMAN, BOARD OF AGRICULTURE

NOV 1 1981

7



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1550 KUALAHELE
HONOLULU, HAWAII 96822

HAWAIIAN ELECTRIC COMPANY, INC.
Box 2750 / Honolulu, Hawaii / 96840

REINHOLD UTENHOLD, P.E.
MANAGER, ENVIRONMENTAL DEPARTMENT

November 13, 1981

ENV 2-1
HV/G

RECEIVED
NOV 21 1981
VTN PACIFIC

November 17, 1981

RECEIVED
NOV 21 1981
VTN PACIFIC

Seiko

Mr. James H. Morrow, Director
Environmental Health
American Lung Association of Hawaii
225 North Kukul Street
Honolulu, Hawaii 96817

Mr. Seiko Shiroma
Agricultural Specialist
State of Hawaii
Department of Agriculture
1428 South King Street
P. O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Morrow:

Subject: Your letter of October 23, 1981
re: Maianae Agricultural Park

Thank you for reviewing and commenting on the EIS Preparation
Notice. The EIS will address potential short and long-term air
quality impacts due to Maianae Agricultural Park.

Sincerely,

JACK K. SUMA
Chairman, Board of Agriculture

Dear Mr. Shiroma:

Subject: Maianae Agricultural Park-EIS Preparation Notice
THK: 8-5-86: Portion of 4

No adverse impact on WECO's transmission and substation
facilities in the Maianae coastal area is expected to result
from the proposed Maianae Agricultural Park. The provision
of an overhead electrical system to serve the proposed
agricultural park appears adequately addressed in Paragraphs
1C and 11F, pages 4 and 7, respectively.

Thank you for the opportunity to comment.

Sincerely,

R. O'Connell
Richard L. O'Connell
Manager, Environmental Department

JFB:cal

NOV 23 09 17 AM '81

GEORGE M. ABYOSIM
GOVERNOR



JACK K. SIWA
CHAIRMAN, BOARD OF AGRICULTURE

HAWAIIAN TELEPHONE
SIS

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
P. O. Box 22159
Honolulu, Hawaii 96822

RECEIVED

APR 27 1982

VIA PACIFIC

April 27, 1982

Mr. Richard L. O'Connell
Manager, Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 275
Honolulu, Hawaii 96822

Dear Mr. O'Connell:

Subject: Your Letter of November 17, 1981
Concerning Haleana Agricultural Park

Thank you for reviewing and commenting on the Environmental Impact Statement Preparation Notice. We regret the delay in responding to your comments on the subject notice.

- 71 -

Sincerely,

Jack K. Siwa
JACK K. SIWA
Chairman, Board of Agriculture

cc: William Lee & Associates
VIA Pacific

Mr. Seiko Shiroma
Agricultural Development Specialist
Department of Agriculture
1428 South King Street
P. O. Box 22159
Honolulu, Hawaii 96822

Haleana Agricultural Park
Tax Map Key: B-5-06; Portion of 4

Reference: Jack Suwa's letter dated September 25, 1981

Dear Mr. Shiroma:

We have reviewed the Environmental Impact Statement Preparation Notice for the subject project and have no objections to the project or contents of the preparation notice.

Sincerely,

Richard Heu
Richard Heu
Engineering and Construction
Staff Manager

"Support Hawaiian Agricultural Products"

PO BOX 2203 • HONOLULU, HAWAII 96821 • TELEPHONE (808) 537-7111 • CABLE: TELHAWAII

GEORGE R. ARTOUR
GOVERNOR



JACK K. SIKES
COMMISSIONER OF AGRICULTURE

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1445 KALANIKULANI DRIVE
HONOLULU, HAWAII 96813

RECEIVED

NOV 20 1981

VIN PACIFIC

November 17, 1981

Mr. Richard Iba, Staff Manager
Engineering and Construction
Hawaiian Telephone Company
P. O. Box 2200
Honolulu, Hawaii 96811

Dear Mr. Iba:

Subject: Your letter of October 7, 1981
re: Waianae Agricultural Park

Thank you for reviewing the EIS Preparation Notice. Your assistance is appreciated.

Sincerely,

JACK K. SIKES
Chairman, Board of Agriculture

NOV 20 1981



DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96938

RECEIVED
JUL 29 1983
VTN PACIFIC

ATTN: DEEV (Mr Yamada, 449-1031)

SUBJECT: Environmental Impact Statement for the Waianae Agricultural Park

1. Ms Jacqueline Parnell, Director
Office of Environmental Quality Control
550 Halekaunila Street, Room 301
Honolulu, HI 96813

1. This office has reviewed the subject EIS and has no comment relative to the proposed project.
2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document. The EIS is returned for your file.

Robert M. Okamoto
ROBERT M. OKAMOTO
Chief, Engrg & Envtl Ping Div
Directorate of Civil Engineering

1 Atch
EIS

Cy to: State of Hawaii w/ Atch
Department of Agriculture
1428 South King Street
Honolulu, HI 96814

VTN PACIFIC w/ Atch
1164 Bishop Street
Suite 906
Honolulu, HI 96813



DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96938

August 16, 1983

RECEIVED
AUG 22 1983
VTN PACIFIC

Mr. Melvin Koizumi, Acting Director
Office of Environmental Quality Control
550 Halekaunila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Koizumi:

Thank you for the opportunity to review the Environmental Impact Statement (EIS) for the proposed Waianae Agricultural Park, Waianae, Oahu, Hawaii. Based on our review we have the following comments:

- a. For the proposed Waianae Agricultural Park, the Department of the Army (DA) permit requirements are not applicable.
- b. Under the Flood Insurance Study for Oahu prepared by the Federal Insurance Administration, the entire subdivision project is designated Zone D, or area of undetermined, but possible flood hazards. Under the National Flood Insurance Program, flood proofing requirements are not mandatory for the proposed structures in Zone D areas. However, since Kawili Streams forms a drainageway through a portion of the project site, it is prudent to consider restrictions for development within flood plain limits as was done in the EIS.

Sincerely,

Kisuk Cheung
Chief, Engineering Division

Copy Furnished:

State of Hawaii
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

VTN Pacific
1164 Bishop Street, Suite #906
Honolulu, Hawaii 96813



United States Department of the Interior

FISHLAND WILDLIFE SERVICE
300 A LA MOANA BOULEVARD
P. O. BOX 50187
HONOLULU, HAWAII 96810

August 2, 1983

Directorate of Facilities Engineering

IN REPLY REFER TO:
ES
Room 6307
AUG 03 1983

RECEIVED

AUG 4 1983

VTN PACIFIC

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

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

Gentlemen:

The Environmental Impact Statement (EIS) for the Waianae Agricultural Park, Waianae, Oahu has been reviewed and we have no comments to offer. There are no Army installations or activities in the vicinity of the proposed project.

Thank you for the opportunity to comment on the EIS.

Sincerely,

Original signed by
John S. Brunsman
John S. Brunsman
Acting Director of Facilities
Engineering

Copies Furnished:
Department of Agriculture
State of Hawaii
1428 South King Street
Honolulu, Hawaii 96814
VTN PACIFIC
1164 Bishop Street, Suite 906
Honolulu, Hawaii 96813

Re: EIS, Waianae Agricultural Park,
Waianae, Oahu

Dear Sirs:

We have reviewed the subject Environmental Impact Statement (EIS) and have no additional comments to offer at this time.

Sincerely yours,

15
William R. Kruse
Project Leader
Office of Environmental Services

cc: AIFS-UPPO
HDFW
HIDAN
LFA, San Francisco
State Dept. of Agriculture
VTN Pacific

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AUG 4 1983

VTN PACIFIC



Save Energy and You Serve America!



HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002A:QLB:jma
Ser 1685

26 JUL 1983

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

Gentlemen:

Environmental Impact Statement
Maianae Agricultural Park

The EIS for the Maianae 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 to the Environmental Quality Commission, by copy of this letter.

Thank you for the opportunity to review the EIS.

-75-

Sincerely,

B. W. CROFT
Captain, U. S. Navy
Chief of Staff

Enclosure

Copy to:
Environmental Quality Commission
State, Department of Agriculture
VTN PACIFIC ←

RECEIVED
JUL 27 1983
VTN PACIFIC



US Department
of Transportation
United States
Coast Guard

Commander (dpl)
Fourteenth Coast Guard District

Prince Kalanianaʻokale
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96850
Phone: 546-2861

11000
Serial 566
22 July 1983

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

Dear Sir:

The Fourteenth Coast Guard District has reviewed the Environmental Impact Statement for the Maianae Agricultural Park and has no objection or constructive comments to offer at the present time.

Sincerely,

J. E. Schwartz

J. E. SCHWARTZ
Commander, U. S. Coast Guard
District Planning Officer
By direction of

Commander, Fourteenth Coast Guard District

Copy: Department of Agriculture
VTN Pacific

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JUL 25 1983
VTN PACIFIC

State of Hawaii
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3749 Diamond Head Road
Honolulu, Hawaii 96816

22 AUG 1983

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AUG 23 1983

VIN PACIFIC

HIEWZ

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

Gentlemen:

Waianae Agricultural Park

Thank you for providing us the opportunity to review the proposed project, "Waianae Agricultural Park" Environmental Impact Statement.

We have completed our review and have no comments to offer at this time.

Yours truly,
Jerry M. Matsuda

JERRY M. MATSUDA
Major, HMC
Contr & Engr Officer

cc: Dept of Agriculture
VTN Pacific
Env Quality Commission w/EIS

(P)1635.J

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JUL 29 1983

VIN PACIFIC

JUL 28 1983

Mr. Melvin Koisumi
Acting Director
Office of Environmental
Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Koisumi:

Subject: Waianae Agricultural Park
Environmental Impact Statement (EIS)

We have reviewed the subject EIS and have no comments to offer. Thank you for the opportunity to review the subject EIS.

Very truly yours,

HIDEO MURAKAMI
State Comptroller

HIE:jl
cc: Department of Agriculture
VTN Pacific

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

GEORGE B. ANTONIO
GOVERNOR OF HAWAII

PROJECT OFFICES
HAWAII OFFICE
P. O. BOX 22
HONOLULU, HAWAII 96822
MOLOKAI OFFICE
P. O. BOX 198
MOLOKAI, MOLOKAI 96726
KAUAI OFFICE
P. O. BOX 332
LIMU, KAUAI 96746



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96818

AUG 31 1983

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

Gentlemen:

SUBJECT: Waianae Agriculture Park
Environmental Impact Statement

In reference to the subject project, please find attached a copy of our March 1, 1983 letter to the Department of Agriculture commenting on the Planning Report for the Waianae Agriculture Park. Our comments on this EIS are the same as those on the Planning Report.

Thank you for the opportunity to review the report.

Sincerely yours,

Georgiana K. Padeken
Georgiana K. Padeken
Chairman

GKP:RF:jm

Enclosure

cc: Department of Agriculture
JTN Pacific

J. Rowe, District Management Division

RECEIVED
SEP 2 1983
VTN PACIFIC

GEORGE B. ANTONIO
GOVERNOR OF HAWAII

PROJECT OFFICES
HAWAII OFFICE
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MOLOKAI OFFICE
P. O. BOX 198
MOLOKAI, MOLOKAI 96726
KAUAI OFFICE
P. O. BOX 332
LIMU, KAUAI 96746



HAWAII DEPT OF AGR

83 MAR 3 A 0:46

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96818

March 1, 1983

Mr. Jack Suwa, Chairman
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Suwa:

SUBJECT: Planning Report for the Waianae Agricultural Park

We have reviewed the Planning Report for the Waianae Agricultural Park written by William Hee and Associates. Our review and comments are listed below.

Background

In reviewing William Hee and Associates' Report, we recognize that the Department of Agriculture (DOA) faces serious problems in finding sites on Oahu for pig, dairy and chicken operations and that disposal of animal wastes is becoming an increasingly more difficult and costly problem today.

Summary Points

With these facts in mind, the following points are made:

1. The report does deal in some detail with
 - a) the land
 - b) waste disposal
 - c) phased development and costs
 - d) users and operations.
 - e) the problems in using the area for dairies, pig and chicken operations.
2. Secondly, the stated goal of an Agricultural Park in Waianae, "is to provide long-term lease land and basic water resources to Hawaii's farmers." (P1)

But in the next sentence (P2) of the report, reference is made to "disposal of livestock wastes".

Linking these two statements together, it would seem that the objective of this Agricultural Park originally was to provide land for farmers and in particular, dairy, pig and chicken farmers.

Mr. Jack Suwa, Chairman
March 1, 1983
Page 2

But for reasons beyond their control, DOA has not found it possible to allocate land for dairy and pig operations on this site. Instead, as the report indicates, the lands in the Agricultural Park will be farmed by an existing tenant - Maianae Valley Ranch and, most probably, some foliage nurseries. These may be perfectly good uses of the land but are not the uses DOA appeared to be planning for in the first place, unless some chicken farmers are granted land. This issue should be clarified.

3. But because the Board of Water Supply (BWS) has drawn a strict no-pass line covering the entire Park area, this will compel all intensive livestock activities - dairying, pigs and chickens - to operate only with expensive waste disposal facilities. This precludes or makes it almost impossible for the DOA to attain the objective of providing a home for dairying and pig operators. Dairies or hog operations on our scale of operation in Hawaii can neither justify nor raise the capital to construct such facilities. A chicken operation, however, may be able to handle waste disposal problems without huge, additional capital outlays.

4. In light of the above, the DOA has to examine the costs involved in developing the infrastructure and determine if incurring such costs are justified for the:

- a) limited (150 acres) that will be opened up and nurseries and possibly, chicken enterprises.
 - b) the type of agricultural enterprises it expects to use the Park - the upper section is prime for agricultural use. The stoney land in utilized by grazing. The 150 acres directly mauka of Piliuka Place is basically Luualaei extremely stoney clay soil. This 150 acres is not suited to crops but because it is accessible and relatively low lying, once a road has been laid, nurseries or chicken operations could be constructed.
6. Water is vital in Maianae. Therefore, DOA should look carefully at how to distribute water from the well sunk at the 400-foot level and determine if farmers already in the area, who are unable to fully use land for crops or fruits, should have access to this basic resource and then develop a distribution schedule.

7. Finally, some comments are set out below on a) additional heavy trucks on Maianae Valley Road and b) granting a lease to Maianae Valley Ranch.

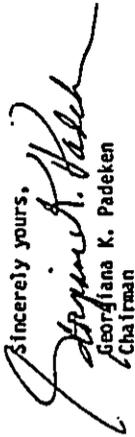
- a) Additional Heavy Traffic
Maianae Valley Road will provide the basic access to the Park by way of Piliuka Place. Residents around Piliuka Place may object to the heavy traffic passing through the subdivision. But perhaps more critically, DOA should give some further thought to problems that will arise from additional trucks traveling what is already a long, winding road with a poor surface in areas. Access to the Agricultural Park should be more carefully scrutinized.

Mr. Jack Suwa, Chairman
March 1, 1983
Page 3

- b) Granting a Lease to Maianae Valley Ranch
Although the present lessee, Maianae Valley Ranch (MVR) seems intent on upgrading their operation, the DOA may want to reconsider whether MVR should be automatically granted a lease to farm 500 acres in the new Park. DOA might want to consider opening up 500 acres to any rancher, including MVR, interested enough to bid for the acreage.

I trust that you will find these comments constructive and of value. Thank you for the opportunity to review the Report.

Sincerely yours,


Georgiana K. Padeken
Chairman

GKP:RF:BB:jm



VTN PACIFIC, INC.

