

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

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*Waipahu Independent
Living Apartment
Complex*

JEREMY HARRIS
MAYOR



ROBERT AGRES JR.
DIRECTOR

DARWIN J. HAMAMOTO
DEPUTY DIRECTOR

April 10, 1997

Mr. Gary Gill, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Gill:

Subject: Final Environmental Assessment for the Independent Living
Apartment Complex, Tax Map Key: 9-4-17: Portion of 1 and 55,
Honolulu, Oahu, Hawaii

The Department of Housing and Community Development has reviewed the Final Environmental Assessment (EA) for the subject project and wishes to submit a negative declaration. Please publish the notice of availability for this project in the April 23, 1997 issue of The Environmental Notice.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final EA. Please contact Mr. Jason Ching at 523-4368 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Agres, Jr.", written over a horizontal line.

ROBERT AGRES, JR.
Acting Director

Enclosures

OFFICE OF ENVIRONMENTAL QUALITY CONTROL
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Living Apartment Complex

FILE COPY

FINAL ENVIRONMENTAL ASSESSMENT

INDEPENDENT LIVING APARTMENT COMPLEX
WAIPIO AND WAIKELE, EWA DISTRICT, OAHU

Prepared for:

Independent Living Waipahu, Inc.
PO Box 3563
Honolulu, Hawaii 96811-3563

Prepared by:

Sueda & Associates, Inc.
905 Makahiki Way, Mauka Suite
Honolulu, Hawaii 96826

and

Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814

April, 1997

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Note: With the exception of the Table of Contents and Appendices, revisions to the text of the Draft Environmental Assessment appear in *bold italic* type. Deleted text is shown in brackets.

ENVIRONMENTAL ASSESSMENT
FOR ACTIONS THAT DO NOT REQUIRE AN EIS UNDER NEPA OR LOCAL LEGISLATION

I. Name of Project/Activity: Independent Living Apartment Complex

I.D. No. _____

2. Type of Action: ___ Agency Applicant

Independent Living Waipahu, Inc.
[850 Iwilei Road] PO Box 3563
Honolulu, Hawaii [96817] 96811-3563

3. Approving/Implementing Agency:

Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

4. Head of Agency: Robert Agres, Jr., [Acting] Director

5. Environmental Assessment Prepared By: Gerald Park, Principal
Gerald Park Urban Planner

II. Description of Proposed Action (s)

1. Single Activity

Independent Living Waipahu, Inc. proposes to construct a 24 unit apartment complex in the town of Waipahu, Oahu, Hawaii. Applicant is a nonprofit corporate entity established by co-sponsors Accessible Space, Inc., Rehabilitation Hospital of the Pacific, and Independent Living Housing. Independent Living Housing has a Property Purchase Agreement with the Housing Finance and Development Corporation (HFDC), State of Hawaii, *the land owner (Comment, OEQC)*, to acquire a portion of Lot 3 of the HFDC's Kau'olu Development, a mixed-use development project. A Location Map is shown in Figure 1, Appendix B.

The subdivision of Lot 3 would create two lots: Parcel A with a land area of 31,040 square feet and Parcel B with 34,389 square feet (See Figure 2 Appendix B). Independent Living Housing would acquire Parcel A *from the land owner* and lease it to Independent Living Waipahu, Inc. for an annual fee of \$ 1.00. Independent Living Waipahu, Inc. will own the apartment complex.

Applicant proposes to construct a two-story structure with a gross building area of about 24,104 square feet (A Site Plan is shown in Figure 3 Appendix B). Dwelling units consist of 18 one bedroom and 6 two bedroom apartments each with a kitchen and bath. The one-bedroom unit

averages approximately 520 square feet of net living area and the two-bedroom about 763 square feet.

The project is being developed as an independent living facility (as defined by the U.S. Department of Housing and Urban Development Section 811). Most of the tenants are expected to be functionally quadriplegic and travel in wheelchairs. A description of the targeted population is presented in Appendix A. Other tenants will be those with severe disabilities. Because of the client group, assistive technology will be incorporated into the design of the dwelling units and building. For example, voice activated controls will access doors, open and close draperies or blinds, operate television sets, ceiling fans, lights, and telephones. The units will feature roll-in shower stalls and universal design-adjustable cabinets, floor cabinets, and countertops.

The Section 811 Grant stipulates that some form of "supportive services", that is, a personal care attendant and/or chore worker must be an integral part of the overall operations, either provided by the owner's housing program or arranged by the tenant. These assistants may help the tenant with *self care* (bathing, grooming, housekeeping, and transfer from bed to wheelchair or vice-versa). Although the tenant may need assistance, he/she is capable of managing and directing his/her care, pay rent, prepare meals, and so on.

A housing management firm may be contracted to operate and maintain the facility. The housing management staff will include a full-time resident manager and a groundskeeper (part-time). The resident manager will reside on the premises. In addition, the feasibility of providing 24-hour attendant care *by home care agencies and not the applicant (Comment, DLU)* is contemplated. The apartment complex will not be operated as a medical facility.

The L-shaped building will be erected on a shallow, poured in place concrete foundation. Exterior walls are expected to be metal studs with built up exterior finish. A pitched roof of either wood trusses topped with plywood decking and covered with asphalt shingles or metal trusses with structural metal diaphragm is proposed.

Community spaces include a multi-purpose room, lounge, storage and a laundry and sewing room. Fire sprinklers and smoke alarms will be installed in the units and all common areas. Fire extinguishers will be furnished per fire code requirements.

Two 16-foot wide, single-lane driveways will separate access/egress onto Kau'olu Place. Off-street parking for 19 vehicles will be located at the front of the building. *Note: Due in part to comments received from reviewing agencies, the vehicle entry and the configuration of the parking lot have been redesigned. The revised plans are shown in Appendix B.*

A private park will be built in the southwest corner of the site. A passive recreation environment is envisioned with trees for shade, lawn areas, barbecue grill, and benches, where residents can enjoy the outdoors and "talk story".

In-place water, sewer, drainage, power, telephone, and CATV systems for the Kau'olu Development are available and adequate to serve the proposed project. *No construction work in waters of the United States is proposed(Comment, Department of the Army).*

Construction costs are estimated at \$4.0 million and will be funded by the U.S. Department of Housing and Urban Development (HUD) Section 811: Supportive Housing for Persons with

Disabilities and City and County of Honolulu Housing and Community Development Block Grants and private foundations.

Rental rates have not been finalized but will be based in part on 30% of the tenant's gross monthly income. In addition, a portion of each tenant's monthly rent will be covered under terms of a Project Rental Assistance Contract provided by HUD. With respect to affordability, the income limit for persons with long-term physical disability is based on HUD's income limit specifications. For 15 one bedroom units, the income limit may be at or below 80% of the tenant's annual medium income. For 2 one bedroom units and 6 two bedroom units, the income limit shall be at or below 50% of the tenant's annual medium income.

The project will be built in one construction phase. Applicant projects construction to commence in the last quarter of 1997 with completion by the third quarter of 1998.

2. Project Location: Waipahu, Ewa District, Oahu
3. Tax Map Key: 9-4-17: por. 55 and 01
Location Map Attached: Yes No

III. ENVIRONMENTAL ASSESSMENT PREPARED FOR COMPLIANCE WITH HUD REQUIREMENTS AND ENVIRONMENTAL REVIEW REQUIREMENTS OF OTHER LEVELS OF GOVERNMENT AS FOLLOWS:

1. State of Hawaii, Supplemental Form EA-S-SOH

IV. FINDINGS AND CONCLUSIONS RESULTING FROM THE ENVIRONMENTAL REVIEW

1. ENVIRONMENTAL FINDING:

- Finding of No Significant Impact on the Environment (FONSI)
 An Environmental Impact Statement is Required

2. Agencies/Interested Parties Consulted (Contact Person, Title, Tel. No., Date)
** Responding Agencies and Organizations. See Appendix K for comment letters and responses.*

Federal

- *US Army Corps of Engineers

State of Hawaii

- Department of Health
- Department of Human Services
- *Department of Land and Natural Resources-Historic Sites Division
- Department of Transportation
- Housing Finance and Development Corporation
- *Commission on Persons with Disabilities
- *Office of Environmental Quality Control

City and County of Honolulu

- *Board of Water Supply
- *Building Department
- *Department of Land Utilization
- *Department of Wastewater Management
- Department of Parks and Recreation
- *Department of Public Works
- *Department of Transportation Services
- *Planning Department
- *Fire Department
- *Police Department
- Mayor's Committee on Person with Disabilities

Others

- *Hawaiian Electric
- *GTE Hawaiian Tel
- Waipahu Community Association
- Waipahu Neighborhood Board No. 22
- *Waipahu 2000
- Waipahu Public Library*

3. Alternatives Considered:

An alternative site fronting on Hikimoe Street about ¼ mile south of the project site was first considered for the project. It was determined that the flat, elongated, rectangular shaped parcel was poorly configured and located too close to a busy street and attendant automobile traffic and noise.

A no development alternative would preclude the occurrence of all environmental impacts short and long-term, beneficial and adverse described in this assessment. The project site would remain vacant and undeveloped and housing opportunities on this site for the targeted client group would be foregone.

4. Special conditions imposed or actions taken to achieve compliance with HUD, other federal authorities or local policies and standards: None.

5. a. FINDING OF NO SIGNIFICANT IMPACT ON THE ENVIRONMENT AND REQUEST FOR RELEASE OF FUNDS (Combined Notice)

- (1) Date FONSI/RRDF Published in local newspaper _____
- (2) Last day for recipient to receive comments _____
- (3) Last day for HUD to receive comments _____
- (4) Date FONSI transmitted to Federal, State, or local governmental agencies or interested groups or individuals _____
- (5) Date HUD released grant conditions _____

b. NEGATIVE DECLARATION (Hawaii only)

- (1) Date Negative Declaration Published in OEQC Bulletin: April 23, 1997
- (2) Date on which 30 day challenge period expires: May 23, 1997
- (3) Documentation attached: X Yes No

V. IMPACT CATEGORIES

- Impact Ratings:
- 1 Potentially beneficial impact
 - 2 No adverse impact anticipated/Not Applicable
 - 3 Minor impacts anticipated, mitigative measures can be taken by:
 - a. taking special precautions during construction period
 - b. routinely monitor potential concern upon completion of project (long term)
 - 4 Adverse impact requires technical analysis
 - 5 Adverse impact requires modification to project or activity

LAND DEVELOPMENT

Conformance with Comprehensive Plans and Zoning

Rating: 2

The town of Waipahu is designated Urban on state land use district boundary maps and (Comment, OEQC) comprises part of the City and County of Honolulu's Central Oahu Development Plan Area. The Central Oahu Development Plan Land Use Map designates the building site (as well as the entire Kau'olu Development) Residential. The property is designated Public Facilities on the Waipahu Special Area Plan which was adopted by the City Council in 1996 (Comment, Planning Department). The Zoning Map for Waipahu zones the property R-5 (Residential, 5,000 square foot lot minimum).

The proposed project is not a permitted use of Residential zoned lands thus the project conflicts with the zoning for the property. Applicant will be requesting exemptions to the zoning district regulations and development standards of the Land Use Ordinance, City and County of Honolulu, for R-5 zoned property. In general, the exemptions would be to allow apartment use of a residential zoned lot, encroachments into required yards, exceeding the building height limit (35 feet versus 25 feet), and providing less than the required off-street parking (34 required stalls).

Application for exemptions will be made through the City and County of Honolulu, Department of Housing and Community Development. The State Housing Finance and Development Corporation and the County housing agencies are authorized through Chapter 201E-212 and Chapter 46-15.1 Hawaii Revised Statutes to exempt affordable housing projects from statutes, ordinances, charger provisions and rules of any government agency relating to zoning, planning, and construction standards provided that the project meets minimum health and safety standards.

The adjoining multi-family Kamalu and Hoolulu Elderly Housing projects constructed by the HFDC are examples of projects for which zoning district regulations and development standards were exempted through Chapter 201-E.

Source: Project Plans, 1996.

List of 201E Exemptions, Independent Living Facility. (See Appendix J)

Compatibility and Urban Impact

Rating: 2

A goal of the master plan for the previously undeveloped/unimproved "Crown Property" is to develop the property for residential activities. A variety of housing types were proposed including mid-rise apartment dwellings, low-rise apartments, and townhouse units. Crown Property is centrally located in the town of Waipahu and in close proximity to shopping and commercial activities, major roads and public transportation, recreation areas, and hospitals and medical clinics.

In part because of its location, elderly households desiring long-term accommodations were identified as the target population. All living accommodations were to be designed to promote and enhance a safe, sanitary, and secure environment for residents. To further support the needs of the elderly, land was set aside for a senior citizens center and a medical office building both to be developed by others.

The proposed low-rise housing project supports the mixed-use concept for the Kau'olu Development conceived by the Housing Finance and Development Corporation. Although the client group will likely be comprised of persons 18 years and older (including senior citizens) because of their special needs they would benefit from residing at this location as do the elderly.

Source: Park, Gerald Urban Planner. 1990. Environmental Assessment Waipahu Crown Elderly Housing, Waikele and Waipio, Ewa, Oahu. (See Appendix D) Project Plans, 1996.

Slope

Rating: 2

The building site stands about 2-3 feet above the street grade of Kau'olu Place. The difference in elevation is due to surcharge fill remaining on the lot along with stockpiled excavated material. In general, the top of fill is relatively flat with grades sloping in a northerly and southerly direction. Ground elevation falls from a high of 18 feet measured east-west across the lot to a low of about 11 feet along Kau'olu Place.

Source: Topographic Survey, R.M. Towill Corp. 1996.
Field Observation, Gerald Park, September, 1996.

Erosion

Rating: 3a

Soils on the property are imported material with unknown erosion potential. Presently the site soils appear to be well compacted and most of the lot is partially covered with wayside weeds and grasses which help to retard erosion. No signs of on-going erosion—principally dirt deposited on adjoining sidewalks and streets— were observed.

Source: Field Observation, Gerald Park, September, 1996.

Soil Suitability

Rating: 3a

Soil Conservation Service soil maps report that the property was created by land filling. Soil borings taken in the 1970-80s confirmed that the soil consists of 8-10 feet of artificial fill over deep, soft, compressible deposits. To minimize ground settlement due to consolidation of the soft compressible

deposits, a surcharge program was initiated by the State of Hawaii in 1975 and continues to the present time on unimproved portions of the Kau'olu Development including the project site.

At the project site, little to moderate amounts of settlement has occurred since 1975 and benefits of the surcharge program have occurred (Dames and Moore). The consulting soils engineer recommends grubbing the property of vegetation and removing all debris and other deleterious materials. The exposed ground should then be scarified to a depth of 6", moisture conditioned, and then compacted. If loose or soft areas are encountered, the soil should be removed to firm material, and the resulting depression filled with properly compacted fill. On-site soils are not suitable for backfill.

The consulting civil engineers recommend removing approximately 3-4 feet of surcharge material to attain the desired design elevation. Thus, all surcharge material will not be removed from the site. The soils engineer reports that a light building can be supported on surcharge material on spread footings. The architect for the project is planning to design the building accordingly using lightweight construction materials.

Source: Soil Conservation Service, 1972.

Dames & Moore. Final Report Surcharge Program for Site Stabilization Proposed Elderly and Low Income Housing Site. 1982. (See Appendix G).

Soils Investigation Report, Proposed Independent Living Facility Mokuola Street and Kau'olu Place, Waipahu, Hawaii. Soils International. 1996. (See Appendix H).

Hazards and Nuisances, including Site Safety

Rating: 2

The Flood Insurance Rate Map for Waipahu designates the building site (Parcel A) Zone X which is defined as "areas determined to be outside of 500-year flood plain." Flood hazard boundaries are shown in Figure 2.

A Phase I Environmental Site Assessment investigation of the property has been completed per ASTM E1527-93. The Assessment concluded that "the site is free of contamination and the adjoining properties are safe from contamination of the development site."

"Review of the standard environmental records shows the site and the surrounding area (radius of 1/2 to 1 mile) to be uncontaminated. Any hazardous material incidents or storage tank releases were handled by the authorities and appropriate action taken to contain, clean, and dispose of the contaminants properly.

Review of soil maps and other soil related materials indicate uncontaminated fill dirt and historical sources show prior land use that did not present any harmful environmental conditions. Groundwater from nearby wells are deemed safe for drinking according to the State of Hawaii Department of Health."

Source: Flood Insurance Rate Map, Panel 011D, September, 1995.

Phase I Environmental Site Assessment for the Rehabilitation Hospital of the Pacific-Independent Living Apartment Complex. August, 1996. (See Appendix F).

Energy Consumption

Rating: 2

Energy consumption has not been determined. Applicant proposes to incorporate electrical design features for an energy efficient facility. These features include extensive use of fluorescent light fixtures equipped with energy saving lamps and ballasts in each unit. Parking area lighting and exterior lighting shall use high intensity discharge lamp luminaries. Controls for exterior lighting would provide certain fixtures to remain on from dusk to dawn (night lights) and all other fixtures would remain on until a preset time (curfew lights).

Source: Project Plans, 1996.

ENVIRONMENTAL DESIGN AND HISTORIC VALUES

Visual Quality--Coherence, Diversity, Compatible Use, and Scale

Rating: 2

Currently the project site is undeveloped land covered by brush and weeds. The unimproved condition provides residents of the adjacent Kamalu Elderly Housing a feeling of openness and unobstructed panoramic views of Waipahu to the west.

The scale and form of the proposed building and grounds should not detract from the visual quality of the area. The sum total of building design, choice of building and roofing materials, exterior paint, and landscape treatment are intended to complement adjoining residential and government buildings. The low-rise structure is of considerably less height and mass than nearby buildings except for the one-story Waipahu Public Library. The location of this project next to a mid-rise building is comparatively similar in visual scale and appearance to that of the Waipahu Civic Center and the Waipahu Public Library.

The proposed project would obstruct the west facing views from several apartment units on the lower floors of the adjoining Kamalu Elderly building. This impact cannot be avoided.

Source: Project Plans, 1996.

SOCIOECONOMIC

Demographic/Character Changes

Rating: 2

The marital status of prospective tenants is not known at this time. In lieu of an actual census, an occupancy rate of 1.5 persons for the one-bedroom units and 2.5 persons for the two-bedroom units is assumed. This yields a projected population of about 40-45 people including a resident manager. This is not considered a significant increase in the population of the Waipahu area (1995 population: 30,000).

The Section 811 Grant requires a personal care attendant and/or chore worker to be an integral part of the operation of the facility. For this project, the tenant must employ their own personal care attendant and/or chore worker. The personal care attendant and/or chore worker may be a spouse, a relative or non-relative and would be allowed to reside with the tenant. See Appendix A for a description of the targeted population.

Source: Project Plans, 1996.

Displacement

Rating: 2

The building site is vacant thus no resident or business establishment will be displaced by the proposed project.

Source: Field Observation, Gerald Park, September, 1996.

Employment and Income Patterns

Rating: 1/2

The project would make available long-term employment opportunities in the form of a full time resident manager and a part-time groundskeeper. Twenty-four hour attendant care service is contemplated and the vendor may require a total of 8-16 FTE and PTE persons to service the facility. The requirement for tenants to have a personal care attendant and/or chore worker would provide job opportunities in the home care field.

Source: Project Plans. 1996.

COMMUNITY FACILITIES AND SERVICES

Educational Facilities

Rating: 2

Public grade schools in the vicinity of the project include August Ahrens Elementary, Waipahu Elementary, Waipahu Intermediate, and Waipahu High Schools. Leeward Community College, located on the east end of Waipahu, offers two year vocational and university curriculum courses during day and evening hours.

The Waipahu Public Library is located to the southwest of the site.

Source: Project Plans, 1996.

Commercial Facilities

Rating: 1

No commercial facilities are provided by the project. The building site, however, is located within walking distance (1 mile radius) of supermarkets, restaurants, fast food outlets, department store, automotive services (sales, repair, service stations) convenience stores, financial services and institutions, personal grooming services, professional services, and the Waipahu post office.

It is anticipated that tenants of the project would benefit by residing in close proximity to a variety of commercial activities and that merchants would benefit from the additional patronage.

Source: Field Observation, Gerald Park, September, 1996.

Health Care

Rating: 1/2

Tenants will provide for their own care arrangements with health clinics or private physicians. If not, a range of health care providers either physicians (general practitioners or specialists) or health clinics are available in Waipahu. One health clinic is located in the Tropicana Square shopping center adjacent to the Waipahu Civic Center. Kaiser Permanente, a major health insurer and

provider in Hawaii, operates their Punawai Clinic on Leole Street about 2 miles west of the property.

St. Francis Medical Center West, located on the western edge of Waipahu, offers comprehensive medical services and hospital facilities to residents of Leeward and Central Oahu.

Source: Field Observation, Gerald Park, September, 1996.

Social Services

Rating: 2

The apartment units will be available to individuals who meet the eligibility requirements established by HUD Section 811 Supportive Housing for Persons with Disabilities. Based on interviews and income surveys conducted by the development team, at least half of the tenant population are receiving or will need government provided services.

Individuals applying for an apartment unit will be required to be on-line with the appropriate supportive care services, e.g. personal care attendant and/or chore worker, arranged through government social service agencies such as the Community Long Term Care Branch or Family and Adult Services Division, Department of Human Services, State of Hawaii. This latter provider maintains a regional office in the nearby Waipahu Civic Center located next to the proposed project.

Source: Field Observation, Gerald Park, September, 1996.

Solid Waste

Rating: 2

Solid waste collection and disposal will be contracted with a private disposal firm.

Source: Project Plans, 1996.

Wastewater

Rating: 2

Wastewater generation is estimated at 7,000 gallons per day. Wastewater will be discharged into an 8" lateral in Kau'olu Place. The municipal system in the area is adequate to accommodate the projected flow and a sewer connection application has been approved.

Source: Project Plans, 1996.

Sewer Connection Application, Department of Wastewater Management, 1997. (See Appendix C)

Storm Water

Rating: 2

The building site will be contoured to drain in the direction of Kau'olu Place and storm water conveyed into street drains or collected on-site for discharge into the storm drainage system. *Peak run-off will be controlled by constructing an on-site stormwater retention/percolation system to contain the increase in stormwater run-off generated by the 10 year design storm for a period of one hour. In addition, run-off from the parking lot will be directed to the planter area and onsite retention/percolation system prior to being dispersed to the adjacent street (Comment, DPW).* Stormwater from Kau'olu Place is collected by catch basins along the road and discharged into Wailani Stream via a 36" drain line.

An earth swale will be cut along the common rear and side property line of Parcels A and B. The swale will drain runoff from Parcel B towards Kau'olu Place. Best Management Practices for the building site and the drainage swale (embankment) will be developed by the consulting engineer to minimize short and long-term erosion and runoff.

Source: Kamalu Elderly Housing Plans.
Project Plans, 1996.

Water Supply

Rating: 2

Water for domestic use and irrigation is available from a 12" line in Kau'olu Place. Daily usage is estimated at 8,500 to 9,000 gallons excluding irrigation. *The Board of Water Supply reports that the off-site water system is adequate to service the project (Comment, BWS).*

Source: Project Plans, 1996.

Public Safety: Police

Rating: 2

Police service originates from the Pearl City Police Station on Waimano Home Road about 2 1/2 miles away in Pearl City. *The Police Department reports that the project should have no significant impact on their operations (Comment, HPD).*

Source: Field Observation, Gerald Park, September, 1996.

Fire

Rating: 2

The Waipahu Fire Station is located about 1.5 miles west of the site on Leonui Street in the Waipahu Industrial Area. Thirty-three fire fighters are posted to the station. Fire department vehicles assigned to the station include an engine, ladder and aerial apparatus, and one tanker. The engine and ladder companies are each staffed by one captain and four fire fighters. The tanker is manned by one driver/operator. A total of five men per company and one tanker operator are on duty at all times.

Source: Honolulu Fire Department, September, 1996.

Emergency Medical

Rating: 2

An emergency ambulance is based at the Waipahu Fire Station. A minimum of six medical personnel are assigned to the station and two emergency medical technicians are on duty at all times.

Source: Emergency Medical System, September, 1996.

OPEN SPACE AND RECREATION

Open Space

Rating: 2

Applicant is requesting an exemption to the open space requirements for low density apartment zoning districts.

Source: Project Plans, 1996.

Recreation

Rating: 2

Waipahu Field, located across Wailani Stream Channel, is one of the major recreation facilities in Waipahu. A gymnasium, community center building, playground, outdoor tennis courts, three baseball diamonds, swimming pool, outdoor basketball courts, and offstreet parking comprise this 13.8 acre facility.

A passive recreation park will be provided on-site for resident use.

Source: Field Observation, Gerald Park, September, 1996.
Project Plans, 1996.

Cultural Facilities

Rating: 2

The Historic Sites Division, Department of Land and Natural Resources, State of Hawaii has indicated that "the majority of excavation for this project will be conducted in fill soils brought onto the site area since 1978. . . . Because ground disturbance will be limited to fill soils for the bulk of the project and possible excavation into non-fill soils is limited to an elevator pit, we believe that the project as currently planned will have "no effect" on historic sites."

Should any subsurface archaeological deposits be unearthed, work in the immediate area will cease and historical authorities consulted for disposition of the finds.

Source: Department of Land and Natural Resources, Historic Sites Division. Correspondence dated January 23, 1997. (See Appendix C)

Transportation

Rating: 2

The project does not require construction of new roads or the widening of existing streets. Kau'olu Place, a private street serving the existing Kamalu and Hoolulu Elderly Housing projects, has a right-of-way of 44 feet and is improved with curbs, gutters, and sidewalks. *The street was not designed to be dedicated to the City and County of Honolulu.* Kau'olu Place intersects with Mokuola Street and traffic movement onto Mokuola Street is controlled by a stop sign. Mokuola Street connects Waipahu Street to the north with Farrington Highway to the south. Both are signalized intersections.

Municipal bus service (TheBus) is available along Farrington Highway in both eastbound (Honolulu) and westbound (Waianae) directions. There are no sidewalks along Farrington Highway at this time but the State Department of Transportation proposes to construct sidewalks with curb cuts for the handicapped in the near future.

Most of the tenants would not be able to safely operate motor vehicles because of their physical condition. If transportation is needed they will have to call local service such as the Handi-van, use TheBus, or be driven to destinations by friends, family, or care attendant.

In the absence of trip generation rates for housing for the physically disabled, trip rates are estimated at about 40-50 trips (20-25 vehicles) per day on weekdays (primarily staff and care attendants) and as many as 80-100 trips (40-50 vehicles) on a weekend day because of visitors. Spread out over the day, the estimated traffic to be generated is considered minimal. Horizontal sight distance is considered good in both directions from the egress driveway.

Traffic on Kau'olu Place is light and the traffic to be generated by this project would contribute to increasing traffic on Kau'olu Place but not at a level that exceeds roadway capacity. Some vehicle queuing occurs at its intersection with Mokuola Street because of left turn movements out of Kauolu. The queues are relatively short and the maneuver can be executed between platooning traffic attributable to the aforementioned signalized intersections.

Traffic flow on Mokuola Street averages about 675 vehicles per hour during mornings (8:00-12:00) and increasing to 800 vehicles per hour during afternoons (1:00-5:00). Most daily traffic is not a result of the nearby elderly housing project but attributable to motorists using Mokuola to gain access either to Farrington Highway or Waipahu Street and motorists journeying to the Waipahu Civic Center and Waipahu Public Library which are located on Mokuola Street. The Waipahu Civic Center is a large employment center and employee journey to/from work is a contributing factor to traffic.

The estimated 20-25 vehicles per day resulting from the Independent Living Apartment Complex is considered a minimal contribution and should not adversely affect traffic movement on Mokuola Street.

Source: Field Observation, Gerald Park, September, 1996.

Waipahu Traffic Evaluation, Independent Living Housing, 1995. (See Appendix I)

Housing Finance and Development Corporation, Correspondence March 24, 1997.

NATURAL FEATURES

Water Resources

The project is located in an EPA designated Sole Source Aquifer area. The southern Oahu Basal Aquifer includes all of the Wahiawa District, all of the Ewa District, and that portion of the Honolulu District west (Ewa) of Manoa Stream.

"This project has been reviewed and found to be consistent with the Memorandum of Understanding between HUD and EPA (effective 4.30/90) pursuant to Section 1424(e) of the Safe Water Drinking Act of 1974. "

Source: Memorandum of Understanding between the U.S. Department of Housing and Urban Development and the Environmental Protection Agency, Region IX.

Surface Water

Rating: 2

There are no rivers, streams, ponds, lakes, or wetlands on the subject property. Wailani Stream, about 500 feet east of the building site, is confined to a rectangular concrete channel. Construction of the channel between Paiwa Street and Farrington Highway fronting the Kau'olu Development was completed in 1995. Construction of the 1,500 foot long channel was required to prevent flooding of the adjoining property and residential improvements to be made as part of the Kau'olu Development.

Source: Wailani Stream Channel Environmental Assessment, Gerald Park Urban Planner, 1992.
(See Appendix E)
Field Observation, Gerald Park, September, 1996.

OTHER CONCERNS

Flora

Rating: 2

The building site is covered with wayside grasses and weeds. Guinea grass, koa haole, ipomea, wire grass, and several spurges are predominant. There are no trees on the premises. None of the observed species are listed or proposed for listing as rare, threatened or endangered status,

Source: Field Observation, Gerald Park, September, 1996.

Construction Impacts

Rating: 2

The building site will be grubbed of vegetation and graded to design elevation. Soft soils will be excavated and replaced with engineered fill. Fugitive dust will be raised during these activities and the site work contractor will have to implement measures to control dust generation. State of Hawaii Department of Health Administrative Rules (Chapter 60.1 Air Pollution Control) stipulate acceptable dust control measures and additional measures may be attached as conditions to approved building and grading plans. Construction noise will persist for the projected 10-12 month construction period. Noise will be most pronounced during the early stages of development (site work) to erection of the structure. Noise will diminish as interior work commences as most noise should be confined to inside the building. Construction noise may annoy residents living next to the building site.

Maximum permissible noise levels for residential zoning districts set by the State Department of Health is 55 dBA (between 7:00am and 10:00pm) measured at the property line. Construction work will temporarily exceed this standard during working hours and, per Administrative Rules (Chapter 46) of the Department of Health, the Contractor will obtain a noise permit prior to construction. Construction will be limited to between the hours of 7:00 a.m. to 3:30 p.m., Mondays through Fridays.

Silt fences will be installed at the rear of the property as grades slope towards the Waipahu Public Library. The fences should mitigate erosion and discharge of pollutants onto adjoining roads and properties. Other erosion control measures will be implemented to minimize short and long-term erosion of the drainage swale between Parcels A and B.

Construction debris will be hauled to a sanitary landfill for disposal and green waste to a recycling center.

[During construction, the mix of residential traffic, construction vehicles, and the movement of men and material to and from the Job site will contribute to localized vehicle congestion. Flagmen will be posted to marshal traffic around work sites within the road right-of-way.]

During construction, the project site will be accessed from Kau'olu Place. Traffic on Kau'olu Place is generally light in both directions and motorists may be inconvenienced temporarily during construction work in the right-of-way and street side loading and unloading of construction materials. During these periods traffic speeds may be temporarily reduced and traffic rerouted around work sites. These impacts cannot be avoided and the Contractor will implement measures to minimize delays and inconveniences. Mitigating measures include posting advisory signs to alert motorists of road work and posting flagmen to marshal traffic around work sites. There is no peak traffic hour per se on Kau'olu Place and the delivery of construction materials will be scheduled to coincide with non-peak hours on Mokuola Street.

During sitework, heavy trucks will haul surcharge material to a disposal site off property. If trucks egressing onto Mokuola Street during hauling activities pose a traffic hazard, flagmen may be posted at the intersection of Mokuola Street and Kau'olu Place for traffic control (Comment, OEQC).

Source: Gerald Park Urban Planner, October, 1996.

LIST OF PERMITS AND APPROVALS (Comment, OEQC)

The following list of permits and approvals is suggestive rather than exhaustive. The status of each is noted in the status column. Where no status is given, application for a permit or approval has not yet been submitted.

<u>Permit/Approval</u>	<u>Authority</u>	<u>Status</u>
Final Environmental Assessment	Dept of Housing and Community Development	In Process
Finding of No Significant Impact	Dept of Housing and Urban Development	
Request for Release of Funds	Dept of Housing and Urban Development	
Request for Waivers	City Council	
Grading	Dept of Public Works	
Subdivision	Dept of Land Utilization	In Review
Building (Various)	Building Department	
Water Connection	Board of Water Supply	
Sewer Connection	Dept of Wastewater Management	Approved
Work in State Highway	Housing Finance Development Corporation	
Electrical and Telephone	Utility Companies	

DETERMINATION OF SIGNIFICANCE

Chapter 200 (Environmental Impact Statement Rules) of Title 11, Administrative Rules of the State Department of Health, establishes criteria for determining whether an action may have significant effects on the environment (11-200-12). The relationship of the proposed project to these criteria is discussed below.

- 1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

There are no natural or cultural resources on the premises.

- 2) Curtails the range of beneficial uses of the environment;

The project does not curtail the beneficial uses of the environment.

- 3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;

The project does not conflict with long-term environmental policies, goals, and guidelines of the State of Hawaii.

- 4) Substantially affects the economic or social welfare of the community or State;

The project will not substantially affect the economic or social welfare of the State. However, it is the first independent living housing for persons with severe physical disabilities on the island of Oahu. It is anticipated that tenants will benefit from the opportunity to establish independent households and to interact with persons similarly afflicted. These social benefits are difficult to quantify.

The requirement for tenants to have a personal care attendant and/or chore worker offers job opportunities in the home care field. Nearby health care physicians, health clinics, and commercial and service activities may derive additional business in serving the needs of the tenant population.

- 5) Substantially affects public health;

Public health will not be adversely affected by the proposed project.

- 6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

Substantial secondary impacts are not anticipated.

- 7) Involves a substantial degradation of environmental quality;

Environmental quality of the site and the surrounding neighborhood will not be degraded.

- 8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The project is not the precursor for a larger action. It is, however, part of an on-going effort to implement the mixed-use master plan for the Kau'olu Development.

The Environmental Assessment prepared for the Independent Living Apartment Complex is not an attempt to segment a larger project to circumvent the EIS law. A Master Plan for Waipahu Crown Elderly Housing was prepared by the Housing Finance and Development Corporation, State of Hawaii in the early 1990's to guide the development of this state owned land identified as Crown Property. In the same year, an Environmental Assessment for the Waipahu Crown Elderly Housing Project was prepared. The Assessment addressed the development of the entire site for elderly housing, a senior citizens center, and a medical building. It was determined that development would not result in significant adverse environmental impacts and the document was filed with the Office of Environmental Quality Control as a Negative Declaration (Refer to Appendix D of the Draft EA).

Although the master plan did not propose the construction of this project, the Independent Living Apartment Complex is generally consistent with the development goals for Crown Property and within the threshold density of 330-345 units elderly housing units proposed in the 1990 Master Plan. Presently, the existing Kamalu and Hoolulu Elderly Housing project consists of 223 dwelling units in two, detached, 7-story buildings.

The environmental assessment/negative declaration prepared in 1990 was prepared for the entire development of Crown Property and there may not be a need to prepare separate environmental assessments for housing projects on the unimproved portions of Crown Property. However, the use of federal and county monies to help fund the project "triggered" the need to prepare this environmental assessment. Asides from its disclosure purposes, an EA for the Independent Living Apartment Complex is required to comply with federal and county environmental reporting requirements for the release of money for design and construction.

The HFDC is planning to complete the development of Crown Property. The agency is requesting proposals to construct a commercial-medical office building, additional elderly housing, and assisted living and special needs housing. These improvements will be sited on the undeveloped sections of Crown Property. The Independent Living Apartment Complex is not part of the proposed state projects (Comment, OEQC).

- 9) Substantially affects a rare, threatened or endangered species, or its habitat;

There are no rare, threatened or endangered flora on the premises. No fauna were observed at the time of our field investigation.

- 10) Detrimentially affects air or water quality or ambient noise levels;

Ambient air quality will be affected by fugitive dust and combustion emission during construction but can be controlled by measures stipulated in this Assessment. Construction noise will be pronounced during site preparation work but should diminish once the building is erected. All construction activities will comply with air quality and noise pollution regulations of the State Department of Health.

- 11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

The proposed Independent Living Apartment Complex is not located in an environmentally sensitive area.

- 12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or,

The proposed project will not affect scenic vistas and viewplanes.

- 13) Requires substantial energy consumption.

Energy consumption has not been determined. Applicant proposes to incorporate electrical design features for an energy efficient facility.

APPENDIX A

**DESCRIPTION OF THE TARGETED POPULATION
FOR THE INDEPENDENT LIVING APARTMENTS**

APPENDIX A

DESCRIPTION OF TARGETED POPULATION FOR THE INDEPENDENT LIVING APARTMENTS

Description of Persons to Be Served; Referral and Admission Policies

The REHAB has provided both inpatient and outpatient rehabilitation services to the people of Hawaii and the Pacific for more than 40 years. It also conducts classes and training sessions for patients and families in supportive care. With its depth and breadth of experience, it is the appropriate agent to assemble a development team. Rebuilding lives together, it formed a co-Sponsorship with Accessible Space, Inc. (ASI), a Minnesota-based nonprofit corporation that has developed and managed supportive housing projects for people with disabilities in Minnesota, North Dakota and Montana. ASI has gained national recognition for their Resident Management System and provision of supportive services. Independent Living Housing (ILH), a nonprofit corporation established in 1994 to develop and manage housing options for people with physical disabilities by the REHAB et al, functions to coordinate the planning and development of the project.

Description
of Persons
Served

The tenants at this two-story independent living apartment complex will have severe physical disabilities including those resulting from traumatic accidents (paraplegia, quadriplegia, amputation, etc.), birth defects (cerebral palsy, spina bifida, etc.) and disease (stroke, multiple sclerosis, ataxia, post-polio, etc.). Other disabilities served will include a variety of orthopedic, neurological and muscular disorders that have resulted in severe mobility impairment.

The project will provide housing for a resident manager and a maximum of 23 individuals with physical disabilities, which functionally limit the performance of activities of daily living. The majority of the residents will have quadriplegia. The development of the proposed supportive housing project along with supportive services allows the persons with physical disabilities to remain in the community by providing the necessary, long-term maintenance or supportive care in their homes. Those with spinal cord injury who are underserved in the housing market will have priority.

An individual with spinal cord injury has suffered a loss of function due to injury or disease of the cervical spinal cord segment which affects all four body limbs. Damage to the spinal cord can cause changes in one's movement, sensation, bladder control, bowel function, sexual function and other bodily functions. Those whom we have interviewed are affected by injuries which range from C-7 to C-3 of their cervical spinal cord. The following numbering system is used to name bone and nerve levels in the back:

C-4	Diaphragm
C-5	Deltoid and biceps
C-6	Wrist extensors
C-7	Triceps
C-8	Hands
T-5 to T-7	Chest muscles
T-9 to T-12	Abdominal muscles
L-1 to L-5	Leg muscles
S-2 and below	Bowel, bladder

Quadriplegia results from injury at the C-8 level or above. These injuries are described as

complete when there is no voluntary movement or feeling below the spinal cord injury level, and *incomplete* when there is sensation or voluntary movement below the injury.

The overriding characteristic of this population is the limited range of movement of their limbs which reduces or prevents

1. their capacity to care for themselves, and
2. manipulate and control their environment.

Loss of bodily functions by those with multiple sclerosis, muscular dystrophy, polio, and stroke may require similar assistance with activities of daily living as those with spinal cord injury. Each situation is distinct in the capacity of the individual to move his/her limbs, balance, control body functions and perceive sensations. Each individual is different in his/her capacity to care for himself/herself and to manipulate and control the environment. Most, however, need some degree of supportive services involving either personal care and/or chore services in order to remain in the community.

**Resident
Eligibility
Requirements**

An applicant must meet the following requirements:

1. An occupant must be 18 years or older.
2. All applicants must be diagnosed with a physical impairment that is expected to be of long-continued and indefinite duration, which substantially impedes the person's ability to live independently. Diagnoses may include but not be limited to spinal cord injury, cerebral palsy, muscular dystrophy, spina bifida, ataxia, multiple sclerosis, post-polio, etc.
3. Fifteen one bedroom units will be available to tenants with income up to 80% of HUD's income limit specifications.
4. Six two bedroom units and two one bedroom units will be restricted to tenants with very low incomes up to 50% of HUD's Income Limits specifications and with spinal cord injury. A one-bedroom unit will be used by the resident manager.
5. If supportive services are required, the person with disabilities must be able to pay for personal care privately; through a third party payor; or be a recipient in the Nursing Home Without Walls Program and/or for chore services through Family & Adult Services Division.
6. The individual with disabilities must be capable of managing his/her independent living.

Referral Points

Letters will be mailed to prospective tenants by co-Sponsor, Independent Living Housing, to compile a waiting list for the supportive housing project. Referrals will also be made to the project by the Hawaii Housing Authority, the Department of Housing and Community Development (City and County of Honolulu), the Hawaii Centers for Independent Living, through social workers, discharge planners and case managers at the Rehabilitation Hospital of the Pacific (REHAB) and its satellite outpatient clinics on Oahu, Rehabilitation Services at The Queen's Medical Center, Castle Medical Center, Kuakini

Medical Center, St. Francis Medical Center, Kaiser-Permanente Medical Care Program, Kapiolani Medical Center, Straub Clinic & Hospital, Inc., nursing homes and Nursing Home Without Walls (NHWW), a home- and community- based Medicaid waiver program. Self-referrals will also be accepted providing the individual meets the resident eligibility requirements.

Supportive Services Plan: Description of Service Needs

Individuals who have quadriplegia may have some movement and sensation in their legs, arms and fingers but the capacity to manipulate and control their physical environment has been reduced to gross arms movements, if any. Few have the capacity for ambulation. Persons with quadriplegia require assistance with activities of daily living, such as, bathing, grooming, dressing, housekeeping, marketing, errands, food preparation, some need assistance with being fed. They are catheterized and on bowel programs. Because of their reliance on the wheelchair, usually transportation has to be arranged.

The project consortium is proposing the independent living apartment complex with universal design features and assistive technology integrated into its units to enhance the residents' capacity to control and manipulate his environment. Rather than an obstacle course, the apartment designed to be barrier-free is truly his/her home.

Service Needs

Based on their individual needs, the residents will be linked to the following services:

- Case Management
- Home Care Assistance
- Chore Services
- Counseling/Advocacy/Referral
- Independent Living Services
- Job Coaching/Supervision
- Recreation
- Meals and Nutrition
- Medication Monitoring
- Occupational Therapy
- Training in Social Skills
- Specialized Education/Vocational Service
- Transportation

Most of the individuals with physical disabilities residing at the proposed apartment building will be utilizing some or all of the services enumerated above to assist them with activities of daily living (ADL).

Supportive Services Plan: Provision of Services

The residents of the Independent Living Apartment Complex will take responsibility for acquiring their own supportive services, to the extent needed.

Residents who are taking responsibility for acquiring their own services, to the extent needed will essentially be maintaining the services that they are currently receiving. The Project Consortium will assist the residents by linking them with supportive service resources in the community.

Additionally, a resident manager provides a measure of security and emergency backup, in the event that a personal care attendant does not show up. (In our interviews with consumers, we were told that consumers had to spend all day in bed or was stuck in a wheelchair all night when their personal care attendant did not show up.)

Description of Community Services

The residents of the proposed housing project will be responsible for acquiring the supportive services that they require, nonetheless, we have obtained letters of support/intent from service providers in the community. Attached is a letter from the State of Hawaii Department of Human Services Division indicating their support for the Independent Living Apartment Complex.

Letters from providers of other community services and home health agencies are attached:

Vocational Rehabilitation and Services for the Blind
The Hawaii Centers for Independent Living
Community Long Term Care, State of Hawaii, Department of Human Services
Social Services Division, State of Hawaii, Department of Human Services

CareResource Hawaii
Komo Mai Center, Leeward Community College

State/Local Agency Philosophy/Policy

The development of an Independent Living Apartment Complex, currently being developed in Waipahu, is consistent with the State and local philosophy/policy concerning the residential facilities for the population to be served.