1164 Bishop Street, Suite 906
Honolulu, Hawaii 96813

Telephone: (808) 531-4533

January 31, 1984

JN 19-103.60

Ms. Georgiana K. Padeken
Director
Department of Hawaiian Home Lands
State of Hawaii
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Ms. Padeken:

Subject: Your Letters of March 1 and August 31, 1983
On Waianae Agricultural Park

Thank you for reviewing the EIS for the subject project.

You are correct that the original objective of Waianae Agricultural Park was to provide land primarily for animal husbandry. However, after planning for the agricultural park got underway, the County Board of Water Supply established its "No Pass" line and prohibited new surface and subsurface discharges of effluent from waste treatment facilities. Existing dairies south of the "No Pass" line on Hawaiian Home Lands in Waianae Valley were "grandfathered", but can not be relocated.

Whether infrastructure for Waianae Agricultural Park is the most productive investment of public funds is beyond the scope of the EIS. However, if only 40 acres of nursery shade houses were developed because there is an agricultural park, then within two years State tax revenues generated by direct, indirect, and induced economic activity would pay off the \$1.1 million for public improvements on the project site.

The agricultural park will use less than half the 0.72 mgd of water developed by DONALD Well 2810-02. DONALD will be responsible for developing a water master plan for distribution of uncommitted water.

Waianae Valley Road is the only reasonable access route to the project site. The EIS points out that improvements are needed, but that funding is unresolved.

Engineers Architects Planners Supervisors Environmental Scientists Construction Managers

Ms. Georgiana K. Padeken, Director

Page 2

The Board of Land and Natural Resources has limited the project to 150 acres and excluded Waianae Valley Ranch.

I hope the foregoing adequately respond to your questions. If you have further comments or questions about the agricultural park, then please contact Paul Schvind of the DOA Planning and Development Office at 548-7133.

Very truly yours,

Doug Heller
Douglas Heller
Environmental Planner

DW:dab

cc: DOA
cc: OEQC



GEORGE R. ANTONIOM
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3278
HONOLULU, HAWAII 96811

August 9, 1983

CHARLES S. CLARK
DIRECTOR OF HEALTH

in reply, please refer to
file: EPIUS55

RECEIVED

AUG 12 1983

VTN PACIFIC

MEMORANDUM

To: Ms. Letitia Uyehara, Interim Director
Office of Environmental Quality Control

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Waianae Agricultural Park

Thank you for allowing us to review and comment on the subject EIS.
We submit the following comments for your consideration:

Noise

The Environmental Impact Statement does not fully address the Department of Health's concerns regarding noise impact of the Agricultural Park as stated in our October 14, 1981 letter to Mr. Jack Suwa.

References to any potential noise impact can be found on pages 31, 32 and 37 of the report which, in part, states that, "While farm truck and animal noises are not loud by urban standards, they will be audible in the rural environment of Waianae Valley." The report should include noise level measurements, projected noise levels, and noise attenuation strategies.

The Waianae Agricultural Park must comply with the Department of Health noise regulations.

Disposal of Manure and Domestic Sewage

1. The intermixing of poultry and swine farm operations with nurseries is not conducive to good farming practices because of their incompatible nature. This is reflected in different ways:

Due to the variable wind patterns, the use of insecticides and fungicide sprays in nursery operations will have adverse effects on animals and fowls unless separated by large buffered zones.

The offensive odors generated by the swine and poultry farms may be unbearable on the nurserymen and residents living in the adjacent Piliuka Residential Subdivision.

Ms. Letitia Uyehara

-2-

August 9, 1983

2. The proposed method of liquid and solid waste disposal from livestock farms by means of oxidation ponds and ditches for hog farms and collection and possible sale of manure for poultry farms appears sound and feasible. In actual practice, this is not true.

The removal of animal and poultry wastes is one of the major problems associated with livestock farming. Although recycling is one of the solutions, only token recycling has been undertaken by the farmers because of economic unfeasibility.

Without recycling, many of the poultry farms as well as dairy and swine farmers, have problems disposing of huge quantities of manure. Some of the large farms have accumulated "mountains" of manure on their farms. Under normal dry conditions, the odors are minimal, but during the rainy season, the odors become strong and at times, unbearable. The fly population will also increase considerably following every rain. There is also the possibility of the stockpiled manure to be washed off into the drainage stream during heavy rains.

How and where will the manure generated by the poultry farms be disposed-- assuming it is not used for fertilizer as proposed.

Oxidation ponds, during their relatively short years of implementation, have had only minimal successes due to poor operation and maintenance. The overloading of these ponds have also caused malfunctionings.

The use of plastic liners for coating the oxidation ponds may satisfy the requirements initially but in time will become ineffective.

How and where will the wastewater generated by oxidation ditches (by the piggeries) be disposed--assuming it cannot be used for irrigations as proposed.

3. The segregation of animal wastes and rain water run-offs will be quite impossible under current farming practices. Presumably, large portions of the animals' pens and barns will not be under cover. Consequently, the run-offs consisting of pasture manure and rain water will accumulate in the low areas below and may possibly overflow into the Federal Flood Control Canal (Kaupuni Stream). When this overflow occurs, basing from past observations, sedimentation will take place in the Canal near the vicinity of Lihue Street in Waianae Town. The resulting effects will be intolerable odors especially during the hot summer months.

Runoff from the poultry farm into the nearby streams should be mitigated.

4. As of this date, no livestock farm has been made odor-proof. As such, odors are prevalent everywhere, in varying degrees. This is because the prevailing winds which blow generally from the north and northeast become variable when these winds strike and rebound against the mountain sides. Therefore, the odors generated will not be concentrated only in one specific area.



VTN PACIFIC, INC.

1166 Bishop Street, Suite 906
Honolulu, Hawaii 96813

Telephone (808) 531-0621

JM 19-103.60

January 31, 1984

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

Dear Mr. Koizumi:

Subject: Your Memorandum of August 9, 1983 (file: EPHSSS)
On the EIS for Waianae Agricultural Park

Thank you for reviewing the EIS for the subject project.

The following response is grouped according to the subject matter of your comments.

Noise:

The Revised EIS includes an expanded analysis of potential noise impacts and proposed mitigation measures. The agricultural park will comply with Chapter 43 of Title II, DOH Administrative Rules.

Pesticides:

Pigs and chickens in the agricultural park will have much shorter periods of exposure to and be at much less risk from pesticides and fungicides than nursery workers. Long term effects of pesticide and fungicide use on basal water quality remains an unresolved issue.

Contamination of ground water is a possibility anytime pesticides, herbicides, or fungicides are used outside of the BWS "No Pass" Line. Since most agriculture on Oahu takes place outside of the "No Pass" Line, the issue needs to be resolved on a regional basis.

Ms. Letitia Uyehara

-3-

August 9, 1983

5. The use of cesspools to effectively dispose of domestic sewage remains questionable. The type of subsurface structure prevalent in this area appears to be of hard pan and boulders. This type of formation has poor percolation capabilities. It is also our understanding that public sewer connections are not available in the foreseeable future.

6. This parcel is located in a Board of Water Supply's "NO PASS" zone. As such, we are uncertain as to what adverse effects the use of pesticides and fungicides by the nurseries have on the drinking water sources.

Conclusion

Unless a more viable alternative for satisfactory disposal of animal and poultry wastes other than the current ones are designed and implemented, livestock and poultry farming should be discouraged. The designation of no ground disposal of sewage by the Board of Water Supply should also be taken into consideration before considering development.

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.

MELVIN K. KOIZUMI

cc: Dept. of Agriculture
VTN Pacific

Engineers Architects Planners Surveyors Environmental Scientists Construction Managers

Thus, it is important that agricultural wastes and pesticides are kept from nearby streams, in order to protect public interests in coastal waters. We support all of the precautions tentatively suggested. Nevertheless, it remains uncertain that past regulatory practices would prove sufficient.

Although illegal discharges are not known to be a significant threat to streams or drinking water (p. 22), and there have been found no agricultural chemicals in appreciable levels from Maianae water sources (pp. 21-22), there exists biological evidence (p. 22) of "current odor and pollution problems resulting from accumulation of animal wastes in Kapuni Stream Flood Control Channel" (p. 32), downstream from the proposed site. The EIS envisions covered pens, with elevated concrete pads and physical removal of manure required of poultry operators, and with lined oxidation trenches and upland surface disposal of effluent necessary for piggeries (pp. 11, 13). Specific requirements and enforcement, however, would be the responsibilities of other agencies. (p. 33).

Farmers in the proposed agricultural park may feel pressure to use pesticides in order to ensure export certification as free from pests and disease for fruit crops and flowers, and to control the flies which are a nuisance common to piggeries and (poultry) broiler farms (p. 33). The EIS maintains, however, "without site specific leaching tests, it is not possible to assess whether pesticide (and fertilizer) use poses a significant long-term risk. If requested by the DCH or BUS, then the State Department of Agriculture (DOA) could require precautionary measures" (ibid.). Current events suggest agricultural applications of bioactive substances in Hawaii pose a risk more significant than has been appreciated in the past.

To address these unresolved issues, the proponent (DOA) should coordinate preparation of a comprehensive set of requirements acceptable to all the agencies involved (DOH; BMS; perhaps Department of Land Utilization, Department of Public Works, Department of Building (zoning, grading, and building, respectively, p. 42); possibly also Corps of Engineers), and this agency. A comprehensive set of precautions, known to each agency, also would provide clear, advance information on future requirements to prospective lessees, and might help to ease potential concerns of the general public.

Historic Sites

We concur with the plans for preservation and protection of archaeological sites contained in the EIS.

- 1) No development will occur in the area of site no. 3200, and the site will be preserved in place.
- 2) Construction work plans will contain the specification to contact our office at 548-7460 when artifacts, human bones, and other kinds of archaeological remains are discovered during construction.

- 3) Archaeological surveys will be conducted in sections II and III of the agricultural park prior to allowing future development and use of the areas, and two copies of the survey report will be submitted to our office for review and comments.

Land Management

With respect to management roles and management of the land, we have a number of changes to suggest:

- 1) Page 8. The name "Division of Land Management" in paragraph beginning with "The DLNR . . ." should be deleted.
- 2) Page 12. The reference at the bottom of page to feasibility of pasture irrigation should be supported by an economic analysis.
- 3) Page 45. Under alternative uses of Section II, an alternative not mentioned is general agriculture use wherein intensive agricultural activities are permitted along with pasture use.
- 4) The identification of the responsible entity to maintain the roadways and the drainage facilities within the Ag Park is not covered in the EIS. These items should be addressed and appropriate agencies be contacted to provide these services.

Sincerely,



SUSUMU OHO
Chairperson
and

State Historic Preservation Officer

cc: Dept. of Agriculture
✓VTH Pacific



VTN PACIFIC, INC.

1144 Bishop Street, Suite 908
Honolulu, Hawaii 96813

January 31, 1984

Telephone: (808) 531-3631

JN 19-103.60

Mr. Susumu Ono
Chairperson
Board of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Your Letter of August 24, 1983
On the EIS for Waianae Agricultural Park

Thank you for reviewing the EIS for the subject project.

The following response is grouped according to the subject matter of your comments.

Aquatic Environment:

Drainage ways in the project area are normally dry except during heavy rains. To minimize the risk of surface water pollution, the EIS proposes that the DLNR establish and enforce lease covenants to require agricultural park lessees to keep poultry manure off the ground and under cover and to design waste management facilities to prevent swine and poultry manure from washing into gullies tributary to Kaopuni Flood Control Channel and Pokai Bay. Other proposed lease covenants are explicitly listed in the EIS Summary.

Ground Water:

Unfortunately, it is not possible to prepare "requirements" which would satisfy BWS concerns about risks of contamination of basal ground water by nitrates. Even if lysimeter tests show that it is environmentally safe to irrigate grass mauka of the BWS "No Pass" Line with chlorinated effluent from piggery waste treatment facilities, the BWS may not accept such practices. This could preclude pig farms from locating in the agricultural park.

Mr. Susumu Ono, Chairperson

Page 2

The DOH, DOA, and BWS all have legal authority to restrict use of pesticides which might contaminate ground water. The present approach of the DOH and DOA is to monitor water quality in wells, pesticides in soils, and pesticide use practices, with regulatory action following as appropriate to mitigate identified problems.

Contamination of ground water is a possibility anytime pesticides, herbicides, or fungicides are used mauka of the BWS "No Pass" Line. Since most agriculture on Oahu takes place mauka of the "No Pass" Line, the issue needs to be resolved on a regional basis.

Historic Sites:

Proposed lease covenants are listed in the EIS Summary.

Land Management:

Suggested minor corrections to the EIS text have been incorporated. The project area has been reduced to the 150 acre site designated by the BLNR. Disposition or improvement of the balance of THK:8-5-06:4 will require preparation of another Environmental Assessment.

I hope the foregoing adequately responds to your questions. If you have any further comments or questions about the agricultural park, then please contact Paul Schwind of the DOA Planning and Development Office at 548-7133.

Very truly yours,

Douglas Meller
Environmental Planner

DM:dab

cc: DOA

cc: OEQC

Engineers Architects Planners Supervisors Environmental Scientists Construction Managers

VTN

GEORGE R. JAYGOMES
GOVERNOR



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
500 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

Letitia N. Uyehara
Interim Director
TELEPHONE NO.
948-8113

University of Hawaii at Manoa



Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7261

September 6, 1983

RECEIVED
SEP 7 1983
VTN PACIFIC

Mr. Jack Suwa, Chairman
Board of Agriculture
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Suwa:

Subject: Waianae Agricultural Park Draft Environmental
Impact Statement

We have reviewed the subject EIS and have no substantive
comments to make. We understand that groundwater will not
be affected by this development because aquaculture is not
feasible due to rocky terrain. Piggeries will not be
allowed by the Board of Water Supply, and dry-lot dairies
will require stockpiling of manure only on lined and
properly drained pavement.

Sincerely,

Letitia N. Uyehara
Letitia N. Uyehara
Interim Director

cc: VTN Pacific

Office of the Director

Ms. Letitia Uyehara, Director
Office of Environmental Quality Control
550 Halekauike Street
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Draft Environmental Impact Statement
Waianae Agricultural Park
Waianae, Oahu

RECEIVED
AUG 25 1983
VTN PACIFIC

August 22, 1983
RE:0383

This Environmental Center review has been prepared with the assistance of Ping-
Yi Yang, Agricultural Engineer; Harold Baker, Agricultural Economics; Charles Lamoureux
and Ruth Gay, Botany; Jacquelin Miller and Mark Ingolia, Environmental Center. The
following comments are offered for your consideration:

The State of Hawaii's plan to promote diversified agriculture with the development
of agricultural parks is a meritorious effort that has produced sites in varying stages of
development in such locations as Waianae, Kahuku and Waimanalo. With respect to the
Waianae Agricultural Park, however, there are many unresolved issues, those associated
with pesticides and waste management issues being of major significance. With these
issues still unresolved, it appears the DEIS was published prematurely. The following
comments are offered for your consideration with the hope that they will help resolve
the pending issues.

Agricultural Waste Management

It is recognized in the DEIS that the manures that will be produced by the proposed
poultry farms and piggeries are sources of environmental, public health and aesthetic problems.
Lined oxidation lagoons followed by land application of sludge has been discussed as a
possible solution for the point source pollution problem represented by the pig manure.
Drying on concrete slabs to create compost for garden fertilizer is the proposed method
in the case of the chicken manure. In both chicken and pig waste management, the proposed
methods of waste management are questionable.

Due to overloading of oxidation lagoons, odor problems have been reported as being
both common and highly objectionable. Current markets for chicken manure at retail
garden shops are not promising. The DEIS suggests that "controlled land application of
treated effluent from oxidation ditches, perhaps by thin dispersal over grass on the slopes

AN EQUAL OPPORTUNITY EMPLOYER

of Kaimalienu Ridge, appears to be a feasible disposal method." Incidentally, Figure 4 shows two boundaries between the "Pass" zone and the "No-Pass" zone. Which of these is the officially designated boundary?

In its description of possible approaches to waste management the Department of Agriculture (DOA) seems to have adopted the policy of letting (p. 11) the farmers assume the principal responsibility for planning their waste management subject to DOH and BWS regulations. We suggest that the DOA should itself assume a greater share of the responsibility and, in its planning, should consider a more integrated approach to food production, one in which the problem of waste management is converted to an opportunity for resource utilization.

Specifically, we suggest that the EIS should consider the alternative of methane digestion as a means of disposing of the animal wastes. We make this suggestion noting that: a) agricultural parks are intended to promote long-range agricultural development (50-year leases are proposed); b) energy costs important in fertilizer production as well as in operating farm machinery are estimated to rise between 2 and 3 percent per year (real costs) even if there are no further political disruptions of petroleum production in the Middle East; c) the costs of the proposed methods of handling the animal wastes are high (the estimated cost of the proposed method of handling the piggy waste is \$105,000 per 10-acre farm).

Methane digestion might solve the pollution problem while at the same time providing 1) energy to run farm machinery; 2) a liquidified enriched fertilizer to be spread on other crops; 3) a method of waste recycling that will become increasingly cost effective as the cost of energy escalates; 4) a method that may lend itself to the agricultural park concept of encouraging cooperatives and share in use of farm machinery and facilities (p. 15); 5) a system that can take advantage of the natural slope of the agricultural park to facilitate gravity-fed fertilizer flow of the digested effluent; and 6) a method of waste recovery that reduces the total surface area needed to handle the waste product compared to the oxidation lagoons.

Methane digestion has already developed from pilot scale to full scale use. Mr. Jun Nakamoto, Holualoa, is a Kona chicken farmer now installing a methane digester in his farm to handle chicken manure from 40,000 birds. Commercial scale methane digestion units are currently a viable economic alternative to oxidation lagoons and drying techniques. County agent Tom Yamamoto is currently working with Mr. Nakamoto on the methane digestion project.

Human Waste

The DEIS states that no public facilities will be built for collecting or treating human wastes (p. 6) that individual farm residences will utilize a domestic waste disposal method other than sanitary sewers; that the BWS will need to approve individual farm waste disposal systems; and that it is unlikely that the BWS will accept the use of cesspools or other ground disposal methods which may have adverse effects on the groundwater. We suggest that, with respect to coping with human as well as animal wastes, the DOA should assume a greater planning responsibility.

One alternative meriting exploration is to combine the human and animal wastes in the methane-digestion system. Another is the use of dry or composting toilets. Considering the agricultural background of this community the concepts of composting may be more readily understood and recognized as an acceptable alternative to the present cesspool system and the associated health and pollution problems currently associated with the no pass situation. The following references are excellent sources of information associated with the growing practice of dry-toilet technology:

Adams, R.B., Jon Averill, John Daniels, Compost Toilets: A Guide for Home Builders, National Center for Appropriate Technology, July 1979.

Stoner, Carol Huppding, Goodbye to the Flush Toilet, Rodale Press, 1977.

California State, Water Resources Control Board, Rural Wastewater Disposal Alternative Final Report Phase I, March 1980.

Flora and Fauna

There is no evidence that a thorough survey of flora and fauna was ever made on the proposed project site. Reference is made (p. 23) to "Ref. 25, Appendix D" which is the REIS for Waianae Water Wells. That document included a botanical survey by Grant Gerish in the area of the well sites. The well sites are clearly located on the very eastern most portion of the agricultural park along Kumaijo Stream. Derral Herbst's species list, reference 1 in the DEIS here reviewed, was obtained from an adjacent ridge. Considering the large size of the proposed park (approximately 1,272 acres) the above cited surveys do not provide an adequate background for discussing the potential impacts of the agricultural park on the existing vegetation. Clearly, there is a need to extend the Gerish survey area to cover the unsurveyed portions of the agricultural park site.

Agricultural Economics

The selection of alternatives (p. 4) is based on costs only. It would be advantageous to consider benefits also. A simple benefit-cost analysis might support the selection of the section subdivision schemes.

Demand for poultry and piggy products should be more clearly defined to explain the need to down zone agricultural land for these animal husbandry uses and the potential for pollution they present.

Pesticides

Noise and odors are mentioned as impacts but the potential for nursery crop pesticide drift on the local residents and/or the pigs and chickens is not. What pesticides and their amounts will be used on these crops? Will they impact on the residents? Have the residents been notified of the potential for both odors and pesticides reaching their homes? Attention is made (p. 34) of DOA pesticide-branch spot-check inspections. How often will these

Ms. Letitia Uyehara

-4-

August 22, 1983

inspections be? Considering the proximity of the wells and the no pass zoning of the proposed site, the dangers of pesticide contamination point to a need for a detailed analysis of the pesticide problem in the REIS for the proposed Waianae Agricultural Park.

We appreciate the opportunity to comment on this DEIS and hope you will find our suggestions useful in the preparation of the revised document.

Yours truly,



Doak C. Cox
Director

cc: VTN Pacific ✓
Charles Lamoureux
Ruth Gay
Ping-Yi Yang
Harold Baker
Jacquelin Miller
Mark Ingolia

107-



1161 Bishop Street, Suite 206
Honolulu, Hawaii 96813
January 31, 1984

Telephone (808) 521-3631
JM 19-103.60

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

Dear Dr. Cox:

Subject: Your Letter of August 5, 1983 (MZ:0383)
On the REIS for Waianae Agricultural Park

Thank you for reviewing the REIS for the subject project.

The following responses is grouped according to the subject matter of your comments.

Agricultural Waste Management:

The "official" BWS "No Pass" Line is drawn with a wide-tipped felt marker on tax maps. This creates a definite "Pass" area, a definite "No Pass" area, and an ambiguous area where the BWS usually will not allow either surface or subsurface disposal of effluent from waste treatment facilities.

The Revised REIS explicitly acknowledges the potential odor impacts from animal husbandry including malfunctioning waste treatment facilities.

Disposal of poultry manure is an unresolved problem that will need to be addressed by individual farmers. However, they will not be allowed to stockpile manure on site unless it is off the ground and under cover.

Anaerobic digestion may be infeasible because the BWS will not allow surface application of effluent from anaerobic digesters on grass mounds of the "No Pass" Line. Although anaerobic digesters produce usable methane and provide excellent odor control, they do not remove nitrogen from manure. Correspondence between the DOA and U.H. College of Tropical Agriculture and Human Resources on anaerobic digestion is included in Appendix C of the Revised REIS.

Human Wastes:

The Revised REIS indicates that individual farm residences will probably utilize holding tanks for sewage, but could use dry or composting toilets if the BWS allows ground disposal of "gray water" from sinks, washing

Experts Arbitrators Planners Subdivision of Responsibilities Environmental Scientists Construction Managers

Dr. Doak C. Cox, Director

Page 2

University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 - 2530 Dole Street
Honolulu, Hawaii 96822



7 September 1983

RECEIVED
SEP 12 1983
VTN PACIFIC

State of Hawaii
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Gentlemen:

Subject: Environmental Impact Statement for Waianae Agricultural Park
We have reviewed the subject EIS and have no comment to offer. Thank you for the opportunity to comment.

This material was reviewed by WRRC personnel.

Sincerely,

Edwin T. Murabayashi
Edwin T. Murabayashi
EIS Coordinator

ETH:jm

cc: VTN Pacific
OERC

machines, etc. Dry or composting toilets are regulated by the DOH pursuant to Chapter 57 of Title 11, DOH Administrative Rules. Section 11-57-07 specifically requires that individual wastewater systems be at least 5 feet from dwellings and have at least 15 feet of air space, which implies that future composting toilets will need to be out-houses.

Flora and Fauna:

The project area has been reduced to 150 acres. Additional botanical surveys do not appear warranted.

Agricultural Economics:

The subdivision plan finally selected for the agricultural park in the Revised EIS is not based solely on economics. The design is intended to minimize the risk of disease spreading between animal husbandry operations and to buffer the existing residential area on Piliuku Place from flies, odors, and noise to the maximum extent practicable.

Since nurseries are allowed on AG-2 zoned land, "down-zoning" is a winner. The Revised EIS includes an expanded economic analysis as requested.

Pesticides:

Potential impacts from pesticide drift on animal husbandry and the nearby residential area are addressed in the Revised EIS. No health hazards are foreseen although pesticide odors may be a nuisance.

The DOH, DOA, and BWS all have legal authority to restrict use of pesticides which might contaminate ground water. The present approach of the DOH and DOA is to monitor water quality in wells, pesticides in soils, and pesticide use practices with regulatory action following as appropriate to mitigate identified problems. This is a pragmatic approach given the limited data available about percolation of pesticides.

Contamination of ground water is a possibility anytime pesticides, herbicides, or fungicides are used mauka of the BWS "No Pass" Line. Since most agriculture on Oahu takes place mauka of the "No Pass" Line, the issue needs to be resolved on a regional basis.

I hope the foregoing adequately responds to your questions. If you have any further comments or questions about the agricultural park, then please contact Paul Schwind of the DOA Planning and Development Office at 548-7133.

Very truly yours,

Doug Meller
Doug Meller
Environmental Planner

DM:dab
cc: DOA
cc: EQC

VTN

AN EQUAL OPPORTUNITY EMPLOYER

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

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU



COPY

September 2, 1983

Ms. Letitia Uyehara, Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Subject: Draft Environmental Impact
Statement for Waiānae
Agricultural Park

We have the following comments on the proposed project:

1. We confirm that the new well drilled by the Department of Land and Natural Resources will be the source of supply for the agricultural park.
2. An overall water master plan with necessary calculations should be submitted for our review and approval.
3. The statement that the Board of Water Supply will not develop production facilities, if the second exploratory well does not yield sufficient water to be economically feasible should be changed to may not. Even if the second exploratory well shows a yield lower than estimated, the development of the wells may still be considered should we find that other alternatives are more costly.

If you have any questions, please call Lawrence Whang at 527-6138.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Jack Suwa, Department of Agriculture
VTN Pacific, Inc.

LHYM/HHM:ls
cc: K. Hayashida, G. Hiu, A. Koga, L. Whang
83-1791

1161 Bishop Street, Suite 908
Honolulu, Hawaii 96813

January 31, 1984

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Your Letter of September 2, 1983
On the EIS for Waiānae Agricultural Park

Thank you for reviewing the EIS for the subject project.

The DMR will submit a water master plan for your review and approval. Suggested corrections are incorporated in the Revised EIS.

I hope the foregoing adequately responds to your questions. If you have any further comments or questions about the agricultural park, then please contact Paul Schvind of the DDM Planning and Development Office at 548-7133.

Very truly yours,

Douglas Heller
Environmental Planner

DH:dab

cc: DOA
cc: OEQC

Engineers Architects Planners Supervisors Environmental Scientists Construction Managers

Telephone: (808) 521-3421

JN 19-103.60

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET
 HONOLULU, HAWAII 96813



SILEEN R. ANDERSON
 MANAGER

MICHAEL M. MEELROY
 DIRECTOR
 ROBERT M. JONES
 SENIOR ASSISTANT

Dept. of Public Works
 650 SOUTH KING STREET, 5TH FLOOR
 HONOLULU, HAWAII 96813

August 18, 1983

RECEIVED
 AUG 23 1983
 VTN PACIFIC

Ms. Jacqueline Parnell, Director
 Office of Environmental Quality Control
 550 Halekauwila Street, Room 301
 Honolulu, Hawaii 96813

Dear Ms. Parnell:

Subject: Environmental Impact Statement (EIS)
 Waianae Agricultural Park

Thank you for the opportunity to review the subject document.

We have no substantive comments to offer and are retaining the EIS for our files.

Sincerely,

JOSEPH K. CONANT
 Original Signed
 JOSEPH K. CONANT

cc: State of Hawaii
 Department of Agriculture
 1428 South King Street
 Honolulu, Hawaii 96814
 VTN PACIFIC
 1164 Bishop Street, Suite 906
 Honolulu, Hawaii 96813

August 17, 1983

83/EC-8 (JDH)
 LIT/83-4295

RECEIVED

AUG 22 1983
 VTN PACIFIC

Ms. Letitia M. Uyebara, Director
 Office of Environmental Quality Control
 State of Hawaii
 550 Halekauwila Street, Room 301
 Honolulu, Hawaii 96813

Dear Ms. Uyebara:

Draft Environmental Impact Statement (EIS)
 For Waianae Agricultural Park--Waianae, Oahu
 Tax Map Keys: 8-5-6: 4 and 8-5-23: 21 & 41

We have reviewed the subject Draft EIS and have the following comments:

1. Reference: Protection of Ground and Surface Water Resources; Page 11 & Page 51, Unresolved Issues; and Pages 32-34, D. Ground Water and Streams

Comment: Measures to prevent pesticide and chemical contamination from agricultural applications should be implemented from the initial stages of operation. Protective measures should not be implemented on a reactionary basis at the request of the State Department of Health (DHL) and the Board of Water Supply (BWS). This does not have to be an unresolved issue if the Department of Agriculture promulgates prior to the start of agricultural operations, regulations to restrict use of pesticides and/or require improvements to keep pesticides from percolating into the soil.

2. Reference: Agricultural and Domestic Waste Disposal; Page 11 & Page 51, Unresolved Issues; Page 6, a. Waste Treatment; Pages 9-14, C. Private Actions; Page 24, 2. Infrastructure; Pages 32-34, D. Ground Water and Streams; Page 42, V. Necessary Approvals, Item 12; and Page 47, G.1. Central Sewage Treatment Plant.

Ms. Letitia N. Uyehara, Director
Page 2

Comment: The Draft EIS indicates that waste disposal is the principle unresolved issue and a constraint to developing the site for the proposed agricultural uses. Although specific methods of waste disposal will be determined when individual farmer tenants apply for permits from the DOH and BWS, viable options that are acceptable on a general basis to the DOH and BWS should be identified in the Revised EIS.

If there are any questions, please contact John Hakagawa of our staff at 527-5038.

Robert B. Jones
ROBERT B. JONES
Acting Director

RBJ:sj
cc: State Dept. of Agriculture
VTN Pacific



VTN PACIFIC, INC.

1141 Bishop Street, Suite 904
Honolulu, Hawaii 96813
January 31, 1984

Telephone (808) 531-5671
JH 19-103-60

Mr. Michael M. McElroy
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. McElroy:

Subject: Your Department's Letter of August 17, 1983
(83/EC-8 LHC/83-4295)
On the EIS for Wai'anae Agricultural Park

Thank you for reviewing the EIS for the subject project.

The following response is numbered according to your comments.

1. The DOH, DOA, and BWS all have legal authority to restrict use of pesticides which might contaminate ground water. The present approach of the DOH and DOA is to monitor water quality in wells, pesticides in soils, and pesticide use practices, with regulatory action following as appropriate to mitigate identified problems. This is a pragmatic approach given the limited data available about percolation of pesticides.
Contamination of groundwater is a possibility anytime pesticides, herbicides, or fungicides are used south of the BWS "No Pass" Line. Since most agriculture on Oahu takes place south of the "No Pass" line, the issue needs to be resolved on a regional basis.
2. Waste disposal continues to be a constraint to development of pig farms in Wai'anae Agricultural Park. Viable options for poultry and domestic waste management are included in the EIS.