The co-Sponsors, REHAB, ASI and ILH espouse self-reliance. In spite of physical impairments and mobility limitations, the individual in this proposed Independent Living Apartment Complex must direct his/her own care and manage his/her own resources. They believe that the proposed housing project will provide a stable living arrangement (very low-income, barrier-free apartments and reliable, consistent delivery of quality supportive services) which will allow its residents to seek employment and/or participate in community activities.

The Final Second Year Consolidated Plan, Program Year 1996-1997, prepared by the Department of the Budget, City and County of Honolulu delineates strategy for meeting the housing needs over the next year. The strategy notes that "...it is not the intent of the City to target the implementation of housing programs to specific geographic locations. Due to the nature of the housing market in the City, characterized by minimal vacancy rates, no stock of existing units which can be rehabilitated so as to expand the stock of affordable housing, and premium prices for all developable land, opportunities to develop affordable housing must be pursued on an islandwide (Citywide) basis..."

In the Consolidated Plan, persons with special housing needs renter households are designated Priority Three, Rank 1 for support facilities. Based on this report, the proposed supportive housing project addresses the needs of persons with special housing needs and is consistent with the goals and policy the City and County of Honolulu to provide supportive housing for those with very low income.

Residents will have access to the HUD approved resident handbook and the renters Handbook for the State of Hawaii. The Housing Management will encourage and assist their residents in establishing a housing association to conduct evaluation of the supportive services and housing management.

Community Long Term Care Branch (CLTCB), a state agency oversees the implementation of programs to "provide the best possible humane and cost-effective alternative to institutionalization". These programs provide a comprehensive range of health, social and environmental services tailored to a clients needs which are delivered in a community setting. The development of a barrier-free apartment complex such as the one proposed in this application, which links up with home- and community-based services to delay or prevent institutionalization through a cost-effective program is consistent with CLTCB's philosophy/policy.

On-Site Services a) Case Management

The case manager assists, identifies and obtains services that enable the client to remain at home as long as assistance can be delivered in a timely, appropriate and viable manner. Some case management may be performed by a social worker or a registered nurse or both depending on the parties involved. In cases where Nursing Home Without Walls (NHWW) provide for personal care, a social worker and RN are members of the team overlooking the individual. Likewise, at the home care agency, an RN monitors the quality of supportive services rendered to the individuals.

b) Personal Care Services

(1) Typical Personal Care Services Per Day/Resident

Individuals qualify for Nursing Home Without Walls Program if they are Medicaid eligible, certified for intermediate level of care by their primary physician, and would thrive in a community setting with reasonable assurance of health and safety at a cost which does not exceed institutionalization costs. Services may also be privately paid or by a third party payor.

Presently there are about 30 individuals on the wait list. The period for being on board NHWW is about 6 months. Persons being discharged from hospitals are prioritized.

NHWW provides 13 services which are designed to support the recipient at home:

Case Management	Adult Day Health
Environmental Modifications	Home Maintenance
Personal Care	Nutritional Counseling
Skilled Nursing	Homemaker Services
Home Delivered Meals	Respite
Moving Assistance	Emergency Alarm
Non-Medical Transportation	Response System

Each resident will direct and schedule his/her supportive services with his/her personal care attendant. The following is typical of the services received:

Up to 2-2.5 hours each morning:

Bowel Program: up to 1 hour; frequency depends on the individual; some performed daily; others, every other day; and some every three days. It is important to establish regularity in the intervals and time of day.

Catheter Change: RN is involved for indwelling catheter program

Shower/bath: up to 1/2 hour; daily or every other day; bed bath for some

Grooming: hair-daily; nails as required; make-up (female)

Dressing: clothing, shoes, accessories
Transfer to wheelchair, ambulating: transfer from bed to wheelchair and vice versa, once in the morning and once in the evening
Feeding: most clients have some arm movement which enables them to utilize special utensils to feed themselves; others may need to be fed; 2 times to 3 times daily as directed by clients
Meal Preparation: The home care aide to prepare meals if a chore worker is not available
Range of Motion: conducted to stimulate and sustain muscles as recommended by the therapist and assisted by the home care aide
Record observations in client folder

1 hour each evening
Brush teeth
Change external catheter
Change clothes for bed
Transfer client to the bed
Range of motion
Record observations in client folder

(2) Health Supervisor [Registered Nurse (RN)]

4 hours per initial interview and assessment;
1/2 hour/week for medication management; catheterization and monitoring as developments warrant;
4 hours/resident per biannual visit to assess and monitor care;
Conduct education and training sessions of the home care aides.
Record assessment in the client's folder.

c) Chore Services Up to 20 Hours a Week (for those eligible to receive services as determined by FASD worker).

After the Family & Adult Services Division (FASD), Department of Human Services, has assessed the individual's needs and he/she is deemed eligible to receive chore services, i.e., the individual meets the income requirements, existing practice is to allot time to the tasks to be performed. FASD provides payment (minimum wages) to the client who hires the chore worker and in turn pays him/her. Additionally, FASD undertakes the employers' taxes but does not provide worker's compensation nor prepaid health plan.

Residents will be hiring their own chore worker who may be anyone other than a spouse. Presently, allotment is capped at 20 hours per week per client. A waiting list may be reinstated in October, 1996 in anticipation of budget constraints.

Allocations of time varies with each client, but the following activities are typical:

Meal preparation - 2 to 3 meals as directed by resident-consumer.
Marketing and shopping for food, personal essentials and household supplies;
Escorting to physician, therapist, and so on; nutritional and recreational programs *as arranged*;
Housecleaning - sweep, mop, vacuum, clean bath/shower and toilet, take out trash
Record observations of clients;
Laundry - wash, dry and fold; ironing and mending. Resident may have accidental evacuation which would entail additional time spent on laundry

Off-Site
Services

Residents will determine when, where, what services to select and arrange for them.

d) **Advocacy/Legal Assistance**

Protection and Advocacy, State Commission on Persons with Disabilities, Hawaii Centers for Independent Living and the Legal Aid Society will serve as resources for advocacy for the residents.

Protection & Advocacy Agency of Hawaii 1580 Makaloa Street, Ste 1060 Honolulu, Hawaii 96814-3280 (808) 949-2922	Commission on Persons with Disabilities 919 Ala Moana Blvd., Room 150 Honolulu, Hawaii 96814 (808) 586-8121
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Hawaii Centers for Independent Living 677 Ala Moana Blvd., Ste 118 Honolulu, Hawaii 96813 (808) 537-1941	Legal Aid Society of Hawaii 1108 Nuuanu Avenue Honolulu, Hawaii 96813 (808) 536-4302
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e) **Independent Living Services**

(1) The housing management will encourage residents to form a housing association, where the residents assume responsibility to develop programs to assist those in need of personal management of their budget, education and social skills.

(2) Residents who request services will be referred to the Hawaii Centers for Independent Living, a nonprofit, for assistance in independent living training, advocacy, information on meals and nutrition, training in social skills and transportation.

f) **Educational/Vocational Rehabilitation (VR)**

Vocational Rehabilitation & Services for the Blind Division, Department of Human Services, offers three programs to assist those with disabilities. Depending on his/her needs, the individual may participate in the independent living, educational or employment program. At VR, the individual with a disability is evaluated, provided counseling-guidance and planning, placement and training. The Independent Living Program at VR telephone number is (808) 586-5382.

g) **Physical, Occupational Therapy and Counseling:**

REHAB's Comprehensive Outpatient Rehabilitation (COR) provides a continuum of physical rehabilitation services in a cost-effective program. The program offers treatment for spinal cord injury, orthopedic problems, strokes and so on; services that emphasize everyday skills as mobility, activities of daily living, therapeutic pool, access community resources, provision/fabrication and adaptive tools; technology that improve independence such as gait analysis lab, environmental control systems, computer lab; and educational services such as a lending library, home programs and injury prevention instruction. REHAB's outpatient services are available at satellite clinics conveniently located at REHAB at Aiea, 98-1005 Moanalua Road, Pearlridge Center, Phase II Suite 425, telephone number (808) 486-8000 and REHAB at Mililani, 95-720 Lanikuhana Avenue, Suite 140, telephone number (808) 625-5545.

h) Primary Physician

Medical facilities serving Waipahu are:

- St Francis Medical Center West located 4 miles away on Ft. Weaver Road.
- Kaiser Permanente Punawai Clinic, 94-235 Leoku.
- Kapiolani Medical Center at Pali Momi, 98-1079 Moanalua Road.
- Wahiawa General Hospital, 128 Lehua.

i) Dentist

Numerous dental offices are located in a three block radius of the site.

j) Eye Care

Several optician and optometrist offices are located in Waipahu town.

k) Recreation

The City and County of Honolulu's Therapeutic Recreation Center compiles and disseminates information on recreational and leisure programs available for persons with disabilities. The parks and playgrounds offering these programs are located in five districts. Those facilities pertinent to the residents are:

Adapted Aquatics
c/o BOJAC
94-801 Farrington Highway
Waipahu, HI 96797
Phone: (808) 671-0311

Special swimming instructions to children and adults with disabilities can be arranged. Provides training for swim instructors and aides through a special aquatics program.

**City and County of Honolulu
Therapeutic Recreation
Dole Playground**
Honolulu, HI 96813
Phone: (808) 522-7034

Provides recreational activities for people with disabilities such as arts and crafts, games, outdoor recreation, etc. at City parks and recreation program sites.

PBI
Hawaii Prince Golf Course
91-1200 Fort Weaver Rd
Ewa Beach, Hawaii 96706
Phone: (808) 735-3661
(808) 944-4567

Sponsors a tennis clinic specifically geared to persons with disabilities, including wheelchair users, visually impaired, hearing impaired individuals, and groups for incarcerated males.

Piano Lessons for Disabled
1651 Young Street
Honolulu, HI 96815
Phone: (808) 949-1238

Offers individual piano lessons to children and adults with developmental and physical disabilities.

**Rehabilitation Hospital of the
Pacific**
Therapeutic Pool
226 North Kuakini Street
Honolulu, HI 96817
Phone: (808) 531-3511

Offers out-patient exercise classes to persons with physical disabilities, water exercise workouts for people with arthritis. In- and out- patient care.

1) Transportation

Handi-van Customer Service

Reservations: (808) 832-0799 or 832-0777

The consumer applies at the satellite city hall. Requests for van services should be called in at least one day in advance.

The Hawaii Centers for Independent Living (HCIL)

Phone number is (808) 537-1941.

It shall be the resident's responsibility to contact the van services and schedule their services as needed.

TheBus

Bus Pass: (808) 523-4083

Municipal buses run along Farrington Highway. *Bus # 47 Waikiki to Waipahu, Bus # 49 Ewa Beach to Ala Moana and Bus #51 Makaha or Makaha Resorts to Honolulu* have lifts.

At this date, there are no curb cuts along Farrington Highway. At the 18th State legislature session, House Bill 2800, Act No. 287 allocated funds for the design of sidewalks and curb cuts along Farrington Highway between Paiwa Street and Pupupuhi Street. Assuming funds are allocated in the next legislature, timetable for the completion of construction is by spring, 1999.

Assistive
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1. Call buttons shall be located in the bedroom, bathroom and at the front door; (typical)
2. Overhead lifts shall be incorporated in apartment units where it can be best used;
3. Portable transfer lifts (tenant to provide) in the others;
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5. Environmental Control Units (ECU);
6. Adjustable height wall kitchen cabinets;
7. Floor cabinets with pull-out drawer shelves; (typical)
8. Lever handle sink and lavatory fixtures; (typical)
9. Counter-top range with controls at the front; (typical)
10. Lazy Susan at the corner cabinet; (typical)
11. Hospital bed (tenant to provide);
12. Commode chair (tenant to provide);
13. Motorized windows, blinds and ceiling fans; (typical)
14. Pull-out drawer shelves for storage and wardrobe; (typical)
15. Equipment for hearing and vision impaired such as electrical outlet adjacent to telephone jack for TDD telephone; light fixtures to handle 150W bulbs will be integrated into the design.

APPENDIX A

**DESCRIPTION OF THE TARGETED POPULATION
FOR THE INDEPENDENT LIVING APARTMENTS**

APPENDIX A

DESCRIPTION OF TARGETED POPULATION FOR THE INDEPENDENT LIVING APARTMENTS

Description of Persons to Be Served; Referral and Admission Policies

The REHAB has provided both inpatient and outpatient rehabilitation services to the people of Hawaii and the Pacific for more than 40 years. It also conducts classes and training sessions for patients and families in supportive care. With its depth and breadth of experience, it is the appropriate agent to assemble a development team. Rebuilding lives together, it formed a co-Sponsorship with Accessible Space, Inc. (ASI), a Minnesota-based nonprofit corporation that has developed and managed supportive housing projects for people with disabilities in Minnesota, North Dakota and Montana. ASI has gained national recognition for their Resident Management System and provision of supportive services. Independent Living Housing (ILH), a nonprofit corporation established in 1994 to develop and manage housing options for people with physical disabilities by the REHAB et al, functions to coordinate the planning and development of the project.

Description of Persons Served

The tenants at this two-story independent living apartment complex will have severe physical disabilities including those resulting from traumatic accidents (paraplegia, quadriplegia, amputation, etc.), birth defects (cerebral palsy, spina bifida, etc.) and disease (stroke, multiple sclerosis, ataxia, post-polio, etc.). Other disabilities served will include a variety of orthopedic, neurological and muscular disorders that have resulted in severe mobility impairment.

The project will provide housing for a resident manager and a maximum of 23 individuals with physical disabilities, which functionally limit the performance of activities of daily living. The majority of the residents will have quadriplegia. The development of the proposed supportive housing project along with supportive services allows the persons with physical disabilities to remain in the community by providing the necessary, long-term maintenance or supportive care in their homes. Those with spinal cord injury who are underserved in the housing market will have priority.

An individual with spinal cord injury has suffered a loss of function due to injury or disease of the cervical spinal cord segment which affects all four body limbs. Damage to the spinal cord can cause changes in one's movement, sensation, bladder control, bowel function, sexual function and other bodily functions. Those whom we have interviewed are affected by injuries which range from C-7 to C-3 of their cervical spinal cord. The following numbering system is used to name bone and nerve levels in the back:

C-4	Diaphragm
C-5	Deltoid and biceps
C-6	Wrist extensors
C-7	Triceps
C-8	Hands
T-5 to T-7	Chest muscles
T-9 to T-12	Abdominal muscles
L-1 to L-5	Leg muscles
S-2 and below	Bowel, bladder

Quadriplegia results from injury at the C-8 level or above. These injuries are described as

complete when there is no voluntary movement or feeling below the spinal cord injury level, and *incomplete* when there is sensation or voluntary movement below the injury.

The overriding characteristic of this population is the limited range of movement of their limbs which reduces or prevents

1. their capacity to care for themselves, and
2. manipulate and control their environment.

Loss of bodily functions by those with multiple sclerosis, muscular dystrophy, polio, and stroke may require similar assistance with activities of daily living as those with spinal cord injury. Each situation is distinct in the capacity of the individual to move his/her limbs, balance, control body functions and perceive sensations. Each individual is different in his/her capacity to care for himself/herself and to manipulate and control the environment. Most, however, need some degree of supportive services involving either personal care and/or chore services in order to remain in the community.

**Resident
Eligibility
Requirements**

An applicant must meet the following requirements:

1. An occupant must be 18 years or older.
2. All applicants must be diagnosed with a physical impairment that is expected to be of long-continued and indefinite duration, which substantially impedes the person's ability to live independently. Diagnoses may include but not be limited to spinal cord injury, cerebral palsy, muscular dystrophy, spina bifida, ataxia, multiple sclerosis, post-polio, etc.
3. Fifteen one bedroom units will be available to tenants with income up to 80% of HUD's income limit specifications.
4. Six two bedroom units and two one bedroom units will be restricted to tenants with very low incomes up to 50% of HUD's Income Limits specifications and with spinal cord injury. A one-bedroom unit will be used by the resident manager.
5. If supportive services are required, the person with disabilities must be able to pay for personal care privately; through a third party payor; or be a recipient in the Nursing Home Without Walls Program and/or for chore services through Family & Adult Services Division.
6. The individual with disabilities must be capable of managing his/her independent living.

Referral Points

Letters will be mailed to prospective tenants by co-Sponsor, Independent Living Housing, to compile a waiting list for the supportive housing project. Referrals will also be made to the project by the Hawaii Housing Authority, the Department of Housing and Community Development (City and County of Honolulu), the Hawaii Centers for Independent Living, through social workers, discharge planners and case managers at the Rehabilitation Hospital of the Pacific (REHAB) and its satellite outpatient clinics on Oahu, Rehabilitation Services at The Queen's Medical Center, Castle Medical Center, Kuakini

Medical Center, St. Francis Medical Center, Kaiser-Permanente Medical Care Program, Kapiolani Medical Center, Straub Clinic & Hospital, Inc., nursing homes and Nursing Home Without Walls (NHWW), a home- and community-based Medicaid waiver program. Self-referrals will also be accepted providing the individual meets the resident eligibility requirements.

Supportive Services Plan: Description of Service Needs

Individuals who have quadriplegia may have some movement and sensation in their legs, arms and fingers but the capacity to manipulate and control their physical environment has been reduced to gross arms movements, if any. Few have the capacity for ambulation. Persons with quadriplegia require assistance with activities of daily living, such as, bathing, grooming, dressing, housekeeping, marketing, errands, food preparation, some need assistance with being fed. They are catheterized and on bowel programs. Because of their reliance on the wheelchair, usually transportation has to be arranged.

The project consortium is proposing the independent living apartment complex with universal design features and assistive technology integrated into its units to enhance the residents' capacity to control and manipulate his environment. Rather than an obstacle course, the apartment designed to be barrier-free is truly his/her home.

Service Needs

Based on their individual needs, the residents will be linked to the following services:

- Case Management
- Home Care Assistance
- Chore Services
- Counseling/Advocacy/Referral
- Independent Living Services
- Job Coaching/Supervision
- Recreation
- Meals and Nutrition
- Medication Monitoring
- Occupational Therapy
- Training in Social Skills
- Specialized Education/Vocational Service
- Transportation

Most of the individuals with physical disabilities residing at the proposed apartment building will be utilizing some or all of the services enumerated above to assist them with activities of daily living (ADL).

Supportive Services Plan: Provision of Services

The residents of the Independent Living Apartment Complex will take responsibility for acquiring their own supportive services, to the extent needed.

Residents who are taking responsibility for acquiring their own services, to the extent needed will essentially be maintaining the services that they are currently receiving. The Project Consortium will assist the residents by linking them with supportive service resources in the community.

Additionally, a resident manager provides a measure of security and emergency backup, in the event that a personal care attendant does not show up. (In our interviews with consumers, we were told that consumers had to spend all day in bed or was stuck in a wheelchair all night when their personal care attendant did not show up.)

Description of Community Services

The residents of the proposed housing project will be responsible for acquiring the supportive services that they require, nonetheless, we have obtained letters of support/intent from service providers in the community. Attached is a letter from the State of Hawaii Department of Human Services Division indicating their support for the Independent Living Apartment Complex.

Letters from providers of other community services and home health agencies are attached:

Vocational Rehabilitation and Services for the Blind
The Hawaii Centers for Independent Living
Community Long Term Care, State of Hawaii, Department of Human Services
Social Services Division, State of Hawaii, Department of Human Services

CareResource Hawaii
Komo Mai Center, Leeward Community College

State/Local Agency Philosophy/Policy

The development of an Independent Living Apartment Complex, currently being developed in Waipahu, is consistent with the State and local philosophy/policy concerning the residential facilities for the population to be served.

The co-Sponsors, REHAB, ASI and ILH espouse self-reliance. In spite of physical impairments and mobility limitations, the individual in this proposed Independent Living Apartment Complex must direct his/her own care and manage his/her own resources. They believe that the proposed housing project will provide a stable living arrangement (very low-income, barrier-free apartments and reliable, consistent delivery of quality supportive services) which will allow its residents to seek employment and/or participate in community activities.

The Final Second Year Consolidated Plan, Program Year 1996-1997, prepared by the Department of the Budget, City and County of Honolulu delineates strategy for meeting the housing needs over the next year. The strategy notes that "...it is not the intent of the City to target the implementation of housing programs to specific geographic locations. Due to the nature of the housing market in the City, characterized by minimal vacancy rates, no stock of existing units which can be rehabilitated so as to expand the stock of affordable housing, and premium prices for all developable land, opportunities to develop affordable housing must be pursued on an islandwide (Citywide) basis...."

In the Consolidated Plan, persons with special housing needs renter households are designated Priority Three, Rank 1 for support facilities. Based on this report, the proposed supportive housing project addresses the needs of persons with special housing needs and is consistent with the goals and policy the City and County of Honolulu to provide supportive housing for those with very low income.

Residents will have access to the HUD approved resident handbook and the renters Handbook for the State of Hawaii. The Housing Management will encourage and assist their residents in establishing a housing association to conduct evaluation of the supportive services and housing management.

Community Long Term Care Branch (CLTCB), a state agency oversees the implementation of programs to "provide the best possible humane and cost-effective alternative to institutionalization". These programs provide a comprehensive range of health, social and environmental services tailored to a clients needs which are delivered in a community setting. The development of a barrier-free apartment complex such as the one proposed in this application, which links up with home- and community-based services to delay or prevent institutionalization through a cost-effective program is consistent with CLTCB's philosophy/policy.

On-Site Services a) Case Management

The case manager assists, identifies and obtains services that enable the client to remain at home as long as assistance can be delivered in a timely, appropriate and viable manner. Some case management may be performed by a social worker or a registered nurse or both depending on the parties involved. In cases where Nursing Home Without Walls (NHWW) provide for personal care, a social worker and RN are members of the team overlooking the individual. Likewise, at the home care agency, an RN monitors the quality of supportive services rendered to the individuals.

b) Personal Care Services

(1) Typical Personal Care Services Per Day/Resident

Individuals qualify for Nursing Home Without Walls Program if they are Medicaid eligible, certified for intermediate level of care by their primary physician, and would thrive in a community setting with reasonable assurance of health and safety at a cost which does not exceed institutionalization costs. Services may also be privately paid or by a third party payor.

Presently there are about 30 individuals on the wait list. The period for being on board NHWW is about 6 months. Persons being discharged from hospitals are prioritized.

NHWW provides 13 services which are designed to support the recipient at home:

Case Management	Adult Day Health
Environmental Modifications	Home Maintenance
Personal Care	Nutritional Counseling
Skilled Nursing	Homemaker Services
Home Delivered Meals	Respite
Moving Assistance	Emergency Alarm
Non-Medical Transportation	Response System

Each resident will direct and schedule his/her supportive services with his/her personal care attendant. The following is typical of the services received:

Up to 2-2.5 hours each morning:

Bowel Program: up to 1 hour; frequency depends on the individual; some performed daily; others, every other day; and some every three days. It is important to establish regularity in the intervals and time of day.

Catheter Change: RN is involved for indwelling catheter program

Shower/bath: up to 1/2 hour; daily or every other day; bed bath for some

Grooming: hair-daily; nails as required; make-up (female)

Dressing: clothing, shoes, accessories
Transfer to wheelchair, ambulating: transfer from bed to wheelchair and vice versa, once in the morning and once in the evening
Feeding: most clients have some arm movement which enables them to utilize special utensils to feed themselves; others may need to be fed; 2 times to 3 times daily as directed by clients
Meal Preparation: The home care aide to prepare meals if a chore worker is not available
Range of Motion: conducted to stimulate and sustain muscles as recommended by the therapist and assisted by the home care aide
Record observations in client folder

1 hour each evening
Brush teeth
Change external catheter
Change clothes for bed
Transfer client to the bed
Range of motion
Record observations in client folder

(2) Health Supervisor [Registered Nurse (RN)]

4 hours per initial interview and assessment;
1/2 hour/week for medication management; catheterization and monitoring as developments warrant;
4 hours/resident per biannual visit to assess and monitor care;
Conduct education and training sessions of the home care aides.
Record assessment in the client's folder.

c) Chore Services Up to 20 Hours a Week (for those eligible to receive services as determined by FASD worker).

After the Family & Adult Services Division (FASD), Department of Human Services, has assessed the individual's needs and he/she is deemed eligible to receive chore services, i.e., the individual meets the income requirements, existing practice is to allot time to the tasks to be performed. FASD provides payment (minimum wages) to the client who hires the chore worker and in turn pays him/her. Additionally, FASD undertakes the employers' taxes but does not provide worker's compensation nor prepaid health plan.

Residents will be hiring their own chore worker who may be anyone other than a spouse. Presently, allotment is capped at 20 hours per week per client. A waiting list may be reinstated in October, 1996 in anticipation of budget constraints.

Allocations of time varies with each client, but the following activities are typical:

Meal preparation - 2 to 3 meals as directed by resident-consumer.
Marketing and shopping for food, personal essentials and household supplies;
Escorting to physician, therapist, and so on; nutritional and recreational programs as arranged;
Housecleaning - sweep, mop, vacuum, clean bath/shower and toilet, take out trash
Record observations of clients;
Laundry - wash, dry and fold; ironing and mending. Resident may have accidental evacuation which would entail additional time spent on laundry

Off-Site
Services

Residents will determine when, where, what services to select and arrange for them.

d) **Advocacy/Legal Assistance**

Protection and Advocacy, State Commission on Persons with Disabilities, Hawaii Centers for Independent Living and the Legal Aid Society will serve as resources for advocacy for the residents.

Protection & Advocacy Agency of Hawaii 1580 Makaloa Street, Ste 1060 Honolulu, Hawaii 96814-3280 (808) 949-2922	Commission on Persons with Disabilities 919 Ala Moana Blvd., Room 150 Honolulu, Hawaii 96814 (808) 586-8121
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Hawaii Centers for Independent Living 677 Ala Moana Blvd., Ste 118 Honolulu, Hawaii 96813 (808) 537-1941	Legal Aid Society of Hawaii 1108 Nuuanu Avenue Honolulu, Hawaii 96813 (808) 536-4302
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e) **Independent Living Services**

- (1) The housing management will encourage residents to form a housing association, where the residents assume responsibility to develop programs to assist those in need of personal management of their budget, education and social skills.
- (2) Residents who request services will be referred to the Hawaii Centers for Independent Living, a nonprofit, for assistance in independent living training, advocacy, information on meals and nutrition, training in social skills and transportation.

f) **Educational/Vocational Rehabilitation (VR)**

Vocational Rehabilitation & Services for the Blind Division, Department of Human Services, offers three programs to assist those with disabilities. Depending on his/her needs, the individual may participate in the independent living, educational or employment program. At VR, the individual with a disability is evaluated, provided counseling-guidance and planning, placement and training. The Independent Living Program at VR telephone number is (808) 586-5382.

g) **Physical, Occupational Therapy and Counseling:**

REHAB's Comprehensive Outpatient Rehabilitation (COR) provides a continuum of physical rehabilitation services in a cost-effective program. The program offers treatment for spinal cord injury, orthopedic problems, strokes and so on; services that emphasize everyday skills as mobility, activities of daily living, therapeutic pool, access community resources, provision/fabrication and adaptive tools; technology that improve independence such as gait analysis lab, environmental control systems, computer lab; and educational services such as a lending library, home programs and injury prevention instruction. REHAB's outpatient services are available at satellite clinics conveniently located at REHAB at Aiea, 98-1005 Moanalua Road, Pearlridge Center, Phase II Suite 425, telephone number (808) 486-8000 and REHAB at Mililani, 95-720 Lanikuhana Avenue, Suite 140, telephone number (808) 625-5545.

h) Primary Physician

Medical facilities serving Waipahu are:

- St Francis Medical Center West located 4 miles away on Ft. Weaver Road.
- Kaiser Permanente Punawai Clinic, 94-235 Leoku.
- Kapiolani Medical Center at Pali Momi, 98-1079 Moanalua Road.
- Wahiawa General Hospital, 128 Lehua.

i) Dentist

Numerous dental offices are located in a three block radius of the site.

j) Eye Care

Several optician and optometrist offices are located in Waipahu town.

k) Recreation

The City and County of Honolulu's Therapeutic Recreation Center compiles and disseminates information on recreational and leisure programs available for persons with disabilities. The parks and playgrounds offering these programs are located in five districts. Those facilities pertinent to the residents are:

Adapted Aquatics
c/o BOJAC
94-801 Farrington Highway
Waipahu, HI 96797
Phone: (808) 671-0311

Special swimming instructions to children and adults with disabilities can be arranged. Provides training for swim instructors and aides through a special aquatics program.

**City and County of Honolulu
Therapeutic Recreation
Dole Playground**
Honolulu, HI 96813
Phone: (808) 522-7034

Provides recreational activities for people with disabilities such as arts and crafts, games, outdoor recreation, etc. at City parks and recreation program sites.

PBI
Hawaii Prince Golf Course
91-1200 Fort Weaver Rd
Ewa Beach, Hawaii 96706
Phone: (808) 735-3661
(808) 944-4567

Sponsors a tennis clinic specifically geared to persons with disabilities, including wheelchair users, visually impaired, hearing impaired individuals, and groups for incarcerated males.

Piano Lessons for Disabled
1651 Young Street
Honolulu, HI 96815
Phone: (808) 949-1238

Offers individual piano lessons to children and adults with developmental and physical disabilities.

**Rehabilitation Hospital of the
Pacific**
Therapeutic Pool
226 North Kuakini Street
Honolulu, HI 96817
Phone: (808) 531-3511

Offers out-patient exercise classes to persons with physical disabilities, water exercise workouts for people with arthritis. In- and out- patient care.

l) Transportation

Handi-van Customer Service

Reservations: (808) 832-0799 or 832-0777

The consumer applies at the satellite city hall. Requests for van services should be called in at least one day in advance.

The Hawaii Centers for Independent Living (HCIL)

Phone number is (808) 537-1941.

It shall be the resident's responsibility to contact the van services and schedule their services as needed.

TheBus

Bus Pass: (808) 523-4083

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APPENDIX B

Figure 1	Location Map
Figure 1a	<i>Vicinity Plan</i>
Figure 2	Proposed Subdivision Plan
Figure 3	[Proposed] <i>Revised Site Plan</i>
Figure 4	<i>Topographical Survey</i>
Figure 5	<i>Typical Unit Plans</i>
Figure 6	<i>Exterior Elevations, Sections</i>

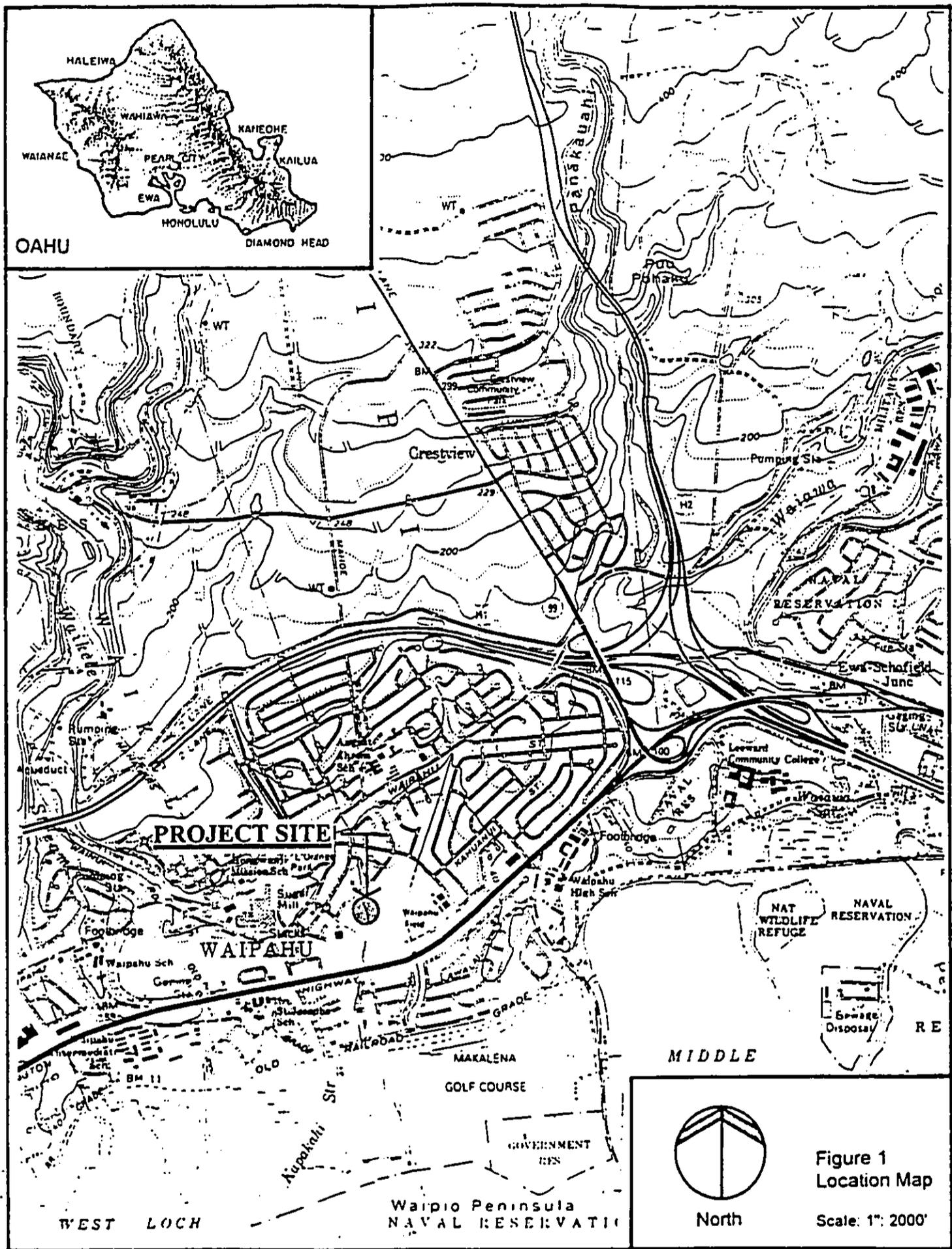
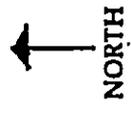
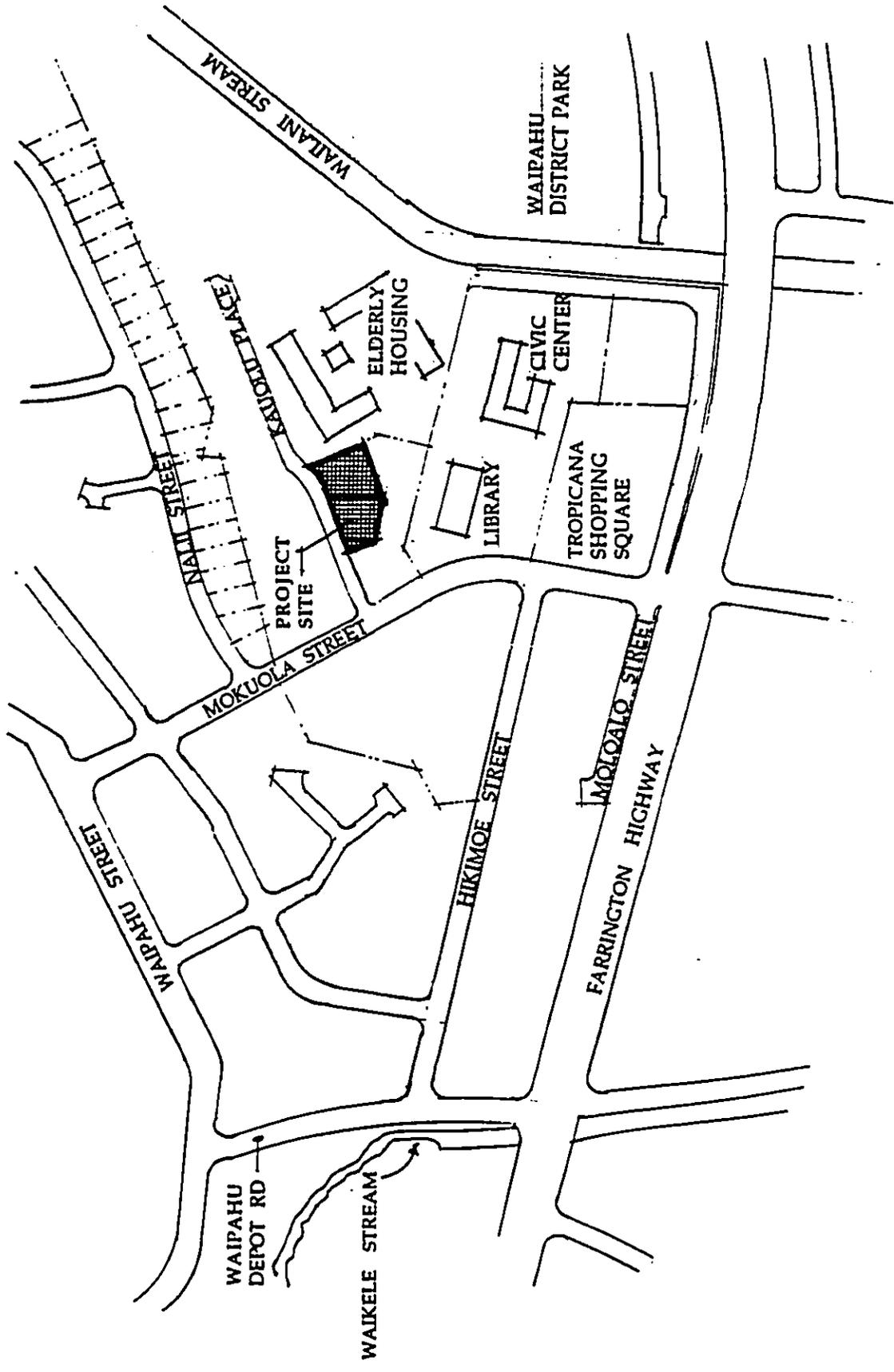


Figure 1
Location Map

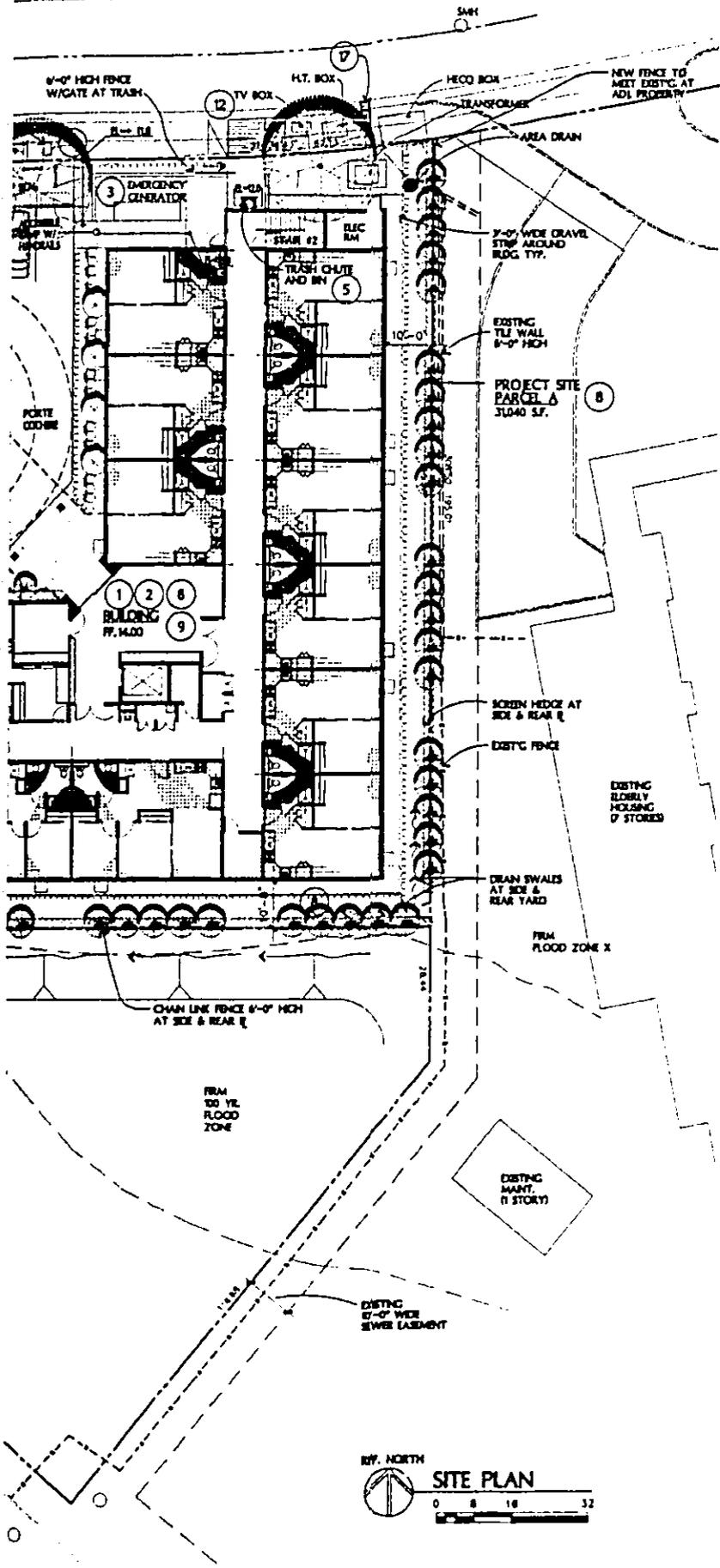
Scale: 1" = 2000'



NORTH

VICINITY PLAN

NO SCALE



LIST OF 201E EXEMPTION ITEMS - REFER TO 201E APPLICATION FOR DETAILED EXEMPTION LIST:

ZONING:

1. Exemption from the Waipahu Special Area Plan from Single Family Residential to Multifamily Residential. REF: 12/95 "Waipahu Special Area Plan Report".
2. Exemption to allow apartment use, on a lot currently zoned R-5 Residential District, for a two-story, twenty-four unit apartment building of approximately 24,498 sf. In general, A2 Medium Density Apartment District regulations will be followed. REF: LUD Table 3.10C.

Exemption requests noted below are exemptions from A2 Medium Density Apartment District Regulation requirements.

YARDS:

3. Exemption to allow installation of an emergency self-contained 150 kw diesel generator in the front yard near the transformer and Electrical Room. The proposed generator will be approximately 4'-5" wide x 13'-6" long x 6'-10" high on a 6" high concrete pad. The alternative would be to locate this equipment in a parking stall, which would increase project costs and decrease available parking. REF: Ord 98-82, Section 27-3.30(a)(7).
4. Exemption to allow within the front yard an accessible ramp with handrails 36 inches in height. REF: Ord 98-82, Section 27-3.30(a)(7).
5. Exemption to allow within the front yard an enclosed 24" diameter trash chute (architectural appendage) attached to the front of the building facing Kaolu Place. The chute would terminate at an unrooted trash enclosure at grade. The trash chute was recommended by HUD. The chute enclosure will extend into the front yard approximately 36". REF: Ord 98-82, Section 27-3.30(c).
6. Exemption to allow an eight feet side yard at the southeast corner of the proposed building at Stair #7 in lieu of ten feet. REF: LUD Table 3.10-C.
7. Exemption to allow a 5'-0" plant strip and 3'-0" to 5'-0" wide accessible path at the side yard along the west property line in lieu of a landscaped 10 feet wide side yard. Approximate length is 73 feet. REF: LUD Table 3.10-C.

MAXIMUM BUILDING AREA:

8. Exemption to allow a Maximum Building Area of approximately 42% (12,989 sf) of the lot area in lieu of the required 40% (12,418 sf). Lot area of Parcel A was restricted by HUD requirements that the site be outside of flood hazard zones. Lot area was also restricted due to HFDZ dimensional requirements for Parcel B. REF: LUD Table 3.10-C.

BUILDING HEIGHT:

9. Exemption to allow a maximum building height not to exceed 40 feet, should Act 15 no longer be in effect.

PARKING:

10. Exemption to allow 19 parking stalls in lieu of 30 stalls that would be required for multifamily housing. Of the 19 stalls, 9 will be designated as accessible stalls. All stalls will be full-size as the complex is geared for the severely disabled. REF: Ord 98-82, Table 27-3.1(A).

LOADING SPACE:

11. Exemption to allow loading space of 8.5' x 19' with a vertical clearance of 10 feet in lieu of required 12' x 35' space with vertical clearance of 14 feet for floor areas in excess of 5,000 sf. REF: LUD 3.70-12(b).