I hope the foregoing adequately responds to your questions. If you have any further comments or questions about the agricultural park, then please contact Paul Schwind of the DOA Planning and Development Office at 548-7133.

Very truly yours,

Doug Teller
Douglas Teller
Environmental Planner

DM:dab
cc: DOA
cc: OEQC

Engineers Arbitrators Planners Supervisors Environmental Scientists Construction Managers

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



EILEEN R. ANDERSON
MAYOR

EMIKO I. KUDO
DIRECTOR
SAML. CARL
PLANT DIRECTOR
CICCARO H. ASANUMA
EXECUTIVE ASSISTANT

EILEEN R. ANDERSON
MAYOR

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



MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER
MAURICE M. KAYA
DEPUTY DIRECTOR
ENV 83-195

July 28, 1983

RECEIVED
AUG 1 1983
VTN PACIFIC

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

Dear Mr. Takesoto:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
WAIANA'AE AGRICULTURAL PARK
TRK: 8-5-06: 4 & 8-5-23: POR. 21 & 41

We have reviewed the Environmental Impact Statement for the Waianae Agricultural Park Subdivision and have no comments to offer.

Thank you for the opportunity to review the proposal.

Sincerely yours,
Emiko I. Kudo

(Mrs.) EMIKO I. KUDO, Director

EIK:vc

cc: State Dept. of Agriculture
VTN Pacific

August 9, 1983

RECEIVED
AUG 10 1983
VTN PACIFIC

Ms. Letitia Uyebara
Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyebara:

Re: EIS for the Waianae Agricultural Park,
Waianae, Oahu, Hawaii

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

1. The City and County does not have plans to construct sanitary sewers in the project area. If individual self-contained waste disposal systems are installed, private companies will have to be hired when these units require pumping.
2. Planning and engineering to upgrade Waianae Valley Road are being done by Public Works, using State funds, although Waianae Valley Road is a State road. Construction will proceed only when State funds become available.

Me ke aloha pumehana,

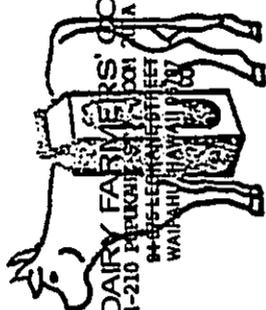
Michael J. Chun

MICHAEL J. CHUN
Director and Chief Engineer

cc: State Dept. of Agriculture
VTN Pacific
7 Div. of Wastewater Management

Cable Address: DARICCOOP

Feed Division
Phone: 677-9103
Milk Division
Phone: 677-9104
Phone: 677-8486 9103



50th STATE DAIRY FARMERS' COOPERATIVE

94-210 PUKUHAU STREET
WAIKANAHE, HAWAII 96797

RECEIVED

AUG 8 1983
VTN PACIFIC

CS-JS

August 3, 1983

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

Gentlemen:

Subject: Waianae Agricultural Park

We have reviewed the Environmental Impact Statement for Waianae Agricultural Park and feel that this project in itself will not adversely impact police services. We have no objection to the proposed project, however, we would like the right to reserve further consent.

Sincerely,

DEJULAS G. GIBB
Chief of Police

By: *[Signature]*
ROY KANA
Assistant Chief of Police
Administrative Bureau

cc: State of Hawaii
Department of Agriculture
1425 South King Street
Honolulu, Hawaii 96814
✓ VTN Pacific
1154 Bishop Street, Suite 206
Honolulu, Hawaii 96813

August 22, 1983

RECEIVED

AUG 23 1983
VTN PACIFIC

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

Dear Sir:

50th State Dairy Farmers' Cooperative firmly believes a strong agricultural base for the state's economy is in the best interest of Hawaii's people. Increased self-sufficiency, less dependency upon outside sources for income, and steady employment are just a few beneficial factors of a strong agricultural base. Therefore, we are very supportive of the intent of the Waianae Agricultural Park (WAP) "to aid established farmers in expanding operations as well as beginning farmers and to help in relocating displaced farmers".

However, it is unfortunate there are no plans for improvements to accommodate any dairies. We are very disappointed the intent of WAP is not being applied to dairy farmers. Although Section II has possibilities for dairy use, the lack of a water system makes this area unfeasible.

High start-up costs are one of the biggest obstacles of a beginning dairy farmer. These dairymen truly require any aid or incentive available to them.

As noted in the study, some dairies must relocate due to land tenure problems. Feasible and suitable lands are needed for these dairies to help alleviate the financial burden of moving and rebuilding. More importantly, these dairies are needed to maintain Hawaii's self-sufficiency of this highly perishable bulk product which is a necessary food for many island families.

Some of our own members are very interested in relocating to WAP. We hope the current plans can be reevaluated to allow the intent and purpose of WAP to be directed also toward dairy farmers and accommodations for feasible dairy operations land be included.

We would like further information on formal applications for WAP and are very willing to offer any assistance on this project.

Sincerely,

50TH STATE DAIRY FARMERS' COOPERATIVE


Terry Yamane
General Manager

TY:pl

cc: State of Hawaii - Dept. of Agriculture
VIN PACIFIC



1161 Bishop Street, Suite 908
Honolulu, Hawaii 96814
January 31, 1984

Telephone 19-103.88

Mr. Terry Yamane
General Manager
50th State Dairy Farmers' Cooperative
94-210 Pupukahi Street
Room 201A
Waipahu, Hawaii 96797

Dear Mr. Yamane:

Subject: Your Letter of August 22, 1983
On the EIS for Waianae Agricultural Park

Thank you for reviewing the EIS for the subject project.

The project area has been reduced to 150 acres with road access from Piikua Place. Plans have been re-evaluated as requested to see whether it would be feasible to locate dairies at this site, but the findings are not promising. To date, five dairymen have expressed interest in locating in an agricultural park, with desired lot sizes ranging from 25 to 2,000 acres. At best, the project site could only accommodate a relatively small drylot operation.

DOA engineering consultants estimate that construction of corrals, ramps, milking parlors, feed storage, and waste management facilities for an intensive drylot operation at the hilly Waianae Agricultural Park site would cost roughly double what it would cost on more level land with less than 5% slope. Also, the BWS will not allow either surface or subsurface disposal of effluent from dairy waste treatment facilities either within or outside of the project area. For this reason, pig farms probably will also be excluded from the agricultural park.

While there is no question that Oahu's dairies are experiencing land tenure problems, the industry's land requirements may be best met by direct negotiation with private land-owners of large parcels being withdrawn from sugar cultivation. One potentially suitable area is approximately 1,700 acres of Campbell Estate land at Kunia which has been phased out by Oahu Sugar Company. Another possibility is to request that State land leased for pineapple and sugar cultivation be made available for other agricultural uses.

I hope the foregoing adequately responds to your questions. If you have any further comments or questions about the agricultural park, then please contact Paul Schwind of the DOA Planning and Development Office at 548-7133.

Very truly yours,


Douglas Heller
Environmental Planner

DH:dab
cc: DOA
cc: DEQC

Engineers Architects Planners Surveyors Environmental Scientists Construction Managers

HAWAIIAN ELECTRIC COMPANY, INC.
Box 2750 / Honolulu, Hawaii / 96840

August 22, 1983
ENV 2-1
NV/G

RICHARD L. O'CONNELL, P.E.
MANAGER, ENVIRONMENTAL DEPARTMENT
(808) 546-4400

RECEIVED
AUG 23 1983

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

Subject: Environmental Impact Statement for the
Waiānae Agricultural Park

We have reviewed the subject Environmental Impact Statement
and offer the following comments:

1. Figure 1 should be revised to show the 12 kv overhead line to Mount Kaala indicated in red on the attached map.
2. Paragraph 1.8.2.c: This paragraph should mention the Hawaiian Electric easement, the center line of which is shown on the attached map (Figure 7) by the red line.

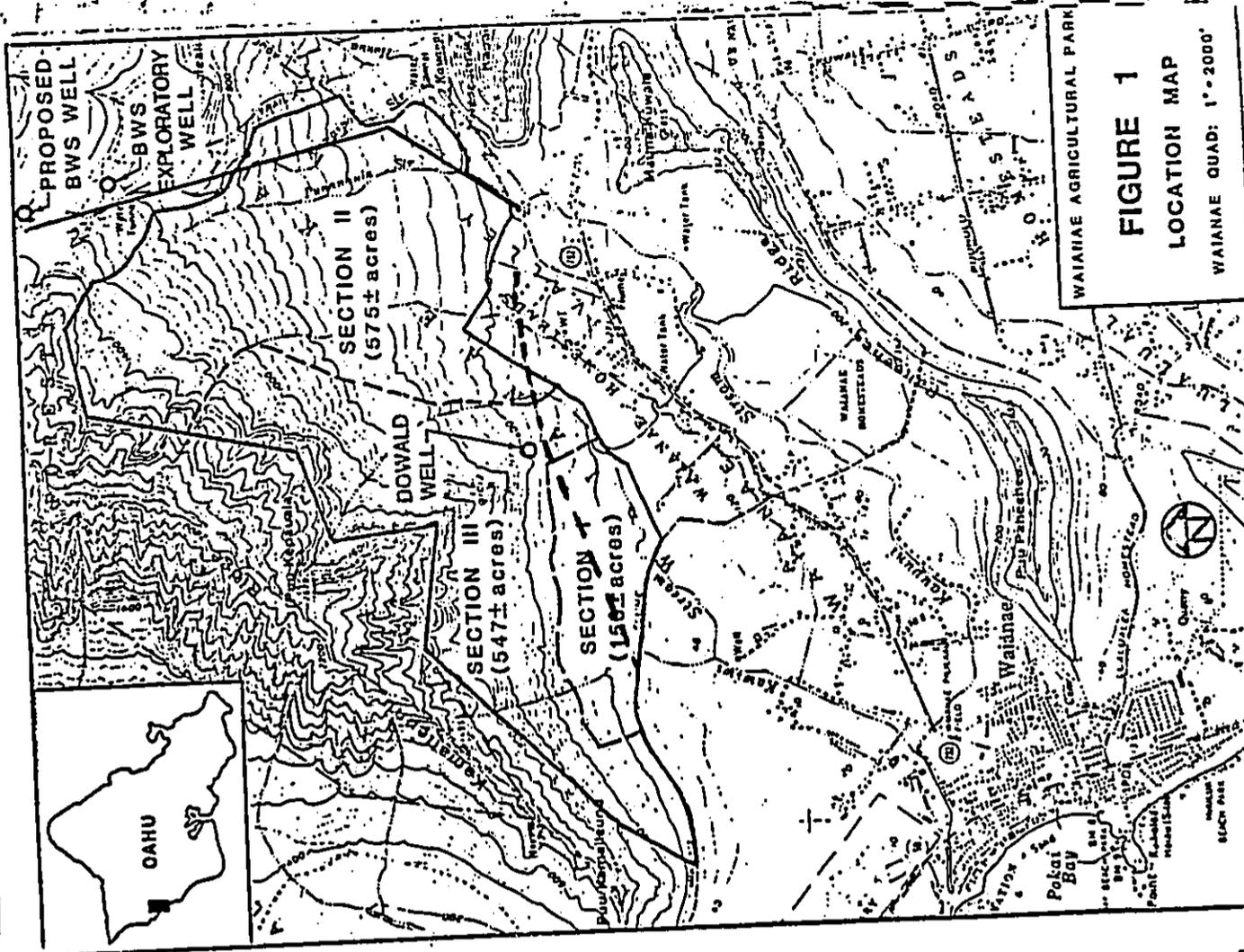
Thank you for the opportunity to comment on this Environmental Impact Statement.

Sincerely,

Richard L. O'Connell
Richard L. O'Connell
Manager, Environmental Department

JHP, Jr.:cal

cc: State of Hawaii
Department of Agriculture
VTN Pacific





1164 Bishop Street, Suite 906
Honolulu, Hawaii 96813

January 31, 1984

Mr. Richard L. O'Connell
Manager
Environmental Department
Hawaiian Electric Company
P.O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. O'Connell:

Subject: Your Letter of August 22, 1983 (ENV 2-1)
On the EIS for Waianae Agricultural Park

Thank you for reviewing the EIS for the subject project.

The project area has been reduced to 150 acres with road access from Piliuku Place.

The EIS text (paragraph II-B-2) will be revised as appropriate to reflect your comments.

I hope the foregoing adequately responds to your questions. If you have any further comments or questions about the agricultural park, then please contact Paul Schwind of the DOA Planning and Development Office at 548-7133.

Very truly yours,

Doug Meller
Doug Meller
Environmental Planner

DM:dab

cc: DOA
cc: OEQC

Engineers Architects Planners Surveyors Environmental Scientists Construction Managers

HAWAIIAN TELEPHONE COMPANY

P.O. BOX 2200 • HONOLULU, HAWAII 96811 • TELEPHONE (808) 537-7111 • CABLE: TELHAWAII

August 4, 1983

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

Waianae Agriculture Park
Environmental Impact Statement (EIS)

Gentlemen:

Thank you for the opportunity to review the subject EIS. We have no comments to offer relative to the proposed project.

The copy of the EIS is returned as requested.

Sincerely,

R. Nelson
Richard Mau
Engineering and Construction
Staff Manager

cc: State of Hawaii
Dept. of Agriculture
VTN Pacific
Russ K. Saito

RECEIVED
AUG 8 1983
VTN PACIFIC

REFERENCES

In addition to Department of Agriculture staff, the following public officials were informally consulted in order to obtain information relevant to this Environmental Impact Statement.

Name	Agency	Date
-----	-----	-----
1. Derral Herbst	U.S. Fish and Wildlife Service	5/3/83
2. Henry Nakashima	U.S. Army Corps of Engineers	5/28/81
3. Boone Ochitani	U.S. Soil Conservation Service	5/28/81
4. Stanley Wong	State Dept. of Hawaiian Home Lands	5/26/81
5. Chris Jansen	State Dept. of Health	3/16/82
6. George Miyashiro	State Dept. of Land and Natural Resources	5/12/83
7. Herbert Yanamura	State Dept. of Land and Natural Resources	5/16/83
8. Chester Lao	County Board of Water Supply	3/17/82
9. Clarence Tom	County Dept. of General Planning	5/22/81
10. Marge Kimmerer	County Dept. of Land Utilization	5/27/81
11. Peter Nishizawa	County Dept. of Public Works	5/28/81
12. Peter Ho	County Dept. of Transportation Services	5/26/81
13. Tokushi Tanaka	U.H. College of Tropical Agriculture and Human Resources	2/26/80
14. William Hugh	U.H. College of Tropical Agriculture and Human Resources	2/22/80
15. Burt Smith	U.H. College of Tropical Agriculture and Human Resources	5/4/83

The following public documents were also used to obtain information relevant to this Environmental Impact Statement.

REFERENCES (Continued)

16. Hawaii, State Department of the Attorney General. Opinion No. 72-21. Honolulu, October 1972.
17. Hawaii, State Department of Hawaiian Home Lands. Hawaiian Home Lands General Plan. Honolulu, April 1976.
18. Hawaii, State Department of Hawaiian Home Lands. Final Environmental Impact Statement for Waianae Valley Road Homestead Subdivision. Honolulu, February 1975.
19. Hawaii, State Department of Health, Research and Statistics Office, Health Surveillance Program. 1979 Data for SHPDA Sub-Areas. Unpublished computer crosstabulation of data from the State Health Surveillance Survey, prepared at the request of VTN Pacific. Honolulu, July 1980.
20. Hawaii, State Department of Planning and Economic Development. Revised Population and Economic Projections 1975-2000. Honolulu, March 1978.
21. Hawaii, State Department of Planning and Economic Development, Research and Economic Analysis Division. The Population of Hawaii, 1980: Final Census Results. Statistical Report 143. Honolulu, March 1981.
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APPENDIX A

ARCHAEOLOGICAL RECONNAISSANCE SURVEY

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

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

DIVISIONS:
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

April 16, 1980

Honorable John Farias, Jr., Chairman
Board of Agriculture
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Farias:

Subject: Archaeological Reconnaissance for the
Waianae Agricultural Park, Waianae Valley, Oahu
TMK 8-5-06:4 Site 80-07-3200

In response to your letter of March 31, 1980, regarding the above named research, the following is offered:

After reviewing the archaeological report, we find the contractor has adequately addressed the cultural resources present in the area of the proposed development. We concur with their evaluation that Site 80-07-3200 represents a site significant in terms of the National and State Registers of Historic Places criteria. We also concur with their recommendation that if the project should directly or indirectly impact this site, that a program of mitigation should be developed in consultation with the State Historic Preservation Office.

If federal funds are to be used for development of this park, please notify this office in order that we may advise you regarding necessary compliance with Section 106 of the National Historic Preservation Act of 1966.

We would also like to request that a clause, as noted below, be included in your construction contracts if possible.

In the event that any unanticipated sites or remains such as artifacts, shell, bone or charcoal deposits; human burials; rock or coral alignments, pavings, or walls are encountered during construction, please inform the applicant to stop work and contact the Historic Sites Office at 548-7460.

Thank you for your continued cooperation.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Susumu Ono".

Susumu Ono
Chairman of the Board and
State Historic Preservation Officer

A Cultural Resource Reconnaissance of the
Proposed Waianae Agricultural Park, Waianae, Oahu, Hawaii

by:

Hamilton M. Ahlo, Jr.

Prepared for:

VTN
1164 Bishop Street, Suite 906
Honolulu, Hawaii 96813

Hawaii Marine Research, Inc.
February 1980

Introduction

During December, 1979 Hawaii Marine Research personnel completed a reconnaissance survey of the proposed Waianae Agricultural Park, Waianae, Oahu, Hawaii. The 150 acre parcel is situated immediately to the northwest of Waianae Homesteads and can be easily reached by driving to the end of Piliuka Place off of Waianae Road.

The study area is roughly rectangular measuring approximately 1525 meters (5000 feet) by 425 meters (1400 feet). It is dissected by a number of intermittent streams originating on Kamaileunu Ridge to the north. The parcel is at the base of Kamaileunu Ridge where the valley floor begins to level out. An abandoned flume running from Pahe'ehe'e Ridge southeast of the project area to Makaha Valley parallels the southern boundary of the study area for approximately 900 meters (3000 feet).

In general the parcel is gently sloping and extremely rocky with the ground surface comprised mainly of talus except for the stream cut areas in the southern portion of the area which reveals substantial alluvial and colluvial deposits.

Vegetation in the area is primarily xeric koa haole (*Leucaena glauca*), various grass species and scattered kiawe (*Prosopis pallida*), opiuma (*Pithecellobium dulce*) and lantana (*Lantana camara*) constituting the dominant flora in the area.

Historic Summary

Though an early description of the Waianae coast by Vancouver characterized it as rocky, barren and "nearly destitute of verdure, cultivation or inhabitants" (Vancouver 1798:355-356), his observation probably applied to much of the valley at that time. Taro terraces, sweet potatoes and bananas were grown near the perennial streams in the valley but overall the valley had

too little available water to make it attractive to early European observers.

Waianae is said to have been named after Puehu pond along the coast near the mouth of Waianae Stream. Young mullet were raised there until they were fully grown, hence the name Wai (water) 'anae (full grown mullet) (Handy and Handy 1972:468).

Taro, cultivation and ranching were the primary economic activities in the valley up until the 1880's.

Missionary influence in the Waianae district during the early 19th century was less pervasive than in other parts of Oahu due to the ambivalence of Boki, Governor of Oahu, steward of the King's lands in the district and principal landholding chief in the area. His lack of support for the missionaries efforts were reflected in the general attitude of the Waianae residents. When Boki died, his wife Liliha continued this attitude toward the missionaries.

... The proprietary chief of Ewa was the pious Premier Kinau, whose influence secured the general adherence of the people to the missionary. It was otherwise in Waianae, whose proprietary chief was Liliha, or 'Madam Bobie' [sic] who had long been hostile to the Protestant missionaries. The Waianae people were accordingly averse.

Sereno Bishop (1916:43) in Barrère (1970)

Waianae continued to be a rural sparsely populated area through the middle of the 19th century until Waianae Plantation was begun in 1878. Mr. Herman Wideman, a German immigrant obtained a \$40,000 loan from George N. Wilcox of Kauai through Hackfield and Co. He then leased all of Waianae Valley for 25 years.

The technological innovations for acquiring and transporting water implemented by Wideman made Waianae Plantation one of the

most admired in the state. By 1884, 475 acres were in sugar in the valley and Waianae was the largest settlement outside of Honolulu. By 1895 a system of railroad tracks within the valley and from Honolulu around Kaena Point to Haleiwa had been completed.

Disputes over water rights continually threatened the Plantation's profitability but constant expansion of their water sources and a new focus on conservation allowed the Plantation to continue until 1946. By then the closing of the railroad to Honolulu by Dillingham, a worker's strike, continuing loss of water rights and a severe drought forced liquidation of the Plantation's assets.

Current use of the valley focuses on houselots and diversified agriculture.

Previous Archaeological Work

No previously recorded sites exist within the project area. McAllister (1933) noted 16 sites within the valley, the nearest of these is approximately 1600 meters west of the project area (McAllister sites 158, 159 and 160). All of these appear to have been destroyed. Other sites such as Kamaile Heiau and Kuilioloa Haiau still exist, but much of the evidence of pre-historic human habitation was destroyed when the valley was under sugar cane cultivation.

Though substantial archaeological work has been done in adjacent Makaha Valley, little archaeological work has been conducted in Waianae.

A brief reconnaissance of portions of the back of the valley in 1979 by Mr. Aki Sinoto of the Bishop Museum revealed extensive terracing and evidence of dry land agriculture.

Another brief reconnaissance survey of a proposed roadway and well area immediately adjacent to the northeast corner of the project area was conducted by Martha Yent and Agnes Griffin of the Division of State Parks, Department of Land and Natural Resources. They located two rock walls and a number of small terraces and platforms. One of the walls located extends south along the eastern boundary of the project area and was probably a Kuleana Wall.

No other archaeological work has been conducted near the project area.

Survey Methods

Three Hawaii Marine Research archaeologists surveyed the project area on December 10, 1979. Systematic sweeps of the area with archaeologists walking approximately 10 meters apart revealed only one archaeological site. The site was flagged and located on the map supplied by VTN and on December 13, 1979 two archaeologists returned to the area to describe and map the site. Approximately 38 man-hours were spent surveying and recording the area.

The site was thoroughly examined to locate any evidence of subsurface deposits and mapped using compass and tape. Descriptions of each feature were recorded. Due to the dense vegetation, only a few photographs were taken.

Results

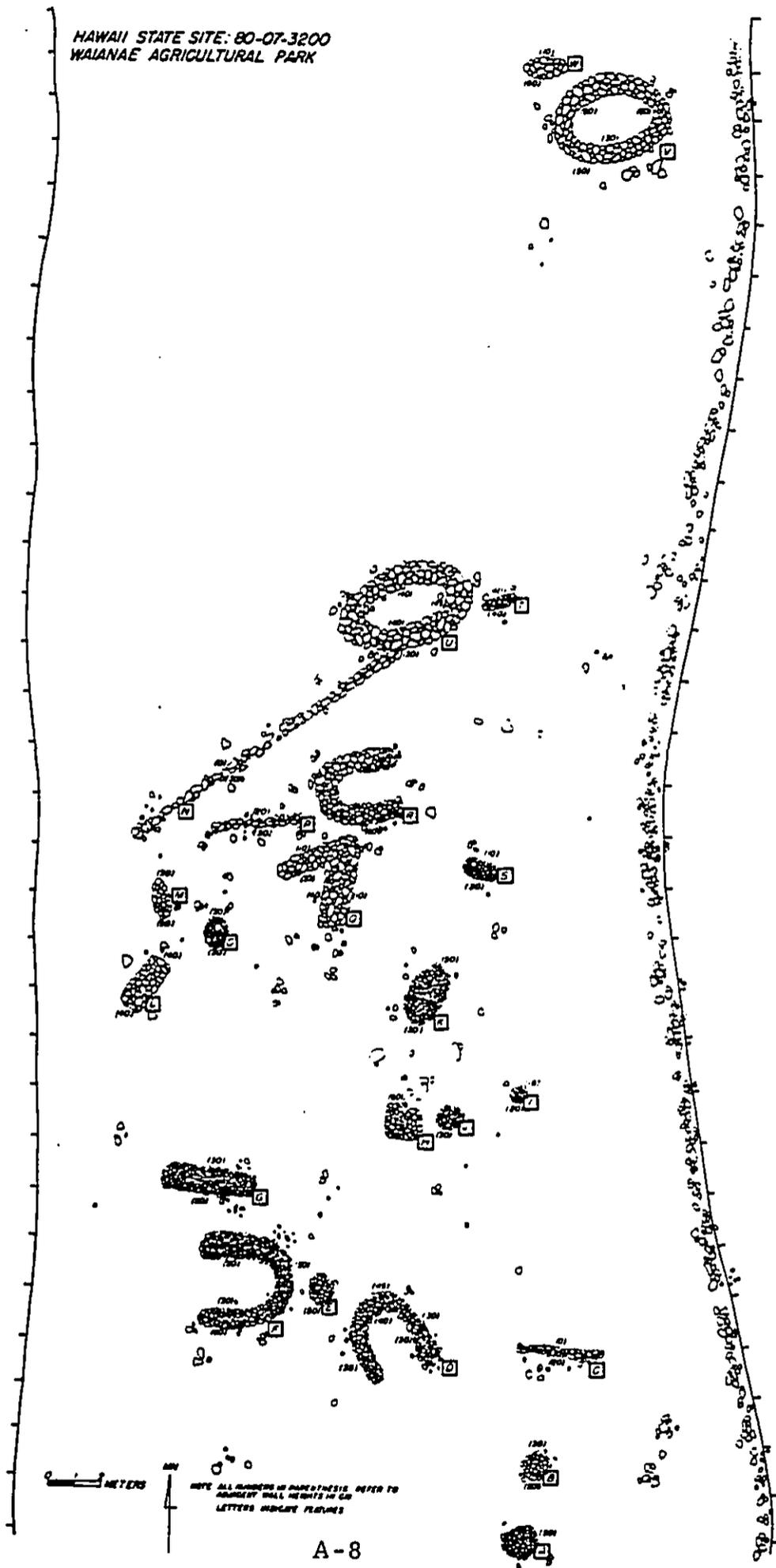
The site located has been assigned State Site Number 80-07-3200, referring to the island of Oahu (80), Waianae Quadrangle of the U.S.G.S. 7½ minute series topographic maps (07) and a unique site number (3200).

The site consists of 24 small features located on a small narrow ridge between two shallow stream-cut drainages. The ridge is composed of unconsolidated colluvium and alluvium and is covered with a dense stand of Koa haole trees with only minimal understory ground cover.

The site begins approximately 65 meters (215 feet) north of the flume and extends north along the ridge for another 60 meters (195 feet). The ridge and site are approximately 35 to 40 meters (115 to 130 feet) wide.

Individual feature descriptions are given below. All features are dry stone masonry construction of basalt cobbles and boulders.

HAWAII STATE SITE: 80-07-3200
WAIANA'E AGRICULTURAL PARK



A-8

Feature Descriptions

Feature A

An oval flat top mound, 1.5 meters long .5 meters high, stones 20-30 centimeters in diameter, north and east sides faced.

Feature B

Crude circular mound, 1.2 meters in diameter .5 meters high, stones 10-35 centimeters in diameter.

Feature C

Crude terrace, 3 meters long .2 meters high at downslope edge, very deteriorated.

Feature D

U-shape, interior dimensions 1.6 meters x 2.4 meters.
Walls: .6 meters wide x .35 high on west, .8 meters wide x .45 high on north, .6 meters wide x .30 high on east.
Stones .15-.50 meter in diameter.

Feature E

Oval mound, 1.5 meters x .8 meters x .5 meters high.
Stone .1-.5 meters high.

Feature F

U-shape, interior dimensions 2.5 meters east to west, 2.0 meters north to south. Walls crude and tumbled, north wall 1.1 meters wide, other walls .7 meters wide.
Stones .1 to .5 meters in diameter.

Feature G

Large mound, rectangular, 3.6 meters x 1.1 meters x .5 meters high on downslope side, .3 meters high on upslope side, stones 0.05-0.5 meters in diameter.

Feature H

High formal mound, 1.5 meters square, .6 meters high on north, northeast corner rounded, southeast corner tumbled.

Feature I

Small crude oval mound, .8 x .7 meters along east-west axis .2 meters high downslope. Stones .1 to .2 meters in diameter.

Feature J

Oval mound, 1.2 meters x 1 meter x .3 meters high at downslope. Stones .1 - .4 meters.

Feature K

Oval mound (middle is lowest part), 2.5 meters x 1.5 meters. Stones .1 meter to .5 meter.

Feature L

Long rectangular mound, 2.3 meters x 1 meter x .4 meters high. Crude facing on upslope and downslope sides. Stones .2 to .5 meters in diameter.

Feature M

Crude oval mound, 1.6 x .7 x .5 meters high on downslope side, .3 meters on upslope. Stones .2 to .4 meters in diameter.

Feature N

Unfaced long crude retaining wall, 11 meters long, .5 to 1 meter wide. Stones .2 to .5 meters in diameter.

Feature O

Crude mound, 1.2 x 1.0 x .3 meters high. Stones .2 - .6 meters in diameter.

Feature P

Crude retaining wall, 3.5 meters x .75 meters x .5 meters high on downslope side, .2 meters high on upslope side. Stones .2 - .6 meters.

Feature Q

Crude L-shape. Interior measurements east to west along interior north wall 1.6 meters, north to south along interior east wall 2.4 meters; east wall width 1.05 meters, (height 0.4 interior, 0.1 exterior); north wall width .8 meters (height 0.3 interior, 0.1 exterior). Stones .2 - .6 meters in diameter.

Feature R

Crude U-shape 1 opens to east, interior 2.3 x 1.2 meters, wall width .9 meters, height 0.4 (downhill). Stones .2 - .6 meters in diameter.

Feature S

Crude oval mound, 1.4 x .8 x .3 meters high on downslope side, .1 meter high on upslope side.

Feature T

Crude oval mound, 1.3 x 1 x .4 meters high. Stones .5 - .5 meters in diameter.

Feature U

Very crude oval enclosure, interior 3.2 x 1.4 meters. Stones .2 - .7 meters in diameter.

Feature V

Very crude oval enclosure, interior 3.1 x 1.9 meters (walls 0.5 - 1 meter). Stones .2 - .7 meters in diameter.

Feature W

Crude mound, 1.7 x 1.0 x .6 meters high on downslope side, .1 meter high on upslope side. Stones .2 - .6 meters in diameter.

Feature X

Along the east edge of the gulch are crudely piled stones forming multiple alignments along the length of the site. Width .6 - 1 meter. Stones .2 - .6 meters in diameter.