DRIVEWAYS:

12. Permission to provide a dropped curb at the proposed trash enclosure to facilitate pick-up of dumpster bins. Proposed dropped curb will be approximately 8'-0" wide.
13. Exemption to allow a 26 feet wide entry/exit driveway (in lieu of 25 feet) off of Kaolu Place to facilitate handi-van entry to the site without impeding exiting traffic.

BUILDING DEPARTMENT:

14. Exemption from payment of Building Permit fees. REF: Section 18-6.1 ROH

DEPARTMENT OF PUBLIC WORKS:

15. Exemption from payment of Grading Permit fee. REF: Section 14-4.4 ROH
16. Exemption from payment of wastewater facility charges and connection fees. If it is not feasible to exempt this fee, consideration to use rates in effect in February, 1997 and deferment of payment until the project is substantially complete for occupancy. REF: Chapter 14, Section 10 ROH
17. Permission to install two (2) side-slope drainage culverts at Kaolu Place.

BOARD OF WATER SUPPLY:

18. Exemption from payment of Board of Water Supply development charges and meter costs for domestic water and fire protection water use, if not feasible to exempt this fee, consideration to use rates in effect during February, 1997 and deferment of payment until the project is substantially complete for occupancy. REF: BWS Rules and Regulations, Section 7-102.

PRIVATE PARK REQUIREMENTS:

19. Exemption from Park Dedication requirements:
 - A. Per Park Dedication Rules and Regulations, this multi-family residential project is required to provide the lesser of the following park area calculations:
 - (1) 10% x 24,498 sf = 2,449 sf of required park area
 - (2) 24 units x 110 sf/unit = 2,640 sf of required park area
 - B. The project is planning to provide about 1,900 sf of outdoor park area, including raised garden plots. Adjacent to the outdoor park will be a multipurpose room of about 775 sf. Other indoor recreation areas are a ground floor Lobby/Sitting Area of about 800 sf and a second floor Lobby Area of about 500 sf. Total outdoor and indoor recreation spaces will be approximately 3,775 sf.
 - C. Most of the residents of the facility will be confined to wheel chairs and it is anticipated that use of outdoor recreational areas will be limited.
 - D. REF: Chapter 27 Article 7 ROH - "Park Dedication Rules and Regulations"

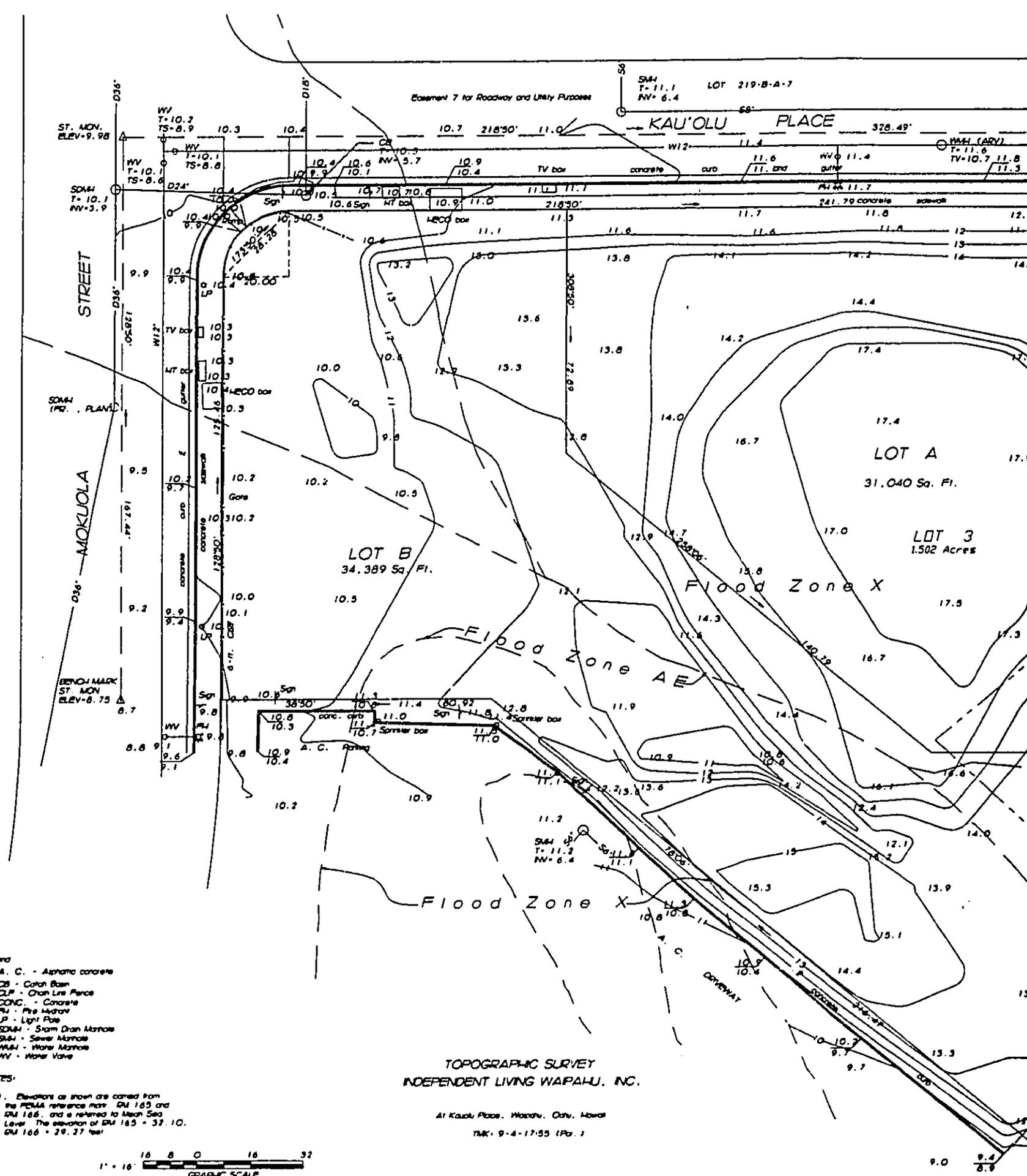
SITE PLAN

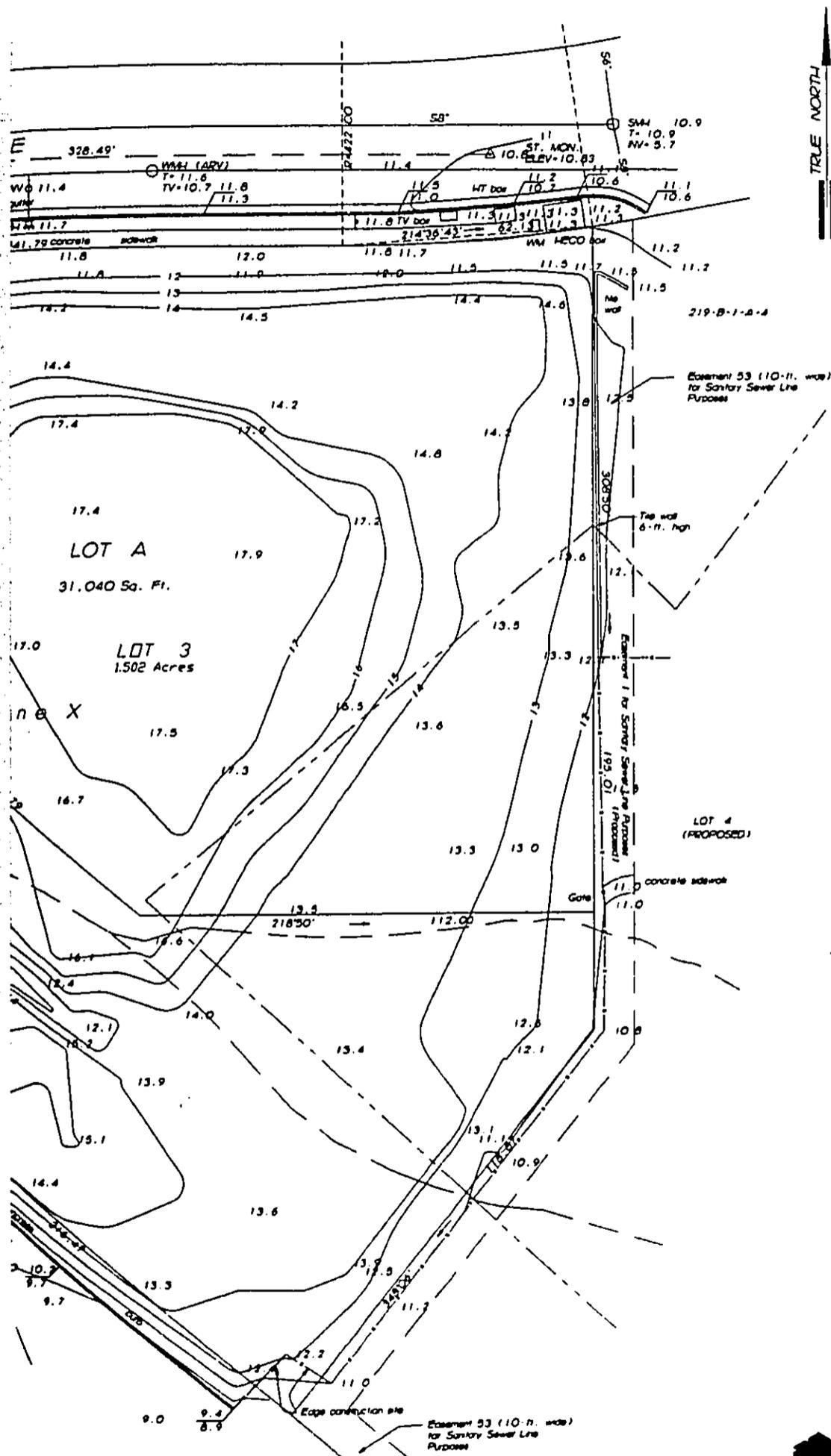
INDEPENDENT LIVING APARTMENT COMPLEX
 KAOLU PLACE
 WAPAHALA, OAHU, HAWAII
 THE 9-4-D; PDR 28 AND 29

9 APRIL 1997

SHEET 3 OF 8

SUEDA & ASSOCIATES, INC.
 105 WINDING WAY, WAIKAI, HAWAII
 PH (808) 946-8844 • FAX (808) 946-4787 • HONOLULU, HAWAII (808) 925-2149

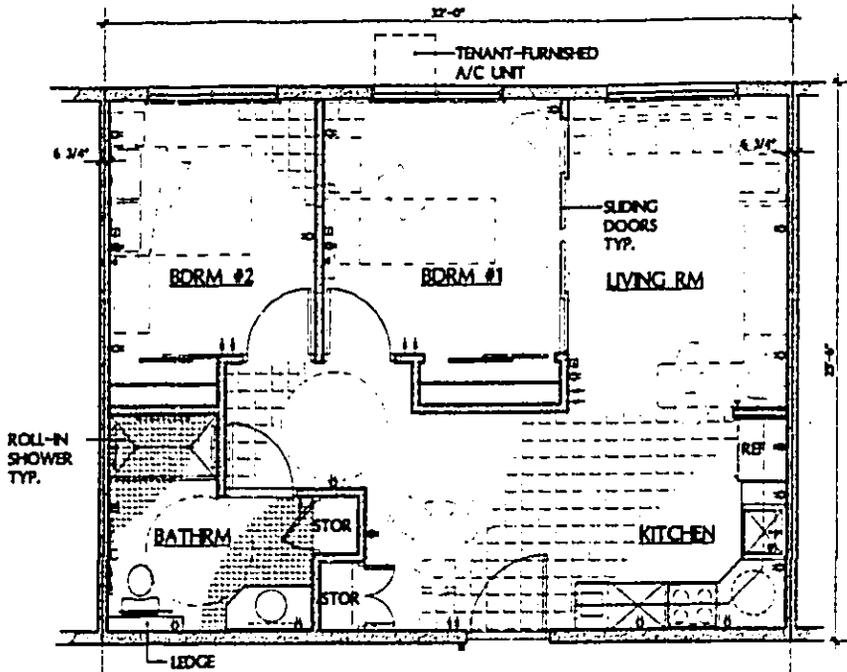




TOPOGRAPHIC SITE
 INDEPENDENT LIVING APARTMENT COMPLEX
 SAKELU PLACE
 WAIAPILI OAHU HAWAII
 THE 9-10-11, 12, 13 AND 14
 14 FEBRUARY 1967

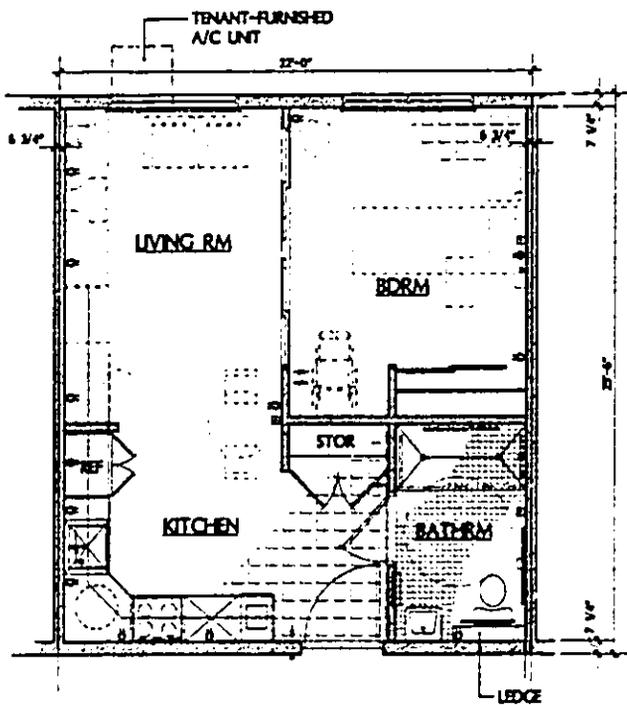
SHEET 2 of 8

SUEDA & ASSOCIATES, INC.
 225 BREWER ST., HONOLULU, HAWAII
 PH (808) 945-6641 • FAX (808) 945-6157 • CABLE (808) 945-6149



TYPICAL TWO BEDROOM PLAN

SCALE 1/4" = 1'-0" NET AREA 763 SF



TYPICAL ONE BEDROOM PLAN

SCALE 1/4" = 1'-0" NET AREA 520 SF

PRELIMINARY APARTMENT UNIT FINISHES:

- TYPICAL FLOOR: VINYL COMPOSITION TILE THROUGHOUT
- BATHROOM WALLS: NON-SUP CERAMIC TILE ON MORTAR BED (FOR SLOPES)
- BASES: 1D INCH HIGH PAINTED WOOD
- TYPICAL WALL: GYPSUM BOARD
- BATHROOM WALLS: GLAZED CERAMIC TILE TO 6 FEET HEIGHT ON CEMENT BOARD AT SHOWERS
- WAINSCOTS: NONE
- CEILINGS: GYPSUM BOARD WITH SPRAY-ON ACOUSTICAL TREATMENT PAINTED GYPSUM BOARD AT BATHROOMS AND KITCHENS
- DOORS: PLASTIC LAMINATE VENEER or PAINTED WOOD WITH KICKPLATES APARTMENT ENTRY AND ASSISTED BEDROOM DOORS 3'-6" WIDE NO DOOR CLOSERS EXCEPT FOR ENTRY DOORS
- DOOR FRAMES: METAL WITH VINYL JAMB GUARDS

OTHER FEATURES:

- GENERAL: ENVIRONMENTAL CONTROL SYSTEM FOR SWING DOORS, DRAPES, TV, AC, ATTENDANT CALL WINDOWS PROVISIONS FOR TENANT-FURNISHED WINDOW A/C UNITS POWER-ASSISTED DOORS BEING INVESTIGATED CEILING TRACK SYSTEM BEING INVESTIGATED SOLAR WATER HEATING SYSTEM WITH ELECTRICAL BACK-UP CEILING FANS AT LIVING ROOMS AND BEDROOMS OUTDOOR PACKAGED DIESEL-POWERED EMERGENCY GENERATOR

- KITCHEN: SIDE-BY-SIDE REFRIGERATOR WITH WATER/ICE DISPENSER DROP-IN RANGE WITH SELF-CLEANING OVEN AND FRONT CONTROLS OUTLETS, SWITCHES MOUNTED ON CABINET FACES WHERE FEASIBLE CABINETS WITH LAZY SUSAN, 10 INCH HIGH BASES, PULL-OUT SHELVING, ADJUSTABLE-HEIGHT SINK PANTRY WITH ADJUSTABLE WIRE RACK SHELVING SYSTEMS

- BATHROOMS: ROLL-IN SHOWERS TILTED MIRRORS ADJUSTABLE-HEIGHT SINK

- BEDROOM: CEILING-MOUNTED TV OPENABLE PANELS BETWEEN DISABLED BEDROOM AND LIVING ROOM (FLUSH FLOOR TRACKS) ADJUSTABLE WIRE RACK CLOSET STORAGE SYSTEMS

TYPICAL UNIT PLANS

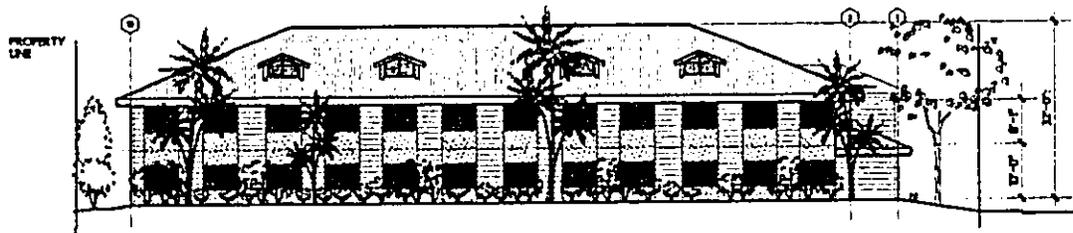
INDEPENDENT LIVING APARTMENT COMPLEX
 KALIHI PLACE
 WAIKALI OAKS, HAWAII
 THE 9-11-81, 10, 11 AND 12

14 FEBRUARY 1977

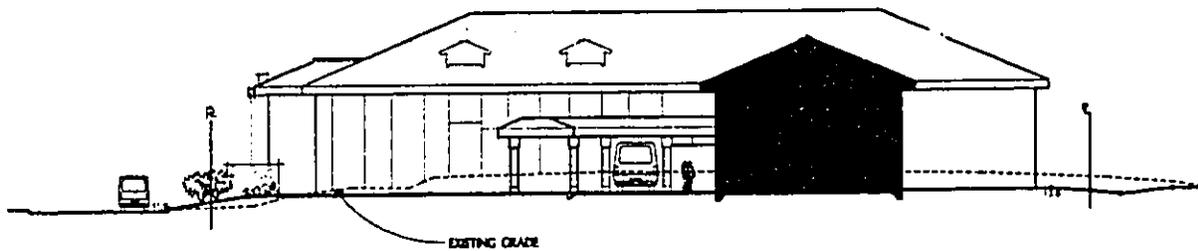
SHEET 6 OF 8



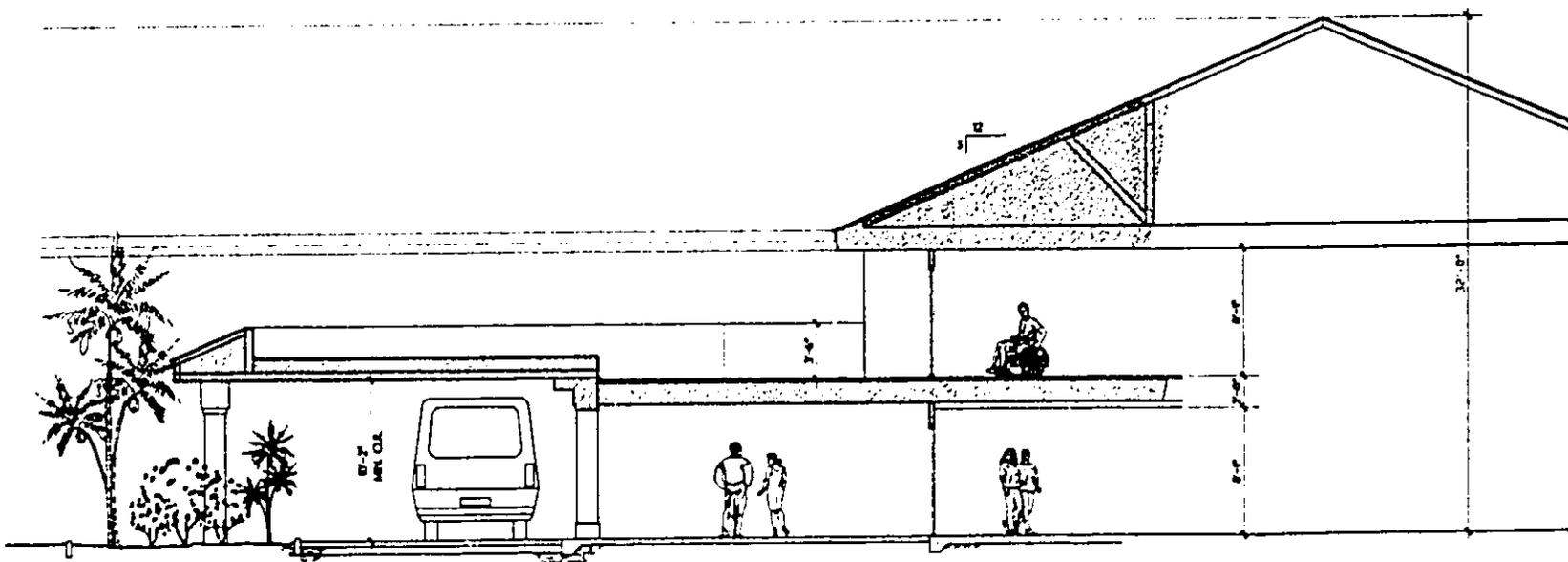
SUEDA & ASSOCIATES, INC.
 100 BROADWAY, SUITE 2100, HONOLULU, HAWAII 96813
 PH (808) 948-8844 • FAX (808) 948-6787 • CIRCLE (808) 948-9148



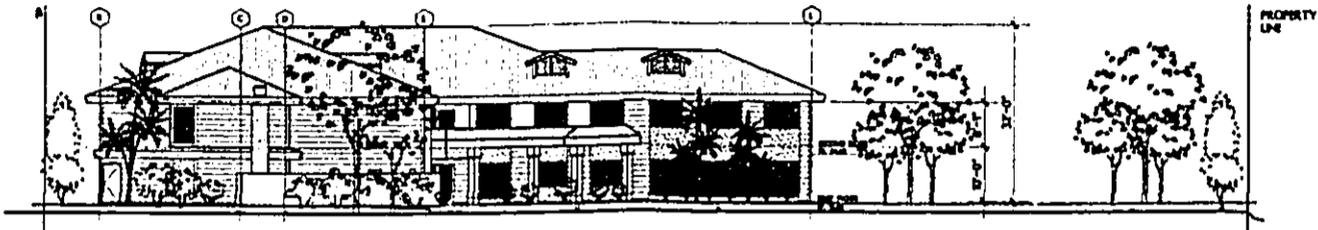
A EAST ELEVATION
SCALE 1/8" = 1'-0"



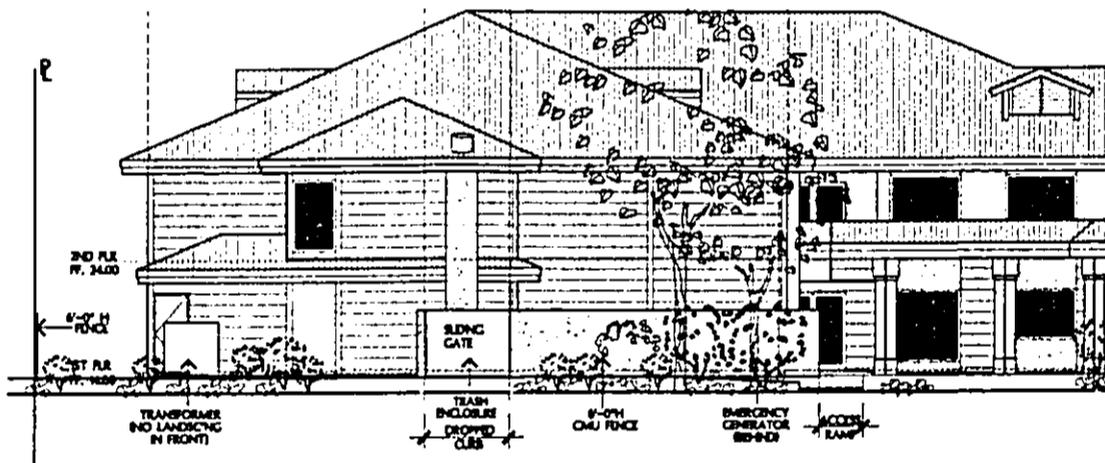
C SITE SECTION
SCALE 1/8" = 1'-0"



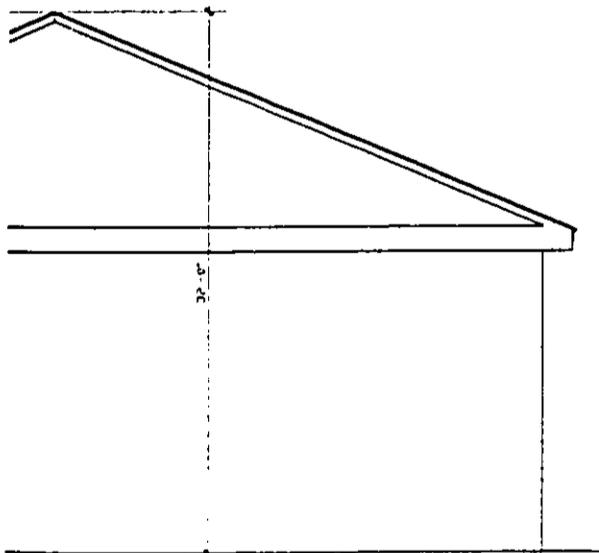
PORTE COCHERE
SCALE 1/8" = 1'-0"



B NORTH ELEVATION
SCALE 1/8" = 1'-0"



PARTIAL NORTH ELEVATION FROM STREET
SCALE 1/8" = 1'-0"



EXTERIOR ELEVATIONS, SECTIONS
INDEPENDENT LIVING APARTMENT COMPLEX
KALIOLI PLACE
WAIKANAHI, OAHU, HAWAII
THE 9-4-87, PCL 55 AND 51

1 APRIL 1987

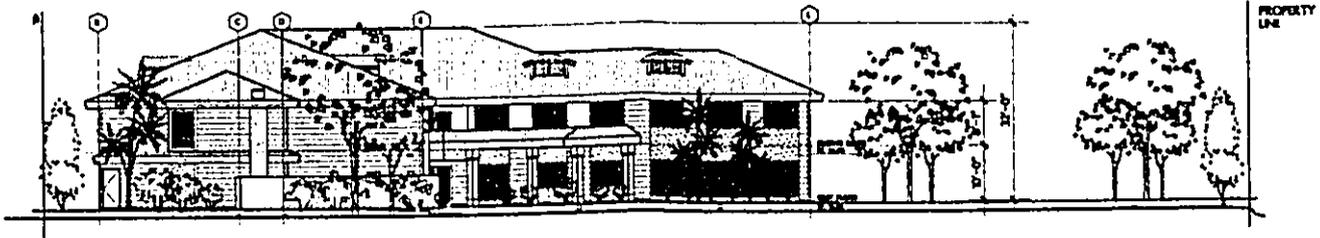
SHEET 7 of 8



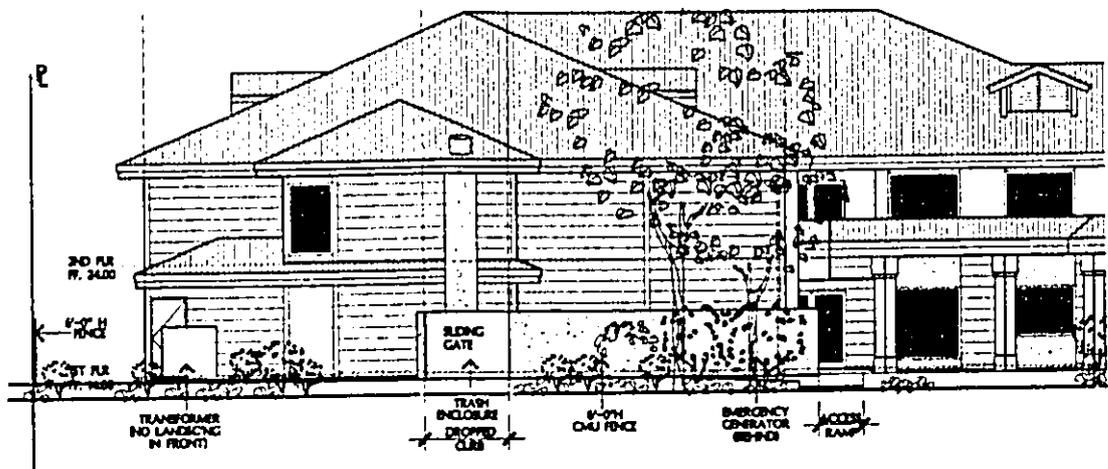
SUEDA & ASSOCIATES, INC.
225 BAKERSHIP RD., WAIKANAHI, HAWAII
PH (808) 940-8644 • FAX (808) 940-8707 • HONOLULU, HAWAII 96825
• HICKAM (808) 833-8149

CORRECTION

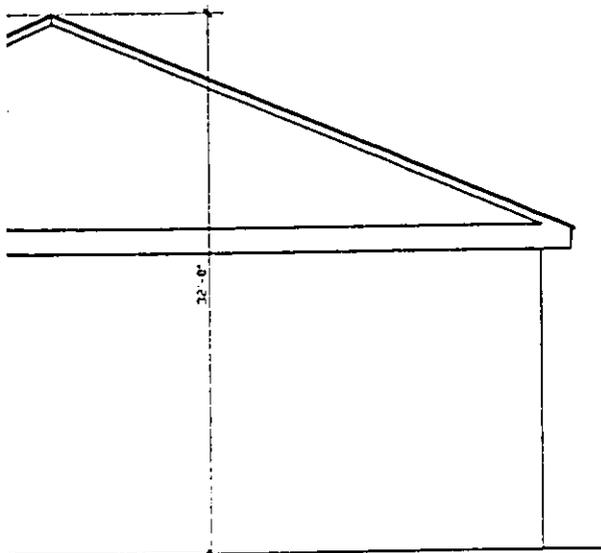
THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING



B NORTH ELEVATION
SCALE VP - 1/4"



PARTIAL NORTH ELEVATION FROM STREET
SCALE VP - 1/4"



EXTERIOR ELEVATIONS, SECTIONS
 INDEPENDENT LIVING APARTMENT COMPLEX
 KAUOLI PLACE
 WAIKALI OAHU HAWAII
 THE 9-4-97 PCL 55 AND 56
 9 APRIL 1997 SHEET 7 of 8

SUEDA & ASSOCIATES, INC.
 825 SANDS BLVD., SUITE 200, HONOLULU, HAWAII 96825
 PH: (808) 949-8644 • FAX: (808) 949-4757 • HONOLULU (808) 955-0176

APPENDIX C

CORRESPONDENCE

- 1. Department of Land and Natural Resources
Historic Sites Division**
- 2. Department of Wastewater Management
Sewer Connection Application**

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



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

DEPUTIES

GILBERT COLOMA-AGARAN

AQUACULTURE DEVELOPMENT
PROGRAM

AQUATIC RESOURCES
CONSERVATION AND

RESOURCES ENFORCEMENT
CONVEYANCES

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION

DIVISION
LAND DIVISION
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

January 23, 1997

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

Elaine Shinagawa, Coordinator
Independent Living Housing
P. O. Box 3563
Honolulu, Hawaii 96811

LOG NO: 18815 ✓
DOC NO: 9701EJ32

Dear Ms. Shinagawa:

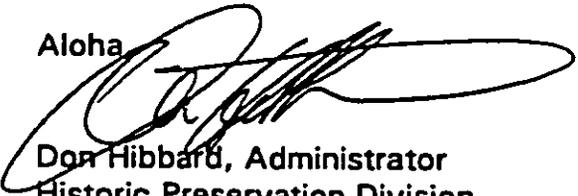
SUBJECT: 15-Unit Housing Project, Proposed Independent Living Housing Project,
Waipahu, O'ahu
Waipahu, 'Ewa, O'ahu
TMK: 9-4-17:1, 55, 56, 59

Thank you for providing us the soil and building information gathered by your architects for this project. Our office requested this information because tax maps of the parcels showed that two old *auwai* (Hawaiian irrigation ditch) are located on the project parcel. Also land court awards for the parcel indicated that taro pondfields were cultivated in that area. The existence of these agricultural features can yield important information on Hawaii's traditional agricultural history.

A review of the additional information provided indicates that the majority of excavation for this project will be conducted in fill soils brought onto the site area since 1978. The proposed elevator, which requires excavation of a 9 X 9 feet elevator pit may penetrate non-fill soils by approximately 1 foot, while portions of sewer and drain pipe trenching will be at original ground surface. Because ground disturbance will be limited to fill soils for the bulk of the project and possible excavation into non-fill soils is limited to the elevator pit, we believe that the project as currently planned, will have "no effect" on historic sites.

If you have any questions please call Elaine Jourdane at 587-0015.

Aloha


Don Hibbard, Administrator
Historic Preservation Division

EJ:jk

c: Jason Ching, Department of Housing and Community Development, City &
County of Honolulu, 650 S. King St. 5th Floor, Honolulu, HI 96813

DEPARTMENT OF WASTEWATER MANAGEMENT

SEWER CONNECTION APPLICATION

(Allow at least 2 weeks processing time)

RECEIVED
DEPT. WWM

PART A - TO BE FILLED BY APPLICANT (Please Print Legibly) 8 18 AM '97

1. Project Name: Independent Living Facility for the Rehabilitation Hospital of the Pacific
2. Address: Kaolu Place, Waipahu, Oahu, Hawaii
3. Tax Map Key: 9-4-17:1, and 55
4. Development: PD-H Cluster Other AB1 SUBDIV
(Type) Commercial Area
5. Total Number of Units Proposed: 24 (provide breakdown below)
Studio 2 1 Bdrm 18 2 Bdrm 2 3 Bdrm 2 4 Bdrm 0
Other 0
6. Sewer Connection Work Desired: (Give length, size, depth, etc.)
Connect approximately 30 lineal feet of 6-inch sewer lateral approximately 7 feet deep to 6-inch sewer stubout at sewer manhole within easement adjacent to Crown Point Housing. (Existing 8-inch sewer in easement)
7. Approximate Date of Connection: June 1998
8. Number & Type of Existing Structures on Property: None
Indicate Number of Structures: Remain 0 Demolished 0
9. Remarks: _____
10. Information Provided By:
Name: Alan T. Okamoto
Firm: Hida Okamoto & Associates, Inc.
Mailing Address: 1440 Kapiolani Boulevard, Suite 915, Honolulu, Hawaii 96813
Street City, State Zip Code

PART B - TO BE FILLED BY THE CITY

1. Current Zoning: R-9 General Plan _____
2. Sewer System: Adequate Inadequate Unavailable
Other: _____
3. Charges:
a. Sewer Assessment _____ times _____ Rate _____ Area (sq. ft.) _____ \$ _____
*b. Wastewater System Facility Charge: _____ \$ _____
c. Other (new laterals, etc.): _____ \$ _____
TOTAL CHARGES (estimated) = \$ _____
4. Remarks: *WSSFC shall apply. To be determined and paid at time of approval of the building permit application.
5. Application:
Approved: A. Lawrence, Jr. Date: 1/28/97
Valid 2-years after approval date. Construction plans shall be completed & approved within this 2-year period. Construction shall commence within 1-year after approval of plans.
Not Approved: _____ Date: _____

APPENDIX D

**ENVIRONMENTAL ASSESSMENT
WAIPAHU CROWN ELDERLY HOUSING
WAIKELE AND WAIPIO, EWA, OAHU**

Prepared for Housing Finance and Development Corporation
Department of Business and Economic Development
State of Hawaii

July, 1990

**ENVIRONMENTAL ASSESSMENT
WAIPAHI CROWN ELDERLY HOUSING
WAIKELE AND WAIPIO, EWA, OAHU**

**Submitted in Partial Fulfillment
of the Requirements of
Chapter 343, HRS and
Chapter 200, Title 11, Administrative Rules
State Department of Health**

Prepared for

**HOUSING FINANCE AND DEVELOPMENT CORPORATION
DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT
STATE OF HAWAII**

By

GERALD PARK URBAN PLANNER

July, 1990

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ENVIRONMENTAL ASSESSMENT

PROJECT: Walpahu Crown Elderly Housing
LOCATION: Waialeale and Waipio, Ewa District, Oahu, Hawaii
TMK: 9-4-17:1
PROPOSING AGENCY: Housing Finance and Development Corporation
State of Hawaii
CONTACT PERSON: Mr. Marcel Audant
Project Coordinator
Phone: 543-2947

AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONTACTED
OR CONSULTED IN PREPARING THE ASSESSMENT

FEDERAL

Fish and Wildlife Service
Soil Conservation Service
U.S. Army Engineer District, Honolulu

STATE OF HAWAII

Department of Accounting and General Services
Department of Business and Economic Development
Department of Health
Department of Land and Natural Resources
Department of Transportation
Hawaii Housing Authority
Office of State Planning
Office of Environmental Quality Control

CITY AND COUNTY OF HONOLULU

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
Board of Water Supply
Fire Department
Police Department

INDIVIDUALS AND ORGANIZATIONS

Senator Ron Menor
Senator Eloise Tungpalan
Representative Julie Duldulao
Representative Paul Oshiro
Councilman John Desoto
Hawaiian Electric Company, Inc.
Hawaiian Telephone Company
The Gas Company
Waipahu Community Association
Waipahu Neighborhood Board

LIST OF EXHIBITS

<u>NO.</u>	<u>TITLE</u>	<u>PAGE</u>
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2	Crown Property Master Plan	3
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SECTION 1

DESCRIPTION OF THE PROPOSED PROJECT

The Housing Finance and Development Corporation (HFDC), State of Hawaii, proposes to develop State owned lands situated in the town of Waipahu, portion of Waikele and Waipio, Ewa District, City and County of Honolulu, Hawaii (See Figure 1). The subject property is identified by tax map as First Division 9-4-17:1 encompassing an area of 22.55 acres.

The Master Plan for Crown Property (Figure 2) proposes a mixed-use development concept for this centrally located property. The proposed uses support community needs and those of the principal users for which development is planned. As part of the development process, the property will be subdivided into six lots. Four lots comprising 13.3 acres will be developed for elderly housing (Waipahu Crown Elderly Housing) as the principal use of Crown Property. Approximately 4.5 acres already have been acquired by and will be developed by the Department of Accounting and General Services, State of Hawaii, for the proposed Leeward Civic Center. This site was one of three alternative locations recommended for a civic center to be located in Waipahu town (Waipahu 2000 Master Plan). Land also has been set aside for a senior citizens center (1.5 acre) and a medical office building (0.5 acre).

A. Technical Characteristics

1. Elderly Housing

The Master Plan program proposes the construction of 330-340 apartment units for the elderly as the principal use for Crown Property. Residential construction will help alleviate a shortage of dwelling units for the elderly. Approximately 220-230 units will be constructed in two, 7-story mid-rise structures. Sited near the center of the property, the L-shaped buildings are oriented east-west (along their long side) to maximize views to the mountains, the adjoining park, and to take advantage of the prevailing wind direction (northeast trades). Each building has a floor area of 12,600 square feet on the ground floor and 11,000 square feet per floor for floors two (2) through seven (7).

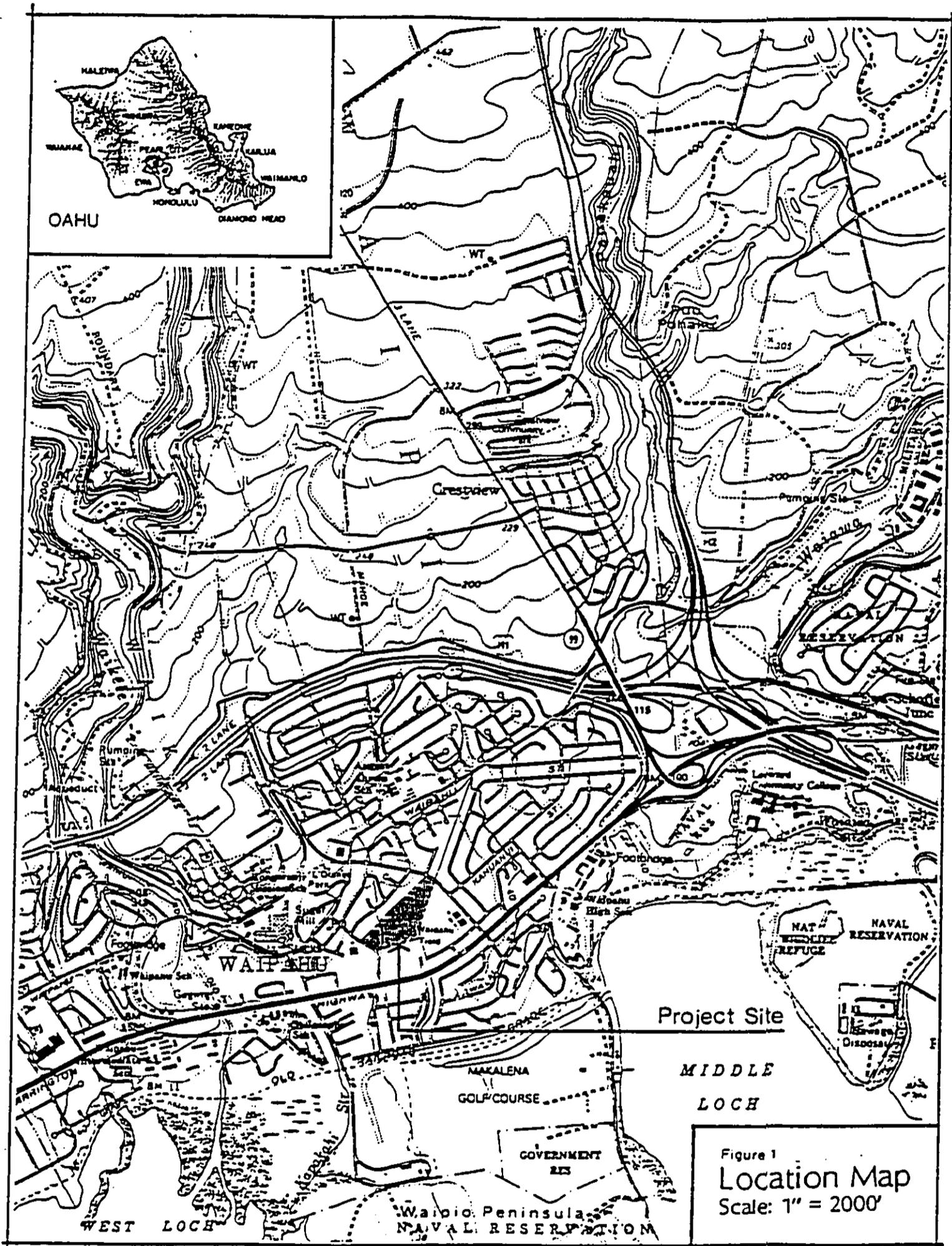


Figure 1
 Location Map
 Scale: 1" = 2000'

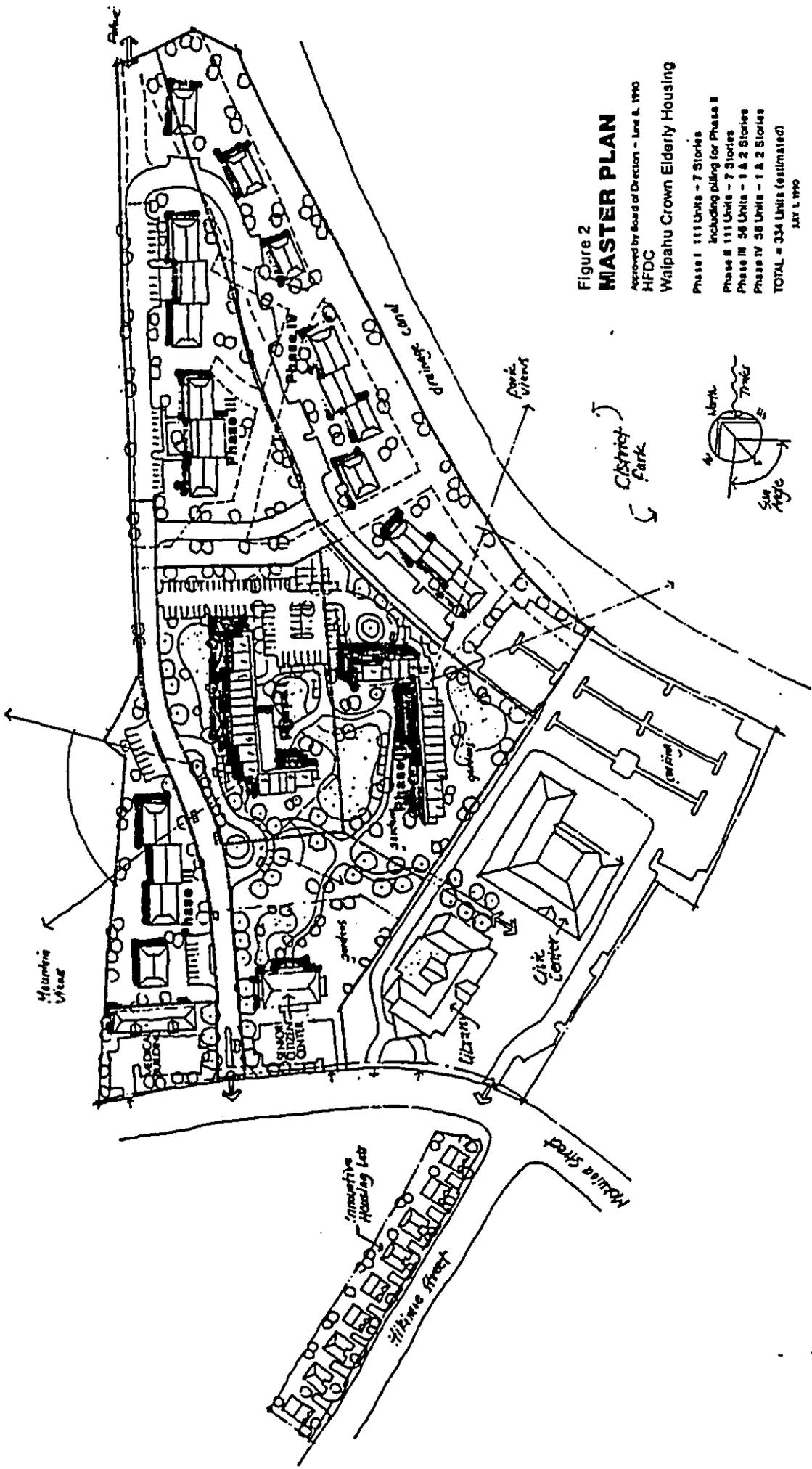


Figure 2
MASTER PLAN
 Approved by Board of Directors - Line B, 1990
 HFDC
 Walpahu Crown Elderly Housing
 Phase I 111 Units - 7 Stories
 Including piling for Phase II
 Phase II 111 Units - 7 Stories
 Phase III 56 Units - 1 & 2 Stories
 Phase IV 56 Units - 1 & 2 Stories
 TOTAL = 334 Units (estimated)
 JUL 1, 1990

PAUL LOUJE & ASSOCIATES, AIA
 ARCHITECTS
 1000 ...
 ...
 ...