Significance

Site 80-07-3200 is significant in terms of the National and State Registers of Historic Places criteria. It's significance lies primarily in the data it is likely to yield regarding the utilization of the talus zone of Waianae Valley by ancient Hawaiians. This site and other as yet unrecorded talus sites would be expected to contain information similar to that recovered from talus slope complexes in Makaha Valley to the northwest.

Site 3200 is similar in a number of respects to a general type of site found on Makaha Valley slopes. Like the Makaha sites, Site 3200 is situated on a lower section of a moderately sloping talus deposit. It also resembles them in general form, size and distribution of the constituent features.

Archaeological evidence indicates that the Makaha sites are remains of pre-Contact dry agricultural complexes. Featured in these complexes include mounds, which apparently served as repositories for stones cleared from surrounding areas; terraces and other structures controlling erosion; and habitation structures. Most of the latter are small simple stone wall arrangements, usually 'C', 'L' or 'U' shaped in plan, which probably served as foundations for simple sheds or lean-tos. Archaeological excavations at Makaha indicate that these structures were probably temporary rather than permanent habitations, since their cultural deposits are relatively thin and contain limited midden or artifactual material. The presence of two or more fireplaces in some of the Makaha structures, each of which was apparently used at a different time, suggests repeated seasonal use. (cf. Hommon 1969, 1970, 1972, Takayana 1969, Takayana and Green 1970)

On the basis of surface evidence, it is likely that the mounds and terraces of Site 3200 served purposes similar to

those postulated for the Makaha Valley talus slope features of the same size and form. Though the U-shapes at Site 3200 may be habitation structures, no surface evidence of cultural deposits or interior structures such as fireplaces was found. Considering the overall inter-valley similarities, however, excavation in one or more of the Site 3200 U-shapes would probably yield evidence of occupation. These same similarities and the absence of post-Contact materials directly associated with Site 3200 support a pre-Contact use for the site.

Recommendations

Because the site is relatively small and is located on a narrow ridge between two gullies, economic concerns arguing for use of the site as part of the agricultural park should be minimal. As such, in place preservation of the features is the most desirable course of action.

Though the site does have limited interpretive potential as a small exhibit within the agricultural park to contrast prehistoric and modern agricultural techniques, the deteriorated nature of the features and the relative inaccessibility of the site make this impractical.

If use of the agricultural park will involve any impacts on the site (e.g., livestock pens), we recommend that a program of mitigation be developed in consultation with the State Historic Preservation office.

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APPENDIX B

TRAFFIC PROJECTIONS

FOR

WAIANAE VALLEY ROAD

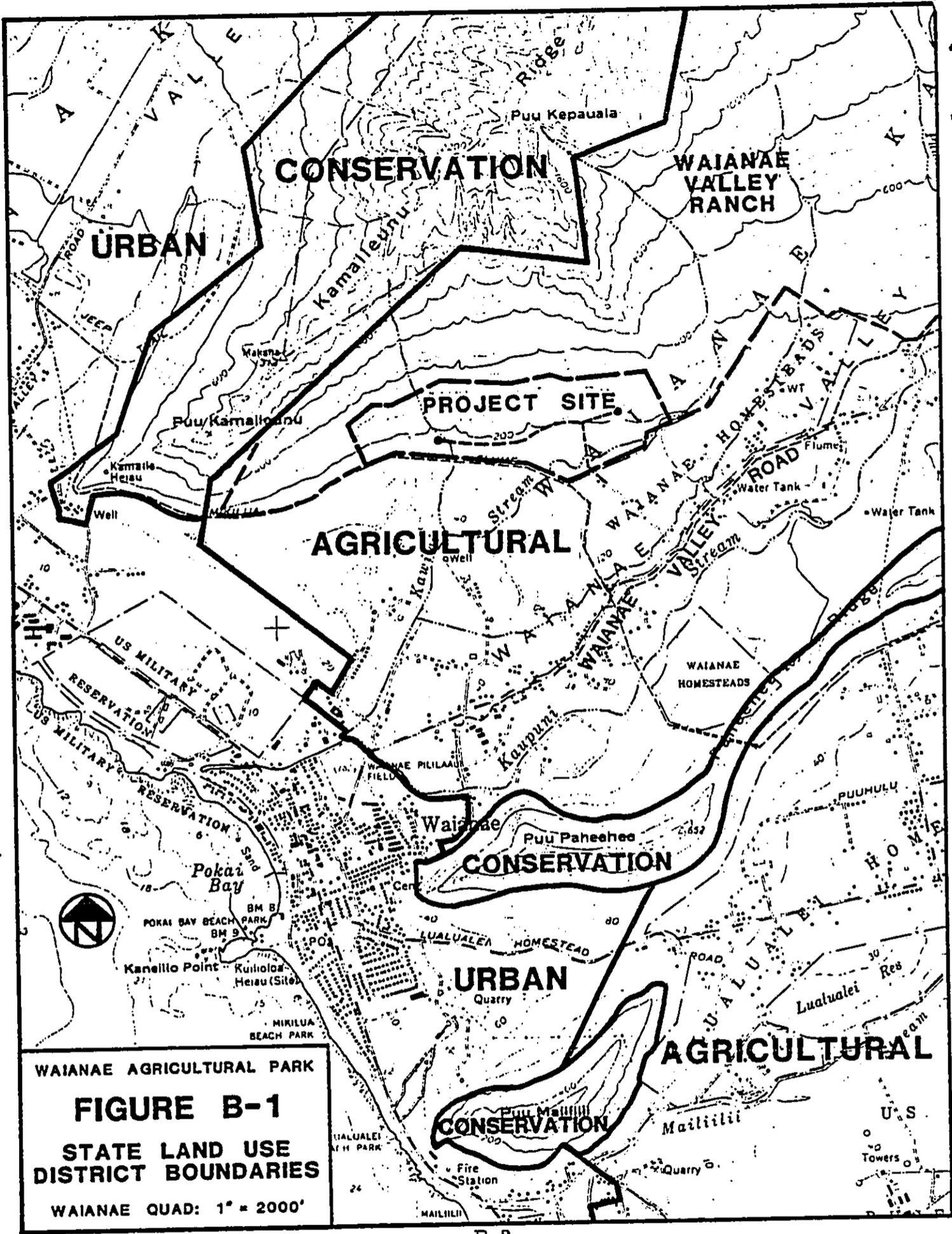
**Prepared By:
VTN Pacific**

APPENDIX B - TRAFFIC PROJECTIONS FOR WAIANAЕ VALLEY ROAD

Mauka of Kaupuni Stream flood control channel, Plantation Road and Waianae Valley Road service only agricultural zoned lands. [Figure B-1] However, Department of Hawaiian Home Lands (DHHL) property is exempt from State and County land use controls. [Ref. 16] Because of community concerns, it is unlikely that there will be zoning changes or Special Permits for residential development such as the Special Permit approved in the early 1960s for the subdivision at Piliuka Place. Consequently, the only major foreseeable new sources of traffic on Waianae Valley Road would be Waianae Agricultural Park and residential development of DHHL lands in mauka Waianae Valley. At this time, the only firm DHHL plans for Waianae Valley are to develop a 500 lot subdivision with road access to Waianae Valley Road from Kaneaki Street. The Hawaiian Telephone Building Digest confirms that apart from DHHL house lots, no public or private developments are proposed in mauka Waianae Valley within the next few years. [Ref. 23]

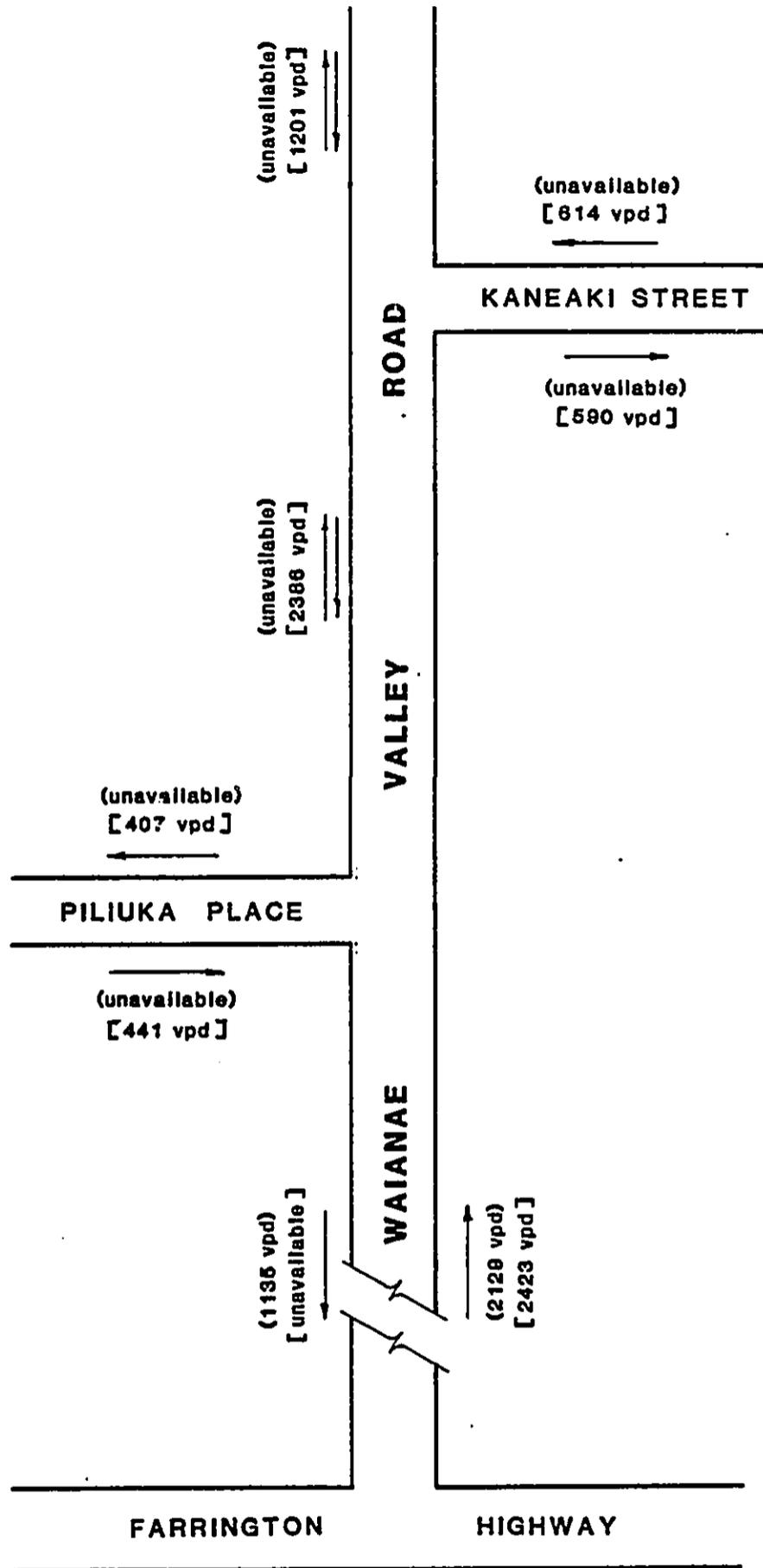
As summarized in Figure B-2, the most recent 24-hour County Department of Transportation Services (DTS) traffic counts for Waianae Valley Road were made in 1975 and in 1979. There was no traffic on Kaneaki Street in 1975 because no homes had yet been built on DHHL lands. However, in 1979, 153 homes had been built, and each of these homes generated an average of 7.87 vpd on Kaneaki Street (and Waianae Valley Road). [Ref. 4, Ref. 12] By comparison, the EIS for the 500 lot DHHL subdivision projected an average of 8.0 vpd per house. [Ref. 18] Mauka of Kaneaki Street, most of the traffic on Waianae Valley Road is directly or indirectly due to the existence of several dairies. Because of the decline in milk consumption in the spring of 1982 following discovery of heptachlor in many Oahu milk products, it is uncertain whether all of these dairies will stay in business.

When the 500 lot DHHL subdivision is completed in 1990, the subdivision will generate about 3,900 vpd on Waianae Valley Road (assuming each new home will generate 7.87 vpd). This traffic would almost entirely be between Kaneaki Street and schools, parks, jobs, and shopping centers which are located makai of Kaneaki Street. Assuming that the DHHL subdivision is the only new traffic source, that the dairies mauka of Kaneaki Street remain in operation, and that Waianae Valley Ranch renews its existing lease, Figure B-3 estimates future traffic on Waianae Valley Road without development of Waianae Agricultural Park.



WAIANAE AGRICULTURAL PARK
FIGURE B-1
 STATE LAND USE
 DISTRICT BOUNDARIES
 WAIANAE QUAD: 1" = 2000'

FIGURE B-2
TRAFFIC COUNTS FOR WAIANAE VALLEY ROAD
 (Vehicles Per Day)



(noon Tuesday November 11, 1975 through noon Wednesday 12th)
 [noon Wednesday January 3, 1979 through noon Thursday January 4, 19th]

Source: County Department of Transportation Services

As shown in Table B-1, about 106 acres of the 150 acre project site are usable for diversified agriculture. Estimates of the ratio of workers per usable acre range from a minimum of 0.2 to 0.3 for piggeries to a maximum of 0.5 to 1.0 for nurseries. [See Table B-2] The amount of acreage that will be used for animal husbandry at the project site is currently unknown. From the standpoint of traffic, the worst case assumption is that there will only be nurseries. Assuming that there will be 106 acres of nurseries in the agricultural park with 0.75 workers/acre, then a total of about 80 persons will report to work on a daily basis at Waianae Agricultural Park.

Assuming that no farm dwelling units are built and that there will be 2 daily work related round trips per worker, then in the worst case, Waianae Agricultural Park will generate an average of 160 vpd of mauka-bound traffic and 160 vpd of makai-bound traffic on Piliuka Place and Waianae Valley Road. Using these assumptions, Figure B-4 estimates future traffic volumes on Waianae Valley Road after completion of the agricultural park. Projected traffic volumes could easily be accommodated provided that Waianae Valley Road was upgraded to meet County rural roadway standards.

TABLE B-1

UNUSABLE ACREAGE IN WAIANAE AGRICULTURAL PARK

Constraint	Acres
Drainageway and Gullies	25.7
Roads/Easements	6.3
Archaeological Site	0.5
Absence of Water Service	11.9
TOTAL	44.4

NOTE: The site totals 150 acres.

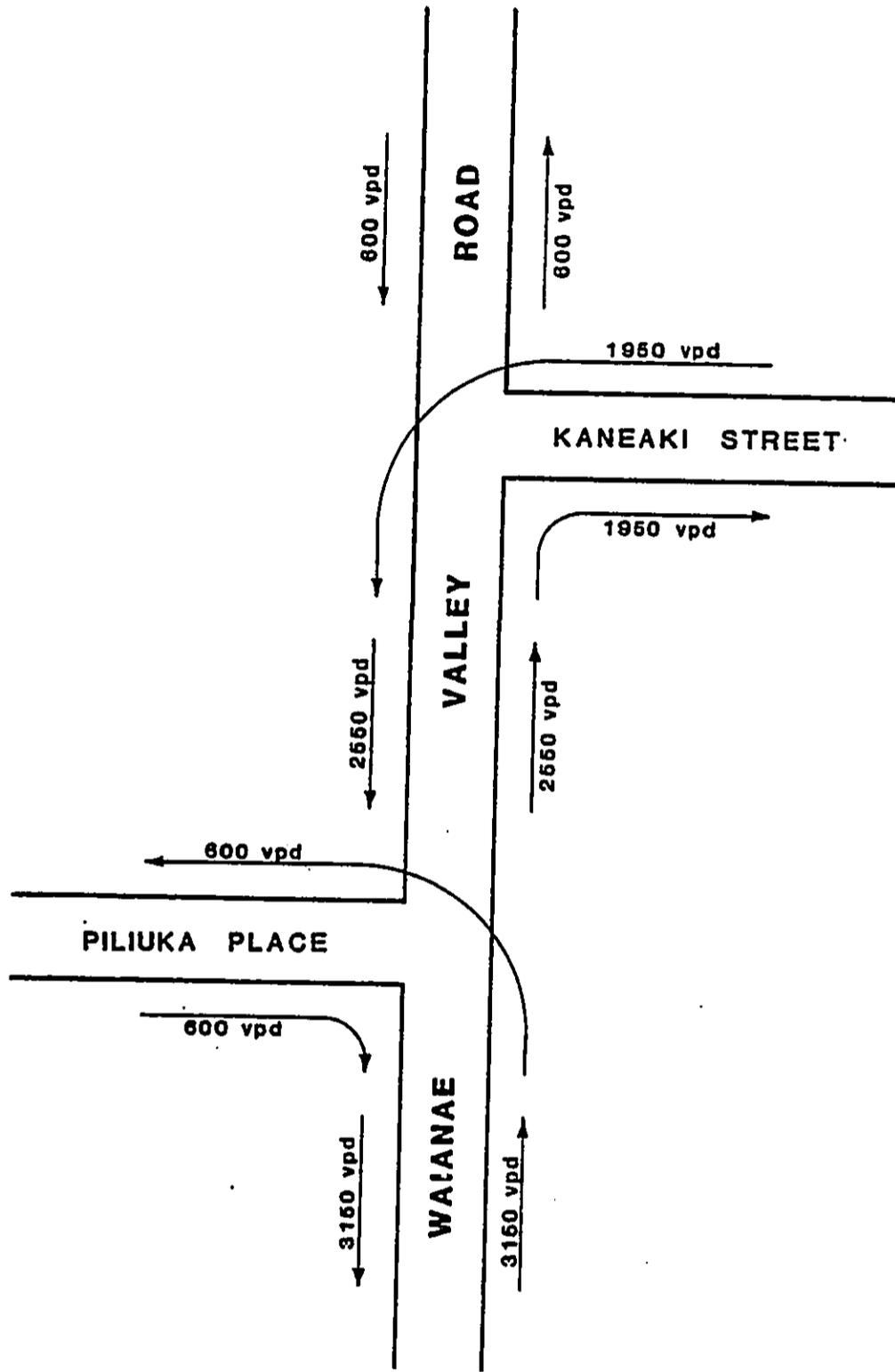
TABLE B-2

EMPLOYMENT AND FARM SIZE FOR EFFICIENT
NURSERIES, PIGGERIES, AND POULTRY BROILER FARMS

Industry	Minimum Basic Farm Size (acres)	Workers	Workers Per Acre
Nursery	2 to 5	Family	0.5 to 1.0
Piggery	6 to 10	1.6 to 2.0	0.2 to 0.3
Poultry Broiler Farm	6 to 12	3.7	0.3 to 0.6

SOURCE: Ref. 13, 14, 33, 42, 43, 44, 46, and 47.

FIGURE B-4
ESTIMATED 1990 TRAFFIC ON WAIANAE VALLEY ROAD
AFTER COMPLETION OF WAIANAE AGRICULTURAL PARK
 (Vehicles Per Day)



B-7

Source: VTN Pacific

APPENDIX C

CORRESPONDENCE ON TREATMENT

AND DISPOSAL

OF SWINE WASTES



1164 Bishop Street, Suite 906
Honolulu, Hawaii 96813

Telephone: (808) 521-5651

September 15, 1983

JN 19-103.60

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

Subject: Pig Farms in Waianae Agricultural Park

Gentlemen:

As a consultant to the State Department of Agriculture, VTN Pacific is responsible for preparing a Revised Environmental Impact Statement (EIS) for the proposed Waianae Agricultural Park. I am writing to request your assistance in resolving one of the environmental issues raised by this project.

As shown in the attached Figure 4 from the Draft EIS, virtually all of the project site is located mauka of the Board of Water Supply No-Pass Line. Also, as shown in the attached Figure 5 from the Draft EIS, there are several basal wells tapping potable ground water in the vicinity of Section I of the Waianae Agricultural Park. Hence, subsurface discharge of pollutants in the project area could potentially contaminate public water supply.

As currently proposed, Section I of Waianae Agricultural Park could accommodate pig farms. No public facilities would be built for collecting or treating piggery wastes. Instead, individual farms would need to provide their own waste management systems to meet the requirements of the State Department of Health and County Board of Water Supply (BWS). We anticipate that pig farmers would probably collect animal wastes in lined oxidation ditches under slotted floors in swine-confinement buildings.

Engineers

Architects

Planners

a subsidiary of VTN corporation

Surveyors

Environmental Scientists

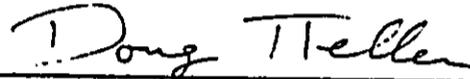
Construction Managers

If acceptable to the BWS, then treated effluent from oxidation ditches would be spread on grass above an elevation of about 300 feet on the slopes of Kamaileunu Ridge. Research by the U.H. Water Resources Research Center, published in Technical report No. 141, indicates that Californiagrass can effectively remove nitrogen from sewage effluent and produce percolate nitrate nitrogen levels well below 10 mg/l. However, if such an approach is not acceptable to the BWS, then it is unlikely that piggeries could locate in Waianae Agricultural Park.

Would it be acceptable to the BWS for pig farmers in Waianae Agricultural Park to spread treated effluent from oxidation ditches on grass on the slopes of Kamaileunu Ridge? If so, subject to what conditions?

Thank you for your kokua.

Very truly yours,



Douglas Meller
Environmental Planner

DM:dab

cc: Paul Schwind
cc: Engineers-Surveyors Hawaii

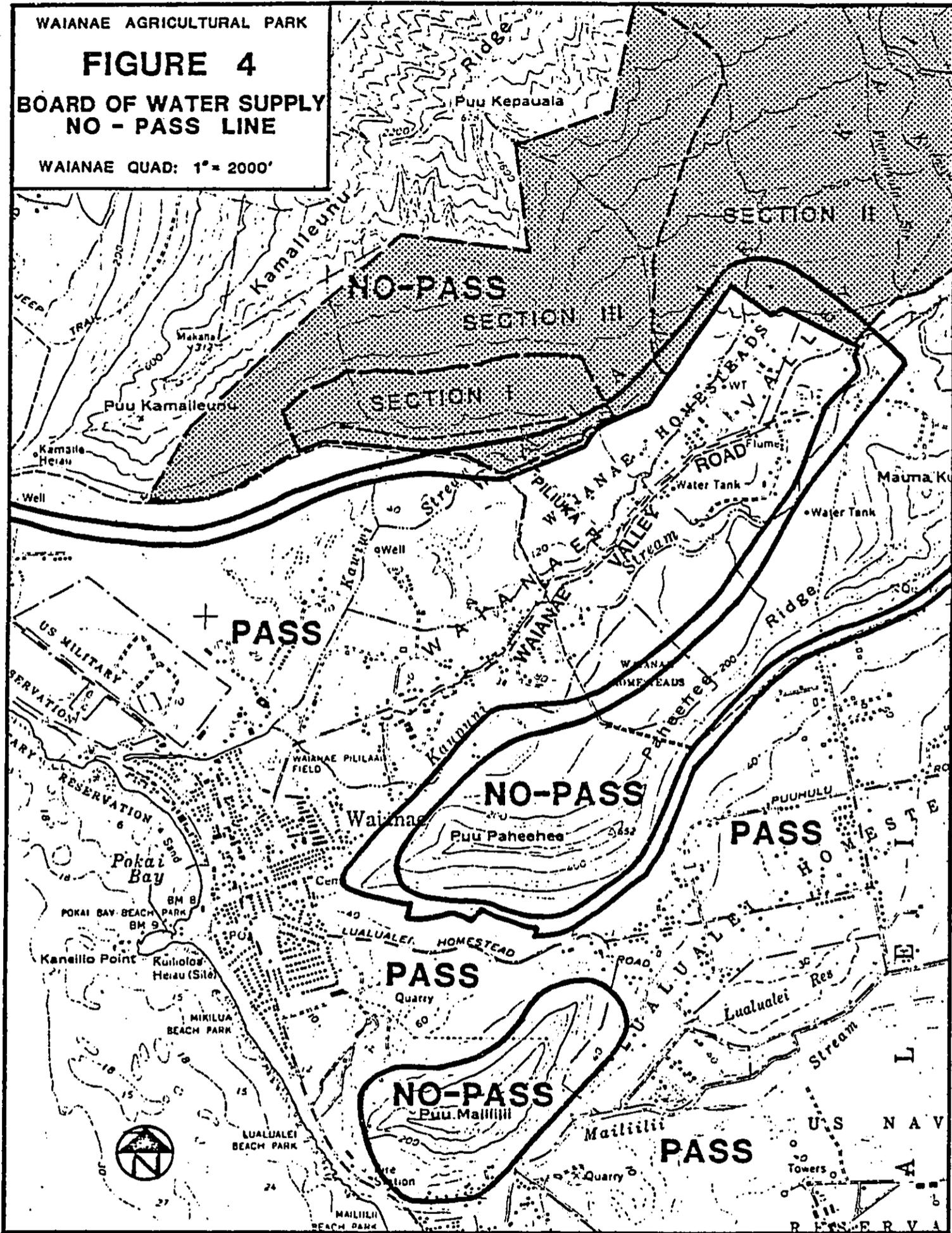
Enclosures

WAIANAE AGRICULTURAL PARK

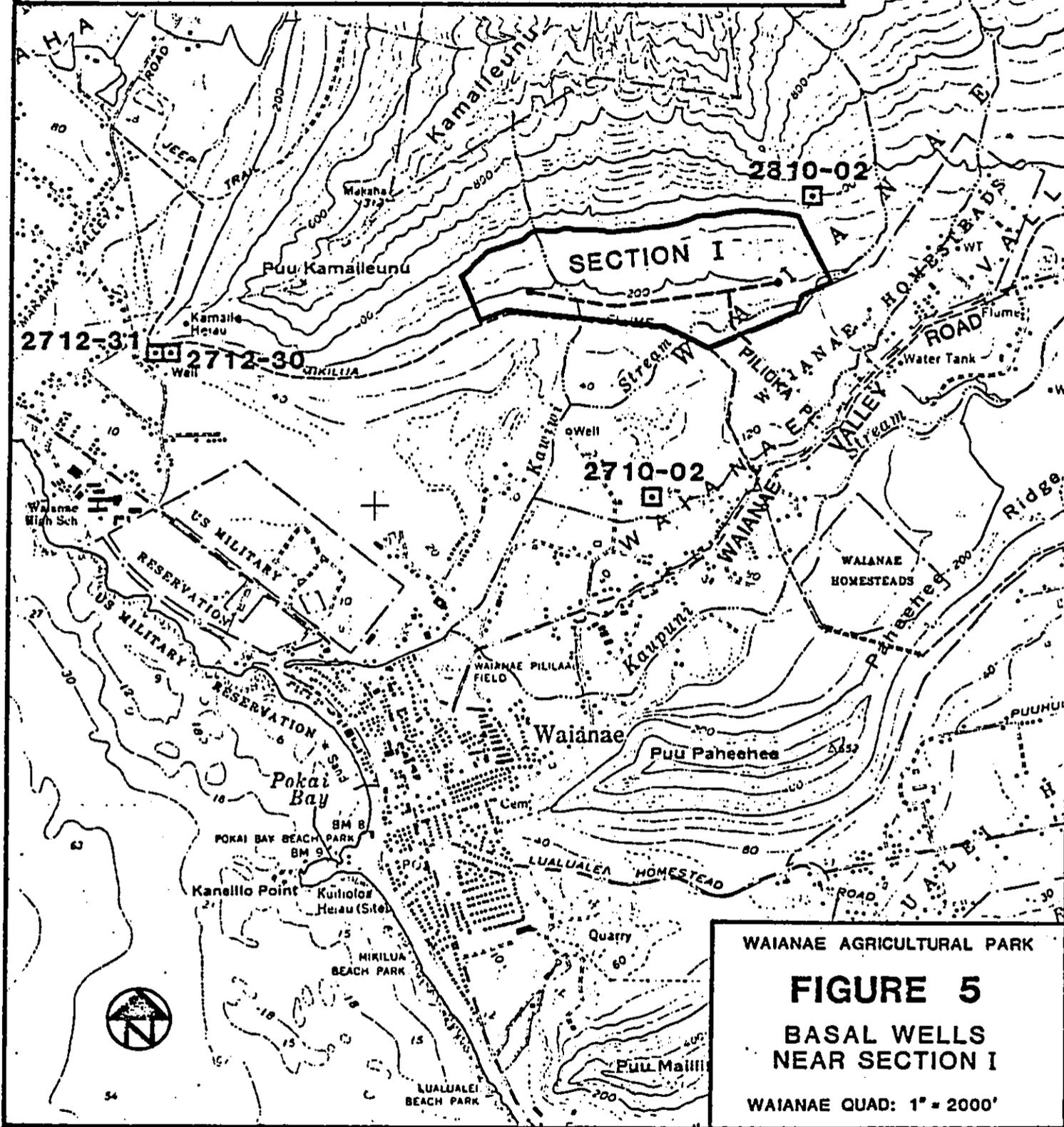
FIGURE 4

BOARD OF WATER SUPPLY
NO - PASS LINE

WAIANAE QUAD: 1" = 2000'



Wells	Well Number	Ground Elevation	Year Drilled	Static Head (Water Elevation)
BWS Kamaile Wells	2712-30	34'	1975	12'
	2712-31	51'	1976	12'
T. Au (Private)	2710-02	48'	1958	14'
DOWALD	2810-02	413'	1980	13'



BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA

HONOLULU, HAWAII 96843

EILEEN R. ANDERSON, Mayor

YOSHIE H. FUJINAKA, Chairman

MILTON J. AGADER
MICHAEL J. CHUN
WALTER A. DODS, JR.
RYOKICHI HIGASHIONNA
ERNEST A. WATARI

KAZU HAYASHIDA
Manager and Chief Engineer

September 28, 1983

Mr. Douglas Meller
VTN Pacific, Inc.
1164 Bishop Street, Suite 906
Honolulu, Hawaii 96813

Dear Mr. Meller:

Subject: Your Letter of September 15, 1983, on
Pig Farms in Waianae Agricultural Park

We recommend that the sewage be collected in a community-type system and disposed of in the "pass zone." The spreading of treated effluent from oxidation ditches on the grass slopes of Kamaileunu Ridge within the Waianae Agricultural Park is unacceptable to us. Besides the potential chemical contamination threat from the use of the effluent, we are also concerned about the potential microbiological contamination of the groundwater resources in the area.

If you have any questions, please contact Lawrence Whang at 527-6138.

Very truly yours,



KAZU HAYASHIDA
Manager and Chief Engineer

GEORGE R. ARIYOSHI
GOVERNOR



JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822

October 25, 1983

RECEIVED

OCT 27 1983

VTN PACIFIC

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

Dear Mr. Hayashida:

Swine Waste Disposal by Land Application

On September 15, 1983, our environmental consultant, VTN Pacific, Inc., wrote to you asking if spreading treated effluent from oxidation ditches would be acceptable at the Waianae Agricultural Park. On September 28, 1983, you replied in the negative, recommending instead that the animal wastes be collected and disposed of in the "pass zone".