Dwelling units are single loaded on each floor typically with 15 units per floor. Two unit sizes are planned as follows:

<u>UNIT</u>	<u>BATHROOM</u>	<u>NO. OF UNITS</u>	<u>AREA (SF)</u>
Studio	1	80	423
1 Bedroom	1	31	592

Approximately 110-112 apartment units will be developed in a low-rise (1 and 2 story) townhouse configuration. These structures will be placed around the perimeter of the development (see Figure 2) and would contain studio and 1-BDR units of similar size to units in the mid-rise structures.

Because of soft, compressible soils, the two mid-rise buildings will be placed on pile supports and framed with a combination of poured in place concrete and steel members. The exterior walls are a combination of drivet and other textured finishes and interior walls will be constructed of hollow tile and gypsum board. A flat roof is proposed with wrap around rolled metal mansard trim.

A managers office, meeting room with kitchen, and laundry facilities will be located on the ground floor. To minimize energy consumption and cost, the residential buildings will not be air conditioned; operable windows in each unit will aid in cooling and ventilation.

Providing adequate security of the grounds, building, and occupants are of major importance to HFDC. Towards this end, security measures have been incorporated into site and building plans. Examples of these measures include fencing the perimeter of the property (site security), keyed entry into the buildings (building security) and equipping units with deadbolt door locks and call buttons (unit security). Cost considerations preclude hiring security personnel at this time.

2. Senior Citizens Center

A 1.5 acre site has been reserved along Mokuola Street for a senior citizens center. There is no such facility in this area of Oahu and Waipahu seniors now use a City recreation building (boxing gym) for meetings and activities. Incorporating a senior citizens center as part of the overall Crown Property development benefits from its proximity to planned elderly housing, walking distance to public transportation routes, shopping areas, and government services (proposed Leeward Civic Center).

3. Medical Office

A 0.5 acre site in the northwest corner of the property is planned for a medical office building. HFDC is not proposing to develop the property, rather, they will later seek to market the property for the planned use.

4. Infrastructure

a. Circulation and Parking

Access will be taken off Mokuola Street via a single 44-foot wide road built to County standards. Curb to curb width measures 28 feet to accommodate two traffic lanes, rolled curbs, and gutters. Eight (8)-foot wide shoulders will accommodate concrete sidewalks, street trees and landscaping, light standards, traffic signs, and pertinent fixtures. Curb cuts at intersection will facilitate unimpeded access by the handicapped. The road will be maintained as a private road.

Twenty-eight on grade, uncovered, parking stalls are provided for Phase I development. The number of parking stalls is based on a 1 stall per 4 dwelling unit ratio ($111 \text{ units} / 4 = 28$) which is typical for new State funded elderly housing projects. Twelve parking stalls are provided for visitor use. If additional parking to accommodate resident vehicles is required, unimproved lands elsewhere on-site will be improved for off-street parking.

b. Water

Water will be taken off a municipal 12-inch main beneath Mokuola Street. Average daily demand is estimated at 0.129 mgd.

c. Sewer

Sanitary sewers in the project will connect to an existing 24-inch municipal line along the left bank (Crown Property side) of Wailani Stream. Wastewater flow is estimated at 0.043 gpd.

d. A permanent drainage system will be constructed to collect, convey, and discharge on-site runoff into Wailani Stream which adjoins the development to the east.

e. Power and Communication

Power, communication, and CATV lines will be placed underground.

f. Recreation

Outdoor recreation areas are planned primarily as open space for passive recreation activities, entertaining, and gardening. Meeting rooms on the ground floor of each building will accommodate indoor recreation activities.

B. Economic Characteristics

Crown Property is owned by HFDC which acquired fee title to the land in 1974.

Improvement costs for the first residential development phase (which may include driving piles for the second phase) is estimated at \$10.8 million (\$1990) and will be funded by HFDC as owner/developer. Cost estimates for the remaining phases have not been determined.

Upon completion of construction, the rental units will be managed by the Hawaii Housing Authority's Management Section. Rental rates will vary by elderly household income. Thirty percent (30%) of tenants monthly income is proposed for rents with a proposed minimum rent of \$150/month and \$175/month for the studio and one-bedroom units, respectively. Future adjustments in rent for each unit will be determined by the HHA Management Section based on the cost of operating expenses.

HFDC proposes a four phase development schedule. Construction of Phase I is projected for late 1990. A preliminary development schedule is shown below:

<u>Phase</u>	<u>No. of Units</u>	<u>Start</u>	<u>Complete</u>
I	110 - 120	January, 1991	June 1992
II	110 - 120	*	
III	56	*	
IV	56	*	

* Start up dependent on Capital Improvement Program funding and financial feasibility.

C. Social Characteristics

No business enterprise or resident will be displaced by the project. The site is vacant and no portion is under general lease or revocable permit in favor of any lessee.

The project is targeted for elderly households desiring long-term rental accommodations in a safe, sanitary environment. Prospective occupants will have a choice of studio and one-bedroom units and possibly larger accommodations with implementation of Phases III and IV.

The Hawaii Housing Authority has a waiting list of 1,982 elderly persons in Honolulu desiring housing (HFDC, 1988). Elderly applicants will be screened for eligibility using the following criteria: (a) 62 years or older; (b) resident of Hawaii; (c) no interest in real estate; (d) assets not to exceed two times the eligible income; (e) single or couple without dependents; and (f) income level.

A minimum of five percent (5%) of the units will be set aside for handicapped tenants. Residents confined to wheelchairs will be located on the ground or first floor level for easy access to their apartments.

SECTION 2

DESCRIPTION OF THE AFFECTED ENVIRONMENT

The history of Waipahu is deeply rooted in the natural resources found in the area. Native Hawaiians settled the area as fish were plentiful in nearby mudflats and shallow waters off Pearl Harbor. Natural springs issued water for agricultural activities and taro and other wetland crops were readily cultivated. The turn of the 20th century saw vast acreages of the Schofield Plateau and Ewa Plain and its rich soils committed to a more ambitious endeavor — sugar cane cultivation — which replaced fishing and subsistence farming as the agricultural and economic mainstays of the region. Today, some 90 years later sugar cane is still king. Waipahu has a rich and illustrious history that can be gleaned from cosmopolitan surnames of its residents (29,000 strong) place names, architecture, and the still operating sugar mill with its smokestack prominently overlooking downtown Waipahu.

Located about 1/2 mile makai of this landmark, the project site is bordered by residences on the north, commercial activities on the south, Mokuola Street on the west, and Waiāni Stream channel on the east. The proposed Leeward Civic Center is planned on 4.5 acres abutting the project site to the south.

The land is vacant and generally undeveloped. The exception is the presence of several cultivated garden plots presumably belonging to adjoining landowners. Previous grubbing, grading, and surcharging have extensively modified the property which itself was created by land filling (Soil Conservation Service 1972). Generally, the soil consists of 8-10 feet of artificial fill over deep, soft, compressible deposits (Dames and Moore 1982). To minimize ground settlement due to consolidation of the soft, compressible deposits, a surcharge program was initiated in 1975 and continues to the present time.

The ground surface is generally slight to moderately sloping with site grades ranging from +15 feet at the northwest corner to +6 feet along Waiāni Stream in the east-southeast corner.

Portions of the property paralleling Wailani Stream lie in a flood plain. Flood Insurance Rate Maps (1987) places same in Zone X (shaded) which is defined as "areas of 500 year flood or areas of the 100 year flood with average depths of less than one foot".

In a separate project, the HFDC will improve Wailani Stream Channel to negate potential flooding of lands adjoining the channel. Improvements include widening the channel right-of-way to 80 feet (from its present 70 feet) over its 1,500 foot length, constructing a 430 foot long reinforced concrete rectangular section upstream from the Farrington Highway Bridge, and reshaping approximately 1,100 lineal feet of earth trapezoidal section to Paiwa Street. Construction is expected to commence in January, 1991 and should be completed in six months.

No underground sources of potable water exist beneath the site. However, artesian conditions are known to exist in the area and three of four located springs underlying the property have been capped (Refer to Figure 3).

No archaeological features appear on the surface neither do historic site maps chart recorded features on the property.

Tropical fruits and vegetables are raised in gardens on the northeastern half of Crown Property. Banana, papaya, pigeon pea, eggplant, okra, greenbeans, squash, and peas flourish in well maintained planter beds. The remaining half is covered by Guinea (Panicum maximum) and California grasses (Bracharia mutica) 5-10 feet in height. Morning glory (Ipomea sp) and koa haole (Leucaena leucocephala) grow profusely as do weedy adventures such as Spanish needle, garden spurge, spring amaranth, Cuba jute, and altermanthera.

No wildlife was observed but given a source of food and water, mongoose (Herpestes auropunctatus) and rats (Rattus spp.) probably browse the property.

Crown Property is classified Urban on State land use district boundary maps, general planned Urban Fringe on the City and County of Honolulu General Plan, designated Residential on the City and County of Honolulu Development Plan for Central Oahu, and zoned Residential (R-5). Residential use of the site is recommended by the community originated Waipahu 2000 Community Master Plan.

Recently completed road improvements link Crown Property with Waipahu Street and Farrington Highway (via Mokuola Street) and Depot Road (via Hikimoe Street). Mokuola and Hikimoe Streets were improved in 1987 by HFDC and dedicated to the County. Both are County standard roads with 60-foot rights-of-way. Curb to curb width measures 44-feet (Mokuola Street) and 40-feet (Hikimoe Street) and accommodates four traffic lanes. Both are fully improved with curbs, gutters, and sidewalks. The posted speed limit is 25 mph.

Water service is available from a 12-inch water main along Mokuola Street.

On-site drainage improvements are limited to a 36-inch underground drainline from Nalii Street (to the west of Crown Property) which crosses the center of the property (west to east) and discharges runoff into Wailani Stream. Wailani Stream also receives stormwater discharge from outlets near Paiwa Street, various sized lines draining Waipahu Field, and a 48-inch drain along the southern edge of Crown Property (the site of the proposed Civic Center).

Sewer lines of varying sizes are found along Nalii Street (12-inch) to the north and Mokuola Street (8-inch) to the east. These lines collect and convey wastewater into an existing 24-inch line alongside Wailani Stream.

Overhead electrical lines cross the middle of the property in an east-west direction.

Police protection originates from the Pearl City Police Station on Waimano Home Road about 2-1/2 miles away in Pearl City. Crown Property is regularly patrolled throughout the day by police vehicles.

The Waipahu Fire Station is located about 1.5 miles west of the site on Leonui Street in the Waipahu Industrial Area. The station's authorized manpower is 13 firefighters on duty at all times. An engine company, ladder company, and tanker are based at the station. In addition, a City and County of Honolulu emergency ambulance also is housed at the station.

Waipahu Field, located across Wailani Stream Channel, is one of the major recreation facilities in Waipahu. A gymnasium, community center building, playground, outdoor tennis courts, three baseball diamonds, swimming pool, outdoor basketball courts, and off-street parking make up this 13.8 acre facility.

SECTION 3

IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS

The scope of the project was discussed with staff of the Housing Finance and Development Corporation and the team of consulting architects and engineers assembled for this project. Comments to the proposed project were solicited from Federal, State, and County agencies, government officials, utility companies, and community organizations. Time was spent in the field noting existing uses and conditions of the affected property and adjoining lands. The discussions, comments, technical reports and field investigations helped identify general conditions and physical features that would be affected by the project and those environmental features that could affect residential uses of the property. These conditions include:

- . The site has been undergoing a surcharge program since 1974;
- . The site is vacant and devoid of structural improvements;
- . There are no historical and cultural features within the project area;
- . There are no rare, threatened, and endangered flora and fauna on the site;
- . Existing water, sewer, and utility systems are adequate to service the project.
- . Thick deposits of soft compressible soils underlie the site; and
- . Artesian springs issue water beneath the site.

Environmental

At the onset of construction, vegetation, abandoned automobiles, broken concrete, and debris will be cleared and previously placed surcharge fill removed. In general, filling after surcharge removal should be minimal in those areas proposed for site development. Areas to be filled will be compacted and the entire site proof-rolled. Grading to achieve design elevations will be done in accordance with Chapter 23, Grading, Soil Erosion, and Sediment Control (Revised Ordinances of the City and County of Honolulu) and with a technical report titled "Geotechnical Consultation and Investigation Crown Mixed Use/Wailani Stream, Waipahu, Oahu, Hawaii" prepared by Dames & Moore, 1990. Grading operations also will be performed in conformance with the applicable provisions of Chapter 54 (Water Quality Control Standards) and Chapter 55 (Water Pollution Control) of Title 11, Administrative Rules, State Department of Health.

During site preparation and construction phases, it is inevitable that fugitive dust will be generated. Dust cannot be eliminated entirely but is expected to vary depending upon the type of activity being performed, limits of exposed area, moisture content of exposed soil in work areas, and climatic conditions. Fugitive dust also will be raised by construction vehicles moving over the site.

Construction equipment will emit some air pollutants in the form of exhaust emissions (carbon monoxide and nitrogen dioxide) and aldehyde odors.

State of Hawaii Department of Health Administrative Rules (Chapter 60, Section 26) stipulate control measures that are to be used to reduce fugitive dust. Because of the proximity of the project to existing residential areas dust control will be of paramount importance throughout construction. Examples of dust control measures include planting (or sodding) exposed areas as soon as final grades are established and frequent watering by truck or hand sprinkling. The Contractor also will keep the job site and adjacent roadways free of silt and construction debris.

Noise, an inevitable consequence of construction work, will be generated during all phases of construction. Construction noise, like fugitive dust, cannot be avoided and all project activities will comply with noise control provisions of Title 11, Administrative Rules of the State Department of Health Chapter 43, Community Noise Control for Oahu and Chapter 42, Vehicular Noise Control for Oahu.

Equipment noise must be attenuated to meet allowable noise levels (measured at the property line) established in the regulations by zoning districts (55 dBA for residential, 60 dBA for commercial and apartment districts; daytime noise levels). No use of construction equipment, power tools, or vehicles which emit noises in excess of the allowable noise levels will be permitted without first obtaining a Noise Permit from the State Department of Health. Although the permit does not attenuate noise per se it regulates the hours during which excessive noises are allowed.

The two, seven story buildings will be supported on piles resting on underlying bedrock approximately 80 feet below the existing ground surface. Thus, the pile driver, which is the most deafening and certainly one of the most irritating piece of construction equipment, will be used. Sound pressure levels for the pile driver generally range from 94 to 106 dB(A). Local measurements of pile driver noises show a slightly lower noise range. During construction of Hemmeter Center pile drivers generated sound pressure levels (corrected) on the order of 87-102 dB(A) at 50 feet and averaged 96 dB(A) (Belt, Collins & Associates 1977). Although quantitative differences in sound pressure levels can be identified, this probably does not make a significant difference to individuals. To some, pile driving noises are still deafening and irritating regardless of attenuation. It is not structurally feasible to avoid the use of piles hence pile driving and its concomitant noise cannot be avoided. Pile driving for Phase I (and possibly II) may be done concurrently and should last approximately two months with an additional week for equipment mobilization/demobilization. Noise regulations allow pile driving only between the hours of 9 a.m. to 5:30 p.m. A noise permit will be obtained from the State Department of Health prior to the start of construction (per Chapter 43 of Title 11, Administrative Rules of the State Department of Health).

There are neither archaeological remains nor plant and animal species identified as threatened or endangered present. Should subsurface archaeological remains be unearthed, construction work in the immediate area will cease and historic authorities promptly notified for proper disposition of the finds.

Although construction impacts are expected to be temporary and can be satisfactorily mitigated by construction practices and regulatory mechanisms, there is less certainty about potential ground settlement problems. At this time, the results of lengthy geotechnical investigations suggest that some settlement can be expected to develop slowly over a long period of time. The magnitude of the remaining settlement is difficult to estimate but expected to be on the order of 3 to 6 inches (Dames and Moore, 1990).

Site preparation, design, and administrative measures are proposed with the aim of mitigating potential problems brought on by ground settlement. These measures include:

Site Preparation

- an on-going surcharge program (since 1974) with monitoring of actual ground settlement.
- setting finish grades higher in anticipation of future settlement.
- stripping the top 6-12 inches of soil from all areas to be developed and hauling same to a suitable disposal site.
- removing a minimum of 3 feet of surcharge material in designated areas of the property (See Figure 3 and Table 1).
- filling areas to design elevation, compacting same, and proof-rolling the site with a total dead weight of at least 15 tons.
- where spring conditions are encountered, the area will be excavated of soil, backfilled with No. 2 Course Drain Rock, and sub-drains installed. These areas would be left as open space or for parking.

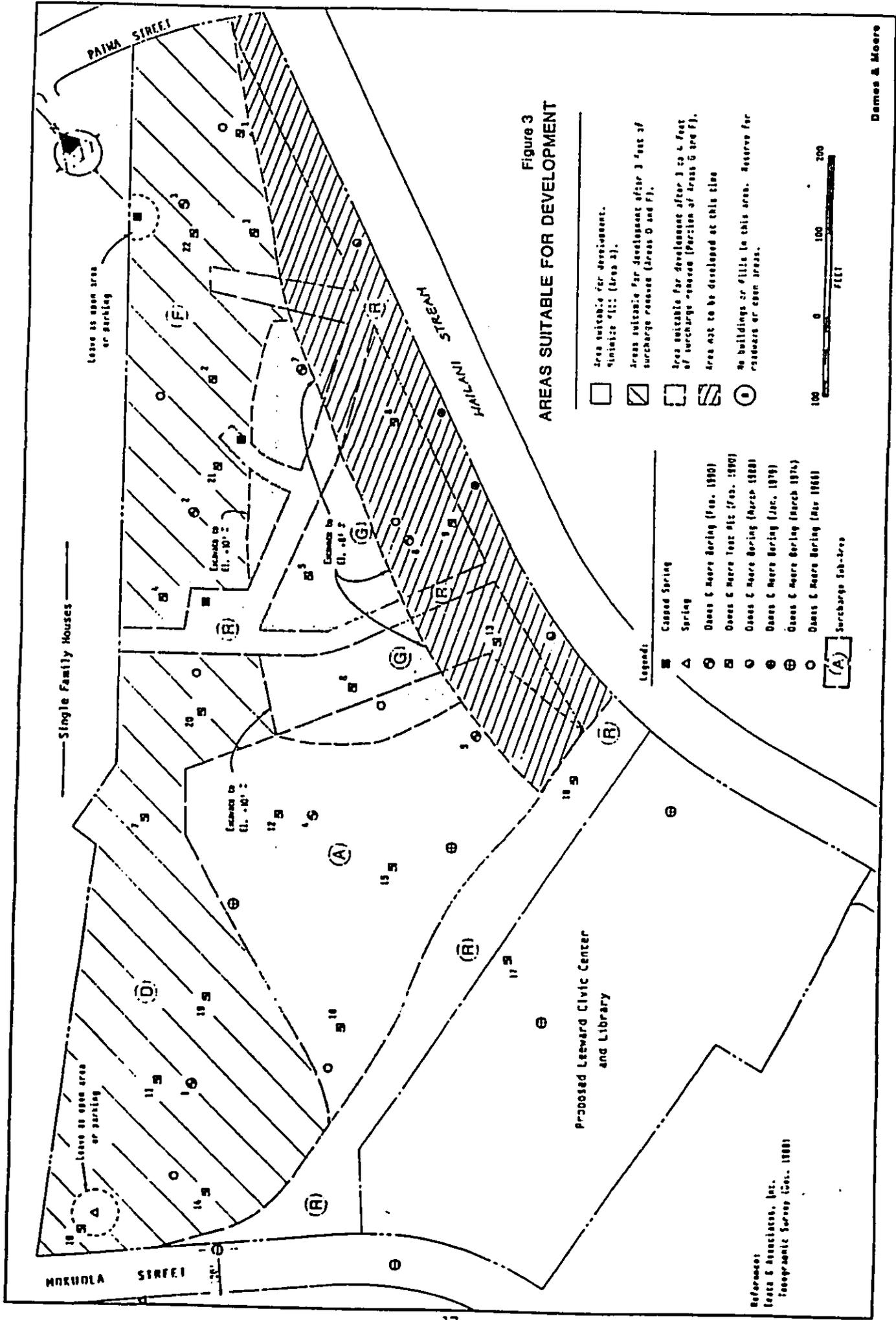


TABLE 1

SUMMARY OF SITE PREPARATION ITEMS

<u>Sub Area</u>	<u>Site Preparation items</u>	<u>Remarks</u>
Majority of "A"	<ol style="list-style-type: none"> 1. Clearing, grubbing & stripping 2. Surcharge recompaction 3. Surface preparation 4. Proofrolling and repair 5. Engineered fill placement to finish grades 	No additional surcharge is needed. Minimize fill placement and fill as early as practical. Monitor settlements during and construction in low-lying areas near channel.
"D" and Northwest Portion of "F"	<ol style="list-style-type: none"> 1. Clearing, grubbing & stripping 2. Removal of 3 feet of surcharge 3. Surcharge recompaction 4. Proofrolling and repair 5. Engineered fill placement not exceeding 1.5 feet to finish grades 	No additional surcharge is needed.
Portion of Area "G" and Southeast Portion of "F"	<ol style="list-style-type: none"> 1. Clearing, grubbing, & stripping 2. Removal of 3 to 4 feet of surcharge to approximately Elevation +8 at eastern edge of area to Elevation +10 at western edge 3. Surcharge recompaction 4. Proofrolling and repair 	No additional surcharge is needed. Do not fill. Monitor settlements during and after construction.
Area "R"	<ol style="list-style-type: none"> 1. Clearing, grubbing, & stripping 2. Subdrain installation in slough 3. Slough filling 4. Surcharge recompaction 5. Proofrolling and repair 	Should be reserved for future roadways or open areas. No building or new fills, except to backfill existing slough, should be placed in these areas.

Note: For delineation of subareas, refer to Plate 11.

Source: Dames and Moore, 1990.

Design

- . erecting the mid-rise structures on pile supports.
- . using flexible utility couplings.
- . designing low-rise structures for possible deformation to include provisions to relevel the buildings should settlement become too excessive.

Administrative

- . developing the property for rental housing.
- . retaining ownership of the dwelling units and thereby assume the liability for damages resulting from ground settlement.

Land Use

HFDC will use its authority granted by Act 15 to change the current Development Plan designation from Residential to High Density Apartment to allow construction of the mid-rise towers. Concurrent with this change in Development Plan designation, applicant will rezone the property to mixed-use apartment (AMX-2) and set a not to exceed building height of 80-feet for the mid-rise structures.

These actions run counter to existing land use designations but are prerequisites for implementing the Master Plan for Crown Property. The proposed project is consistent with general plan policies that encourage making intensive use of urban lands, providing a compact urban form, locating developments so that they are well related to transportation systems, public facilities, and markets, and locating new developments in areas already served by utility systems. The project is consistent also with general plan policies related to the provision of affordable rental housing for people of different income levels, families of various sizes, and housing designed for the elderly and the handicapped.

Social

A residential population of between 430-440 persons could eventually reside in the Waipahu Crown Elderly Housing Project. Residential growth will occur incrementally as the four development phases are completed. Phase I would house approximately 142 persons (80 studios @ 1.0 persons/unit and 31 one-bedrooms @ 2.0 persons/unit) and a comparable number is assumed for the second tower. Residential population for Phases III and IV (112 units of undetermined unit types) is estimated at about 150 persons. In comparison, a residential subdivision of approximately 100 dwellings units could be constructed under present R-5 zoning (5,000 sf lots). Assuming a household size of 3.8 persons/unit, a population of 380 persons could reside in the subdivision. It is believed that in numerical terms, there is no significant difference in population gain between a housing project for the elderly and a residential subdivision. Social and economic variations between an aging and youthful population such as age, income, employment status, and number of dependents will exist but this should not adversely affect neighbors and the community-at-large.

A gain in population, however, raises an issue with the population guidelines established for the Central Oahu Development Plan. The General Plan for the City and County of Honolulu allocates 12.8% to 14.2% of Honolulu's 2005 population to Central Oahu. The projected population for the Central Oahu Development Plan area is currently at its maximum based on General Plan population distribution guidelines. Implementation of this project could contribute to a level of population in excess of the percentage guideline.

Senior citizens should derive social and economic benefits in the form of clean, comfortable, secure, and affordable living accommodations. Additional benefits include interaction with peers, proximity to public transportation routes, shopping areas, government services (in the planned Leeward Civic Center), a planned senior citizens center, and medical services. Ground space has been set aside for gardening and areas improved for casual strolling and sitting. In total, the project has been located and designed foremost to satisfy some of the social and economic needs of its intended residents.

Community sentiment for the project has thus far been positive. Past and present elected officials from the area have supported residential use of Crown Property and information meetings/presentations to community groups have yielded positive results.

Visual

The two mid-rise residential structures are perhaps the most imposing (and certainly the most visible) features of the project. Seven floors high, they provide a dramatic contrast in building height to adjoining one and two-story residential dwellings and commercial buildings. A cursory visual survey reveals that the buildings will be visible from nearby streets (Mokuola, Hikimoe, and Paiwa Streets and Farrington Highway) and as far away as the H-1 Freeway above Waipahu town, Kamehameha Highway at Walawa Interchange (Waipahu and Pearl City bound lanes), and Farrington Highway from Waikale Bridge to Mokuola Street (Honolulu bound lanes).

To minimize its visual intrusion into a low-rise setting, the L-shaped building(s) have been designed so as not to present a long-continuous facade. Offsets will provide visual interest and visually reduce the bulk of the structure. Landscape plantings around the building and perimeter of the site will aid in "softening" building height and mass.

It should be noted that the proposed structures are not the only mid-rise structures in Waipahu. They are about the same height as the HonFed Building (6 floors) located at the intersection of Depot Road and Farrington Highway and two apartment buildings, Waikale Towers (9 floors) and Waipahu Tower (8 floors). The latter two buildings are located on the makai side of Farrington Highway (on Pupumomi Street) just west of Waipahu Intermediate School.

Infrastructure

Housing projects for the elderly are low traffic generators when compared to traffic generated by residential subdivisions (10.0 vehicle trips/unit/day) or apartment developments (5.20 trips/unit/day). For this project, a conservative trip rate of 3.3 trips/unit/day was used to estimate traffic volume. However, the calculated volume was adjusted to account for the 1:4 parking stall to unit ratio. In other words, parking is planned for approximately 83 vehicles ($330 \text{ units}/4 = 83$) and this figure was substituted for the total number of units. The resulting traffic volume is 274 vehicle trips per day (83×3.30). During morning (7-9 a.m.) and afternoon (4-6 p.m.) peak hours, the project will contribute an estimated 21 vehicles entering/exiting the development to overall traffic volume on adjacent streets. This contribution to peak hour traffic is not significant and should not adversely affect peak hour traffic or circulation patterns in the immediate area.

Potable water demand for the development is estimated at 0.129 mgd which can be supplied from the existing 12-inch municipal line in Mokuola Street. Off-site improvements are not required to accommodate the project. All on-site improvements will be designed, built, and installed per Board of Water Supply standards.

The anticipated wastewater volume of 0.043 gpd will be discharged into an existing sewer line (24-inch) along Wailani Stream. The sewer line feeds the Waipahu Pump Station which pumps sewerage on to the Honouliuli Wastewater Treatment Plant for treatment and ocean disposal.

Runoff contributed to Wailani Stream by development of Crown Property is estimated at 23 cfs and will be delivered to the stream via a permanent underground drainage system. This system will connect to existing drain lines discharging into the channel. On-site generated peak runoff constitutes a 2% flow increase (975/952 cfs) in peak runoff generated within the 833 acre tributary area. This increase appears to have little effect on peak flow. Planned improvements to Wailani Stream Channel will accommodate the peak flow thereby negating potential flooding of lands adjoining the channel. The channel has a design capacity of 3600 cfs at the Farrington Highway Bridge.

Recreation facilities at nearby Waipahu Field may be used by residents without creating any adverse impact. Recreation needs for tenants will be supplemented by planned facilities within the complex and the planned senior citizens center. Additionally, HFDC will use its authority granted by Act 15 to waive the Park Dedication requirements of the City and County of Honolulu.

Both Police and Fire Departments have not submitted adverse comments concerning the project. The development will neither extend areas of present coverage nor necessitate a decline in protective services in other areas.

Power, telephone, and gas services are available and adequate to accommodate the project. Development plans will be submitted to the various utility companies for review and coordination during project design and planning processes. Facilities located in the project area will be flagged (or identified) to minimize potential conflicts with construction equipment and activities.

SECTION 4

ALTERNATIVES TO THE PROPOSED ACTION

No Action

A "no action" alternative maintains existing conditions for the Crown Property site. No physical impacts would occur and the site will be further overgrown by weedy vegetation.

The no action alternative precludes further expenditure of capital resources towards providing housing for the elderly. Elderly households would be denied the opportunity for residing in a safe, clean residential environment at affordable prices. A no action alternative does nothing to achieve short- and long-term affordable housing goals and conflicts with the mission of the HFDC.

Alternative Site

Crown Property was acquired in 1974 and land banked until such time that residential development was feasible. There are no State-owned lands of comparable size in Waipahu available for residential development. This site is one of several State-owned sites located in different parts of Oahu to be developed for elderly housing.

Alternative Development Concept

A previous development concept proposed a mixed-use low-density residential subdivision comprised of single-family and multi-family dwellings and a senior citizens center.

With respect to environmental impact, this alternative probably would have resulted in less pronounced short-term construction related impacts and long-term visual effects compared to the proposed project. However, because of the uncertainty over ground settlement and the potential liability for repairing or replacing numerous damaged structures, utility lines, and other improvements dispersed across the site this alternative was considered undesirable.

SECTION 5

FINDINGS AND RECOMMENDATION

Chapter 200 (Environmental Impact Statement Rules) of Title 11 Administrative Rules of the State Department of Health specifies criteria for determining if an action may have a significant effect on the environment. The relationship of the proposed project to these criteria is discussed below.

- (1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Crown Property is devoid of any natural or cultural resources.

- (2) Curtails the range of beneficial uses of the environment;

The project would commit idle land to a productive use that provides housing benefits for the elderly and facilities that benefits the community-at-large. The project site is centrally located near 'downtown' Waipahu, accessible by automobile, and within short walking distance to commercial activities along Farrington Highway, Hikimoe Street, Waipahu Street, and Depot Road.

- (3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;

The project does not conflict with long-term state environmental policies or goals.

- (4) Substantially affects the economic or social welfare of the community or State;

(See (2) above)

- (5) Substantially affects public health;

The project will not substantially affect public health. Fugitive dust and construction noises may be considered nuisances by nearby businesses and residents but can be mitigated by measures described in this Assessment.

- (6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

The project will place additional demands on water and sewer facilities. However, consultations with government agencies responsible for the aforementioned facilities indicate service and capacity of the respective systems can accommodate the project. Applicant will contribute their fair share for required off-site system improvements.

Population gain to the immediate area (i.e. Waipahu) is an inevitable outcome given the type of project proposed. The estimated 430+ residents are expected to be drawn primarily from Oahu. This amounts to a redistribution of some of Oahu's elderly population rather than a net gain in islandwide population per se. Out-of-State households would not meet the eligibility criteria for renting a unit and would be dismissed from consideration.

- (7) Involves a substantial degradation of environmental quality;

Environmental quality will not be substantially degraded.

- (8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The Waipahu Crown Elderly Housing Project is one of several projects master planned for Crown Property. Other projects include a much needed Leeward Civic Center which will house branch offices of State and County government agencies and a planned senior citizens center.

- (9) Substantially affects a rare, threatened or endangered species, or its habitat:

Crown Property harbors no rare, threatened, or endangered plant and animal species.

- (10) Detrimentially affects air or water quality or ambient noise levels; or

Noise and dust are unavoidable short-term consequences of construction but can be mitigated by complying with public health regulations governing air pollution and noise.

- (11) Effects an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The project is planned in an area of soft, underlying soils. Efforts to remedy this problem have been on-going since 1974. Current geotechnical investigations indicate that the potential for ground settlement still exists and settlement can be expected in certain portions of the site. Engineering, site preparation, architectural and structural design, and administrative measures for mitigating this potential impact have and will be implemented prior to, during, and following building occupancy. All tenants will be apprised of potential ground settlement and the liability of the HFDC, not the tenant, for correcting settlement created damages.

Based on the above criteria, it is concluded that the Waipahu Crown Elderly Housing Project will not result in significant adverse environmental impacts and an Environmental Impact Statement is not required.

REFERENCES

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- U.S. Department of Agriculture, Soil Conservation Service. 1973. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai; State of Hawaii. In cooperation with University of Hawaii Agriculture Experiment Station. U.S. Government Printing Office. Washington, D.C.
- Waipahu-Waipio Development Advisory Council. No Date. Waipahu 2000 Waipahu Community Master Plan.

APPENDIX A
CONSULTATION PERIOD COMMENTS

Speaker
DANIEL J. KIHANO
Vice Speaker
EMILIO S. ALCON
Majority Leader
TOM OKAMURA
Majority Floor Leader
PETER K. APO

HOUSE OF REPRESENTATIVES
THE FIFTEENTH LEGISLATURE

STATE OF HAWAII
STATE CAPITOL
HONOLULU, HAWAII 96813



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7/7/90

DISTRICT REPRESENTATIVES

1st — JERRY L. CHIANG
2nd — HARVEY S. TAJIRI
3rd — WAYNE METCALF
4th — DWIGHT Y. TAKAMINE
5th — VIRGINIA ISBELL
6th — MIKE O'KIEFFE
7th — MARK J. ANDREWS
8th — HERBERT J. HONDA
9th — JOSEPH M. SOUKI
10th — ROZ BAKER
11th — DANIEL J. KIHANO
12th — SAMUEL S. H. LEE
13th — ROBERT BUNDA
14th — JOSEPH P. LEONG
15th — REB BELLINGER
16th — TERRANCE W. H. TOM
17th — MARSHALL K. IGE
18th — WHITNEY T. ANDERSON
19th — ED BYBEE
20th — CAM CAVASSO
21st — DAVID STEGMAIER
22nd — FRED HIRAYAMA
23rd — BARBARA MARUMOTO
24th — FRED HEMMINGS, JR.
25th — CALVIN K.Y. SAY
26th — LES IHARA, JR.
27th — BRIAN T. TANIGUCHI
28th — JAMES T. SHON
29th — DAVID M. HAGINO
30th — JOAN HAYES
31st — CAROL FUKUNAGA
32nd — MAZIE HIRONO
33rd — ROD TAM
34th — MIKE LIU
35th — KENNETH T. HIRAKI
36th — DWIGHT L. YOSHIMURA
37th — DENNIS A. ARAKAKI
38th — EMILIO S. ALCON
39th — ROMY M. CACHOLA
40th — KAREN K. HORITA
41st — TOM OKAMURA
42nd — CLARICE Y. HASHIMOTO
43rd — DAVID Y. IGE
44th — NOBORU YONAMINE
45th — JULIE DULDULAO
46th — PAUL T. OSHIRO
47th — ANNELLE C. AMARAL
48th — HENRY HAALILIO PETERS
49th — PETER K. APO
50th — EZRA R. KANOIIO
51st — BERTHA C. KAWAKAMI

July 2, 1990

Mr. Earnest Malterre
94-1134 Hapapa Street
Waipahu, Hawaii 96797

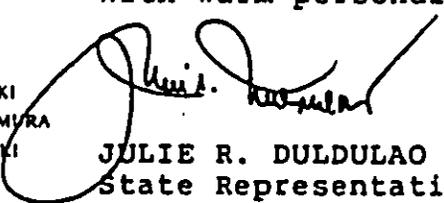
Dear Mr. Malterre:

Attached letter from Mr. Gerald Park, Urban Planner, is forwarded for your information and appropriate action. As the President of the Waipahu Cosmopolitan Seniors, I thought it appropriate that you and your organization should have the opportunity to comment on the proposed Elderly Housing project programmed for construction on the Crown property site.

If you have any comments or recommendations, please forward them to Mr. Gerald Park at the address shown on the attached. I would also appreciate receiving an information copy of your comments.

Your support and interest in this matter is greatly appreciated. Please call upon me or my staff if we can be of any assistance at any time.

With warm personal regards:


JULIE R. DULDULAO
State Representative
45th District

Enclosure

cc: ✓ Mr. Gerald Park, Urban Planner
Mr. Marcel Audant, HFDC

1 Minority Leader
11 Minority Floor Leader



515 Kamakee Street
PO. Box 3379 Honolulu, Hawaii 96842
Telephone (808) 547-3333
Telex (ITT) 7430292

RECEIVED
7/10/90

July 6, 1990

Mr. Gerald Park
Urban Planner
1245 Young Street, Suite 201
Honolulu, HI 96814

Dear Mr. Park:

SUBJECT: Crown Property Elderly Housing Project
Waipahu, Ewa Oahu

Please be advised that The Gas Company maintains an underground gas utility system in the project vicinity. We would appreciate the consideration of your planners and consultants during the project planning and design process to provide the necessary coordination during construction and to minimize any potential conflicts with the proposed project.

Thank you for the opportunity to comment on the proposed project. Should there be any questions, or if additional information is desired, please call me at 547-3574.

Very truly yours,

Edwin N. Sawa
Manager, Engineering

ENS:ssw

*Beyond the call***RECEIVED**
7/10/90

July 6, 1990

Gerald Park
1245 Young Street, Suite 201
Honolulu, Hawaii 96814Crown Property Elderly Housing Project
Waipahu, Ewa, Oahu

Thank you for the opportunity to comment on this subject project in Waipahu. It appears that Hawaiian Tel does not have any facilities in the area which will be affected by construction of this project.

Future telephone service to this project will be served underground from Makuloa Street. Please arrange for electrical plans to be sent to this office for review and comment. If you have any questions, please call Garret Hayashi at 834-6210.

Mark K. Taosaka
Operations Supervisor -
OSP Engineering

GH/kr (8225.1tr)

JOHN WAIHEE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

859 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

July 10, 1990

EDWARD Y. HIRATA
DIRECTOR

DEPUTY DIRECTORS
DAN T. KOCHI (PRIMARY)
RONALD N. HIRANO
JEANNE K. SCHULTZ
CALVIN M. TSUDA

IN REPLY REFER TO:

HWY-PS
2.2597

RECEIVED
7/11/90

Mr. Gerald Park
1245 Young Street
Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Crown Property Elderly Housing Project
Waipahu, TMK: 9-4-17: 1

Thank you for your letter of June 25, 1990, requesting our comments on the subject project.

We will require a Traffic Impact Analysis Report (TIAR) to address any impacts the project will have on Farrington Highway. The TIAR should define roadway requirements, potential traffic problems and mitigation measures to correct/minimize facility deficiencies. Costs incurred for required improvements shall be borne by the developer.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Edward Y. Hirata".

Edward Y. Hirata
Director of Transportation

JOHN WAIHEE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

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7/11/90

RUSSEL S. HAGATA
COMPTROLLER

JAMES H. YASUDA
DEPUTY COMPTROLLER

(P)1532.0
LETTER NO. _____

JUL 9 1990

Mr. Gerald Park
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

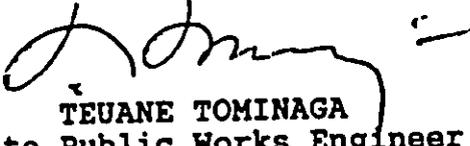
Dear Mr. Park:

Subject: Elderly Housing
Waipahu, Oahu

This is in response to your June 25, 1990 letter regarding the subject project.

We have no comments to offer at this time. Should there be any questions, please contact Mr. Cedric Takamoto of the Planning Branch at 548-7192.

Very truly yours,


TEUANE TOMINAGA
State Public Works Engineer

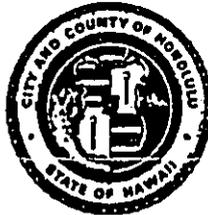
CT:hc

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
7/16/90

FRANK F. FASI
MAYOR



SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER

C. MICHAEL STREET
DEPUTY DIRECTOR
In reply refer to:
ENV 90-155(449)

July 11, 1990

Mr. Gerald Park
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Subject: Environmental Assessment (EA)
Crown Property Elderly Housing Project
Tax Map Key: 9-4-17: 01

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

1. We have no objections to the proposed elderly housing project.
2. We wish to inform you that no connections to the municipal sewer system will be allowed until the Honouliuli Wastewater Treatment Plant is expanded. Expansion of the primary treatment facility is scheduled for completion in 1993. However, if we are required to provide secondary treatment by the Environmental Protection Agency (EPA) and the State Department of Health (DOH), the completion date will be moved back to 1995.
3. A drainage report should be submitted to our Drainage Section, Division of Engineering, for review and comment.

Very truly yours,

C. Michael Street
for SAM CALLEJO
Director and Chief Engineer

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
7/16/90

FRANK F. FASI
MAYOR



WALTER M. OZAWA
DIRECTOR

HIROAKI MORITA
DEPUTY DIRECTOR

July 12, 1990

Mr. Gerald Park
Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Subject: Recreational Assessment
Crown Property Elderly Housing - Waipahu
Tax Map Key: 9-4-17: 1

We have made an assessment of the proposed Crown Property Elderly Housing Project in Waipahu and offer the following comments and recommendations.

The size of the proposed elderly housing project would have a significant impact on our public park facilities in the Waipahu area. Senior Citizens' programs and facilities are available at Waipahu Field, located adjacent to the project site. The programs and facilities, however, are limited and are already heavily used. Therefore, we recommend that recreational areas and facilities be provided in the design of the project to serve the project's recreational needs.

We have also determined that the project will be subject to compliance with the City's Park Dedication Ordinance No. 4621. Under the Ordinance, approximately 38,000 square feet of land will be required to be provided as a private park. Procedures and requirements for the private park are specified in the City's Park Dedication Rules and Regulation.

We recommend that contact be made with Jason Yuen of our Executive Policy Planning Unit at 527-6315 to discuss the project's recreational needs and park dedication requirements.

Sincerely,


WALTER M. OZAWA, Director
1d

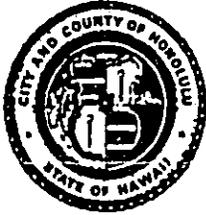
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POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 - AREA CODE (808) 943-3111

RECEIVED
7/17/90

FRANK F. FASI
MAYOR



HAROLD KAWASAKI
CHIEF

OUR REFERENCE KN-LK

July 11, 1990

Mr. Gerald Park, Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Subject: Crown Property Elderly Housing Project
Waipahu, Ewa, Oahu

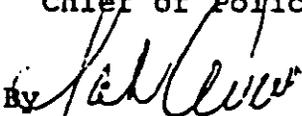
We have reviewed the materials for the above proposed development and would like to offer the following comments.

In the interest of safety for the development's occupants, we urge that security measures (e.g., deadbolts, window locks, adequate overhead lighting, ground/area lighting, and security fencing) be considered when both the residential and any auxiliary structures are designed.

Thank you for the opportunity to comment.

Sincerely,

HAROLD KAWASAKI
Chief of Police

By 
JOSEPH AVEIRO
Assistant Chief of Police
Support Services Bureau

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

850 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
7/19/90

FRANK F. FASI
MAYOR



BENJAMIN B. LEE
CHIEF PLANNING OFFICER
ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

WM 6/90-1825

July 16, 1990

Mr. Gerald Park
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Request for Comments Regarding the
Proposed Crown Property Elderly Housing
Project in Waipahu, Oahu

We have reviewed the preliminary information regarding the above referenced project. Based on the information provided, the following comments are offered:

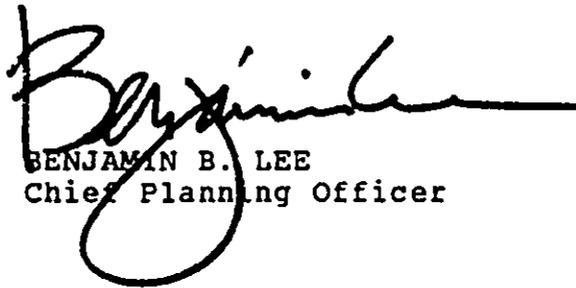
1. The project is consistent with General Plan policies related to the provision of affordable housing for the elderly. However, the projected population for the Central Oahu Development Plan (DP) area is currently at its maximum based on the General Plan population distribution guidelines.
2. The subject property is designated Residential on the Development Plan Land Use Map for Central Oahu. The proposed apartment project is inconsistent with this designation.
3. There are several public facility and infrastructural improvement projects identified on the Central Oahu Development Plan Public Facilities Map within the immediate vicinity of the proposed elderly housing project. These include the Leeward Civic Center, Mokuola Street Widening, Wailani Stream Flood Control and Waiawa Ridge Wastewater Main No. 1. The developer should identify and resolve any potential conflicts between the elderly housing project and these public and private improvements.

Mr. Gerald Park
Page 2
July 16, 1990

4. It is understood that an Act 15 exemption will be requested for this project. Such an exemption would override these GP and DP inconsistencies.
5. The design and site planning of this project should complement the scale of the existing development adjacent to the subject property.

These issues need to be addressed during the course of the approval process for the proposed development. We anticipate that we will have a further opportunity to review this project during this process. If need be, we will provide more detailed comments at that time. Should you have any questions, please contact Bill Medeiros at 527-6089.

Sincerely,



BENJAMIN B. LEE
Chief Planning Officer

BBL:js

cc: HFDC

ENV 2-1
JA/G



William A. Bonnel
Manager
Environmental Department

RECEIVED
7/20/90

July 18, 1990

Mr. Gerald Park
Urban Planner
Urban Planning Policy Analysis/
Environmental Studies
1245 Young Street, Suite 201
Honolulu, HI 96814

Dear Mr. Park:

Subject: Draft Environmental Impact Statement (EIS) for Crown
Property Elderly Housing Project
Waipahu, Ewa, Oahu

We have reviewed the subject EIS and have no comments at this time on the proposed development in the subject area. HECO shall reserve comment pertaining to the protection of existing power lines bordering the development area until construction plans are finalized.

Sincerely,



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96858-5440

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7/20/90

July 19, 1990

REPLY TO
ATTENTION OF:

Planning Division

Mr. Gerald Park, Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Thank you for the opportunity to review the Environmental Assessment preparation notice for the proposed Crown Elderly Housing Project, Waipahu, Ewa, Oahu. The following comments are offered:

a. A Department of the Army (DA) permit may be required if fill is placed in the waterway which crosses the project site. For more information about the DA regulatory permit program, please contact Operations Division at 438-9258.

b. According to the preliminary Flood Insurance Rate Map dated September 22, 1989, the project site is located in Zone D (areas in which flood hazards are undetermined).

Sincerely,

Kisuk Cheung
Director of Engineering

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843



July 18, 1990

FRANK F. FASI, Mayor

DONNA B. GOTH, Chairman
JOHN K. TSUI, Vice Chairman
SISTER M. DAVILYN AH CHICK, O.S.F.
SAM CALLEJO
EDWARD Y. HIRATA
WALTER O. WATSON, JR.
MAURICE H. YAMASATO

KAZU HAYASHIDA
Manager and Chief Engineer



Mr. Gerald Park, Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Subject: Your Letter of June 25, 1990 on the Preparation of an Environmental Assessment for the State Housing Finance and Development Corporation's Crown Property Elderly Housing Project, TMK: 9-4-17: Por. 1, Waipahu, Oahu

Thank you for the opportunity to review and comment on the proposed elderly housing project.

We have the following comments to offer:

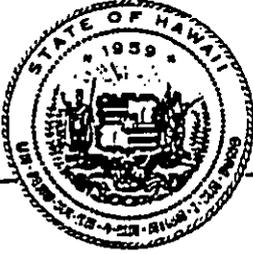
1. The availability of water will be determined when the building permit application is submitted for our review and approval.
2. If water is made available, the developer will be required to pay the applicable water system facilities and meter charges.
3. Although there is no existing water service at the project site, there is an existing 12-inch water main on Mokuola Street which should be adequate to serve the project.
4. Construction plans should be submitted for our review and approval for installation of 3-inch or larger meters.
5. Any cross-connection control requirements will be made when we review the construction plans.

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

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Mr. Marcel Audant, HFDC



DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT

KAMAMALU BUILDING, 250 SOUTH KING ST., HONOLULU, HAWAII
MAILING ADDRESS: P.O. BOX 2359, HONOLULU, HAWAII 96804 TELE: 7430250 HDPED FAX: (808) 548-8156

JOHN WAIHEE
GOVERNOR
ROGER A. ULVELING
DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR

RECEIVED
7/26/90

July 24, 1990

Mr. Gerald Park
Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

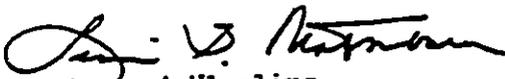
Subject: Crown Property Elderly Housing Project
Waipahu, Ewa, Oahu

This is in response to your letter of June 25, 1990, requesting any comments we may have for your Environmental Assessment of the subject project.

We recommend that the Environmental Assessment considers the energy impacts that will result from this project. Since elderly citizens on fixed incomes will reside in this project, steps should be taken to make it as energy efficient as possible. Guidelines should be established to provide for energy-efficient design, landscaping, and appliances.

Thank you for the opportunity to provide these comments which we hope will assist you in your thorough preparation of an Environmental Assessment for the development of Crown Property Elderly Housing Project in Waipahu, Ewa, Oahu.

Sincerely,


for Roger A. Ulveling

RAU/MHK:bE

Effective July 1, 1990 the department name has been changed to
Department of Business, Economic Development & Tourism

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

GEORGE A. ARIYOSHI
GOVERNOR



RECEIVED
JUL 10 6 31 1986
STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

JUL 15 1986

AUS

DSSM 4309 (10-84)

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Mr. Russell Fukumoto
Executive Director
Hawaii Housing Authority
State of Hawaii
Honolulu, Hawaii

Dear Mr. Fukumoto:

Subject: Proposed Environmental Assessment for
Drainage Improvements at Wailana Stream

Thank you for the opportunity to comment on the assessment for the subject matter. We have reviewed the preliminary information transmitted with your July 1, 1986 letter and recommend the following:

1. That the future plans for the extension of Hikimoe Street from Mokuola Street to Wailana Stream be included in the assessment.
2. That the northern boundary of the civic center site be drawn generally parallel to the southern boundary except that about a 100-foot section next to the proposed Mokuola Street extension shall be perpendicular to the Mokuola Street axis.
3. That a 30' wide vehicular access to the proposed Leeward Civic Center be shown from the Moloalo Street stub-out.

If there are any questions, please have your staff contact Mr. Edmund Morimoto of the Planning Branch at 548-4578.

Very truly yours,

TEUANE TOMINAGA
State Public Works Engineer

EM:jas

DEVELOPMENT COPY



DEPARTMENT OF THE ARMY
 U. S. ARMY ENGINEER DISTRICT, HONOLULU
 BUILDING 230
 FT. SHAFTER, HAWAII 96858

DSSM 4308 (10/84)

Suspense ..

RECEIVED
 REPLY TO
 ATTENTION OF
 SECURITY

July 17, 1986

JUL 24 9 42 AM '86

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HMG				
LREF				
LEGAL				
PERS				
PLNG				
FILE	86. Dev/4741			

Mr. Russell N. Fukumoto
 Executive Director
 Hawaii Housing Authority
 P.O. Box 17907
 Honolulu, Hawaii 96817

Dear Mr. Fukumoto:

Thank you for the opportunity to review and comment on Drainage Improvements for the Wailani Stream of Waipahu, Hawaii (TMK: 9-4-17:1). The following comments are offered:

a. For a determination of the Department of the Army permit requirements, drainage improvements drawings should be submitted to Operations Branch at 438-9258.

b. The flooding potential has been adequately addressed in the preliminary information report.

Sincerely,


 Kisuk Cheung
 Chief, Engineering Division

DEVELOPMENT COP.

APPENDIX E

**ENVIRONMENTAL ASSESSMENT
WAILANI STREAM CHANNEL DRAINAGE IMPROVEMENTS
WAIKELE AND WAIPIO, EWA, OAHU**

Prepared for
Housing Finance and Development Corporation
Department of Business and Economic Development
State of Hawaii

March, 1989

ENVIRONMENTAL ASSESSMENT

PROJECT: WAILANI STREAM CHANNEL DRAINAGE IMPROVEMENTS

LOCATION TMK: 9-4-17: 30
Waikele and Waipio, Ewa, Oahu, Hawaii

PROPOSING AGENCY: HOUSING FINANCE AND DEVELOPMENT
CORPORATION
Department of Business and Economic Development
State of Hawaii

CONTACT PERSON: Mr. Neal Wu, Project Coordinator
Phone: 543-2937

Ms. Gayle Ito, Assistant Project Coordinator
Phone: 543-2936

AGENCIES AND ORGANIZATIONS CONTACTED OR CONSULTED
IN PREPARING THE ASSESSMENT

FEDERAL

Department of the Army, U.S. Army Engineer District

STATE OF HAWAII

Department of Accounting and General Services
Department of Land and Natural Resources, Historic Sites Section
Department of Transportation

CITY AND COUNTY

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
Board of Water Supply
Fire Department
Police Department

OTHERS

Hawaiian Telephone Company
Hawaiian Electric Company
Waipahu United Church of Christ
Waipahu Community Association
Waipahu Neighborhood Board
Waipahu 2000 Community Council

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2	DESCRIPTION OF THE AFFECTED ENVIRONMENT	7
3	POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS	14
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SECTION 1

DESCRIPTION OF THE PROPOSED PROJECT

The Housing Finance and Development Corporation* proposes to improve a section of Wailani Stream (Kahu Channel) in the town of Waipahu, portion of Waialeale and Waipio, Ewa, City and County of Honolulu, Hawaii (See Figure 1). The existing stream is identified on tax maps as First Division 9-4-17:30 encompassing an area of 2.47 acres.

The objective of the project is to provide necessary drainage improvements to minimize potential flooding of adjoining lands. These lands, which are owned by the Housing Finance and Development Corporation (hereafter referred to as Corporation) are planned for development by the Corporation and the Department of Accounting and General Services, State of Hawaii (see Figure 2).

A. Technical Characteristics

The project is proposed for the lower reach of Wailani Stream between Paiwa Street and Farrington Highway. This section is confined to a man-made trapezoidal earthen channel (Kahu Channel) approximately 1,300 feet in length. A combination earth trapezoid and concrete-lined, rectangular channel has been designed to accommodate a design flow of 3,600 cfs (see Figure 3).

The rectangular section would extend an existing concrete-lined rectangular channel beneath Farrington Highway a distance of 400 feet upstream of the highway bridge. The upper end of the concrete channel would transition to an earth trapezoidal section very similar to what presently exists.

*Formerly a part of the Hawaii Housing Authority (HHA)

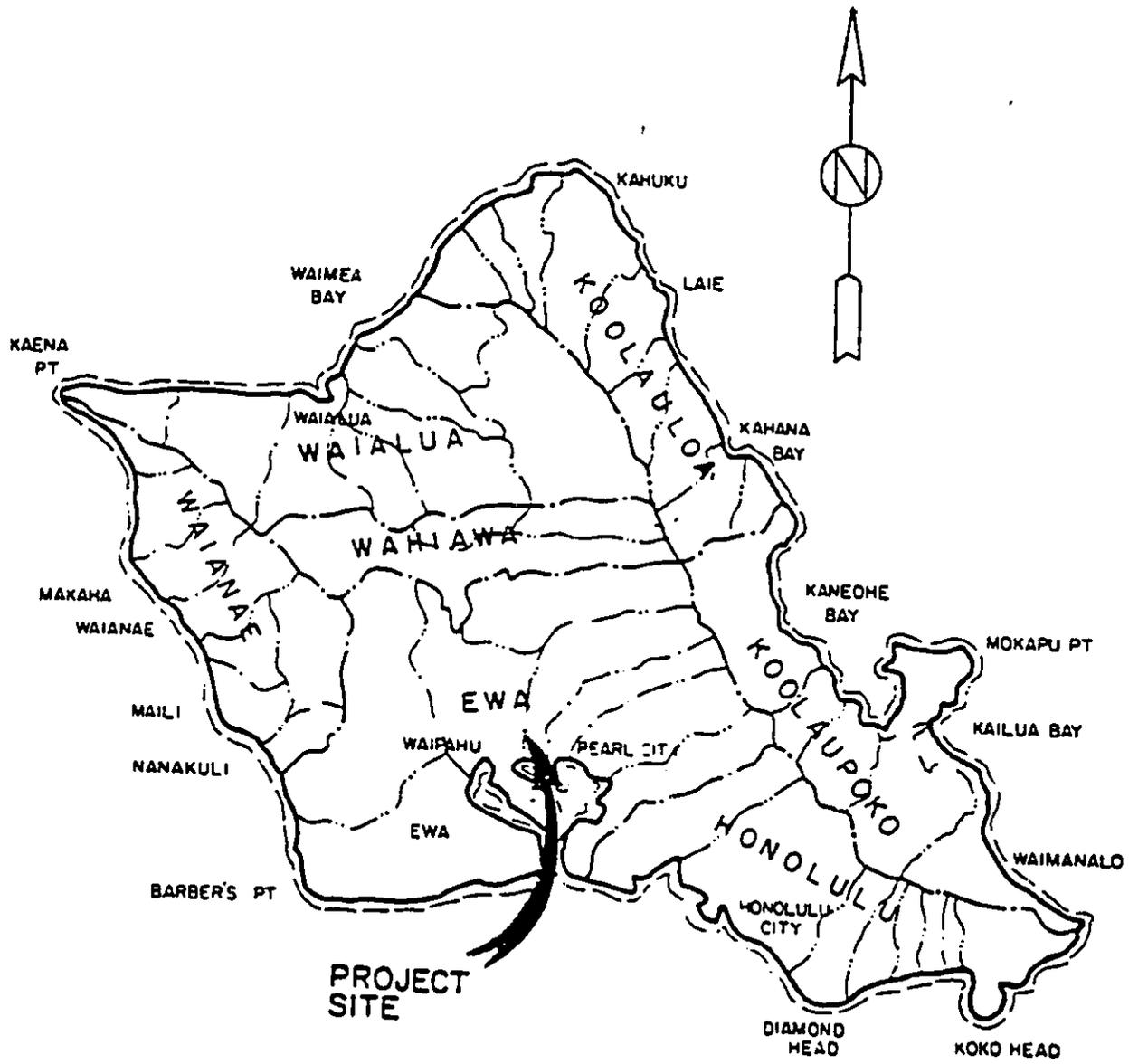


Figure 1
Location Map

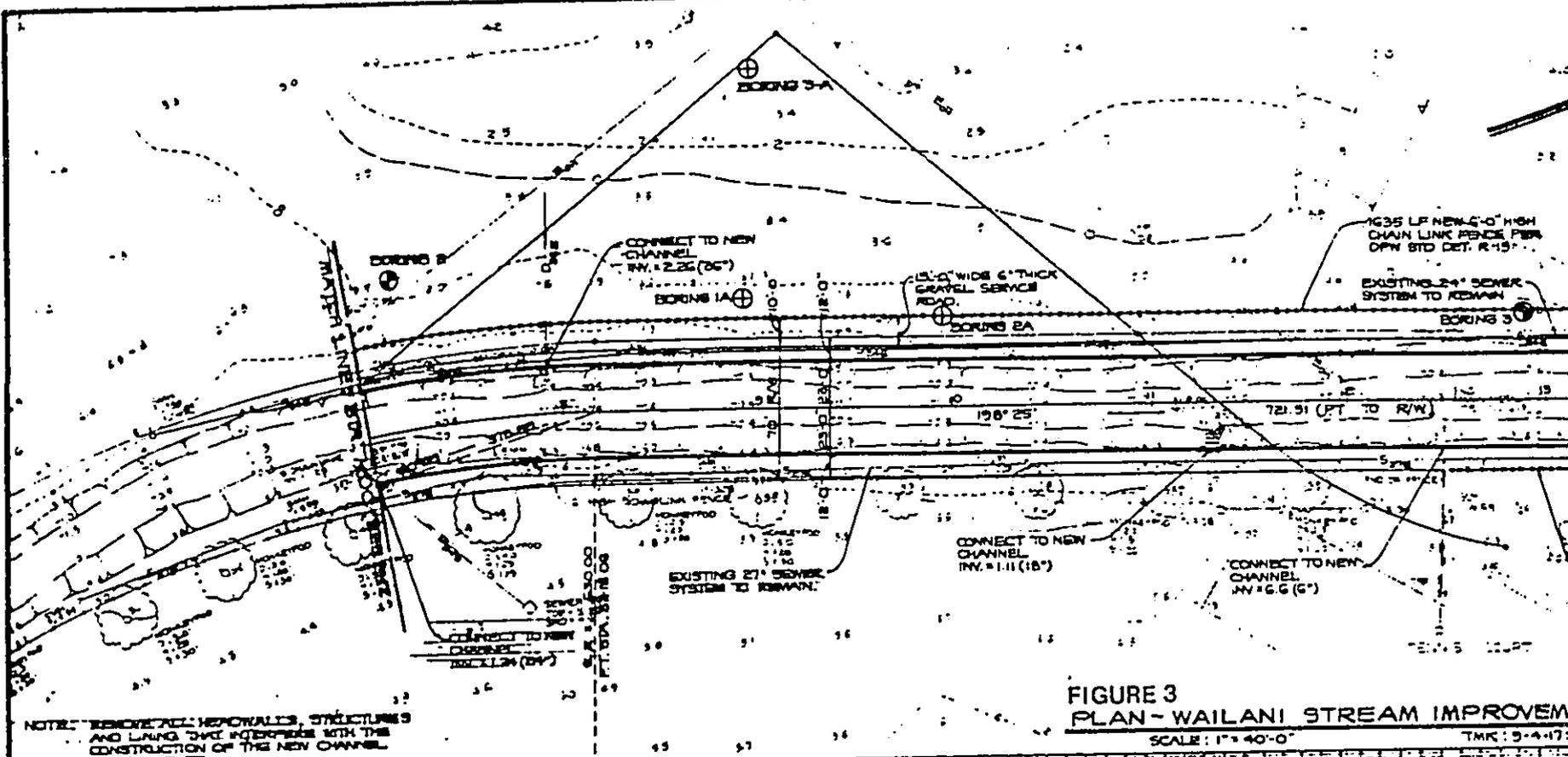
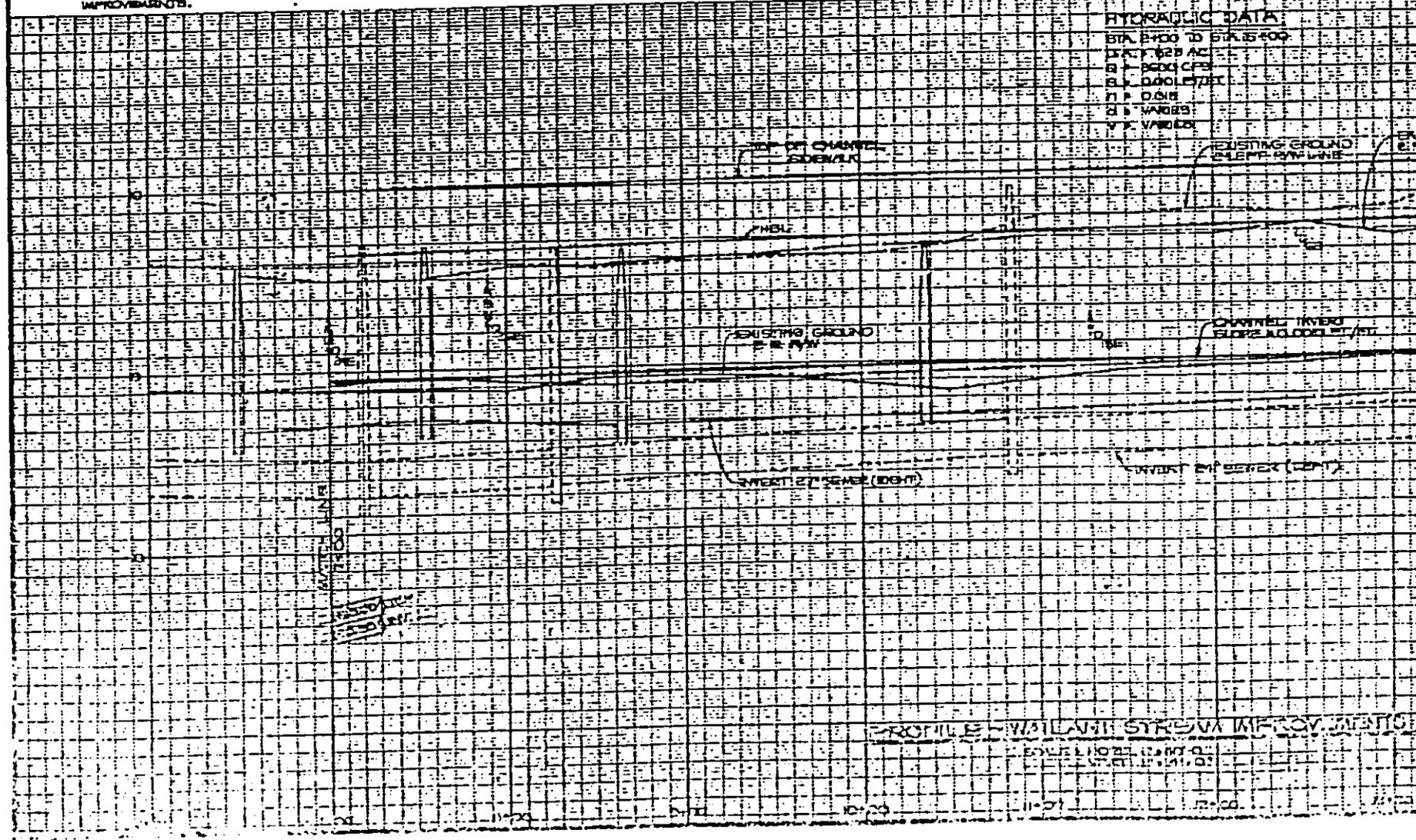
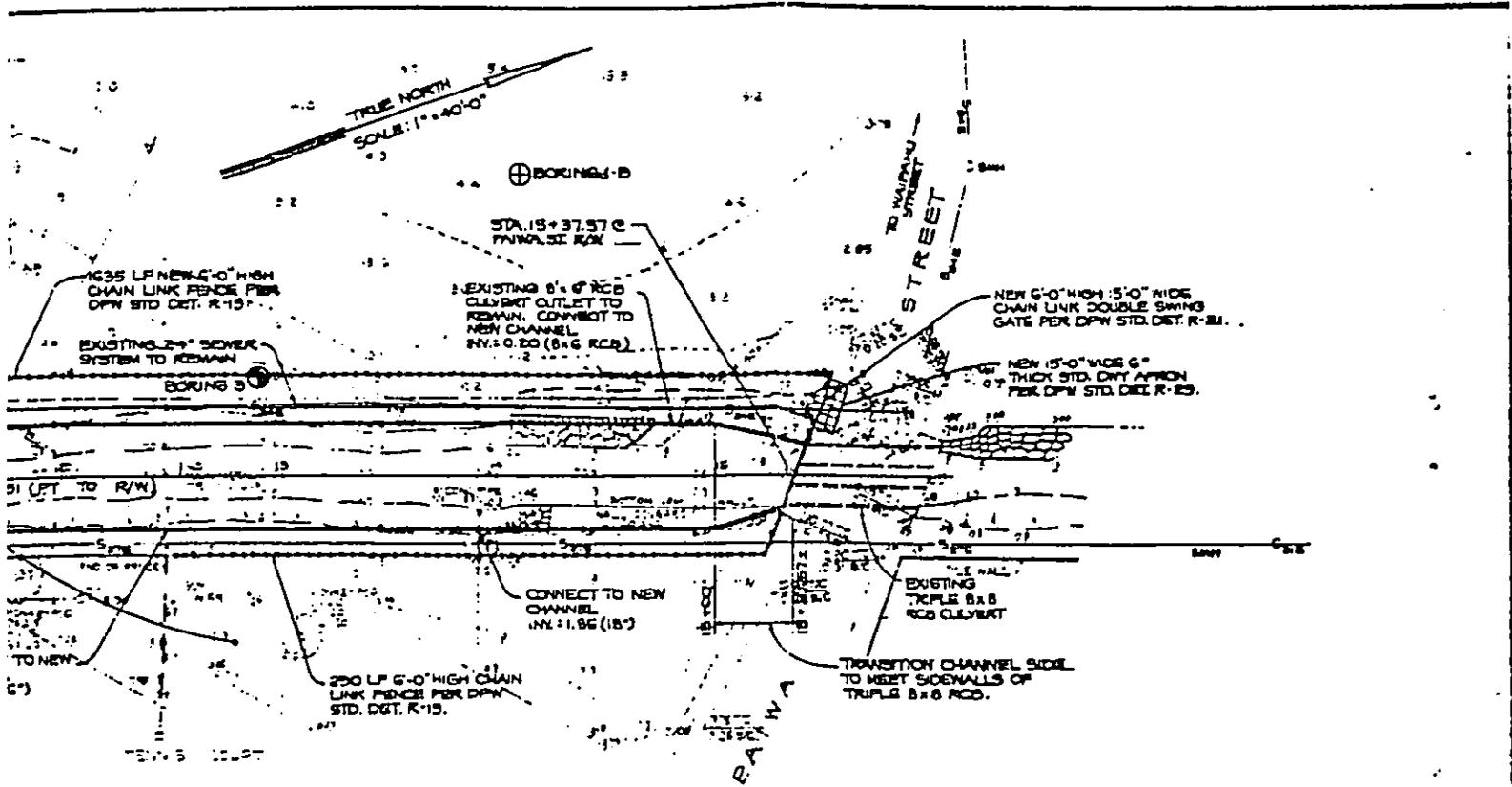


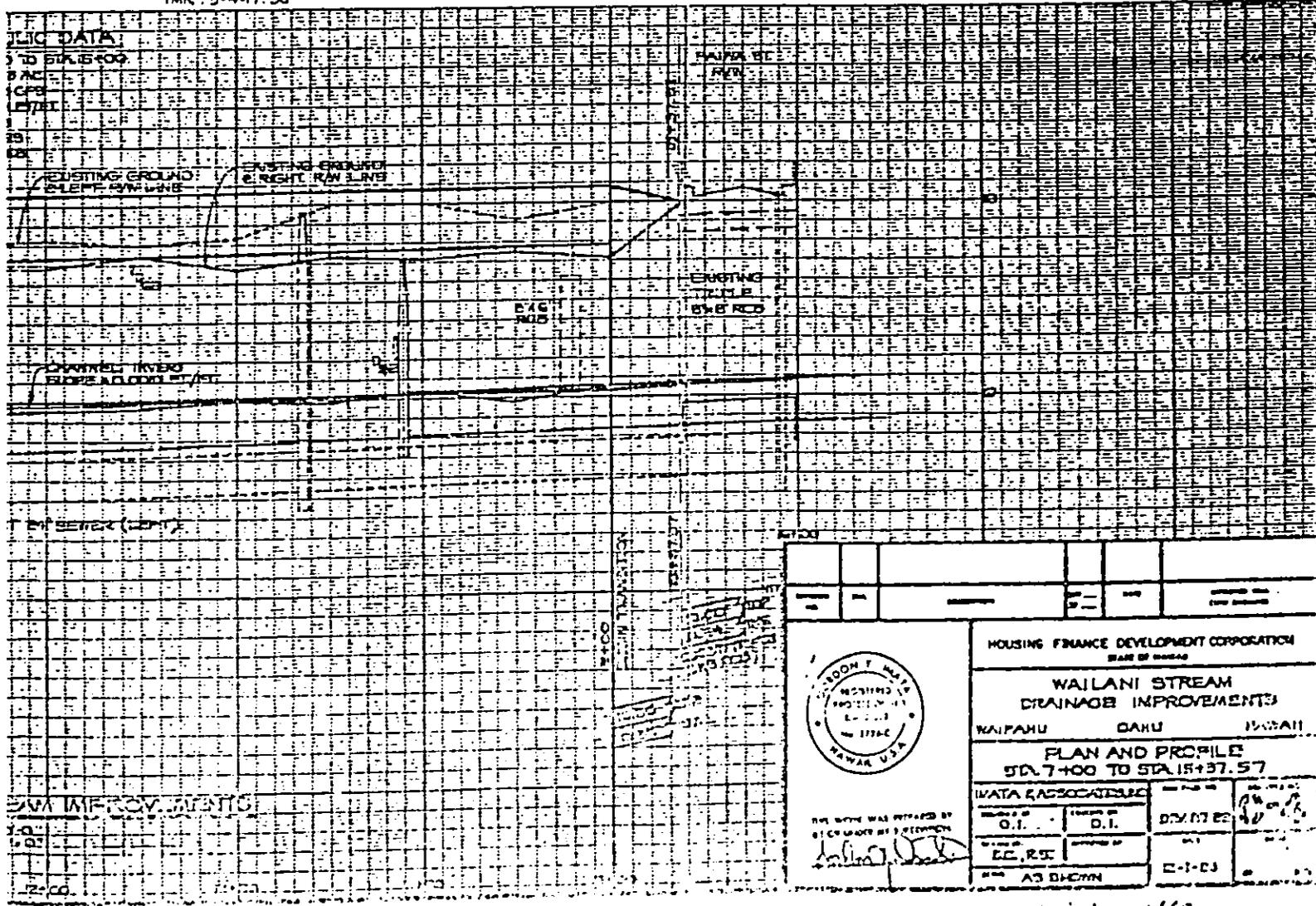
FIGURE 3
PLAN - WAILANI STREAM IMPROVEMENT
 SCALE: 1" = 40'-0"
 TMK: 3-4-17





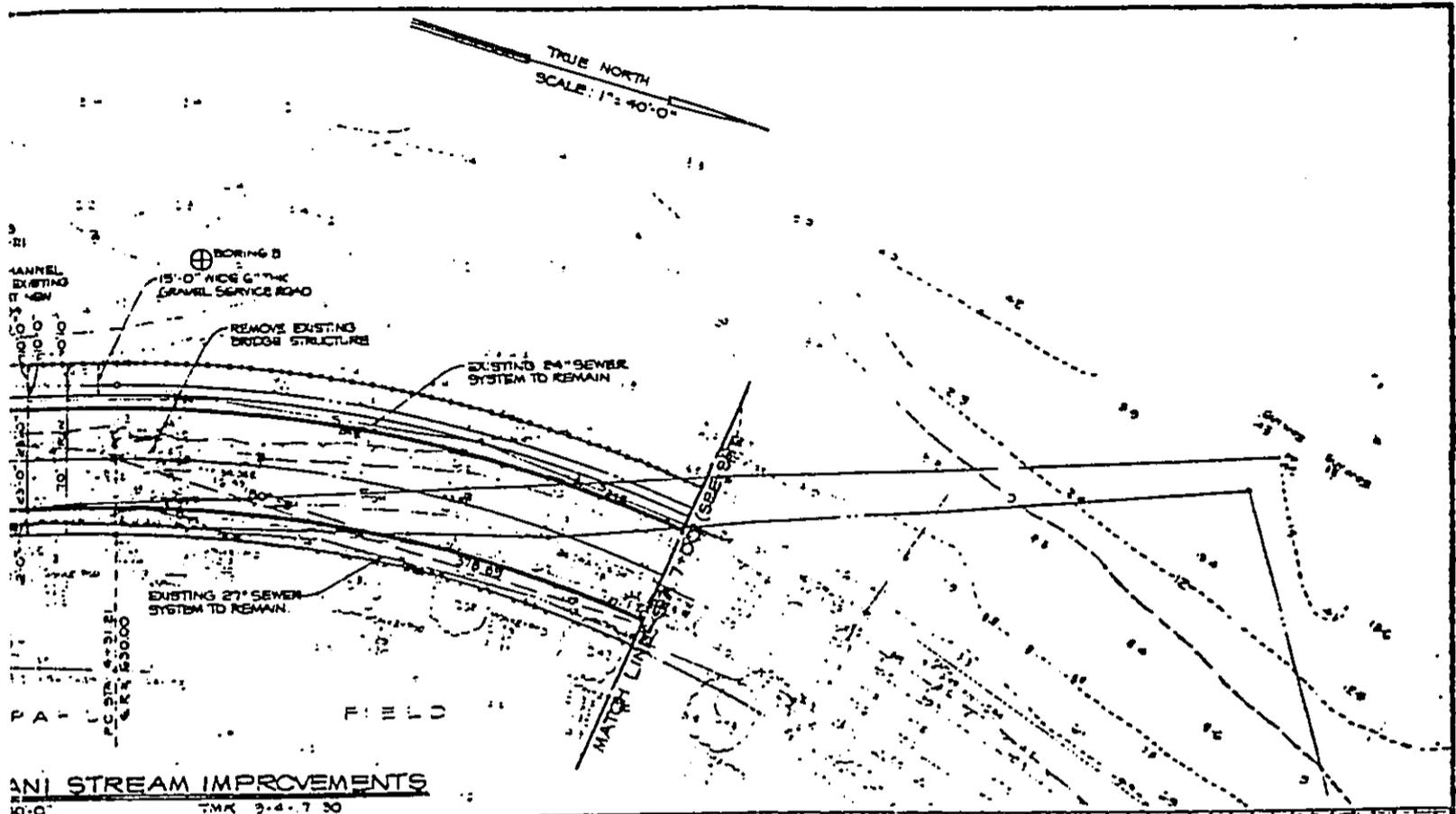
STREAM IMPROVEMENTS

TMK: 9-4-17-30

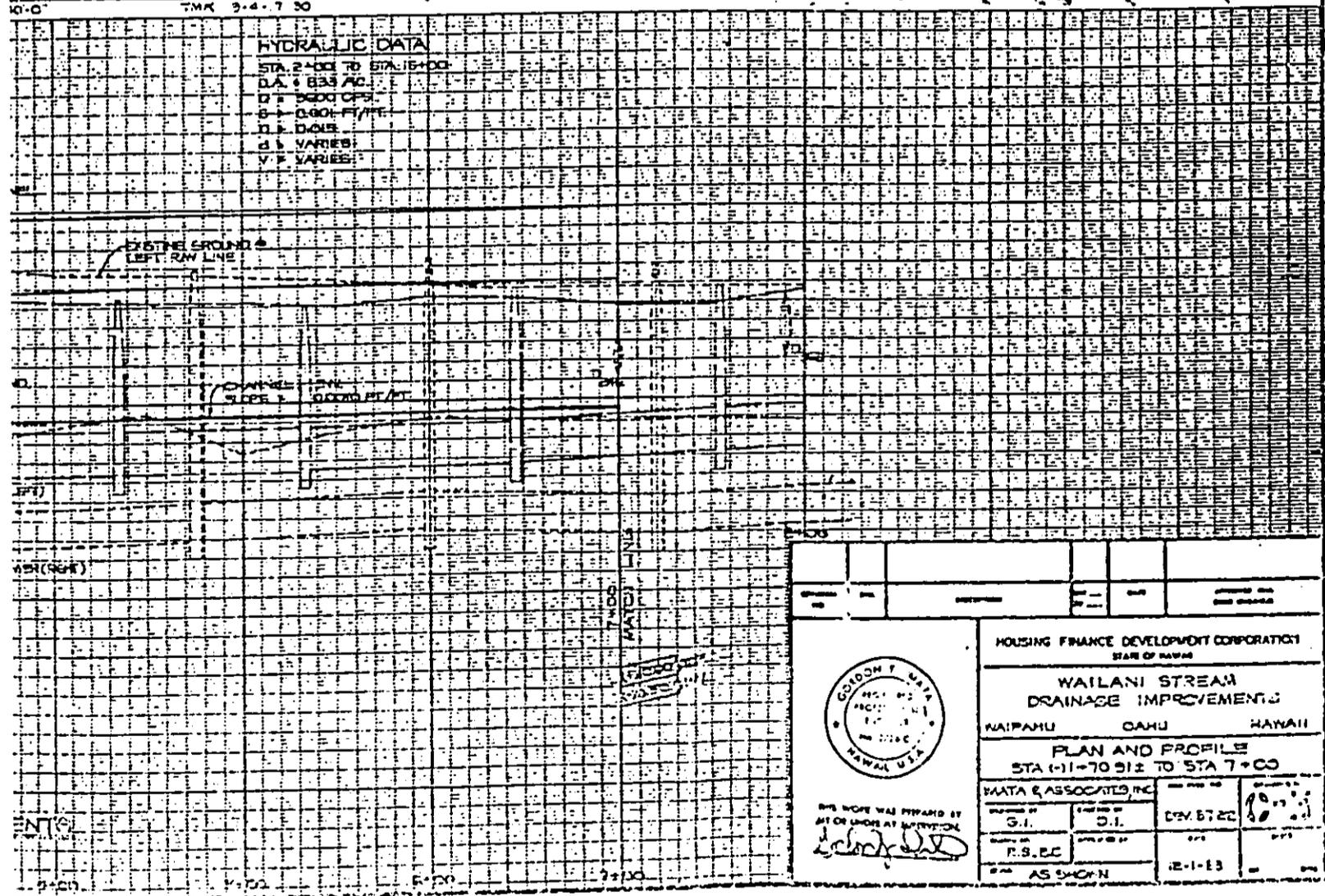


		HOUSING FINANCE DEVELOPMENT CORPORATION STATE OF HAWAII	
WAILANI STREAM DRAINAGE IMPROVEMENTS			
WAIKAPU OAHU HAWAII		PLAN AND PROFILE STA. 7+00 TO STA. 15+37.57	
DRAWN BY G.L.	CHECKED BY G.L.	DATE 07/07/02	SCALE AS SHOWN

11/12/02 5:00



WAILANI STREAM IMPROVEMENTS



HYDRAULIC DATA
 STA 2+00 TO STA 15+00
 D.A. 833 AD
 D 2 3600 CFS
 S 0.000 FT/FT
 D 2 3600
 D 2 VARIES
 V 2 VARIES

		HOUSING FINANCE DEVELOPMENT CORPORATION STATE OF HAWAII	
WAILANI STREAM DRAINAGE IMPROVEMENTS			
WAIKAPU OAHU HAWAII			
PLAN AND PROFILE STA 7+00 TO STA 15+00			
WATA & ASSOCIATES, INC. PROJECT BY: G.T.L. DRAWN BY: P.S.E.C.		DATE: NOV 27, 1972	
AS SHOWN		12-1-73	

The existing earth bottom and CRM sideslopes adjacent to and beneath the highway bridge will be removed and replaced with a reinforced concrete channel section similar in configuration and dimension (43 foot bottom width with vertical sidewalls) to the upstream and downstream sections. No alterations to the bridge superstructure are planned.

The earth trapezoidal channel section is approximately 990 feet in length with a bottom width of 30 feet, average depth of 6-7 feet, and 2:1 compacted earth banks. The upper end of this segment connects to an existing CRM lined section makai of the Paiwa Street Bridge.

An estimated 8,340 cubic yards of material will be excavated and temporarily stockpiled on Corporation land. The dewatered material would then be hauled to an approved disposal site by the Contractor.

A 15-foot wide gravel service road will be constructed on the west bank between Paiwa Street to the vicinity of Moloalo Street. No access will be permitted along the road except at the two aforementioned ends. New 6-foot high chain link fencing will be erected along the right-of-way on the west bank, along Paiwa Street, and unfenced sections along Waipahu Field.

Improvements to the channel and the new service road will be confined to within the existing 70-foot channel right-of way.

All headwalls, structures, and lining interfering with construction will be removed. Existing drainage outlets into the channel will connect to the channel and will be reconstructed if necessary. Existing sewer lines laid parallel to the stream along both banks and crossing the channel will not be disturbed. An existing footbridge over the channel will be removed and replaced by a new footbridge to be repositioned for pedestrian access to the planned Leeward Civic Center.

B. Economic Characteristics

The cost of the project is approximately \$1.5 million (\$1989) and will be funded by State Capital Improvements Program funds.

Construction is scheduled to start in late 1989 and should be completed in 6 months.

The affected parcel (TMK: 9-4-17:30) is owned by the City and County of Honolulu. The channel will be designed to standards of the Department of Public Works and will be dedicated to the City and County of Honolulu following completion.

C. Social Characteristics

Drainage improvements will minimize potential flooding of the adjoining Crown Property which is slated for development. The Department of Accounting and General Services (DAGS) has agreed to purchase 4.5 acres of Crown Property from the Corporation for the proposed Leeward Civic Center.

The Corporation plans to develop a 219 unit housing project on the remaining 12.0 acres.