Our engineering consultant, Engineers Surveyors Hawaii, Inc., advises us that disposal of oxidation pond effluent through an injection well is not practical, as the well would quickly clog up from particulates in the treated animal wastes. In addition, after checking the revised final draft rules and map for "Underground Injection Control," we find that there is no exempted aquifer sufficiently close or accessible to the agricultural park site for well injection to be economically feasible.

Earlier, when we testified on the amendment to the BWS Rules and Regulations establishing a "no pass zone," you agreed (January 4, 1983) that clear standards and criteria are appropriate to preclude an arbitrary abuse of discretion. However, no such standards or criteria were included in the amended rules and regulations. Therefore, we would like to know on what basis you have found land application of treated effluent to be unacceptable.

Specifically, what potential chemical and microbiological contamination of groundwater do you anticipate would occur? What harmful substances contained in treated swine waste should be prevented from infiltrating into potable groundwater aquifers? Put another way, what specific standards (of chloride concentration, total dissolved solids, coliform, and other substances) must irrigation water meet in order to be applied anywhere over the "no pass zone"?

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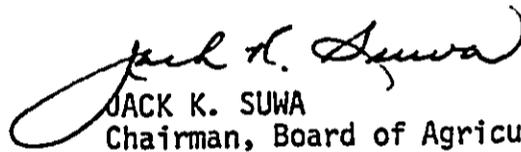
Mr. Kazu Hayashida
Page -2-
October 25, 1983

The Water Resources Research Center Technical Report No. 141 on irrigation of Californiagrass with domestic sewage effluent from the Mililani Wastewater Treatment Plant (December, 1981) reports that with effluent nitrogen application rates ranging from 475 to 2,600 kg/hectare/year, percolate nitrate nitrogen levels were below the critical 10 mg/liter level for potable water. If the same standard could be met for swine waste effluent used to irrigate Californiagrass, would land application be acceptable to you?

We are writing the University of Hawaii to obtain more detailed information on methane digester systems for swine waste treatment, in particular regarding analysis of the liquid effluent (attached). We obviously do not expect you to give "carte blanche" approval to untested waste disposal methods with unknown impacts on groundwater quality. However, if land application of treated effluent is unacceptable in the "no pass zone", there will be serious difficulties for many livestock farmers. We hope we may have your assistance in resolving this issue based on all the known facts.

For any information or coordination required in responding to our questions, please contact Paul Schwind, our Chief Planner, at 548-7133.

Sincerely,


JACK K. SUWA
Chairman, Board of Agriculture

Enc.

cc: Dr. Noel P. Kefford, CTAHR
Mr. Melvin Koizumi, DOH
Mr. Susumu Ono, DLNR
Engineers Surveyors Hawaii, Inc.
VTN Pacific, Inc.
Dr. L. Stephen Lau, WRRRC

GEORGE R. ARIYOSHI
GOVERNOR



JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822

October 25, 1983

Dr. Noel P. Kefford, Dean
College of Tropical Agriculture and
Human Resources
University of Hawaii
3050 Maile Way
Honolulu, Hawaii 96822

RECEIVED

OCT 27 1983

VIN PACIFIC

Dear Dr. Kefford:

Swine Waste Disposal by Land Application

This letter requests the further assistance of the College of Tropical Agriculture and Human Resources in our efforts to recommend acceptable animal waste management systems for the Waianae Agricultural Park.

A Planning Report and Draft Environmental Impact Statement have been prepared for this project, and are enclosed herewith. With regard to the swine operations proposed, the plans call for individual farmers to design and construct waste treatment and disposal systems which are acceptable to approving agencies (e.g., Board of Water Supply and Department of Health). Our recommendation has been that effluent from swine waste, treated in a contained system such as lined oxidation ditches or a methane digester, be disposed of by land application on each farm lot.

The Board of Water Supply has stated that the spreading of treated effluent from oxidation ditches is unacceptable (attached). BWS Resolution No. 502, December 16, 1982, amended BWS Rules and Regulations to define and establish a "no pass zone" wherein waste disposal facilities which may contaminate groundwater resources are prohibited. The Waianae Agricultural Park site is within the "no pass zone". The new regulation is not explicit whether this prohibition extends to surface application of treated effluent, nor what specifically constitutes "waste" for the purpose of the regulation. We are seeking clarification on these points from the Board of Water Supply (attached).

We would particularly like the assistance of your colleagues in specifying the quantity and composition of treated effluent from, as well as the construction and operating costs of, a methane digester

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system adequate to handle the swine waste from a 150 to 450 sow, 1,000 to 3,000 pig operation such as is contemplated for individual 10-acre lots at the Waianae Agricultural Park. My staff has already received considerable assistance from Dr. Ping-Yi Yang regarding the status of methane digester systems at a Kona egg farm and a Maui hog farm. We have also reviewed Engineers Notebook No. 310, September, 1983, on the "Happy Hula Hog Farm" at Kula, Maui.

Specific questions which we would like answered as fully as possible include:

1. For a 1,000 to 3,000 pig operation in Waianae:
 - a. What size/capacity digester would be required?
 - b. What quantity of washdown water would be needed to charge the digester daily?
 - c. What quantity of effluent water would be discharged daily?
 - d. What would be the chemical and microbiological analysis of this liquid effluent?
 - e. What post-treatment methods might be required, if any?
 - f. What land area (in acres) would be required to safely and effectively utilize the treated effluent as irrigation water?
 - g. What would be the estimated cost for a digester and post-treatment system adequate for a 1,000 to 3,000 pig operation?
 - h. Is the "state of the art" such that methane digester systems can be operated reliably and continuously by individual farmers to meet specific standards for nitrogen, solids, coliform, and other substances in the effluent?
2. Has there been any analysis of water and nitrogen budgets and crop productivity with irrigation by treated animal waste effluent, comparable to the study of irrigation of California-grass with domestic sewage effluent (Water Resources Research Center, Technical Report No. 141, December, 1981)?

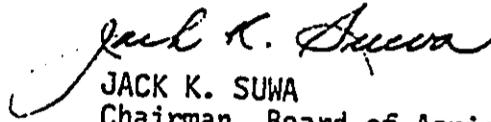
The answers to these questions will be of great significance to all livestock farmers on Oahu. In particular, no new or expanded swine operations may be possible throughout most of the island unless the Board of Water Supply can be convinced that no harmful substances will infiltrate to contaminate groundwater resources used or expected to be used

Dr. Noel P. Kefford
Page -3-
October 25, 1983

for domestic water supplies.

By copy of this letter, we are also soliciting input from a number of other individuals and agencies that have interest and expertise in the area of livestock waste management. For further information or comments, please contact Paul Schwind, our Chief Planner, at 548-7133. We shall greatly appreciate whatever assistance you can provide in the very near future.

Sincerely,


JACK K. SUWA
Chairman, Board of Agriculture

Encl.

cc: Mr. Kazu Hayashida, BWS
Mr. Melvin Koizumi, DOH
Mr. Susumu Ono, DLNR
Engineers Surveyors Hawaii, Inc.
VTN Pacific, Inc.
Dr. L. Stephen Lau, WRRRC
Mr. Yukio Kitagawa, CTAHR
Dr. Ping-Yi Yang, CTAHR
Mr. Mel Kakazu
Mr. David Oshiro
Mr. Glenn Shinsato



University of Hawaii at Manoa

College of Tropical Agriculture and Human Resources
Hawaii Institute of Tropical Agriculture and Human Resources
Gilmore Hall 202 • 3050 Maile Way
Honolulu, Hawaii 96822

NOV 16 1983

Office of the Director

November 14, 1983

Mr. Jack Suwa
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Dear Jack:

The enclosed memorandum and newsletter by Dr. P. Y. Yang respond to your letter of October 25, 1983 on "Swine Waste Disposal by Land Application."

If you need further information or assistance please do not hesitate to let me know.

Yours sincerely,

N. P. Kefford
Director

bn

Attachment

83 NOV 17 AIO:17

HAWAII DEPT OF AGR



University of Hawaii at Manoa

College of Tropical Agriculture and Human Resources
Department of Agricultural Engineering
3050 Maile Way • Honolulu, Hawaii 96822
Cable Address: UNIHAW

November 2, 1983

MEMORANDUM

TO: N. P. Kefford, Dean, HITAHR

VIA: Y. Kitagawa, Assistant Director, CES *Y. Kitagawa*

VIA: M. Ray Smith, Chairman *M. Ray Smith*

FROM: P. Y. Yang, Professor *P. Y. Yang*

SUBJECT: Swine Waste Management for Waianae Agricultural Park

In response to the request and questions from the Board of Agriculture (as attached), specific answers have been made and are summarized as follows:

Based on the request, a 2000 pig operation with 100 lb/pig was assumed to be operated in Waianae.

- a. Case A. A digester with liquid volume of 220 m³ (with application of sludge recycling) will be required.
Case B. A digester with liquid volume of 440 m³ (without sludge recycling) will be required.
- b. Case A. 36 m³/day of liquid manure washdown would be required to charge the digester.
Case B. 44 m³/day of liquid manure washdown would be required to charge the digester.
- c. Case A. 36 m³/day of effluent water would be discharged.
Case B. 44 m³/day of effluent water would be discharged.
- d. Part of chemical component of digested sludge is shown in Table 1, Engineering Notebook #310. There is no microbiological analysis of the digested effluent available.

AN EQUAL OPPORTUNITY EMPLOYER

November 2, 1983

- e. Post treatment methods would be dependent on the effluent discharge standard. Part of post treatment requirement via an algal biomass raceway system has been investigated by the Agricultural Engineering Department, CTAHR.
- f. No work has been done on land disposal of anaerobically treated swine wastewater.
- g. Based on 1981 information, in Case A, a 500 m³ digester will be required with a cost of approximately \$16,000 - (Equipment and Shipping). For Case B, two 500 m³ digesters will be required with a cost of approximately \$32,000 - (Equipment and Shipping). Again, the post treatment system would be dependent on the requirement of effluent discharge standard.
- h. A 30 m³ digester has been operated quite successfully at Happy Hula Hog Farm for more than a year. A 100 m³ digester has been operated for two months in Kona (a poultry farm). No major problems have been observed. A 20 m³ digester has been operated at our research farm for more than two years without any major difficulty. Anaerobic digestion (methane fermentation) process is considered to be a carbon removal process but not for nitrogen removal. Certain post treatment processes should follow the anaerobic digestion if nitrogen, coliform and other substances must be removed to a specified concentration.

There are no available analyses of water and nitrogen budgets and crop productivity with irrigation by anaerobically or aerated treated animal waste effluent. Further research in this area should be conducted in our state.

Additionally, two research proposals related to the swine wastewater management systems are currently submitted for consideration of funding; they are:

- (1) Algal biomass treatment processes for partially treated swine wastewater (U.S. Environmental Protection Agency)
- (2) A potential highly diluted swine wastewater management alternative in the tropics. (USDA 406 proposal)

It is expected that more information related to Agricultural Park waste management system can be generated from these two research projects if funded.

PYY:jmk

attachment

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

EILEEN R. ANDERSON, Mayor
YOSHIE H. FUJINAKA, Chairman
MILTON J. AGADER
MICHAEL J. CHUN
WALTER A. DODS, JR., Vice-Chm.
ERNEST A. WATARI
WAYNE J. YAMASAKI
KAZU HAYASHIDA
Manager and Chief Engineer

December 22, 1983

Mr. Jack K. Suwa, Chairman
Board of Agriculture
State of Hawaii
P. O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Suwa:

Subject: Your Letter of October 25, 1983, on Swine Waste Disposal by Land Application at Waianae Agricultural Park

This is a follow-up to our meeting with your staff on November 29, 1983.

Our Rules and Regulations allow the Board to disapprove any waste disposal proposal if there are reasons to believe that potable groundwater resources may be contaminated by the disposal of wastes into or onto the ground. The rules do allow an aggrieved party to appeal our decision.

In appealing to us, the aggrieved party is given the burden of proving that the on-site waste disposal system will not contaminate potable groundwater resources.

Our concerns regarding your proposal involve the possible contamination of the groundwater resources due to bacterial and viral contamination, increased nitrate levels, and other synthetic organic chemicals.

In order for us to allow waste disposal in the "no pass zone", the applicant should prove that groundwater quality will not be rendered unpotable. The sources that may be affected include the State well, BWS Kamaile wells, and a number of shallow wells primarily used for irrigation and dairies.

DEC 29 1983

DEC 23 10:04
HAWAII DEPT OF AGR



Mr. Jack K. Suwa
Page 2

December 22, 1983

As we indicated to Mr. Paul Schwind, we would reconsider the proposal if the study conducted by the Department of Agriculture on acceptable methods of swine waste disposal also included a guarantee by the Department of Agriculture that it will be responsible for any contamination of the groundwater traced to that particular source.

If you have any questions, please contact Herbert H. Minakami at 527-6183.

Very truly yours,

for KAZU HAYASHIDA
Manager and Chief Engineer

GEORGE R. ARIYOSHI
GOVERNOR



JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822

January 5, 1984

MEMORANDUM

To: Mr. Susumu Ono, Chairman
Board of Land and Natural Resources

Subject: Swine Waste Disposal at Waianae Agricultural Park

We have received the attached letter of December 22, 1983, in response to our request of October 25, 1983, to the Board of Water Supply.

In the absence of specific standards for treated effluent applied as irrigation water, the Board of Water Supply requires that (swine) waste disposed of by this method must not render groundwater unpotable. If the State wishes to encourage swine production as planned for the Waianae Agricultural Park, we would have to guarantee responsibility for any contamination of the groundwater traced to that source.

At the November 29 meeting referred to in Mr. Hayashida's letter, staff discussed the possibility of a site test to measure the percolation of swine waste contaminants through the soil material of the project area. However, no commitment has been made, then or now, to "guarantee" groundwater quality in the sense implied by the Board of Water Supply.

Obviously we would not further recommend land application of swine waste effluent if a lysimeter or similar test showed that groundwater would be rendered unpotable. But if favorable test results showed negligible or no contaminants reaching the groundwater aquifer, the desirable course of action for the State seems less clear. Could the State in fact guarantee to supply or replace potable water from the well sources referred to in the BWS letter, in the unlikely event that contamination occurred and were traceable to the agricultural park?

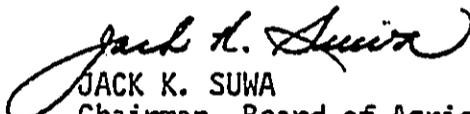
If the State is unable to provide for swine production at the Waianae Agricultural Park, an important justification for this project, along with the DOWALD well 2810-02, would no longer exist. Or if the project were developed predominantly for flower and nursery production rather than livestock, groundwater consumption would be substantially

"Support Hawaiian Agricultural Products"

Mr. Susumu Ono
Page -2-
January 5, 1984

higher, according to preliminary figures in the Draft Environmental Impact Statement.

Before submitting the subdivision map and construction plans for the Waianae Agricultural Park to the City and County of Honolulu, we would appreciate your comments on the above issues from your perspective as the lead agency for development and administration of agricultural parks. In particular, please indicate whether the State could guarantee groundwater quality in wells near the project site, and whether we should consider such a policy.


JACK K. SUWA
Chairman, Board of Agriculture

cc: Mr. Andrew Chang, City
Managing Director
Mr. Kazu Hayashida, BWS
Dr. Noel P. Kefford, CTAHR
Mr. Melvin Koizumi, DOH
Engineers Surveyors Hawaii, Inc.
✓ VTN Pacific, Inc.
Mr. Larry K. Fukunaga & Associates
Dr. L. Stephen Lau, WRRRC