SECTION 2

DESCRIPTION OF THE AFFECTED ENVIRONMENT

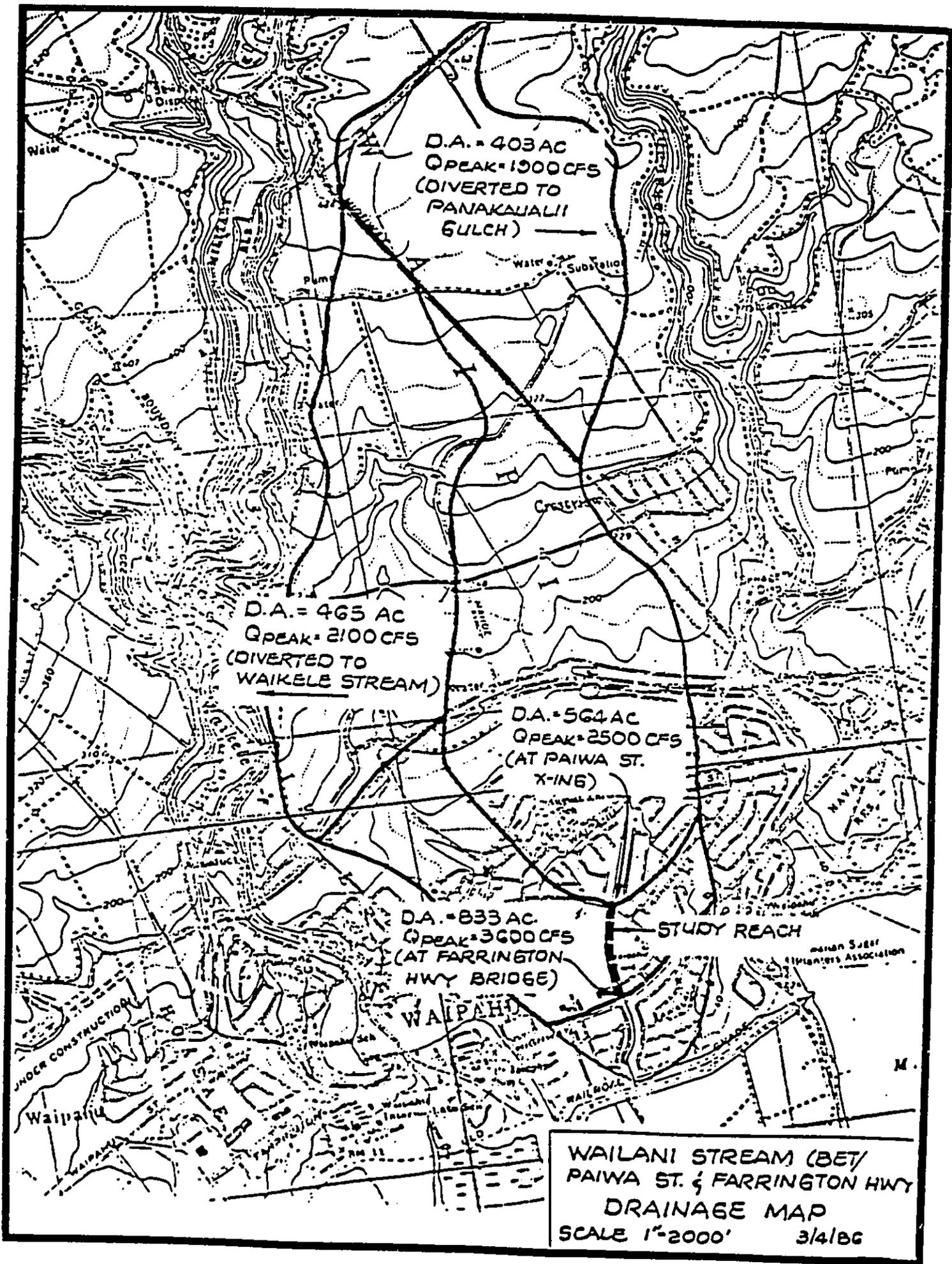
Located east of "downtown" Waipahu, the site is bordered on the north by detached residences, on the east by Waipahu Field and several three-story walk-up apartment buildings, Tropicana Square Shopping Plaza and Farrington Highway on the south, and vacant, undeveloped lands (Crown Property) on the west.

Wailani Stream at one time drained an area of about 1700 acres in Waipio between Kipapa Gulch (a branch of Waikele Stream) and Panaikauahi (Panakaualii) Gulch (a branch of Waiawa Stream). A total of 868 acres has or will be diverted to these other two drainage systems (Imata and Associates, Inc. 1986). The remaining 833 acres encompasses a portion of Waipahu below H-1 (Federal highway) and the Waipiolani area below Kamehameha Highway (see Figure 4). The affected section is the last segment of the stream to be improved. Stream flow above Paiwa Street is confined in a concrete lined, trapezoidal channel; the channel makai of Farrington Highway is concrete lined for a good part of its length across the neck of Waipio Peninsula.

Most of the affected area is the upper end of an estuarine environment. At the lower end where the channel is about 40 feet across, the water tends to be slow moving and maximum depth is around 2 feet. Above the foot bridge, the downstream flow was moderately strong (at the time of the survey), appeared to extend through the water column, and bottom sediments were coarse (sands and gravels). Young mangroves (Rhizophora mangle) that have become established some 900 feet upstream of the bridge, indicate that the estuary extends at least this far. In fact, the upper end of the estuary reaches at least to a point just downstream of Paiwa Street where a box culvert enters the channel at an angle and a riffle zone extends into the Paiwa Street culverts.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING



Aligned through fill land (Soil Conservation Service 1972), the narrow, earth trapezoid channel flows within a 70 foot right-of-way. Dimensions and conditions vary but the bottom is not more than 20 feet wide along its length. Water depth is affected by tidal fluctuation (and storm runoff) but typically range from +6 inches in the upper reaches to 18-24 inches in the lower reaches. Coarse sand and gravel sediments (3 to 8 inches thick), rocks, and natural and man-made debris cover the bottom. Exposed drain pipe protrude from the unlined sideslopes and local erosion is common. In upper and lower reaches where box drains feed the channel, rip-rap lining protects the sideslope. Buried subdrains carry water from springs beneath Crown Property to the channel.

A steel framed, wood plank footbridge over the channel connecting Crown Property and Waipahu Field is located 440 feet mauka of Farrington Highway.

Lands immediately adjoining the existing channel are relatively flat. Ground elevation falls from 9 feet at Paiwa Street to 6 feet at Farrington Highway (less than 1% slope).

Exploratory soil borings (Dames and Moore, 1988) reveal that the subsurface consists of a variable stiff to stiff fill crust (4 to 5 feet thick) overlaying approximately 40 to 60 feet of soft, highly compressible clayey silt underlain by basaltic rock at depths of 80 feet.

Flood Insurance Rate Maps (1987) place the channel in Zone X which is generally defined as areas of the 500-year flood or areas of 100-year flood with average depths of less than one foot.

Riparian vegetation is sparse. Grasses (probably *Paspalum distichum*) occur along the stream bank at the water line about 1000 feet upstream from the Farrington Highway bridge. Young mangrove (*Rhizophora mangle*) trees, about 2 feet tall, have taken root in the channel starting about 700 feet and extending about 1200 feet upstream. The soil bank supports a sparse growth of weedy exotics, including Indian pluchea (*Pluchea indica*) and California grass (*Brachiaria mutica*). A closely-cropped

growth of the alga, Cladophora sp., covers submerged boulders in the upper estuarine segment.

Oysters (Crassostrea sp.) and barnacles (Balanus sp.) grow attached to concrete surfaces and other hard substrata at the Farrington Highway bridge. The shore crab, Matopograpsus thukuhar, was observed along rocks of the revetment under the highway. These are common estuarine species, indicating that salt water regularly extends at least as far upstream as Farrington Highway. Shells of oysters and tests of barnacles can be seen near the footbridge. Although the living animals were not noted this far upstream, these essentially marine animals probably colonize this area during the dry season when fresh water flow is at a minimum.

Within the estuarine segment, the introduced tilapia (Sarotherodon mossambica) is the most abundant fish, although mullet (Mugil cephalus) and probably young 'aholehole (Kuhlia sandvicensis) are present. None of the latter were actually observed on January 6, 1988, but the juveniles of this fish are seasonal in the lower reaches of Hawaiian streams, and their presence in this part of Wailani Stream can be presumed. Large tilapia occur in the lower part of the project area where the water is mostly greater than one foot deep, but the stream bottom shoals rapidly upstream, becoming less than one foot, and mostly less than 0.5 foot deep above the foot bridge connecting Crown Property parcel on the west bank and Waipahu Park on the east bank.

Upstream of the footbridge (500 to 700 feet upstream from the highway) crayfish (Procambarus clarki) become common, young mangroves occur, and somewhat dwarfed individuals of the snail, Thiara granifera, are very abundant on the sand and gravel stream bed.

At around 1000 feet upstream of Farrington Highway, gambusoid fish (Poecilia sp. or Gambusia affinis) are common along with juvenile tilapia, crayfish, and Thiara snails (normal size). Several gobies (Bathygobius sp.) were seen in this area.

Small fishes were particularly abundant in the shallow pool just below the riffle zone, in the riffle zone, and in pools under Paiwa Street. A single specimen of an endemic goby, o'opu nakea (Awaous stamineus) was observed in the pool and numerous smaller gobies or o'opu okuhe (Eleotris sandwicensis) were seen under the bridge. Another o'opu nakea was seen upstream of the bridge. Most abundant, however, were gambusoids and juvenile tilapia. The only unusual organism recorded in the survey of Wailani Stream was the endemic (native Hawaiian) goby, Awaous stamineus (o'opu nakea). While no longer particularly abundant anywhere on Oahu, this species is found in most streams (Timbol and Maciolek, 1978).

Two water samples were collected from Wailani Stream on January 6, 1988. Sample 1 was from just off the western bank immediately downstream of the footbridge and Sample 2 was taken along the east bank approximately 30 feet downstream of Paiwa Street. These samples represent, respectively, the estuarine and stream segments of the channel in the survey area, although the salinity and conductivity values obtained from Sample 2 suggest even this area of the stream may not be entirely free of saline influences. The results of analyses on these samples are given in Table 1 in which measurements of various water quality parameters in Wailani Stream are compared with the "wet season, not to exceed" criteria for streams and the "not to exceed" criteria for Pearl Harbor estuary.

When the comparison of a water quality result with the appropriate criterion shows the body of water to be substantially lower for that parameter, it can be concluded (with reservation stemming from a lack of knowledge about variability) that the system is not seriously perturbed with respect to the parameter. For Wailani Stream, only the inorganic nutrient concentrations (particularly nitrate and ammonia) appear high relative to the not-to-exceed criteria. High nitrate is not unusual in stream and ground waters in Hawaii. These nutrients contribute to primary productivity: in the stream, expressed as algal mats attached to rocks in riffle areas or accumulating in pools; in the estuary, as blooms of phytoplankton which reduce water clarity and color the water a "soupy green". Both conditions, although not excessive, were observed in the study area portion of Wailani Stream.

TABLE 1. Results of analyses on Wailani Stream water samples compared with the State of Hawaii water quality criteria for fresh and estuarine waters.

Parameter	SAMPLE 1	P.H.Estuary WQ Criteria	SAMPLE 2	Stream WQ Criteria
pH	7.29	6.8-8.8	7.37	5.5-8.0
Temperature (° C)	24.2	-----	23.8	-----
Dissolved Oxygen (mg/L)	8.15	>5.0 ¹	8.35	>6.8 ²
Total Kjeldahl Nitrogen (mg N/L)	0.14 ³	0.750	----- ⁴	0.800
Total Nitrogen (mg N/L)	2.17	-----	2.04	-----
Ammonia nitrogen (mg N/L)	0.049	0.030	0.110	-----
Nitrate + nitrite (mg N/L)	2.03	0.070	2.02	0.170
Total Phosphorus (mg P/L)	0.119	0.200	0.129	0.150
Turbidity (ntu)	2.58	15.00	1.87	10.0
Nonfilterable Residue (mg/l)	2.8	100.0	1.6	80.0
Conductivity (umhos/cm ²)	10,529	-----	881	300
Salinity (ppt)	7	-----	1	-----

¹ 60% of saturation at estuary temperature, adjusted for salinity

² 80% of saturation at stream temperature.

³ Calculated from the Total Nitrogen value.

⁴ Measured Total Nitrogen was slightly less than the sum of the nitrate + nitrite + ammonia, indicating that the true Total Kjeldahl value would be very low.

Sample 2 was collected in what was thought to be the fresh water stream, yet this sample showed traces of salt. The survey was conducted on January 6, 1988 following a moderately high tide (+2.1 feet predicted at Honolulu) in the early morning. Quite likely, the previous high tide pushed brackish water up under the Paiwa Street culverts (stream bed elevation is reportedly around +1 foot relative to datum) filling the pools beneath and just upstream of the street. Thus, technically, all of Wailani Stream below the concrete trapezoidal channel above Paiwa Street is estuarine.

Although no measurements were made of petroleum hydrocarbons during the survey, oil sheens were seen to be common on the water surface at the time of the survey. Much of this oil appeared to be entering the stream somewhere above Paiwa Street.

There are neither archaeological features within the right-of-way nor do historic site maps chart recorded features on the property.

The land is designated Urban on State land use district boundary maps, general planned Residential on the City and County of Honolulu Development Plan Land Use Map for the Primary Urban Center, and zoned General Preservation (P-2).

The channel is outside the boundary of the County delineated Special Management (SMA).

The Waipahu 2000 Community Master Plan, a community prepared plan, recommended utility improvements for Waipahu including "improve the HHA drainage channel to handle peak flood flows". The Plan also recommended that a civic center, residential uses along the mauka edge of the property, and park and open space as appropriate uses for HHA lands adjacent to Waipahu Field.

Utility and infrastructure lines found within the stream channel or right-of-way include eight drain outlets (see Figure 3 for size and location); 24-inch and 27-inch sewers (and manholes), and overhead electrical lines on Corporation land.

SECTION 3

POTENTIAL ENVIRONMENTAL IMPACTS

AND MEASURES TO MITIGATE ADVERSE EFFECTS

The scope of the project was discussed with Corporation staff and their engineering consultants. State and County agencies were apprised of the drainage improvement program and their comments solicited. Time was spent in the field noting land and water conditions. From consultations and field investigations, conditions were identified against which impact assessment could be made. These conditions are:

- (1) The project area has been extensively modified to include construction of the existing channel and appurtenant drain headwalls within the channel;
- (2) There are no significant physiographic, cultural, botanical, and wildlife resources;
- (3) There are neither significant aquatic resources nor water quality characteristics intrinsic to the channel; and
- (4) The underlying soft organic clayey silt is subject to undrained settlements (Dames and Moore 1988).

Fugitive dust will be raised during grubbing and grading of the channel bank. Dust generation cannot be avoided and State of Hawaii Department of Health Administrative Rules (Chapter 60) stipulate acceptable dust control measures. Generally, sprinkling water on exposed areas is the common control method.

Construction equipment will emit minor quantities of pollutants in the form of exhaust emissions and aldehyde odors which will be dispersed by the prevailing winds.

Noise, an inevitable consequence of construction work, will be generated for the duration of project. Heavy construction (and dredging) equipment will be used and noise in the range of 78-90 dBA can be expected. Along most of the channel length, noise should not pose a significant nuisance because adjoining lands are vacant and undeveloped. Construction noise may pose a temporary nuisance to occupants of several apartment buildings near Farrington Highway. Construction noise, like fugitive dust, cannot be avoided. All project activities will comply with noise provisions of Title 11 Administrative Rules of the State Department of Health (Chapter 43, Community Noise Control for Oahu and Chapter 42, Vehicular Noise Control for Oahu).

Slope stability may be affected by one or a combination of local soft zones in the fill layer, seepage zones, soil saturation from ponded surface water, channel erosion, and undrained settlements (Dames and Moore, 1988). During channel excavation, close monitoring is recommended to check for the presence of soft zones, seepage zones, and previously installed subdrains. If these conditions are encountered, soft zones are to be excavated, backfilled, and compacted with engineered fill; additional subdrains installed to drain seepage zones; and previously installed subdrains located and properly engineered to outlet into the channel.

Direct impacts from construction on stream flora and fauna can be severe, but not necessarily any greater than that which occurs during a major flood event. Increases in suspended solids during construction can have a negative impact on downstream areas, but the estuarine reach below the project boundary is an accretion zone where stream bed load accumulates and suspended solids settle out under normal flow conditions. Construction activities can be expected to produce short-term increases in the suspended load carried by Wailani Stream. Adverse impacts on stream ecology, including portions below the project (both long- and short-term), will not be significant unless major problems occur during construction, such as unusual losses of graded or grubbed material to high stream flow conditions.

From a long-term ecological perspective, the most important consideration for a proposed stream channel modification is the nature of the stream (its depth, flow characteristics, and bed material) after completion of the project. Preservation of habitats is necessary to minimize long-term negative impacts arising from channel modification. The existing channel in this reach of Wailani Stream is clearly modified already, but pool and riffle habitats have been reasonably preserved in the realigned stream. Modifications made to the channel above Paiwa Street were more drastic, and this segment has now poor ecological potential. The section below Farrington Highway is concrete lined, with smooth, vertical side-walls, a condition which in many situations around Oahu amounts to the near total destruction of stream habitats. However, here it is the estuary which has been modified and confined, and an adequate depth of water is retained across the channel to ameliorate temperature extremes and provide habitat space for fishes and accumulation of sediment for soft-bottom organisms. The primary damage in this case has been the loss of aesthetic values and recreational access.

The proposed modifications include extending the existing concrete-lined, rectangular culvert upstream beneath Farrington Highway for a distance of 400 feet, at which point there would be a transition to a trapezoidal channel very similar to what presently exists only slightly wider (from about 30 feet to 60 feet across at the base).

The modified channel would narrow upstream (outlet transition) over a distance of approximately 100 feet just below Paiwa Street. Only slight changes in channel bottom elevation are proposed. The elevation of the bottom at the upper end of the concrete section would be at 0.8 foot below mean sea level. This elevation is very close to that of the existing channel bottom at the same location. Thus, the proposed alterations will not have a significant, long-term impact on the stream ecology, although an increase in average salinity might result from the creation of a slightly larger tidal basin. The concrete-lined channel will retain a depth of water during some or most of each daily tidal cycle, even under conditions of little or no flow from upstream.

Drainage improvements should minimize potential flood hazards and thus facilitate subdivision development and construction of a civic center on adjoining Crown Property. Vacant, heretofore, undevelopable land will be put to uses for which consensus between State, County, and community has been reached. In effect, the project will permit implementation of desired uses for which Crown Property is planned and zoned.

Drainage outlets affected by construction will be reconstructed and, if necessary, overhead utility lines relocated without service interruptions. No sewer lines will be affected in spite of their proximity to the existing channel.

SECTION 4

ALTERNATIVES TO THE PROPOSED ACTION

No Action and Delaying the Action

No action or delaying the action is not a prudent alternative because drainage improvements are a pre-requisite for planned public uses of adjoining lands. This alternative precludes all environmental impacts, short- and long-term, beneficial or adverse, described in this assessment and conflicts with the mission of the Corporation.

Alternate Design Configuration

A channel configuration similar to that proposed was initially conceived. This alternative proposed a shorter reinforced concrete section (300 feet), a wider earthen section (60 foot bottom width) and berming channel sideslopes to increase channel depth. This alternative, however, affected sewer lines on both sides of the channel on unsurcharged ground. It is known that underlying soils on Crown Property are generally soft compressible silt and clay. Relocating the sewer lines to unsurcharged areas would almost certainly result in settlement problems and leaving the sewer lines in situ with added fill (berming) would create added loading and settlement problems. For these reasons, the channel was redesigned to the proposed configuration.

SECTION 5

FINDINGS AND RECOMMENDATION

Chapter 200 (Environmental Impact Statement Rules) of Title 11 Administrative Rules of the State Department of Health specifies criteria for determining if an action may have a significant effect on the environment. The relationship of the proposed project to these criteria is discussed below.

- (1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Wailani Stream is lined for most of its length and has been modified along its entire course below Interstate Route H-1 to Middle Loch thus there is no natural stream or resources to be affected by the project. The endemic goby (o'opunakea) was observed but is found in most streams on Oahu.

- (2) Curtails the range of beneficial uses of the environment;

The drainage improvement program should minimize potential flooding of adjacent lands thereby creating the opportunity to put said lands into desired uses. These uses include a 219-unit State housing project and the proposed Leeward Civic Center. Said lands are now vacant and the aforementioned uses are seen as beneficial uses of the environment.

- (3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;

The project does not conflict with long-term state environmental policies or goals.

- (4) Substantially affects the economic or social welfare of the community or State;

(See (2) above)

- (5) Substantially affects public health;

The project will not substantially affect public health. Fugitive dust and construction noises may be considered nuisances by nearby businesses and residents but can be mitigated by measures described in this Assessment.

- (6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

As indicated in Item (2) above, adjoining lands will be developed for residential and public facility uses. Although not evaluated in this assessment the developments are not expected to adversely instigate significant changes in population and demands on public facilities. Potential impacts will be discussed in Environmental Assessments (and possible Impact Statements) to be prepared for the respective projects.

- (7) Involves a substantial degradation of environmental quality;

Environmental quality will not be substantially degraded.

- (8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The project is a pre-requisite for construction of the planned Leeward Civic Center and housing on adjacent Corporation owned lands.

- (9) Substantially affects a rare, threatened or endangered species, or its habitat:

Wailani Stream harbors no rare, threatened, or endangered species (plant or animal).

- (10) Detrimentially affects air or water quality or ambient noise levels; or

Noise and dust are unavoidable short-term consequences of construction but can be mitigated by complying with public health regulations governing air pollution and noise. Short-term increases in suspended sediment can be anticipated during construction without adverse significant effects on stream ecology.

- (11) Affects on environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The project is proposed in a flood plain and a modified estuarine environment. The proposed modifications will not have significant, long-term impact on the stream ecology although an increase in average salinity might result from the creation of a larger tidal basin.

Based on the above criteria, it is concluded that the Wailani Stream Channel Drainage Improvements project will not result in significant adverse environmental impacts and an Environmental Impact Statement is not required.

REFERENCES

- Dames and Moore. 1988. Geotechnical Engineering Investigation Proposed Wailani Stream Improvements, Waipahu, Oahu, Hawaii.
- Federal Emergency Management Agency. 1987. Flood Insurance Rate Map. City and County of Honolulu.
- Hirata, Ernest K. & Associates, Inc. 1985. Soils Investigation Hikimoe and Mokuola Streets Extension, Waipahu, Oahu, Hawaii for Hawaii Housing Authority.
- Imata and Associates, Inc. 1986. Wailani Stream Drainage Study (Between Paiwa Street and Farrington Highway) at Waipahu, Ewa, Oahu, Hawaii. Prepared for the Hawaii Housing Authority.
- State of Hawaii, Department of Accounting and General Services, Division of Public Works. 1979. Revised Environmental Impact Statement for Waipahu Civic Center Land Acquisition. DAGS Job No. 02-10-2066.
- U. S. Department of Agriculture, Soil Conservation Service. 1973, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai; State of Hawaii. In cooperation with University of Hawaii Agriculture Experiment Station. U. S. Government Printing Office. Washington, D. C.
- Waipahu-Waipio Development Advisory Council. No Date. Waipahu 2000 Waipahu Community Master Plan.

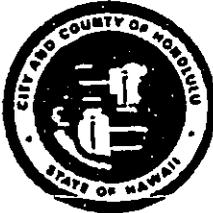
APPENDIX A

COMMENTS AND RESPONSES RECEIVED
DURING THE ASSESSMENT PROCESS

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
 HONOLULU, HAWAII 96813
 PHONE 823-4161

RECEIVED
 JUL 11 2 04 PM '86



FRANK F. FASI
 MAYOR

ALVIN K. H. PANG
 DIRECTOR

July 9, 1986

Honorable Russell N. Fukumoto
 Executive Director
 Hawaii Housing Authority
 P. O. Box 17907
 Honolulu, Hawaii 96817

Dear Mr. Fukumoto:

Subject: Proposed Drainage Improvements for the Wailani Stream at Crown Property (TMK: 9-4-17: 1), Waipahu, Hawaii

We appreciate the opportunity to review the preliminary information regarding the proposed drainage improvements for the Wailani Stream. The Department, at this time, has no specific comments or concerns to note in relation to the project. In general, however, we support projects, such as the Wailani Stream improvements, which enhance the developability of properties targetted for affordable housing.

Sincerely,

Alvin K. H. Pang
 ALVIN K. H. PANG

OSSH 4309 110 041

Suspense

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POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1455 SOUTH BERETANIA STREET
 HONOLULU, HAWAII 96814 - AREA CODE (808) 943-3111

FRANK F. FASI
 MAYOR



OUR REFERENCE EC-JS

July 11, 1986

DSSH 4309 (1084)

Suspense

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Mr. Russell N. Fukumoto, Executive Director
 Hawaii Housing Authority
 Department of Social Services and Housing
 State of Hawaii
 P.O. Box 17907
 Honolulu, Hawaii 96817

Dear Mr. Fukumoto:

Subject: Proposed Drainage Improvements for the Wailani Stream
 at Waipahu, Hawaii

We have reviewed the preliminary information on the proposed project and have no comments at this time.

Thank you for allowing us the opportunity to comment on this proposed project.

Sincerely,

DOUGLAS G. GIBB
 Chief of Police

BY *David Heaukulani*
 DAVID HEAUKULANI
 Assistant Chief of Police
 Administrative Bureau

DEVELOPMENT

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

RECEIVED
650 SOUTH KING STREET
HONOLULU HAWAII 96813

HAWAII
HOUSING AUTHORITY

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FRANK F. PASI
MAYOR

DONALD A. CLEGG
CHIEF PLANNING OFFICER
GENE CONNELL
DEPUTY CHIEF PLANNING OFFICER

CT/DGP 7/86-8976

July 14, 1986

Mr. Russell N. Fukumoto
Executive Director
Hawaii Housing Authority
P.O. Box 17907
Honolulu, Hawaii 96817

Dear Mr. Fukumoto:

Proposed Drainage Improvements for the Wailani Stream
at Crown Property, Waipahu, Hawaii (TMK 9-4-17: 1)

We have reviewed your environmental assessment preparation notice and offer the following comments.

1. Under item D, Project Funding, it is indicated that the City's share of construction costs is \$385,000.

In order for City funds to be expended, the project must be in conformance with the Development Plan Public Facilities Map for the area.

Our check of the conformance status indicates that the project is no longer on the Public Facilities Map. Under 85/CO-1002, the City Department of Public Works, in its letter of August 7, 1984, requested deletion of this project. Subsequently, City Council took the project off the Public Facilities Map and thus it is no longer in conformance with the Development Plan for the Central Oahu area.

In order for City to participate in this project, the project must be placed back on the Public Facilities Map. Action to do this may be requested by the Hawaii Housing Authority or by the Chief Engineer. We assume that you will coordinate this effort.

2. Under section E, Development Timetable, it is indicated that "Design and construction must be implemented within the next fiscal year ending July 1, 1987."

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Mr. Russell N. Fukumoto
Executive Director
Hawaii Housing Authority
July 14, 1986
Page 2

The basis for this statement is not explained.

If City participation is expected, then action to amend the Development Plan Public Facilities Map for Central Oahu would be an urgent item.

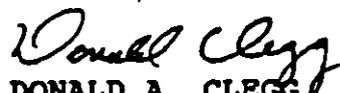
3. The proposed project is not in the Executive Capital Improvement Program for the fiscal years 1987-1992. Neither is it in the FY 1986-87 Capital Budget Ordinance (Ord. 86-66) passed by City Council.

Expenditure of City funds would have to be authorized in a supplementary budget ordinance for this year, or be included in next year's budget.

How this affects the proposed implementation schedule should be discussed in the environmental assessment.

Thank you for affording us the opportunity of reviewing your environmental assessment preparation notice.

Sincerely,


DONALD A. CLEGG
Chief Planning Officer

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1433 S. BERETANIA STREET ROOM 303
HONOLULU, HAWAII 96814

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HAWAII HOUSING
AUTHORITY

JUL 13 10 39 AM



FRANK F. FASI
MAYOR

FRANK K. KAHOOHANOHANO
FIRE CHIEF

LIONEL E. CAMARA
DEPUTY FIRE CHIEF

July 14, 1986

Mr. Russell N. Fukumoto
Executive Director
Hawaii Housing Authority
State of Hawaii
Post Office Box 17907
Honolulu, Hawaii 96817

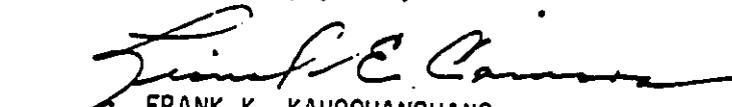
Dear Mr. Fukumoto:

SUBJECT: PROPOSED DRAINAGE IMPROVEMENTS FOR THE
THE WAILANI STREAM AT CROWN PROPERTY
(TMK 9-4-17: 1) WAIPAHU, HAWAII

Thank you for the opportunity to review the project materials.
We have no comments or objections to the proposed drainage improvements.

Should you have any questions, please feel free to contact
Captain Clement Chun at 943-3848.

Very truly yours,


FRANK K. KAHOOHANOHANO
Fire Chief

FKK:CKC:Im

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DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

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JUL 23 2 27 PM '86



FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

LU7/86-3938(BWM)

July 22, 1986

Mr. Russell N. Fukumoto, Executive Director
Department of Social Services and Housing
Hawaii Housing Authority
State of Hawaii
P. O. Box 17907
Honolulu, Hawaii 96817

Dear Mr. Fukumoto:

Proposed Drainage Improvements
For the Wailani Stream at Crown Property
Waipahu, Hawaii; Tax Map Key 9-4-17: 1

The project is not within the Special Management Area (SMA).

According to your Exhibit A, the project is within Flood Insurance Rate Map (FIRM) Zone B. The Flood Hazard District Ordinance is not applicable to FIRM Zone B.

Thank you for the opportunity to comment.

Very truly yours,

John P. Whalen
JOHN P. WHALEN
Director of Land Utilization

JPW:s1
03068

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RECEIVED
HAWAIIAN ELECTRIC
AUTHORITY
JUL 28 3 05 PM '86

DSSH 4309 (10/84)

Suspense

Robert D. Ladd
Manager
Distribution Engineering

July 25, 1986

State of Hawaii
Department of Social Services and Housing
Hawaii Housing Authority
P. O. Box 17907
Honolulu, Hawaii 96817

ATTN: Mr. Russell N. Fukumoto, Executive Director

RE: PROPOSED DRAINAGE IMPROVEMENTS
FOR THE WAILANI STREAM AT CROWN PROPERTY
(TMK 9-4-17:1)
Waipahu, Hawaii

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Gentlemen:

This responds to your letter of July 1, 1986, subject as above, which requested Hawaiian Electric Company (HECO) comments on the subject project for inclusion in the Environmental Assessment.

We have marked up your Exhibit B to show the approximate locations of HECO's overhead facilities in Crown Property. We have 46 kv and 12 kv circuits on one pole line that follow the trace of the Wailani Stream, which will probably be impacted by your drainage improvement project. A relocation may be necessary. Also, extreme care would have to be exercised in digging/dredging near and under our lines, since our lines are energized.

We attach a print of HECO Drawing No. 24890, which shows the location of our facilities. When we receive a set of your project drawings, we will then be able to more fully evaluate HECO relocation work that may be required.

Very truly yours,
Meade D. Wildrick
Meade D. Wildrick
Director/Project Administrator
Distribution Engineering Dept.

MDW:0295w
Enclosure

cc: R. D. Ladd / W. F. Muench
C. Chun
B. Munger
K. Ching
T. M. Damron

A Hawaiian Electric Industries Company

DEVELOPMENT COPY

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR



RUSSELL L. SMITH, JR.
DIRECTOR AND CHIEF ENGINEER

13-0234

July 31, 1986

Mr. Russell N. Fukumoto
Executive Director
Hawaii Housing Authority
Department of Social Services
and Housing
State of Hawaii
P. O. Box 17907
Honolulu, Hawaii 96817

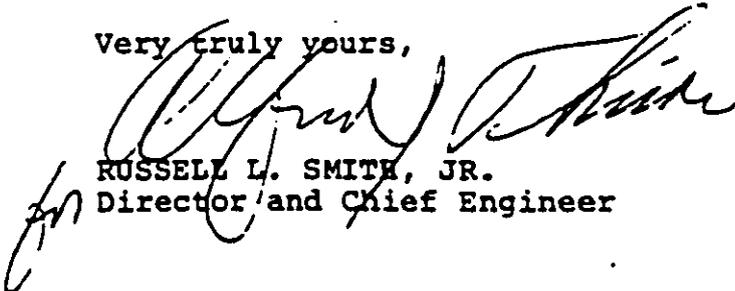
Dear Mr. Fukumoto:

Subject: Your Letter, dated July 18, 1986, Regarding
Hikimoe and Mokuola Streets Extension and
Wailani Stream Improvements

Thank you for your letter outlining our recent discussions
on the subject projects.

It is our understanding that the Mayor has already sent you
a letter stating that the City is willing to participate in
one-half of the construction cost for the extension of
Hikimoe and Mokuola Streets. In addition, the Hawaii Housing
Authority must fulfill the drainage requirements relating
to Wailani Stream and bear the entire cost of such work.

Very truly yours,


RUSSELL L. SMITH, JR.
Director and Chief Engineer

cc: Mayor's Office
Dept. of the Budget
Dept. of Finance

DEVELOPMENT COPY

APPENDIX B

WAILANI STREAM STUDY
(ENVIRONMENTAL ASSESSMENT)

AECOS No. 521

ENVIRONMENTAL ASSESSMENT
OF THE UPPER ESTUARINE REACH
OF WAILANI STREAM (KAHU CHANNEL),
WAIPAHU, OAHU, HAWAII

AECOS, Inc.
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February 1988
revised March 1989

Description of Wailani Stream

Wailani Stream at one time drained an area of 1701 acres in Waipio between Kipapa Gulch (a branch of Waikele Stream) and Panaikauahi (Panakaualii) Gulch (a branch of Waiawa Stream). A total of 868 acres has or will be diverted to these other two drainage systems (Imata & Associates, Inc., 1986). The remaining 833 acres encompasses a portion of Waipahu below H-1 (Federal highway) and the Waipiolani area below Kamehameha Highway (State Route 99). The lower reach is a modified channel (Kahu Channel) which connects with a drainage canal across the neck of the Waipio Peninsula. The project site (Figure 1) encompasses the reach between Farrington Highway and Paiwa Street in Waipahu, where the stream is confined to a 1550-foot long, Type 2 modified channel (Timbol and Maciolek, 1978). That is, a channel that has been realigned and most or all of the stream bank (riparian) vegetation removed. The man-made channel is trapezoidal in shape, and the stream bank is soil (fill land). The stream bed is mostly mud in the lower portion, becoming sandy, then a mixture of sand, gravel, and boulders upstream. Both above and below the study area reach, Wailani Stream is confined to Type 1 modified channels (that is, concrete lined). Below Farrington Highway, the channel is rectangular and about 45 feet across. Three concrete box culverts, spanning a natural stream bed, pass beneath Paiwa Street, above which the stream is confined to a concrete-lined, trapezoidal channel with a moderately steep gradient.

Most of the reach surveyed is the upper end of an estuarine environment. At the lower end where the channel is about 40 feet across, the water tends to be slow moving and maximum depth is around 2 feet. Above the foot bridge, the downstream flow was moderately strong (at the time of the survey), appeared to extend through the water column, and bottom sediments were coarse (sands and gravels). Young mangroves (Rhizophora mangle) that have become established some 900 feet upstream of the bridge, indicate that the estuary extends at least this far. In fact, the upper end of the estuary reaches at least to a point just downstream of Paiwa Street where a box culvert enters the channel at an angle and a riffle zone extends into the Paiwa Street culverts. A short distance upstream of Paiwa Street, the stream flow is confined in a concrete-lined, trapezoidal channel.

Description of Vegetation

Riparian vegetation is sparse. Grasses (probably Paspalum distichum) occur along the stream bank at the water line about

1000 feet upstream from the Farrington Highway bridge. Young mangrove (Rhizophora mangle) trees, about 2 feet tall, have taken root in the channel starting about 700 feet and extending about 1200 feet upstream. The soil bank supports a sparse growth of weedy exotics, including Indian pluchea (Pluchea indica) and California grass (Brachiaria mutica). A closely-cropped growth of the alga, Cladophora sp., covers submerged boulders in the upper estuarine segment.

Description of Aquatic Fauna

Oysters (Crassostrea sp.) and barnacles (Balanus sp.) grow attached to concrete surfaces and other hard substrata at the Farrington Highway bridge. The shore crab, Metopograpsus thukuhar, was observed among rocks of the revetment under highway. These are common estuarine species, indicating that salt water regularly extends at least as far upstream as Farrington Highway. Shells of oysters and tests of barnacles can be seen near the footbridge. Although the living animals were not noted this far upstream, these essentially marine animals probably colonize this area during the dry season when fresh water flow is at a minimum.

Within the estuarine segment, the introduced tilapia (Sarotherodon mossambica) is the most abundant fish, although mullet (Mugil cephalus) and probably young 'aholehole (Kuhlia sandvicensis) are present. None of the latter were actually observed on January 6, but the juveniles of this fish are seasonal in the lower reaches of Hawaiian streams, and their presence in this part of Wailani Stream can be presumed. Large tilapia occur in the lower part of the project area where the water is mostly greater than one foot deep, but the stream bottom shoals rapidly upstream, becoming less than one foot, and mostly less than 0.5 foot, deep above the foot bridge connecting the Crown Properties parcel on the west bank and Waipahu Park on the east bank.

Upstream of the footbridge (500 to 700 feet upstream from the highway), crayfish (Procambarus clarki) become common, young mangroves occur, and somewhat dwarfed individuals of the snail, Thiara granifera, are very abundant on the sand and gravel stream bed.

At around 1000 feet upstream of Farrington Highway, gambusoid fish (Poecilia sp. or Gambusia affinis) are common along with juvenile tilapia, crayfish, and Thiara snails (normal size). Several gobies (Bathygobius sp.) were seen in this area.

Small fishes were particularly abundant in the shallow pool just below the riffle zone, in the riffle zone, and in pools under Paiwa Street. A single specimen of an endemic goby, o'opu nakea (Awaous stamineus) was observed in the pool and numerous smaller gobies or o'opu okuhe (Eleotris sandwicensis) were seen under the bridge. Another o'opu nakea was seen upstream of the bridge. Most abundant, however, were gambusoids and juvenile tilapia.

Timbol and Maciolek (1978) surveyed nearby Waikele Stream at two points: just above Farrington Highway and about 0.3 km above H-1. At the upper station, exotic fishes were abundant, including shortfin molly (Poecilia mexicana), guppy (P. reticulata), tilapia (Sarotherodon mossambica), green swordtail (Xiphophorus helleri), and Chinese catfish (Clarias fuscus). A native goby or o'opu nakea (Awaous stamineus) was present but rare at this location. Common crustaceans included Hawaiian prawn or 'opae oeha'a (Macrobrachium grandimanus), Tahitian prawn (M. lar), and crayfish (Procambarus clarki). At the lower station, which might be physiographically similar to the reach of Wailani Stream surveyed here, these authors observed green swordtail (Xiphophorus helleri) as most abundant of the fishes, with southern platyfish (X. maculatus), topminnow (Poecilia vittata), and guppy (P. reticulata) common. Crustaceans collected were Tahitian prawn and crayfish. Thus, no native fishes or crustacea were observed at the lower station.

The only unusual organism recorded in the survey of Wailani Stream was the endemic (native Hawaiian) goby, Awaous stamineus (o'opu nakea). While no longer particularly abundant anywhere on Oahu, this species is found in most streams (Timbol and Maciolek, 1978).

Description of Water Quality

Two samples were collected from the study area on Wailani Stream on January 6, 1988. Sample 1 was from just off the western bank immediately downstream of the footbridge located 440 feet up the channel from Farrington Highway. Sample 2 was taken along the east bank approximately 30 feet downstream of Paiwa Street. These samples represent, respectively, the estuarine and stream segments of the channel in the survey area, although the salinity and conductivity values obtained from Sample 2 suggest even this area of the stream may not be entirely free of saline influences. The results of analyses on these samples are given in Table 1.

TABLE 1. Results of analyses on Wailani Stream water samples compared with the State of Hawaii water quality criteria for fresh and estuarine waters.

Parameter	SAMPLE 1	P.H.Estuary WQ Criteria	SAMPLE 2	Stream WQ Criteria
pH	7.29	6.8-8.8	7.37	5.5-8.0
Temperature (° C)	24.2	----	23.8	----
Dissolved Oxygen (mg/L)	8.15	>5.0 ¹	8.35	>6.8 ²
Total Kjeldahl Nitrogen (mg N/L)	0.14 ³	0.750	---- ⁴	0.800
Total Nitrogen (mg N/L)	2.17	----	2.04	----
Ammonia nitrogen (mg N/L)	0.049	0.030	0.110	----
Nitrate + nitrite (mg N/L)	2.03	0.070	2.02	0.170
Total Phosphorus (mg P/L)	0.119	0.200	0.129	0.150
Turbidity (ntu)	2.58	15.00	1.87	10.0
Nonfilterable Residue (mg/l)	2.8	100.0	1.6	80.0
Conductivity (umhos/cm ²)	10,529	----	881	300
Salinity (ppt)	7	----	1	----

¹ 60% of saturation at estuary temperature, adjusted for salinity

² 80% of saturation at stream temperature.

³ Calculated from the Total Nitrogen value.

⁴ Measured Total Nitrogen was slightly less than the sum of the nitrate + nitrite + ammonia, indicating that the true Total Kjeldahl value would be very low.

The State of Hawaii, Water Quality Standards provide a basis for assessing water quality in terms appropriate parameters and numerical ranges based on natural, unperturbed systems. In assessing water quality characteristics of any body of water, particularly one as spatially and temporally variable as an estuary, a single sample may not be particularly representative of the body of water as a whole or even a part of the system for any meaningful period of time. The State standards incorporate a recognition of the variability inherent in any series of samples, and particularly the deviations which can occur as a result of infrequent events such as storms. The standard for most of the parameters is embodied in more than one numerical expression, even within a given class of water. For these water quality parameters, the criteria include:

- 1) the geometric mean of all measurements is not to exceed one certain value;
- 2) 10% of the measurements should not exceed a second (higher) value; and
- 3) no individual measurement should exceed a third (usually highest) value at any time (DOH, 1977).

Where a single value is to be used as a basis for comparison and assessment, only the expression given in 3) can be used because the other two expressions require a minimum of three separate measurements from which to calculate a geometric mean. Further, for some classes of natural waters (including stream waters), two sets of criteria representing wet season (November through April) and dry season (May through October) values are provided. In Table 1 above, our measurements of various water quality parameters in Wailani Stream are compared with the "wet season, not to exceed" criteria for streams and the "not to exceed" criteria for Pearl Harbor estuary.

When the comparison of a water quality result with the appropriate criterion shows the body of water to be substantially lower for that parameter, it can be concluded (with reservation stemming from a lack of knowledge about variability) that the system is not seriously perturbed with respect to the parameter. For Wailani Stream, only the inorganic nutrient concentrations (particularly nitrate and ammonia) appear high relative to the not-to-exceed criteria. High nitrate is not unusual in stream and ground waters in Hawaii. These nutrients contribute to primary productivity: in the stream, expressed as algal mats attached to rocks in riffle areas or accumulating in pools; in the estuary, as blooms of phytoplankton which reduce water clarity and color the water a "soupy green". Both conditions, although not excessive, were observed in the study area portion of Wailani

Stream.

Sample 2 was collected in what was thought to be the fresh water stream, yet this sample showed traces of salt. The survey was conducted on January 6 following a moderately high tide (+2.1 feet predicted at Honolulu) in the early morning. Quite likely, the previous high tide pushed brackish water up under the Paiwa Street culverts (stream bed elevation is reportedly around +1 foot relative to datum) filling the pools beneath and just upstream of the street. Thus, technically, all of Wailani Stream below the concrete trapezoidal channel above Paiwa Street is estuarine.

Although no measurements were made of petroleum hydrocarbons during the survey, oil sheens were seen to be common on the water surface at the time of the survey. Much of this oil appeared to be entering the stream somewhere above Paiwa Street.

Discussion of Proposed Stream Alterations

From a long-term ecological perspective, the most important consideration for a proposed stream channel modification is the nature of the stream (its depth, flow characteristics, and bed material) after completion of the project. Preservation of habitats is necessary to minimize long-term negative impacts arising from channel modification. The existing channel in this reach of Wailani Stream is clearly modified already, but pool and riffle habitats have been reasonably preserved in the realigned stream. Modifications made to the channel above Paiwa Street were more drastic, and this segment has now poor ecological potential. The section below Farrington Highway is concrete lined, with smooth, vertical side-walls, a condition which in many situations around Oahu amounts to the near total destruction of stream habitats. However, here it is the estuary which has been modified and confined, and an adequate depth of water is retained across the channel to ameliorate temperature extremes and provide habitat space for fishes and accumulation of sediment for soft-bottom organisms. The primary damage in this case has been the loss of aesthetic values and recreational access.

The proposed modifications to the Wailani Stream channel between Farrington Highway and Paiwa Street include extension of the concrete-lined, rectangular culvert upstream beneath Farrington Highway for a distance of just over 400 feet above the highway bridge (to just before the existing foot bridge shown in Figure 1). The upper end of this concrete channel would transition to an earthen trapezoidal channel very similar to what

presently exists only wider (from about 20 feet to 30 feet across at the base). The modified channel would narrow upstream (outlet transition) over a distance of approximately 100 feet just below Paiwa Street. Only slight changes in channel bottom elevation are proposed. The elevation of the bottom at the upper end of the concrete section would be at 0.8 foot below mean lower low water (MLLW). This elevation is very close to that of the existing channel bottom at the same location. Thus, the proposed alterations will not have a significant, long-term impact on the stream ecology, although an increase in average salinity might result from the creation of a slightly larger tidal basin. The concrete-lined channel will retain a depth of water during some or most of each daily tidal cycle, even under conditions of little or no flow from upstream.

Direct impacts from construction on stream flora and fauna can be severe, but not necessarily any greater than that which occurs during a major flood event. Increases in suspended solids during construction can have a negative impact on downstream areas, but the estuarine reach below the project boundary is an accretion zone where stream bed load accumulates and suspended solids settle out under normal flow conditions. Construction activities can be expected to produce short-term increases in the suspended load carried by Wailani Stream. Adverse impacts on stream ecology, including portions below the project (both long- and short-term) will not be significant unless major problems occur during construction, such as unusual losses of graded or grubbed material to high stream flow conditions.

Literature cited

Department of Health. 1977. An ecosystem approach to water quality standards. Report of the Technical Committee on Water Quality Standards. Dept. of Health, State of Hawaii. 214 p.

Imata and Associates, Inc. 1986. Wailani Stream drainage study (between Paiwa Street and Farrington Highway) at Waipahu, Ewa, Oahu, Hawaii. Prep. for the Hawaii Housing Authority.

Timbol, A.S., and J.A. Maciolek. 1978. Stream channel modification in Hawaii. Part A: Statewide inventory of streams, habitat factors, and associated biota. Stream Alteration Project, Office of Biological Services, Fish and Wildlife Service, U.S. Dept. of the Interior. FWS/OBS-78/16, 157 p.

APPENDIX F

**PHASE I ENVIRONMENTAL SITE ASSESSMENT
FOR THE REHABILITATION HOSPITAL OF THE PACIFIC
INDEPENDENT LIVING APARTMENT COMPLEX
TAX MAP KEY: 9-4-17
LOT A, PORTION OF 55 & 1**

August, 1996

PHASE I ENVIRONMENTAL SITE
ASSESSMENT
FOR THE
REHABILITATION HOSPITAL OF THE
PACIFIC - INDEPENDENT LIVING
APARTMENT COMPLEX

TAX MAP KEY: 9-4-17
LOT A, PORTION OF 55 & 1

WAIPAHU, OAHU, HAWAII

AUGUST 1996

PREPARED PER ASTM DESIGNATION:
E 1527-93, STANDARD PRACTICE FOR
ENVIRONMENTAL SITE ASSESSMENTS:
PHASE I ENVIRONMENTAL SITE
ASSESSMENT PROCESS

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ENVIRONMENTAL ASSESSMENT

PROJECT: Independent Living Apartment Complex

LOCATION: Kauolu Place
Waipahu, Ewa District, Oahu, Hawaii
TMK: 9-4-17; Lot A, Portion of 55 & 1

PROPOSING AGENCY: The Rehabilitation Hospital of the Pacific

CONTACT PERSON: Ms. Elaine Shinagawa
Project Specialist
Phone: 566-3468

AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONTACTED
OR CONSULTED IN PREPARING THE ASSESSMENT

FEDERAL

Environmental Protection Agency (EPA)
Department of Agriculture - Natural Resources Conservation Service

STATE OF HAWAII

Department of Health

- Environmental Planning Office
 - Groundwater Protection Program
- Hazard Evaluation & Emergency Response (HEER)
- Safe Drinking Water Branch
- Solid & Hazardous Waste Branch
 - Hazardous Waste Section
 - Office of Solid Waste Management

- Underground Storage Tank Section

Department of Land & Natural Resources - Bureau of Conveyances
Department of Finance - Real Property Assessment Division
Department of Business, Economic Development, and Tourism (DBEDT)
Housing and Finance Development Corporation
University of Hawaii at Manoa - Hamilton Library

CITY AND COUNTY OF HONOLULU

Department of Land Utilization
Department of Public Works - Division of Engineering
Honolulu Fire Department

INDIVIDUALS AND ORGANIZATIONS

Charley's Car Care Center
Consumer Tire Auto Center
Hawaii Insurance Bureau
Hawaiian Electric Company, Inc.
Hawaiian Iron Gym
Shredded Foam of Hawaii
Pacific Map Center

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SECTION 1

SUMMARY

The Rehabilitation Hospital of the Pacific (REHAB) is assisting in the development of State owned lands situated in the town of Waipahu, portion of Waikele and Waipio, Ewa District, City and County of Honolulu, Hawaii. The subject property is identified by Tax Map Key as 9-4-17 : Portion of 55 & 1 encompassing an approximate area of 31,040 sq. ft.

In applying for a grant for development of housing under HUD's Section 811: Supportive Housing for Persons with Disabilities, a Transaction Screen Process must be conducted and findings submitted together with the application. If the findings show that further testing must be performed, a Phase I Environmental Site Assessment must also be conducted and submitted.

The completion of the Transaction Screen Process resulted a "yes" response in regards to a reported release from an underground storage tank within one half mile of the site. Therefore the conclusion was made that a Phase I Environmental Site Assessment must also be conducted. Further study of the property and the surrounding area indicates the development site and the adjoining properties are environmentally safe and not contaminated although some adjoining properties have RCRA generators located nearby on non-adjoining properties.

SECTION 2

INTRODUCTION

A. Purpose

The purpose of this practice is to assess the development site in respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and petroleum products. As such, this practice satisfies the requirements to qualify for the *innocent landowner defense* to CERCLA liability: that is, the practices that constitute "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 USC § 9601 (35)(B).

B. Special Terms and Conditions

The goal of an environmental site assessment is to identify *recognized environmental conditions*. The term *recognized environmental conditions* means the presence or likely presence of any *hazardous substances* or *petroleum products* on a property under conditions that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Petroleum products are included within the scope of this practice because they are of concern with respect to many parcels of commercial real estate and current custom and usage is to include an inquiry into the presence of petroleum products when doing an environmental site assessment of commercial real estate. Inclusion of petroleum products within the scope of this practice is not based upon the applicability, if any, of CERCLA to petroleum products (see Section 9 for discussion of petroleum exclusion to CERCLA liability).

C. Limitations and Exceptions of Assessment

This practice does not address requirements of any state or local environmental laws or of any federal environmental laws other than the appropriate inquiry provisions of CERCLA's innocent landowner defense.

Some substances may be present on a property in quantities and under conditions that may lead to contamination of the property or of nearby properties, but are not included in CERCLA's definition of hazardous substances (42 USC §9601(14)) or do not otherwise present potential CERCLA liability. In any case, they are beyond the scope of this practice.

D. Limiting Conditions and Methodology

The guidelines in the ASTM Standard E 1527-93 were followed, which is the standard practice for the Phase I Environmental Site Assessment process. These guidelines were prescribed by the US Department of Housing and Urban Development.

Site reconnaissance was limited to the property itself, adjoining properties (Waipahu State Library / south; Kamalu - Hoolulu Elderly State Housing / east); and across Kauolu Place (vacant undeveloped property / north) and Mokuola Street (Waipahu United Church of Christ / west).

SECTION 3
SITE DESCRIPTION

A. Location and Legal Description

The proposed development site is situated along Kauolu Place, west of the Kamalu-Hoolulu Elderly State Housing in the town of Waipahu, portion of Waikele and Waipio, Ewa District, City and County of Honolulu, Hawaii. The subject property is identified by Tax Map Key as 9-4-17: Portion of 55 & 1 encompassing an approximate area of 31,040 sq. ft.

B. Site and Vicinity Characteristics

The land is vacant and generally undeveloped. Previous grubbing, grading, and surcharging have extensively modified the property which itself was created by land filling (Soil Conservation Service 1972). Generally, the soil consists of 8-10 feet of artificial fill over deep, compressible deposits (Dames and Moore 1982). To minimize ground settlement due to consolidation of the soft, compressible deposits, a surcharge program was initiated in 1975 and continues to the present.

The ground surface is generally slight to moderate in slope. Examination of a topographic map shows slope contours ranging from 14 feet at the center of the site to 12 feet along the northeast corner and 13-14 feet along the southwest corner.

The project site is bordered by the Kauolu Place to the north, the Waipahu State Library and Waipahu Civic Center to the south, Mokuola Street to the west, and Kamalu - Hoolulu Elderly State Housing to the east. A vacant property is north of Kauolu Place followed by residential housing. The Waipahu United Church of Christ is across Mokuola Street to the west.

C. Descriptions of Structures, Roads, Other Improvements on the Site

There are no existing structures on the project site. The Mokuola and Hikimoe Street extension project completed several years ago has provided a new City and County 12 inch water main along Mokuola Street.

D. Information Reported by User Regarding Environmental Liens or Specialized Knowledge or Experience

Per the Housing and Finance Development Corporation, the owners of the property, there are no environmental liens on the site and no information is known on specialized knowledge or experience for the site.

E. Current Uses of the Property

The site is vacant and generally undeveloped.

F. Past Uses of the Property

Site was used for agricultural activities such as taro and sugar cane cultivation.

G. Current and Past Uses of Adjoining Properties

To the east of the site, is Kamalu-Hoolulu Elderly State Housing. Prior to the construction of the elderly housing project, the property was vacant and contained fill land. Past use shows it was used for growing taro and later sugar cane. Adjacent to Kamalu-Hoolulu is the Waipahu Civic Center providing government services to the community.

South of the site is the Waipahu State Library. Prior uses of the land also included taro and sugar cane cultivation.

Directly west of the site, across Mokuola Street, is the Waipahu United Church of Christ.

North of the site, across Kauolu Place, is undeveloped land. Further north is residential housing.

H. Site Rendering, Map, or Site Plan

See Figure 4.

SECTION 4

RECORDS REVIEW

A. Standard Environmental Record Sources, Federal and State

1. National Priorities List (NPL) list
 - No NPL sites within the required minimum one (1) mile radius of the property.
 - Only four (4) NPL sites in the State of Hawaii which the EPA is aware of: Del Monte (Kunia), Schofield Barracks Military Reservation, Pearl Harbor Naval Reservation, and Navcams Eastpac Radio Transmitting Facility Lualualei.
2. Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list
 - No CERCLIS sites within the required minimum one-half mile radius of the property.
 - Three (3) CERCLIS sites in Waipahu vicinity, but all are more than a mile away: Waipahu Ash Dump, Waipahu Wells, and Waipahu Heights Wells II.
3. RCRA Treatment, Storage, and/or Disposal (TSD) facilities list
 - No TSD facilities within the required minimum one (1) mile radius of the property.
4. RCRA generators list
 - No generators within the property and adjoining properties. There are RCRA generators within one half mile of the site. However, there have been no reported incidents at these locations.
5. Emergency Response Notification System (ERNS) list
 - Property is not on ERNS list.
6. State lists of hazardous waste sites
 - Records on hazardous material incidents indicate 21 incidents that occurred within a one (1) mile radius of Kauolu Place (see Table 1, Figures 1 and 2).
7. State landfill and/or solid waste disposal site lists
 - No sites within required minimum one-half (1/2) mile radius of the property.

8. State leaking Underground Storage Tank (LUST) list (Reported Releases)
(within 1/2 mile radius)
 - Saiki & Sons, Inc. (94-825 Waipahu Street) (see Figure 3, 8.1).
 - Tajiro Uranaka (94-767 Farrington Highway) (see Figure 3, 8.2).(within 1/4 mile radius)
 - J's Waipahu Chevron (94-380 Mokuola Street) (see Figure 3, 8.3).
 - Waipahu Mechanical Equipment Shop (94-833 Makaaloha Street) (see Figure 3, 8.4).

9. State registered UST list
(within 1/2 mile radius)
 - Gushing Waters, Inc. (94-360 Peke Lane Box 1200)
 - Minoru Tamashiro (94-1133 Waipahu Street)
 - Saiki & Sons, Inc. (94-825 Waipahu Street)
 - Shell Service Station (94-709 Farrington Highway)
 - Sugar Mill Shell Service (94-1037 Waipahu Street)
 - Tajiro Uranaka (94-767 Farrington Highway)
 - Waipahu Auto Co. - Division of Servco (94-729 Farrington Highway)(within 1/4 mile radius)
 - Island Mini Mart Waipahu (94-767 Farrington Highway)
 - J's Waipahu Chevron (94-380 Mokuola Street)
 - Texaco Food Mart (94-780 Farrington Highway)
 - Tire Warehouse (94-250 Mokuola Street)
 - Waipahu Mechanical Equipment Shop (94-833 Makaaloha Street)
 - Waipahu Mill Boiler Area (94-833 Makaaloha Street)
 - Waipahu Outside Storage (94-833 Makaaloha Street)
 - Waipahu Street Drain Realignment (94-925 Waipahu Street)
 - Waipahu Variety, DBA Kiso Store (94-995 Waipahu Street)

B. Physical Setting Source(s)

1. USGS 7.5 Minute Topographic Map
2. Aerial Photographs
3. Soils Map
 - Property contains uncontaminated fill dirt from previous taro and sugar cultivation. Fill dirt was also added to the site when Hikimoe and Mokuola Street were excavated and extended in 1988. No contaminated fill dirt was reported on the environmental impact statement for these street extensions or for the Waipahu Civic Center.

4. Based on Flood Insurance Rate Map (FIRM), Panel 110 of 135, Community-Parcel Number 150001 0110D, dated September 30, 1995 and a survey conducted by R.M. Towill Corporation, the parcel A, proposed site for the independent living apartments is in flood zone X, areas determined to be outside of 500 year flood plain. See Attachment A.

C. Historical Use Information

The history of Waipahu is deeply rooted in the natural resources found in the area. Native Hawaiians settled the area as fish were plentiful in nearby mudflats and shallow waters of Pearl Harbor. Natural springs issued water for agricultural activities and taro and other wetland crops were readily cultivated. At the turn of the 20th century, vast acreages of the Schofield plateau and Ewa Plain with their rich soils were committed to a more ambitious endeavor -- sugar cane cultivation -- which replaced fishing and subsistence farming as the agricultural and economic mainstays of the region.

D. Additional Record Sources

1. Fire Insurance Maps or Consultation

- In a consultation with the Honolulu Fire Department, it was stated that no buildings or improvements on the property or on an adjoining property were identified as being used industrially and consequently would not lead to contamination of the site. Site is undeveloped and it was last used for taro and sugar cane cultivation. Also, it is noted that site and commercial activities are separated by the Waipahu State Library, Civic Center, and Elderly State Housing. The water table slopes southward and runoff of any hazardous substances from these commercial activities would not enter the site, but enter the storm drain system along Moloalo Street.

2. Groundwater Contamination on the Island of Oahu

- There are two (2) locations in Waipahu where confirmed groundwater contaminants have been detected. The wells are contaminated with Ethylene Dibromide (EDB) and 1,2,3-Trichloropropane. However, the levels detected are well below existing standards established to protect public health and is considered safe drinking water.

SECTION 5

INFORMATION FROM SITE RECONNAISSANCE AND INTERVIEWS

A. Hazardous Substances in Connection with Identified Uses

No hazardous substances were identified on the site or on any adjacent properties.

B. Hazardous Substance Containers and Unidentified Substance Containers

No hazardous substance containers or other containers were identified on the site or on any adjacent properties.

C. Storage Tanks

To the southwest of the site, approximately one tenth (1/10) of a mile away, an above ground steel storage tank behind Goodyear/Charley's Car Care Center was identified. It is spherical in shape, supported above ground, and with a door located on the top. It is being used for the storage of disposed oil for the auto shop and is cleaned out on a weekly basis (see Figure 3, location identified as C1).

No exposed vent or fill pipes were seen on the property or on any adjoining properties.

D. Indications of PCBs

No PCBs were found on the site. There are no transformers on the site nor along the portion of Mokuola Street and Kauolu Place fronting the site. The extension of the streets included building underground electrical lines. The nearest transformers are located in the parking lot of the Waipahu United Church of Christ and along Mokuola Street (in front of Earl Scheib and Consumer Tire Auto Center). Other transformers in the vicinity are along Hikimoe Street (behind Times Supermarket) and Kahuailani Street. Hawaiian Electric Company reports no leaks for any of these transformers.

E. Indications of Solid Waste Disposal

No indications of solid waste disposal were observed in the area.

F. Physical Setting Analysis

The area around the site slopes slightly in its topography from northeast to southwest. The property itself is not level with the center of the site having the greatest elevation and sloping of approximately two to three feet towards the northern property line and approximately one foot towards all other sides. The site is covered with 6 to 18-inch growth of weeds.

G. Site Plan
See Figure 4.

SECTION 6

FINDINGS AND CONCLUSIONS

The preliminary study done in the Transaction Screen Process indicated that hazardous substances may exist in the adjacent properties of the site due to those properties' neighboring businesses. To determine if properties adjacent to the site are being affected by nearby businesses, further investigations were conducted. In this study, the Phase I Environmental Site Assessment, an in-depth investigation was conducted in which standard environmental records, physical setting records, local environmental records, and historical use information were checked, as well as, conducting a site reconnaissance and interviews of the adjacent property occupants.

Review of the standard environmental records shows the site and the surrounding area (radius of 1/2 to 1 mile) to be uncontaminated. Any hazardous material incidents or storage tank releases were handled by the authorities and appropriate action taken to contain, clean, and dispose of the contaminants properly. Precautions were also taken to avoid any future incidents.

Review of soil maps and other soil related materials indicate uncontaminated fill dirt and historical sources show prior land use that did not present any harmful environmental conditions. Groundwater from nearby wells are deemed safe for drinking according to the State of Hawaii Department of Health.

Site reconnaissance, phone interviews, and personal correspondence with the businesses in the area and environmental authorities support findings.

In consideration to the responses in this investigation, the conclusion was made that the site is free of contamination and the adjoining properties are safe from contamination of the development site.

SECTION 7

SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

We have performed a *Phase I Environmental Site Assessment* in conformance with the scope and limitations of ASTM Practice E 1527 of TMK 9-4-17 Lot A, Portion of 55 & 01, the *property*. This assessment has revealed no evidence of recognized environmental conditions in connection with the property.

Derek Sato
Rehabilitation Hospital of the Pacific
Mechanical Engineer

SECTION 8

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL PARTICIPATING IN PHASE I ENVIRONMENTAL SITE ASSESSMENT

Derek Sato
Rehabilitation Hospital of the Pacific (REHAB)
Mechanical Engineer

SECTION 9

TERMINOLOGY

1. *Comprehensive Environmental Response, Comprehensive, and Liability Information System (CERCLIS)* - the list of sites compiled by the EPA that EPA has investigated or is currently investigating for potential hazardous substance contamination for possible inclusion on the National Priorities List.
2. *drum* - a container (typically, but not necessarily, holding 55 gal (208L) of liquid) that may be used to store hazardous substances or petroleum products.
3. *environmental lien* - a charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products upon a property, including (but not limited to) liens imposed pursuant to CERCLA 42 USC § 9607 (1) and similar state or local laws.
4. *ERNS list* - EPA's emergency response notification system list or reported CERCLA hazardous substance releases or spills in quantities greater than the reportable quantity, as maintained at the National Response Center. Notification requirements for such releases or spills are codified in 40 CFR Parts 302 and 355.
5. *fill dirt* - dirt, soil, sand or other earth, that is obtained off-site, that is used to fill holes or depressions, create mounds, or otherwise artificially change the grade of elevation of real property. It does not include material that is used in limited quantities for normal landscaping activities.
6. *fire insurance maps* - maps produced for private fire insurance map companies that indicate uses of properties at specified dates and that encompass the property.
7. *hazardous substance* - a substance defined as a hazardous substance pursuant to CERCLA 42 USC § 9601(14), as interpreted by EPA regulations and the courts: "(A) any substance designated pursuant to Section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to Section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC § 6901 *et seq.*) has been suspended by Act of Congress), (D) any toxic pollutant listed under Section 1317(a) of Title 33, (E) any hazardous air pollutant listed under Section 112 of the Clean Air Act (42 USC § 7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the administrator (of EPA) has taken action pursuant to Section 2606 of Title 15. The term does

not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under Subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixture of natural gas and such synthetic gas)."

8. *hazardous waste* - any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC § 6901 *et seq.*) has been suspended by Act of Congress). The Solid Waste Disposal Act of 1980 amended RCRA. The RCRA defines a hazardous waste, in 42 USC § 6903, as: "a solid waste, or combination of solid wastes, which because of its quantity concentration, or physical, chemical, or infectious characteristics may - (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."
9. *landfill* - a place, location, tract of land, area, or premises used for disposal of solid wastes as defined by state solid waste regulations. The term is synonymous with the term solid waste disposal site and is also known as a garbage dump, trash dump, or similar term.
10. *National Priorities List (NPL)* - list compiled by EPA pursuant to CERCLA 42 USC § 9605(a)(8)(B) of properties with the highest priority for cleanup pursuant to EPA's Hazard Ranking System.
11. *petroleum exclusion* - the exclusion from CERCLA liability provided in 42 USC § 9601 (14), as interpreted by the courts and EPA: "The term (hazardous substance) does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."
12. *petroleum products* - those substances included within the meaning of the terms within the petroleum exclusion to CERCLA, 42 USC § 9601(14), as interpreted by the courts and EPA, that is: petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under Subparagraphs (A) through (F) of 42 USC § 9601(14), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). (The word fraction refers to certain distillates of crude oil, including gasoline, kerosene, diesel oil, jet fuels, and fuel oil, pursuant to *Standard Definitions of Petroleum Statistics*).

13. *RCRA generators* - those persons or entities that generate hazardous wastes, as defined and regulated by Resource Conservation and Recovery Act (RCRA)
14. *RCRA TSD facilities* - those facilities on which treatment, storage, and/or disposal of hazardous wastes takes place, as defined and regulated by Resource Conservation and Recovery Act (RCRA).
15. *underground storage tank (UST)* - any tank, including underground piping connected to the tank, that is or has been used to contain hazardous substances or petroleum products and the volume of which is 10% or more beneath the surface of the ground.

SECTION 10

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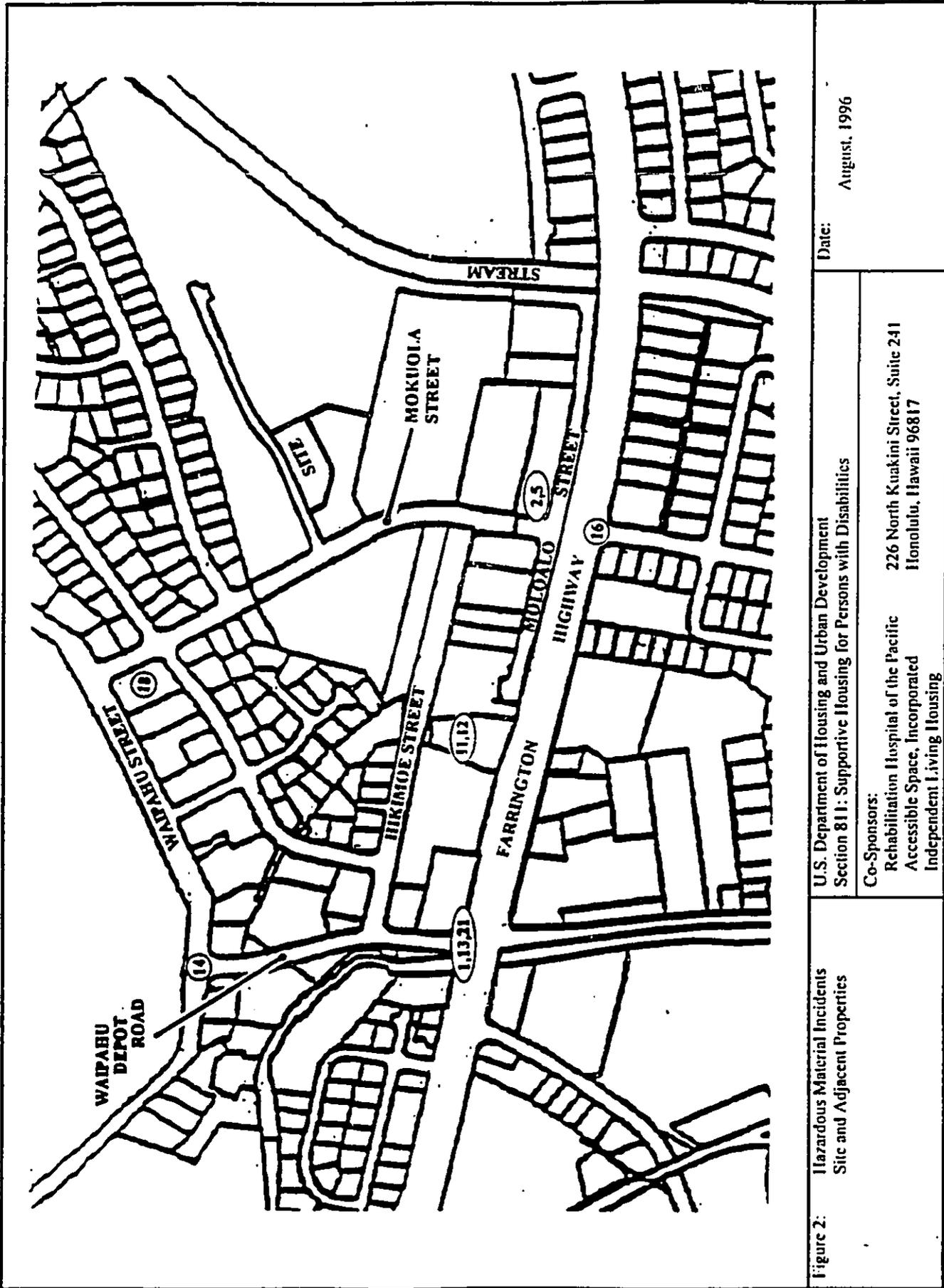
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SECTION 11

TABLE 1 - Hazardous Material Incidents

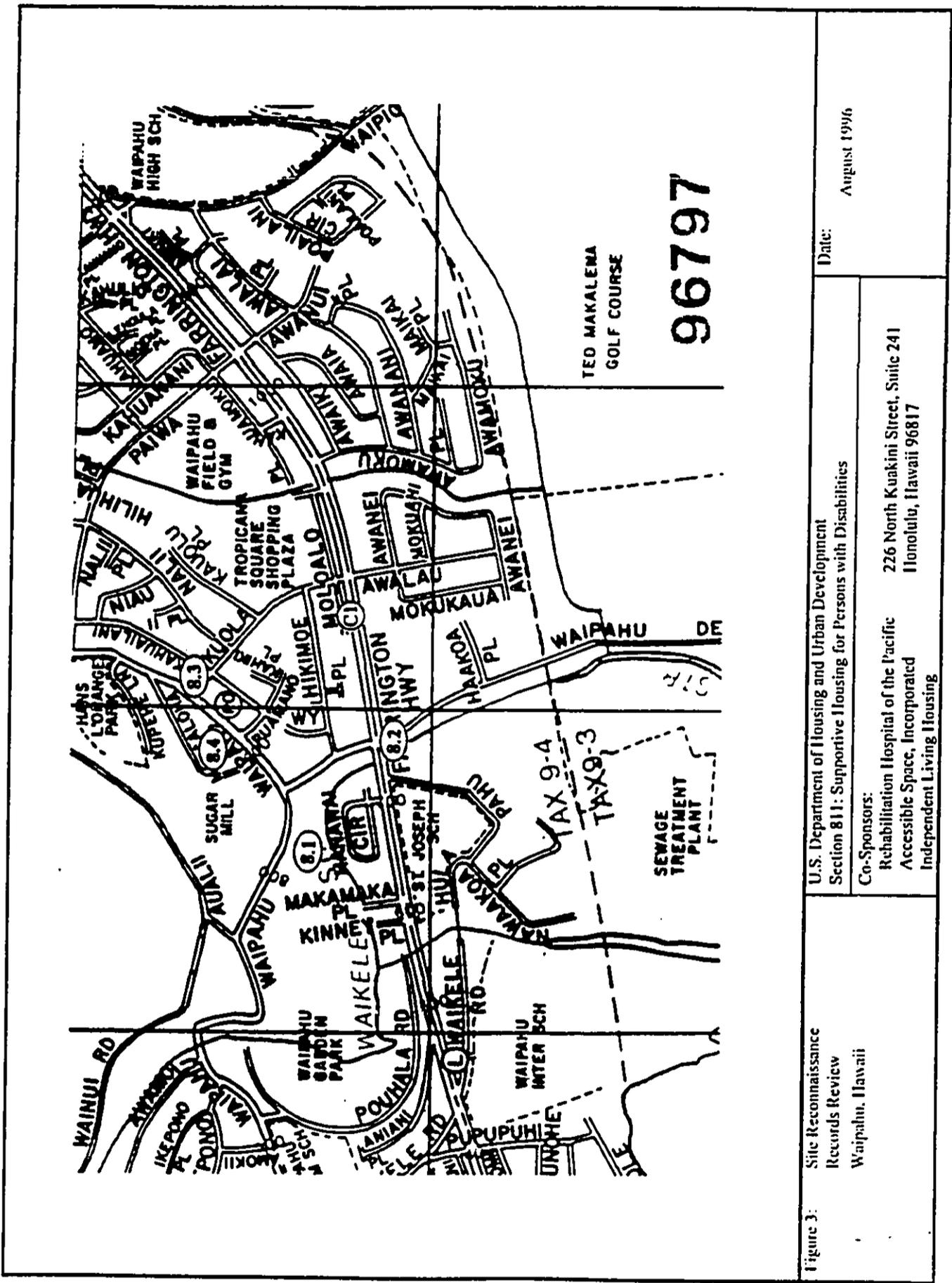
A survey of the Honolulu Fire Department's records on hazardous material incidents has disclosed the following incidents which occurred within a one (1) mile radius of Kauolu Place:

NO.	INCIDENT	DATE	ADDRESS	TYPE/SIT	SHOWN ON
1	4630	6/27/84	Farrington Hwy./Waipahu Depot Rd	41	Figure 2
2	9608	12/80/84	94-866 Moloalo Street	47	Figure 2
3	1308	2/18/85	Fronting 94-1037 Waipahu Street	41	Figure 1
4	2913	4/26/86	Near 94-615 Farrington Hwy	41	Figure 1
5	8152	11/20/86	94-866 Moloalo Street	41	Figure 2
6	275	1/8/88	94-1055 Kahuanui Street	41	Figure 1
7	3684	5/15/88	94-1078A Nalii Street	41	Figure 1
8	7934	9/30/91	93-065 Waipahu Depot Rd	41	Far from site
9	10542	11/6/92	94-065 Waipahu Depot Rd	41	Figure 1
10	9718	10/7/93	Farrington Hwy./Paiwa Street	41	Figure 1
11	103	1/2/94	94-780 Farrington Hwy	41	Figure 2
12	1161	2/4/94	94-780 Farrington Hwy	41	Figure 2
13	3939	5/2/94	Farrington Hwy./Waipahu Depot Rd	41	Figure 2
14	9689	10/16/94	Waipahu Street/Waipahu Depot Rd	41	Figure 2
15	1790	2/7/95	94-207 Waipahu Street	41	Far from site
16	6286	5/21/95	94-861 Farrington Hwy	41	Figure 2
17	6325	5/22/95	94-155 Farrington Hwy	41	Figure 1
18	9864	8/6/95	94-380 Mokuola Street	41	Figure 2
19	13210	10/26/95	94-065B Waipahu Depot Rd	41	Figure 1
20	14945	12/01/95	94-065 Waipahu Depot Rd	41	Figure 1
21	112	1/2/96	Farrington Hwy./Waipahu Depot Rd	41	Figure 2

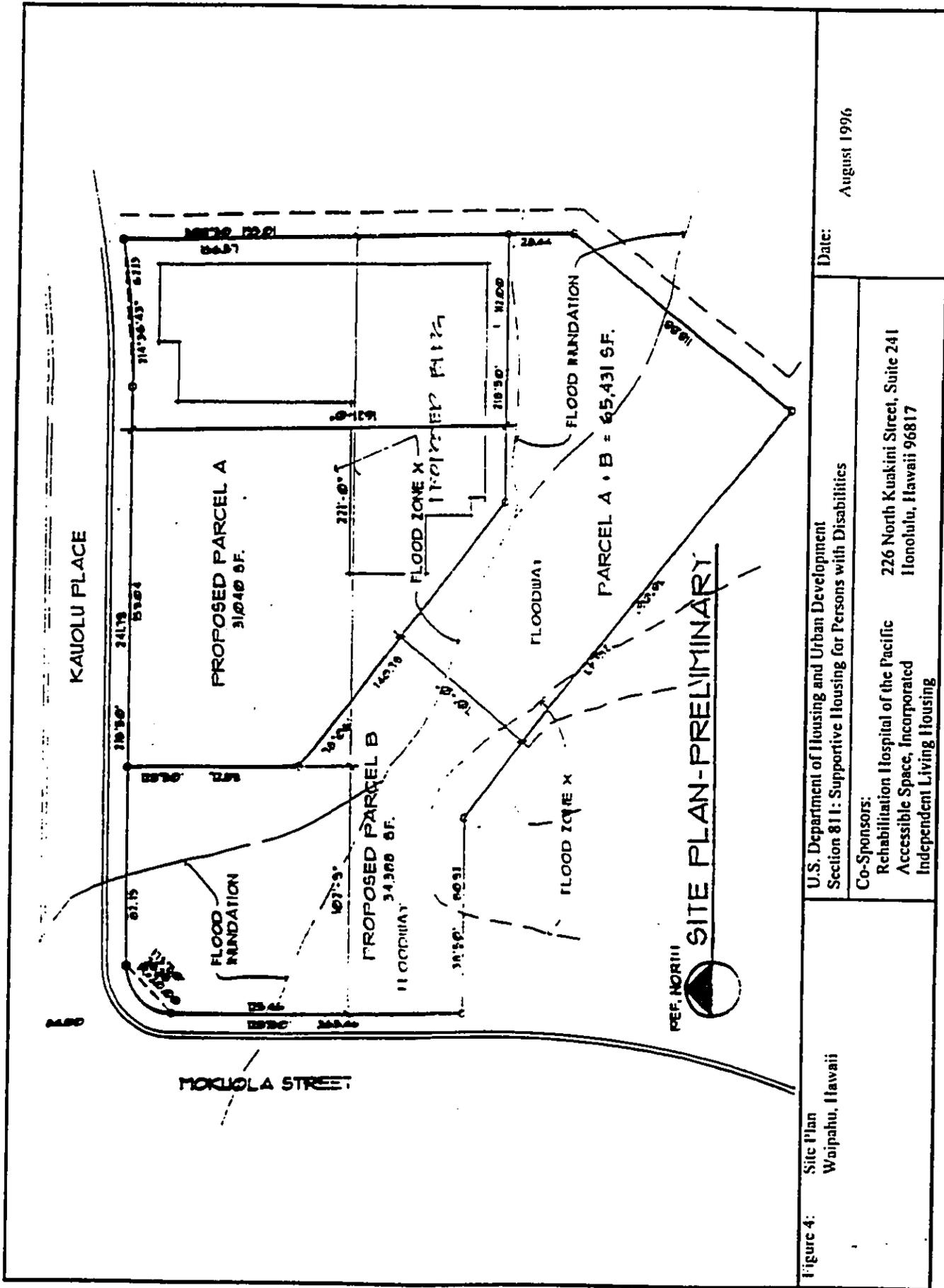


Independent Living Apartment Complex
 Waipahu, Ewa District, Oahu Hawaii

Phase I Environmental Site Assessment - August 1996
 Page 26

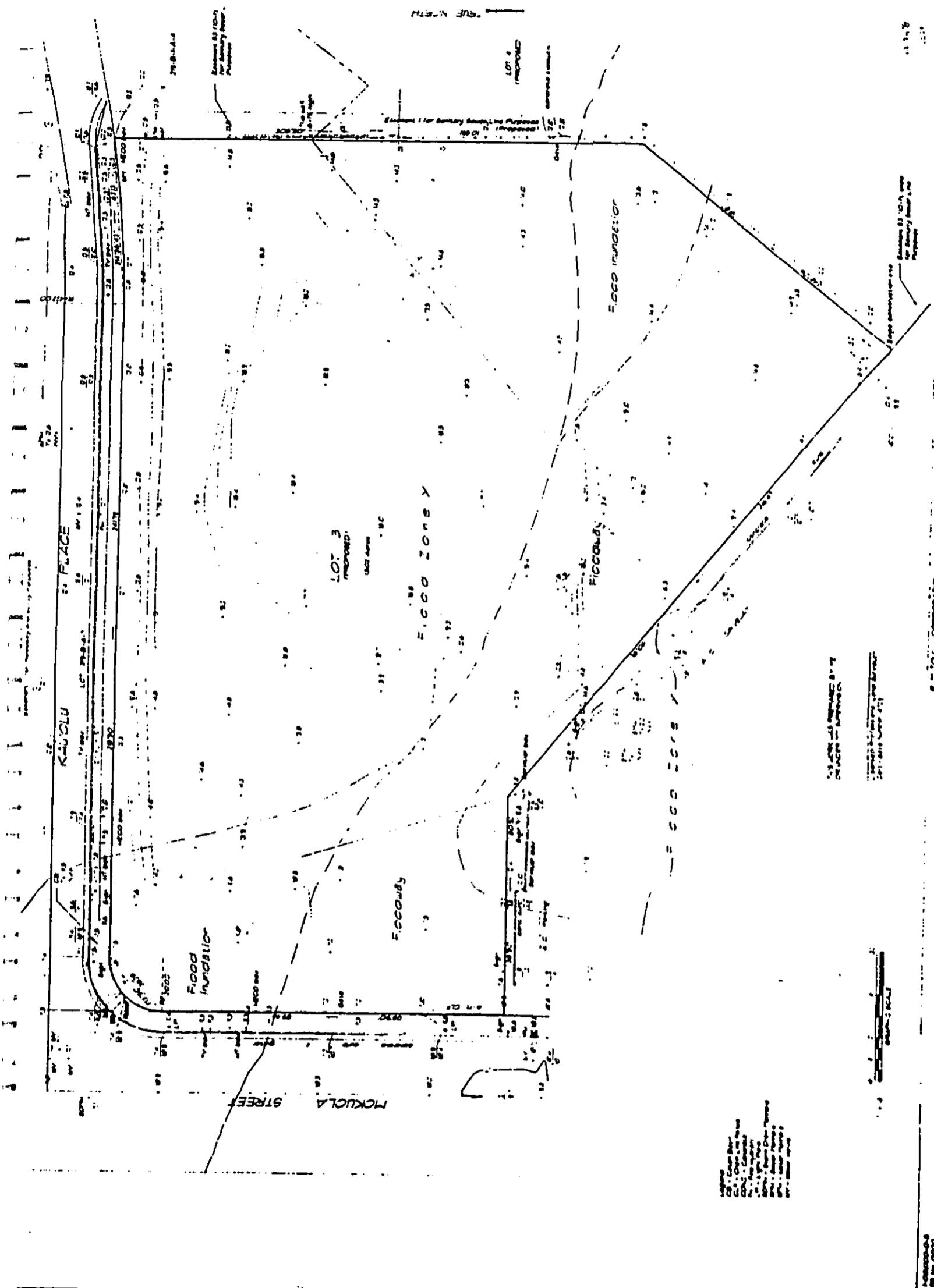


Independent Living Apartment Complex
Waipahu, Ewa District, Oahu Hawaii



ATTACHMENT A

SITE PLAN/GROUND FLOOR PLAN	Preliminary Design by Sueda & Assoc., Inc.
TOPOGRAPHY	R.M. Towill Corporation
CROWN ELDERLY SUBDIVISION	HFDC



Scale

North Arrow

Legend

Scale

Legend

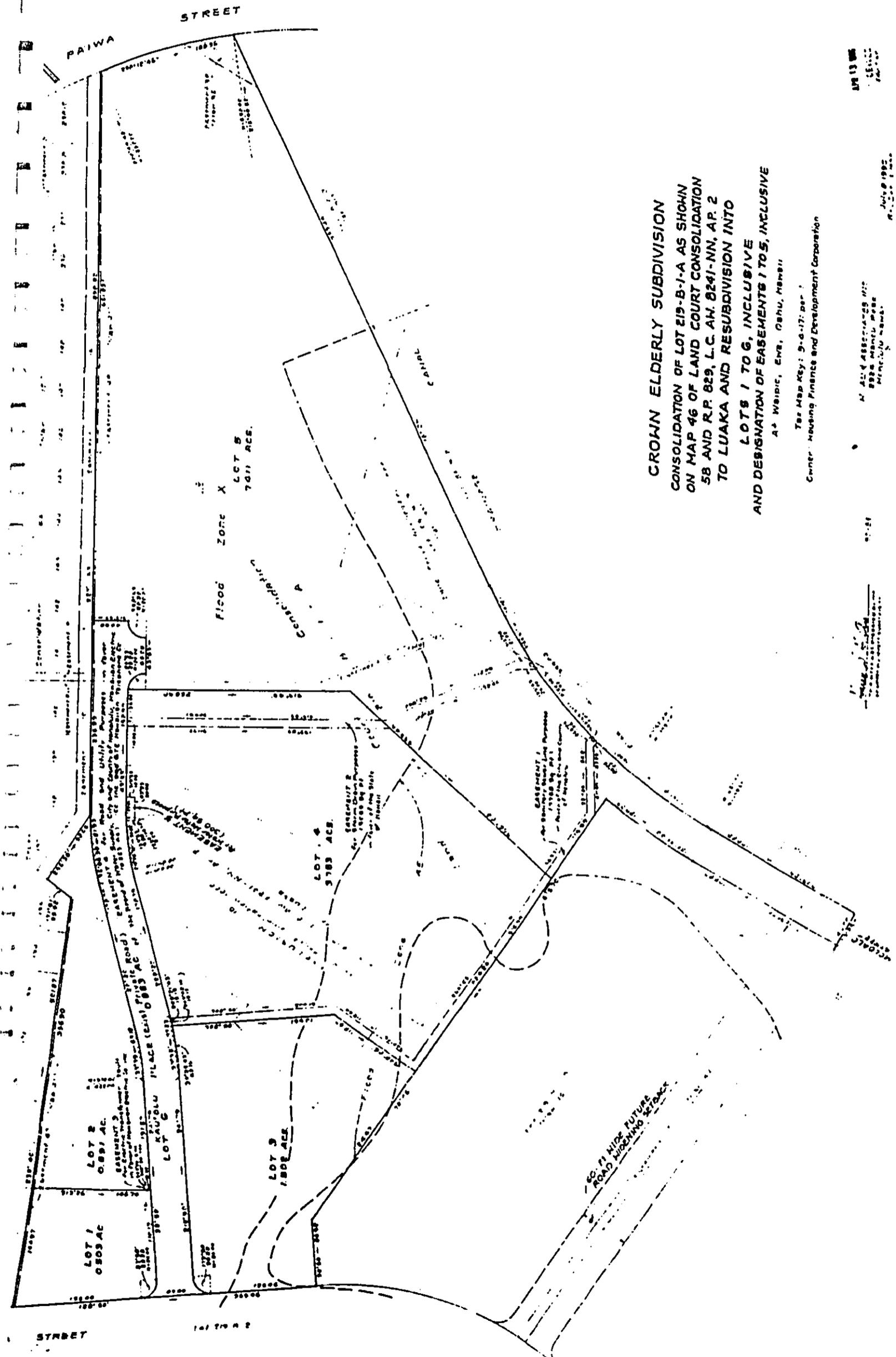
- 1. Flood Zone
- 2. Flood Inundator
- 3. Flood Zone
- 4. Flood Zone
- 5. Flood Zone
- 6. Flood Zone
- 7. Flood Zone
- 8. Flood Zone
- 9. Flood Zone
- 10. Flood Zone

Scale

Legend

Scale

Legend



CROWN ELDERLY SUBDIVISION
CONSOLIDATION OF LOT E19-B-1-A AS SHOWN
ON MAP 46 OF LAND COURT CONSOLIDATION
58 AND R.P. 829, L.C. AM. 8241-NN, AP. 2
TO LUAKA AND RESUBDIVISION INTO
LOTS 1 TO 6, INCLUSIVE
AND DESIGNATION OF EASEMENTS 1 TO 5, INCLUSIVE

A. A. Weidic, Eng., Oahu, Hawaii

See Map Key: 5-6-17: per 1
 Owner: Housing Finance and Development Corporation

APR 13 1982
 1:15 PM
 1:15 PM

July 8 1982
 10:00 AM
 10:00 AM

A. A. WEIDIC ASSOCIATES, INC.
 2828 MANILA WAY
 HONOLULU, HAWAII

01-51

1:15 PM
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APPENDIX G

**FINAL REPORT SURCHARGE PROGRAM FOR SITE
STABILIZATION PROPOSED ELDERLY AND LOW INCOME HOUSING SITE
TMK: 9-4-17: 1
WAIPAHU, OAHU, HAWAII
FOR HAWAII HOUSING AUTHORITY, STATE OF HAWAII**

January, 1982

Dames & Moore



1144 10th Avenue, Suite .
Honolulu, Hawaii 96816
(808) 735-3585
Telex: 634100 Cable address: DAMEMORE

JAN 13 1982
RECEIVED

January 11, 1982

Hawaii Housing Authority
P. O. Box 17907
Honolulu, Hawaii 96817

Attention: Mr. Paul Tom

Gentlemen:

Final Report
Surcharge Program For Site Stabilization
Proposed Elderly and Low Income Housing Site
TMK:9-4-17:1
Waipahu, Oahu, Hawaii
For Hawaii Housing Authority, State Of Hawaii

INTRODUCTION

This letter presents a summary of settlement readings, our evaluations and recommendations on a Surcharge Program undertaken for site stabilization at the proposed Elderly and Low Income Housing site, TMK:9-4-17:1, at Waipahu, Oahu, Hawaii. The vicinity of the site is shown on the Map of Area, Plate 1.

Previously two-phased site evaluation studies were performed for Hawaii Housing Authority (HHA), and our reports dated August 31, 1977 and June 6, 1978 were submitted for developing the site for an elderly and low-income housing or a light industrial development. The housing development then considered was to consist mainly of two-story hollow tile structures. In addition, several site investigations of a general nature were performed for the previous owner in the past.

Based on findings from these several investigations, the site conditions can be generally described as consisting of 8 to 10 feet of artificial fill, which forms a working crust, over deep soft compressible deposits underlain by stiff alluvial soils. In its original condition, large settlements were anticipated of the site due to the consolidation of the soft compressible deposits under the proposed housing development. To minimize the large anticipated settlements, a surcharge program was recommended in our reports and the program was implemented by you under our monitoring to stabilize the site for the planned housing structures.

Hawaii Housing Authority
January 11, 1982
Page Two

Because the site conditions were somewhat varied and the area relatively large, the site was subdivided into several segments, Areas A through G and Area R, to aid in identifying areas and scheduling the surcharge program. The segmenting of the areas is shown on the Plot Plan, Plate 2.

SCOPE OF SERVICES

The scope of our services included installing settlement gauges and surveying them periodically over a period of about two years, and evaluating the result of the surcharge program based on these settlement readings.

For settlement monitoring, 42 settlement gauges were originally installed on June 1979, at the location shown on Plate 2. However, during the surcharge period, some of the settlement gauges were destroyed.

A status report was submitted on October 9, 1980, which summarized the stabilization program up to that time. During a two-month period from April to June 1978, various amounts of surcharge fill were placed to induce ground settlements before the construction of housing structures. These fills were placed to the grades shown on Plate 2.

The settlement versus time readings have been plotted for each settlement gauge and are shown on Attachment 3. As noted on these plots, some of the settlement gauges were bent, or destroyed. The pattern of settlement reading for each settlement gauge has been evaluated and the estimated net settlement, as of November 1981, is shown on individual settlement reading plots.

EVALUATION OF SURCHARGE PROGRAM

Our evaluation of the site stabilization program are generally summarized below. Because of similar behaviors of observed settlement patterns noted, the areas may be grouped into four major categories.

1. Area A: From 1975 to 1979, this area was filled by others to elevations ranging from 13 to 18 feet with an average elevation at 15.5 feet. This surcharge material was removed at the onset of the surcharge program for HHA in 1978 and the area was graded to approximately Elevation 11 feet. The settlement readings in this area are generally very small with some rebound indicated. This behavior confirms our evaluation in the report of June 6, 1978, we believe that this area can be developed without the surcharge.
2. Areas B, C, D, and E: These areas were partly filled previously, and have in general experienced only moderate amounts of settlements, generally somewhat less than 50 percent of the amounts originally anticipated.

Hawaii Housing Authority
January 11, 1982
Page Three

Judging from the pattern of the settlements, we believe that the settlements under the current surcharge load are essentially complete and that the major benefit from surcharge has been realized. We believe that these areas are now suitable for the development as originally planned. The final site grades for the housing development should be essentially in accordance with the general site grades recommended in our report of June 6, 1978.

It is our understanding that the present surcharge may not be removed for some time. It is estimated that the continued surcharge in place would induce perhaps 1 to 2 inches of settlement over next two years. We believe that these amounts are not significantly large settlements for the grading purpose.

3. Areas F and G: These areas registered largest settlements of all the surcharged areas. The magnitude of settlements observed so far is close to those predicted. As of the latest reading in November of 1981, it appears that the areas are still undergoing some measurable settlements under the present surcharge. It is recommended that the present surcharge be allowed to remain in place for another six months or so to better prepare the site for the proposed development. It is estimated that the continued settlement under the present surcharge will probably range from 3 to 6 inches over the next two years and should continue at a slower rate thereafter.
4. Areas R: These areas were formerly slough or drainage areas that are to be reserved for future roadways or open areas and no heavy building or fills are to be placed. This original planning consideration should continue to be incorporated in the future planning and design.

DISCUSSIONS AND RECOMMENDATIONS

Unsurcharged Area In Area G

There is a strip of area about 100 feet wide in Area G fronting the Rahu Channel that has not yet been surcharged. In our 1978 investigation, it was found that the stream bank was marginally stable to support surcharge weight. Therefore, only enough fill was placed to raise the area to the present site grade.

We believe that this area can be surcharged for a period of perhaps three years if this particular area is to be developed to support two-story structures of hollow tile construction. The surcharging should also be monitored. In such a case, the surcharge should start immediately so that benefits from surcharging can be realized sooner. If, however, this strip of the area in Area G is to be used for parking or open areas, surcharging would not be necessary.

Hawaii Housing Authority
January 11, 1982
Page Four

Foundations Design In View Of Future Settlements

We believe that upon removal of surcharges the site would be suitable for the housing or lightweight industrial development as originally planned. There will be some small remaining settlements that are expected to develop slowly for a long period of time. It is anticipated that structures may experience some deformation due to the continued slow settlements. It is recommended that the foundation and/or structures be designed to span a distance of at least 10 feet to provide some rigidity to accommodate minor differential settlements. A more rigid structure that is able to span a distance can be relieved if the differential settlement becomes too large in the future. A stiff reinforced waffle-type mat foundations are recommended for the two-story hollow tile (concrete masonry unit) construction.

Topographic Data

The location of the former slough or drainage ditches should be accurately recorded for future site development consideration. As evidenced by relatively larger settlement of the gauges situated in the old sloughs or drainage ditches, there would be larger future settlements over ~~the~~ these areas compared to other areas. This situation points also to potentially larger future differential settlements between these areas.

It is recommended that siting of major structures across the former slough or drainage ditch areas be avoided. Only minor relatively temporary structures may be considered in these areas. Should siting of major structures over these areas be unavoidable, a soils engineer should be consulted as early as possible. For structures crossing these areas, special foundation considerations may be required. These considerations may include providing flexible joints (for utility lines) or structural separation.

Some of the heads of those sloughs were natural springs that were capped but being drained by a subdrain system. These subdrain systems were buried and should be so identified in any siting plan so as not to be cut off or plugged accidentally.

Other Considerations

Other considerations-presented in our Phase I and Phase II reports dated March 1, 1978 and June 6, 1978 respectively, are still applicable. It is again emphasized that further foundation studies should be made for any major structures to be developed over site.

Dames & Moore

Hawaii Housing Authority
January 11, 1982
Page Five

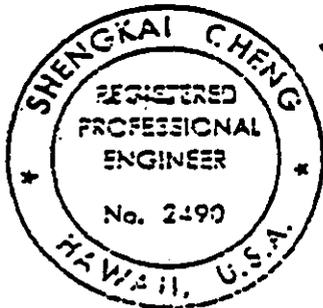
This completes our services for the settlement monitoring program. We appreciate the opportunity to serve you on this interesting project. If you have any questions regarding this letter report, please contact us.

Yours very truly,

DAMES & MOORE

Shengkai Cheng

Shengkai Cheng
Senior Engineer



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

Shengkai Cheng

SKC:jlh03011-006(1179B)

Attachments: 1 - Map of Area
2 - Plot Plan
3 - Settlement Plots (Settlement Gauge Numbers 1 through 42)

APPENDIX H

**REPORT SOILS INVESTIGATION
PROPOSED INDEPENDENT LIVING FACILITY
MOKUOLA STREET AND KAULU PLACE
WAIPAHU, HAWAII
TMK: 9-44-17: Portion of 55**

May, 1996

REPORT
SOILS INVESTIGATION

PROPOSED INDEPENDENT LIVING FACILITY
MOKUOLA STREET AND KAUOLU PLACE
WAIPAHU, HAWAII
TMK: 9-4-17: Portion of 55

for

SUEDA AND ASSOCIATES, INC.

Project No. H-2616-F
May 22, 1996

J.E.



99-1255 Waiua Place
Aiea, Hawaii 96701
Phone: (808) 488-0433
Fax: (808) 488-9535

360 Papa Place, #102
Kahului, Maui, Hawaii 96732
Phone: (808) 877-3789
Fax: (808) 871-1592

99-1255 WAIUA PLACE, AIEA, HAWAII 96701

(808) 488-0433 FAX (808) 488-9535

May 22, 1996
Project No. H-2616-F

Sueda and Associates, Inc.
905 Makahiki Way, Mauka Suite
Honolulu, Hawaii 96826

Attention: Byron Tsuruda

Gentlemen:

The attached report presents the results of a soils investigation at the site of the proposed Independent Living Facility in Waipahu, Oahu, Hawaii; TMK: 9-4-17: Portion of 55.

A summary of the findings is as follows:

- 1) Seven (7) test borings were drilled to depths of 10.5 to 109 feet to determine the subsurface conditions at the site.

In general, the borings disclosed the site to be underlain by 9 to 18.5 feet of moderately stiff to very stiff CLAY followed by soft to very soft, organic SILT and CLAY to depths of 34 to 44.5 feet then by moderately stiff to very stiff CLAY. Moderately hard to hard BASALTIC ROCK was encountered in Borings 1 and 2 at depths of 67 and 104 feet, respectively, below existing grade.

- 2) Groundwater was encountered in the borings at depths ranging from 9.75 to 11.83 feet below existing grade at the time of the investigation.
- 3) Based on the findings and observations of this investigation, it is concluded that shallow spread or continuous footings may be used to support structures with column loads less than 75 kips and wall loads less than 10 kips per lineal foot. For heavier loading conditions, deep foundations or special site preparation (surcharge loading) will be required to minimize the anticipated foundation settlement.
- 4) The on-site CLAY has moderate to high expansion potential. In order to minimize the possible adverse effects from expansive soils, it is recommended that 24 inches of non-expansive soil be placed beneath interior concrete slabs-on-grade.

Sueda and Associates, Inc.
May 22, 1996
Page Two

Details of the findings and recommendations are presented in the attached report.

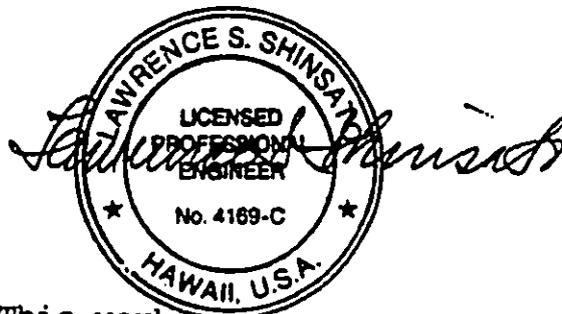
This investigation was made in accordance with generally accepted engineering procedures and included such field and laboratory tests considered necessary for the project. In the opinion of the undersigned, the accompanying report has been substantiated by mathematical data in conformity with generally accepted engineering principles and presents fairly the design information requested by your organization. No other warranty is either expressed or given.

Respectfully submitted,

SOILS INTERNATIONAL

Lawrence S. Shinsato
Lawrence S. Shinsato, P.E.
Vice-President

LSS:BHH:bh



This work was prepared by me
or done under my supervision.

INTRODUCTION

This investigation was made for the purpose of obtaining information on the subsurface conditions from which to base recommendations for foundation design for the proposed Independent Living Facility to be located in Waipahu, Oahu, Hawaii. The location of the site, relative to the existing streets and landmarks, is shown on the Vicinity Map, Plate 1.

SCOPE OF WORK

The services included drilling seven (7) test borings to depths of 10.5 to 109 feet, obtaining samples of the underlying soils, performing laboratory tests on the representative soil samples to determine their engineering characteristics, and performing an engineering analysis from the data gathered. In general, the following information is provided for use by the Architect and/or Engineer:

1. General subsurface conditions, as disclosed by the borings.
2. Physical characteristics of the soils encountered.
3. Recommendations for foundation design, including bearing values, embedment depth and estimated settlement.
4. Recommendations for placement of fill and backfill.
5. Special considerations.

PLANNED DEVELOPMENT

From the preliminary information provided, the proposed structure will be two-stories in height. The actual design may change.

SITE CONDITIONS

Surface

The property, designated by Tax Map Key Number 9-4-17: portion of 55, is located at the corner of Mokuola Street and Kauolu Place, north of the Waipahu Civic Center.

At the time of the field investigation, the site was a vacant area partially covered by weeds and grass. The site is relatively level.

Subsurface

The subsurface conditions at the site was explored by drilling 7 test borings to depths of 10.5 to 109 feet. The locations of the borings are shown on the Plot Plan, Plate 2. Detailed logs of the borings are presented in the Appendix to this report.

At Boring 1, soft to very stiff, red brown and dark red brown CLAY was found to a depth of 13.5 feet, followed by very soft to stiff, dark gray to black organic SILT to a depth of 49 feet. Below the organic SILT, moderately stiff to hard, gray brown to brown to orange brown CLAY was found to a depth of 67 feet, followed by soft

to moderately hard BASALTIC ROCK to the final depth of the boring at 79 feet.

At Boring 2, moderately stiff to very stiff, dark red brown to dark gray brown CLAY was found to a depth of 18.5 feet, followed by soft to stiff, dark gray brown to dark gray to black organic SILT to a depth of 54 feet. Below the organic SILT, stiff to hard, dark gray brown to orange brown CLAY was found to a depth of 81.5 feet, followed by moderately hard COBBLES to a depth of 84.5 feet. Below the COBBLES, very stiff to hard, orange brown CLAY was found to a depth of 89 feet, followed by dense, gray brown silty SAND. Below the silty SAND, dense, red brown to dark gray clayey SAND was found to a depth of 104 feet, followed by moderately hard, gray BASALTIC ROCK to the final depth of the boring at 109 feet.

At Boring 3, moderately stiff to very stiff, red brown CLAY was found to a depth of 9 feet, followed by very soft, dark red brown clayey SILT to a depth of 13.5 feet. Below the clayey SILT, very soft to soft, dark gray to black organic SILT was found to a depth of 40 feet, followed by moderatley stiff to stiff, dark gray to gray brown CLAY to a depth of 51.5 feet. From a depth of 51.5 feet to the final depth of the boring at 60 feet, the soil was probed and found to be stiff.

At Boring 4, moderately stiff to stiff, brown and red brown CLAY was found to a depth of 9 feet, followed by moderately stiff, red brown clayey SILT to a depth of 13.5 feet. Below the clayey SILT, very soft to moderately stiff, dark gray to black organic SILT was found to a depth of 40 feet, followed by moderately stiff to stiff, dark gray brown to brown gray to gray brown CLAY to a depth of 57 feet. From a depth of 57 feet to the final depth of the boring at 60 feet, the soil was probed and found to be moderately stiff to stiff.

At Boring 5, soft to stiff, dark red brown to red brown to orange brown CLAY was found to the final depth of the boring at 15 feet.

At Boring 6, moderately stiff, dark red brown CLAY was found to a depth of 3 feet, followed by stiff, red brown clayey SILT to a depth of 6 feet. Below the clayey SILT, soft to stiff, red brown to dark gray brown to orange brown CLAY was found to the final depth of the boring at 10.5 feet.

At Boring 7, moderately stiff to stiff, dark red brown CLAY was found to a depth of 13.5 feet, followed by very soft to moderately stiff organic SILT to a depth of 45 feet. Below the organic SILT, moderately stiff to stiff, gray brown to brown to green gray CLAY was found to a depth of 51.5 feet. From a depth of 51.5 feet to the final depth of the boring at 60 feet, the soil was probed and found to be moderately stiff to stiff.

Groundwater was encountered in the borings at depths ranging from 9.75 to 11.83 feet below existing grade at the time of the investigation.

From the USDA Soil Conservation Service "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii", the site is located in an area designated as Fill land, mixed (FL). This land type consists of areas filled with material from dredging, excavation from adjacent uplands, garbage, and bagasse and slurry from sugar mills (USDA, 1972, Plate 53, p. 31).

Geology

The site is located on the southerly side of the Schofield plateau inland from West Loch and Middle Loch of Pearl Harbor. The Schofield Plateau was formed when lavas from the Koolau Volcano ponded against the already eroded slopes of the Waianae Volcano. The lava flows on the plateau have weathered to depths of 50 to 100 feet and are characterized by the red colors of the soil. The brown and red-brown soils are generally ancient alluvial deposited over the surface (Stearns and Vaksvik, 1935, pp. 33-34).

CONCLUSIONS AND RECOMMENDATIONS

General

Based on the findings and observations of this investigation, it is concluded that shallow spread or continuous footings may be used to

support structures with column loads less than 75 kips and wall loads less than 10 kips per lineal foot. For heavier loading conditions, deep foundations or special site preparation (surcharge loading) will be required to minimize the anticipated foundation settlement.

Special Considerations

Special considerations will be required in the design and construction of the project due to existing site conditions. These include the following:

- a) Placement of fill on the site will cause areal settlement. It is estimated that the settlement will be on the order of 1 to 1.25 inches per foot of fill.
- b) The on-site CLAY has moderate to high expansion potential. In order to minimize the possible adverse effects from expansive soils, it is recommended that a minimize of 24 inches of non-expansive fill be placed beneath concrete slabs-on-grade.

Shallow Foundations

An allowable bearing value of 3,000 pounds per square foot may be used for footings bearing on the upper moderately stiff to stiff clayey SILT and CLAY, or on properly compacted fill. The minimum embedment shall be 18 inches below the lowest adjacent finished grade.

It is recommended that the bottom of all footing excavations be compacted prior to constructing the footing (see Site Preparation and Grading section to this report).

For footings located adjacent to utility trenches, the bottom of the footing shall be deepened below a 1 horizontal to 1 vertical plane projected upwards from the edge of the utility trench.

For footings located on or adjacent to slopes, the footing shall be deepened such that there is a minimum horizontal distance of 5 feet from the edge of the footing to the slope face.

Where new footings are to be located adjacent to retaining walls or other structural elements which are not designed for surcharge loading, the new footing shall be deepened below a 45 degree plane projected upwards from the adjacent structure.

The bearing value is for dead plus live loads and may be increased by one-third for momentary loads due to wind or seismic forces. If any footing is eccentrically loaded, the maximum edge pressure shall not exceed the bearing pressure for permanent or for momentary loads.

All loose and disturbed soil at the bottom of footing excavations

shall be removed to firm soil or the disturbed soil shall be compacted prior to laying of steel or pouring of concrete.

Deep Foundations

Deep foundations shall consist of driven concrete piles. The depth to rock increases from the north to the south side of the site. Based on our borings and previous soils investigations by others, the depth to rock ranges from 60 to 75 feet at Parcel B, and from 75 to 105 feet at Parcel A.

For precast, prestressed concrete piles, the following allowable bearing values may be used:

<u>Pile Size</u>	<u>Allowable Bearing Capacity</u>
10" square	40 tons
12" square	60 tons
16-1/2" octagonal	120 tons

It is recommended that the piles be driven with a hammer having a manufacturer's rated energy of at least 32,000 foot-pounds to the following driving resistance:

<u>Pile Capacity</u>	<u>Final Blow Count</u>	
	<u>Last 3 inches</u>	<u>Last 1 inch</u>
40 tons	9	3
60 tons	12	4
120 tons	30	10

It is recommended that test piles be driven prior to the production piles in order to establish pile depths and installation

characteristics. A static pile load test is not deemed necessary provided the pile driving is monitored by qualified engineering personnel.

Settlement

For shallow foundations, it is estimated that under the fully applied recommended bearing pressure the total settlement of footings up to 5 feet square and 3.5 feet continuous that bear on the upper moderately stiff to stiff clayey SILT and CLAY, or on properly compacted fill, will be on the order of 1 inch. If site grading removes existing soil, the estimated settlement may decrease due to the "unloading" of the soil.

For deep foundations, it is estimated that under the fully applied recommended bearing pressure the total settlement will be less than 1/2 inch.

Differential settlement between footings will vary according to the size and bearing pressure of the footing.

As indicated in the Special Considerations section of this report, the placement of fill on the site will cause areal settlement.

Lateral Resistance

For resistance of lateral loads, such as wind or seismic forces, an

allowable passive resistance equivalent to that exerted by a fluid weighing 300 pounds per cubic foot may be used for footings, or other structural elements, provided the vertical surface is in direct contact with undisturbed or properly compacted material.

Frictional resistance between footings and slabs, and the underlying soils may be assumed as 0.4 times the dead load.

Lateral resistance and friction may be combined.

Allowable lateral bearing capacities of piles (for 0.25" deflection) may be assumed as follows:

10" square	6,000 pounds
12" square	8,000 pounds
16-1/2" octagonal	12,000 pounds

Retaining Walls

Foundations for retaining walls shall be designed as per the foundation section of this report.

Free-standing retaining walls with level, properly draining backfill, may be designed to resist an equivalent fluid pressure 30 pounds per cubic foot for select granular fill. The on-site soils should not be used as retaining wall backfill within a 1H:2V plane projected upwards from the bottom edge of the retaining wall footing.

For restrained retaining walls, such as basement walls, the above active pressure shall be increased by 50 percent.

Drainage for retaining wall backfill shall be accomplished by providing 4-inch diameter weepholes spaced 8-feet on-center (horizontally as well as vertically) or by using a minimum 4-inch diameter perforated PVC footing drain pipe. A 2-foot thick layer of crushed gravel, which is wrapped with geotextile filter fabric, shall be placed above the pipe; the crushed gravel shall be continuous from weephole to weephole, or in the case of a footing drain pipe, laid throughout the full length of the pipe. Geotextile fabric shall be AMOCO 4545, or similar.

The backfill for the retaining wall shall be properly compacted in accordance with the Site Preparation and Grading section to this report. Also, surface drainage shall be designed to minimize surface water runoff from entering the backfill area.

The above active pressures do not include hydrostatic and/or surcharge pressures from adjacent footing loads or sloping backfill conditions. If these conditions occur, the walls shall be designed for the additional loading conditions.

Slab-on-Grade

The on-site CLAY has moderate to high expansion potential. In order

to minimize the possible adverse effects from expansive soils, it is recommended that interior concrete slabs-on-grade be designed with a minimum of 24 inches of non-expansive soils beneath the slab.

For exterior concrete slabs-on-grade (such as driveways, concrete decks, and sidewalks), the amount of non-expansive fill may be reduced to 12 inches provided some slab cracking can be tolerated. Welded-wire fabric or steel reinforcing should also be used in the slab to reduce vertical displacement between cracks.

Site grading should be designed to minimize ponding of water adjacent to slab and footing areas.

It is recommended that slabs-on-grade with moisture sensitive floor covering be protected with a moisture barrier.

It is recommended that the subgrade soil be prepared in accordance with the Site Preparation and Grading section to this report.

Slopes

Permanent fill and cut slopes shall not exceed 2 horizontal to 1 vertical. Exposed soil slopes shall be covered as soon as practical after construction to minimize erosion.

Fill slopes shall be constructed by either overfilling and cutting back to compacted soil, or the slope shall be compacted by track-rolling at 6-foot vertical height increments.

Pavement Design

For asphaltic concrete pavements to be used by cars and light trucks (under 10,000 pound GVW), the pavement section may be designed using 2 inches of A.C., 6 inches of base course gravel, and 6 inches of select borrow. For heavier vehicle loads, the thickness of the select borrow shall be increased to 12 inches.

If soft or loose soils are encountered at subgrade, these soils shall be compacted or removed and replaced with properly compacted fill.

The base course gravel, and select borrow shall be compacted to at least 95 percent of the maximum dry density as determined by the ASTM D-1557 test procedure. The top 6 inches of the existing subgrade soil shall be compacted to at least 90 percent of the maximum dry density.

All material quality and compaction requirements for the pavement section shall be in accordance with the City and County of Honolulu, Department of Public Works "Standard Specifications for Public Works Construction," dated September 1986.

Site Preparation and Grading

It is recommended that the site be prepared in the following manner:

1. In areas to receive fill and beneath structural and pavement areas, all vegetation, weeds, brush, roots, stumps, rubbish, debris, and other deleterious material shall be removed from the site.
2. The exposed surface shall then be scarified to a depth of 6 inches, moisture conditioned to near optimum moisture content (ASTM D1557-91), and then compacted to a minimum of 90 percent of the maximum dry density (ASTM D1557-91). If loose or soft areas are encountered, they shall be removed to firm material and the resulting depression shall be filled with properly compacted fill.
3. Fill and backfill material shall consist of soil which is free of organics, debris and expansive clayey material. The material shall be less than 3 inches in greatest dimension. Imported material shall have a plasticity index less than 20 if the material contains more than 15% fines (passing the #200 sieve).

The on-site soils are not suitable for use as backfill within a 1H:2V plane projected upwards from the bottom edge of retaining

wall footings nor as fill within 24 inches from bottom of slabs-on-grade.

4. Fill and backfill shall be placed in lifts not exceeding 8 inches in loose thickness. Prior to placing, the material shall be aerated or moistened to near optimum moisture content (ASTM D1557-91 test procedure).

Where fill is placed on existing ground that is steeper than 5 horizontal to 1 vertical, the existing ground surface shall be benched into firm soil as the fill is placed.

5. All fill and backfill shall be compacted to at least 90 percent of the maximum dry density (ASTM D1557-91 test procedure) for fine-grained material, and at least 95 percent for granular material.
6. Drainage shall be provided to minimize ponding of water adjacent to or on foundation and pavement areas. Ponded areas shall be drained immediately or water pumped out without damaging adjacent structures and property. If water accumulation softens the subgrade materials, the affected soils shall be removed and replaced with properly compacted fill.

7. The bottom of all footing excavations shall be compacted to a minimum of 90 percent of the maximum dry density (ASTM D1557-91). Footing excavations shall be cleaned of loose, soft and/or disturbed material prior to laying of steel or pouring of concrete.

It is particularly important to see that all backfill soils are properly compacted especially if these are designed to resist lateral forces.

INSPECTION

During the progress of construction, so as to evaluate compliance with the design concepts, specifications and recommendations contained in this report, a representative from this office should be present to observe the following operation:

1. Site preparation.
2. Placement of fill and backfill.
3. Footing excavations.

REMARKS

The conclusions and recommendations contained herein are based on the findings and observations made at the boring locations. For the purpose of providing geotechnical design information, conditions between and beyond the borings are assumed to be similar to those found in the explorations. If conditions are encountered during

construction which appear to differ from those disclosed by the explorations, this office shall be notified so as to consider the need for modifications.

This report has been prepared for the exclusive use of Sueda and Associates, Inc. and their respective design consultants. It shall not be used by or transferred to any other party or to another project without the consent and/or thorough review by this facility.

Should the project be delayed beyond the period of one year from the date of this report, the report shall be reviewed relative to possible changed conditions.

Samples obtained in this investigation will deteriorate with time and will be unsuitable for further laboratory tests within one (1) month from the date of this report. Unless otherwise advised, the samples will be discarded at that time.

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The following are included and complete this report:

Vicinity Map ----- Plate 1

Plot Plan ----- Plate 2

Appendix

Field Investigation

Laboratory Testing

Logs of Borings

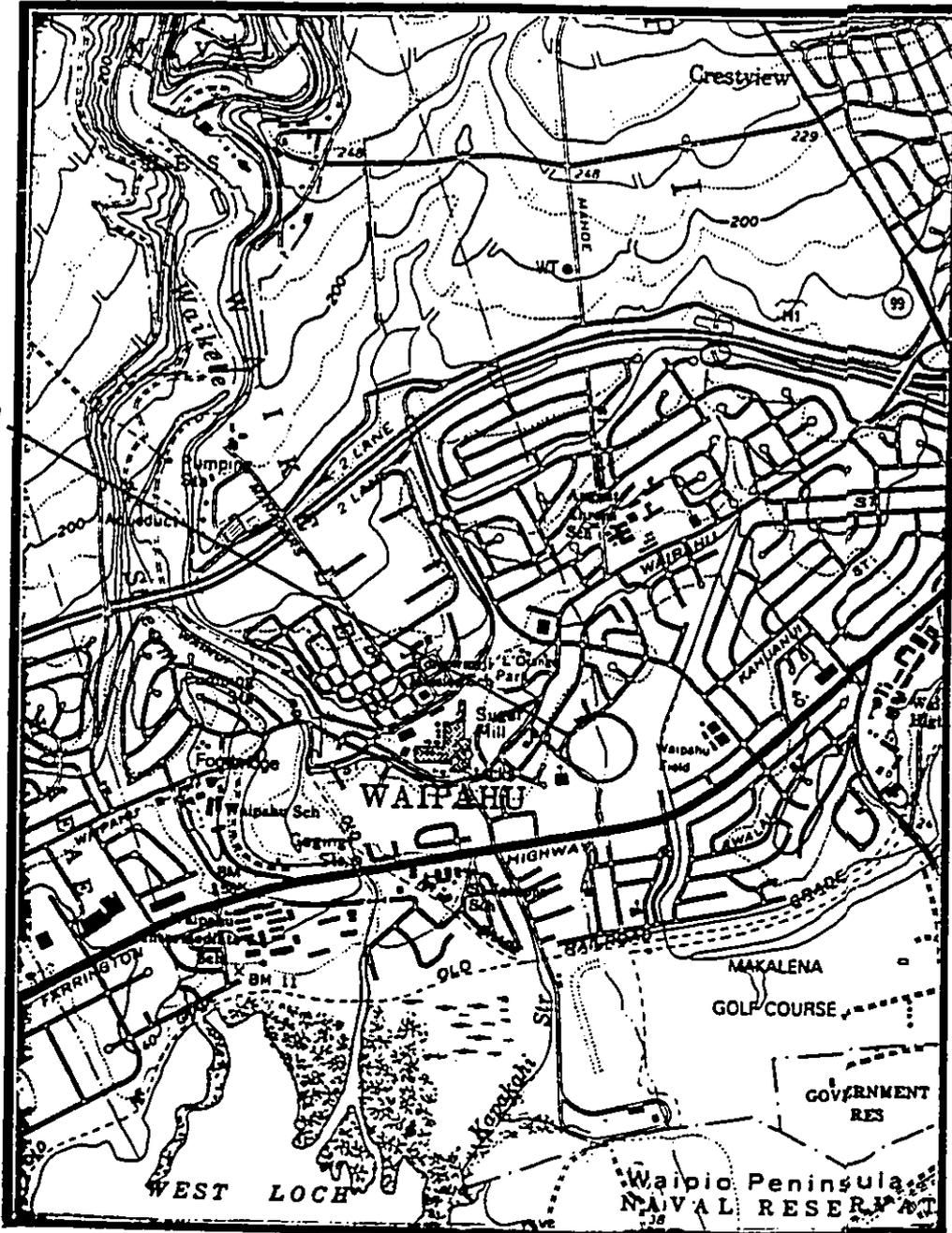
Results of Laboratory Tests

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VICINITY MAP

SITE
LOCATION

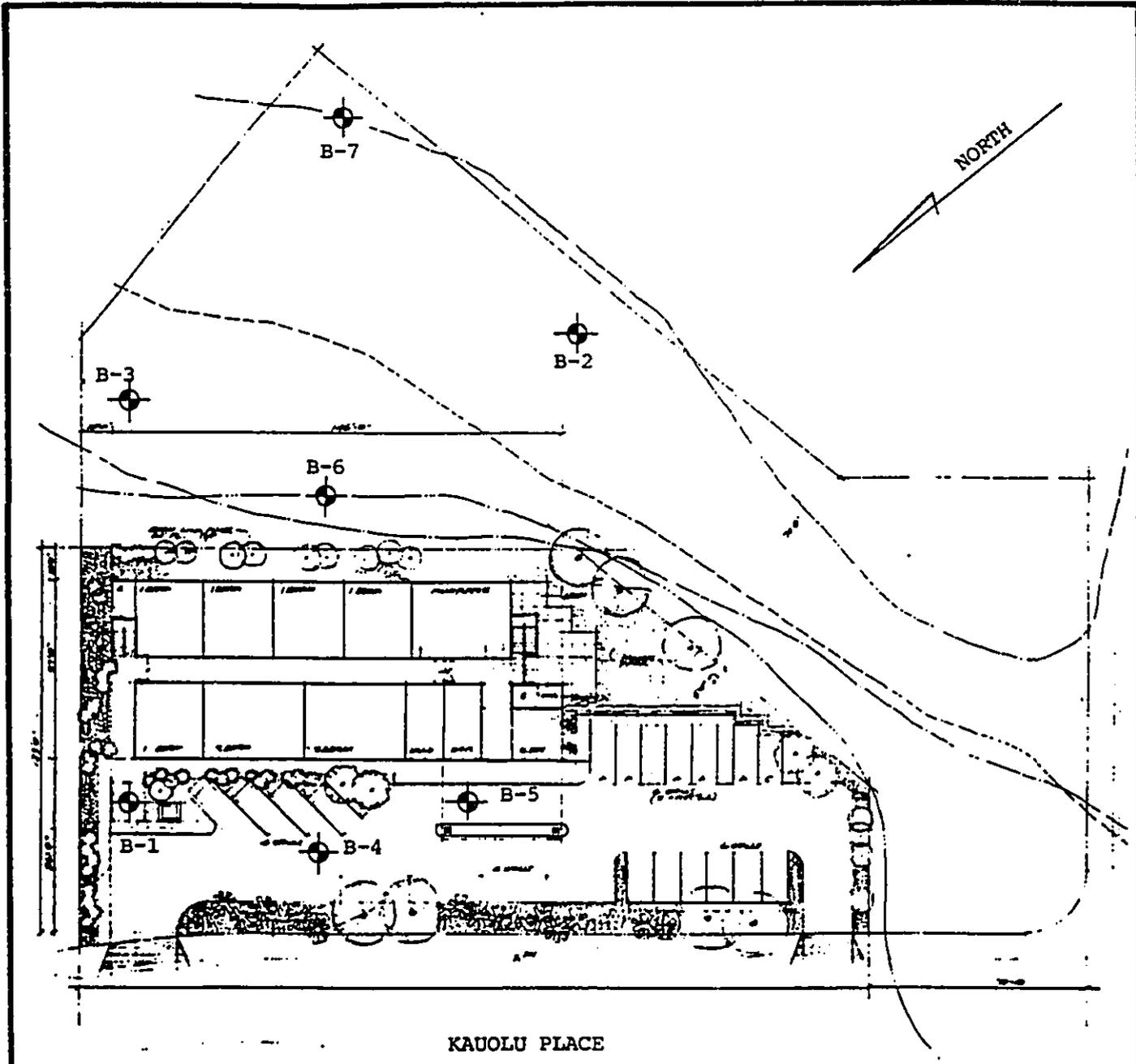


REFERENCE:
USGS TOPOGRAPHIC MAP
WAIPAHU QUADRANGLE
Dated: 1983

INDEPENDENT LIVING FACILITY

SOI INTERNATIONAL
A CORPORATION
Consulting Planners, Engineers
and Geologists

PROJECT NO.	H-2616-F
DATE	
SCALE	1" = 2000'
PLATE	1



KAUOLU PLACE

PLOT PLAN
 Scale: 1" = 50.0'

⊕ Test Boring Locations

PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO.: H-2616-F	SOILS INTERNATIONAL 99-1255 WAIUA PLACE AIEA, HAWAII 96701	PLATE 2
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APPENDIX

FIELD INVESTIGATION AND LABORATORY TESTING

FIELD INVESTIGATION

General

The field investigation consisted of performing explorations at the locations shown on the Plot Plan. The method used for the exploratory work is shown on the respective exploration log. A description of the various method or methods used is presented below.

Test Borings Using Truck-Mounted Drilling Equipment

Truck-mounted borings are drilled using a gas-powered drilling rig. The hole is advanced using continuous flight augers, wash boring and/or NX coring.

Auger drilling is used in soils where caving does not occur. The augers are 4-1/2 inch diameter continuous helical flight augers with the lead auger having a head equipped with changeable cutting teeth. Soil cuttings are brought to the surface by the continuous flights. After the bore hole is advanced to the required depth and cleaned of cuttings by additional rotation of the augers, the augers are retracted for soil sampling or in-situ testing.

In soils where caving of the bore hole occurs, the hole is advanced by wash boring or hollow-stem augering. Wash boring consists of advancing steel casing by rotary action and water pressure to flush the soil from the casing. The lead section of the casing is equipped with a carbide or diamond casing bit. After the casing has been advanced to the required depth, soil samples are obtained through the inside of the casing. Hollow-stem drilling consists of advancing the hole with 7-5/8 inch outside diameter and 4-1/4 inch inside diameter augers. The leading drill bit is connected to drilling rods through the central portion of the auger. At the required sampling depth, the interior drill rods and lead bit are removed, and the soil sample is taken by driving a sampler through the "hollow" section of the augers.

Coring is used for hard formations such as rock, coral or boulders. The core barrel, consisting of a 5-foot long double tube, hardened steel barrel with either a carbide or diamond bit, is attached to drilling rods and set on the hard formation. The core barrel is advanced through the formation by rotation of the core barrel. Water is used to flush out the cuttings. Upon completion of the core run, the sample is removed from the core barrel and inspected. The total core recovery length and the sum of all intact pieces over 4-inch in length are measured. The length of core recovery divided by the length of the core run is the recovery ratio. The combined length of the 4-inch or longer pieces divided by the length of core run is the Rock Quality Designation (RQD). The values provide an indication of the quality of the formation.

Test Borings Using Portable Drilling Equipment

In areas inaccessible to truck-mounted equipment, portable drilling equipment is used to drill the test boring. The boring is advanced by either 1) continuous drive sampling or by 2) using a small gas-powered drill rig with continuous flight augers, wash boring or NX coring.

Soil samples are obtained with a tripod and cathead assembly using soil sampling methods described below.

Test Pits Using Excavators/Hopto

Test pits are excavated using a hopto or backhoe. Material excavated from the pit and the sides and bottom of the pit are visually inspected and a continuous log of the hole is kept.

Explorations Using Hand Tools

In inaccessible areas requiring only shallow explorations, borings and test pits are made using hand equipment. Borings are drilled using hand augers. Test pits

are excavated using hand tools. Cuttings from the boring and/or pit are inspected and visually classified.

Soil Sampling

Relatively undisturbed samples of the underlying soils are obtained from borings by driving a sampling tube into the subsurface material using a 140-pound safety hammer falling from a height of 30 inches. Ring samples are obtained using a 3-inch outside diameter, 2.5 inch inside diameter steel sampling tube with an interior lining of one-inch long, thin brass rings. The tube is driven approximately 18 inches into the soil and a section of the central portion is placed in a close fitting waterproof container in order to retain field conditions until completion of the laboratory tests. Standard Penetration Test (SPT) values and disturbed soil samples are obtained with a 2-inch (outside diameter) split-barrel sampler instead of the 3-inch sampler. The number of blows required to drive the sampler into the ground is recorded at 6-inch intervals. The blow count for the last 12-inches is shown on the boring logs.

From test pit excavations, undisturbed samples are retained from cohesive type soil formations and disturbed bulk samples are retained from friable and cohesionless soil formations.

The soil samples are visually classified in the field using the Unified Soil Classification System. Samples are packed in moisture proof containers and transported to the laboratory for testing.

LABORATORY TESTING

General

Laboratory tests are performed on various soil samples to determine their engineering properties. Description of the various tests are listed below.

Unit Weight and Moisture Content

The in-place moisture content and unit weight of the samples are used to correlate similar soils at various depths. The sample is weighed, the volume determined, and a portion of the sample is placed in the oven. After oven-drying, the sample is again weighed to determine the moisture loss. The data is used to determine the wet-density, dry-density and in-place moisture content.

Direct Shear

Direct shear tests are performed to determine the strength characteristics of the representative soil samples. The test consists of placing the sample into a shear box, applying a normal load and then shearing the sample at a constant rate of strain. The shearing resistance is recorded at various rates of strain. By varying the normal load, the angle of internal friction and cohesion can be determined.

Consolidation Test

Consolidation tests are performed to obtain data from which time rates of consolidation and amounts of settlement may be estimated. The test is performed by placing a specimen in a consolidation apparatus. Loads are applied in increments to the circular face of a one (1) inch high sample. Deformation or changes in thickness of the specimen are recorded at selected time intervals. Water is introduced to or allowed to drain from the sample through porous disks placed against the top and bottom faces of the specimen. The data is then used to plot a stress-volume strain curve which is used in estimating settlement.

Expansion Test - Ring Swell

Expansion tests are performed on clayey soils to determine the expansion potential of the sample. The test is performed using either a remolded or relatively undisturbed field sample. The sample is placed in an expansion apparatus with a one (1) psi surcharge. The sample is saturated and the change in vertical height is recorded. The initial moisture content is varied (field moisture or air-dried) to determine the variation in expansion potential with moisture changes. The data is used to determine the expansion potential of the soil.

Classification Tests

The soil samples are classified using the Unified Soil Classification System. Classification tests include sieve and hydrometer analysis to determine grain size distribution, and Atterberg Limits to determine the liquid limit, plastic limit and plasticity index.

California Bearing Ratio Test

California Bearing Ratio (CBR) tests are performed on materials to determine the bearing strength of the soil for determination of pavement sections. The sample is compacted into a 6-inch diameter mold in 5 equal layers. Each layer is compacted with a 10-pound hammer falling from a height of 18-inches, with each layer receiving 56 blows. The mold is then placed in a water bath for 4-days and the vertical swell is measured under a surcharge weight of 10 pounds. After the soaking period, the sample is placed in a CBR apparatus that has a 3-square inch penetrometer. The penetrometer is pressed vertically into the soil at constant strain and the loads required to press the penetrometer are recorded. A plot of the load-strain relationship is made to determine the CBR value.

Maximum Dry Density/Optimum Moisture Content

The maximum dry density and optimum moisture content of the material is

determined in accordance with the ASTM D1557-78 test procedure. The sample is compacted into a mold in 5 equal layers using a 10 pound hammer falling from a height of 18 inches. The diameter of the mold is either 4-inches or 6-inches depending on the proportion of gravel in the sample. The sample is compacted at various moisture contents to develop a compaction curve for the soil. The curve is usually bell-shaped with a peak indicating the maximum dry density and optimum moisture content.

Penetrometer Test

Penetrometer tests are performed on clayey soils to determine the consistency of the material and an approximate value of the unconfined compressive strength.

Torvane

Torvane tests are used to determine the approximate undrained shear strength of clayey soils. The torvane apparatus consists of a torque device with a small diameter plate that has vanes situated perpendicular to the plate. The vanes are pushed into the soil and torque is applied until failure occurs. The torque required to cause failure is converted to approximate undrained strength of the soil.

LOG OF BORING NO. 1

ELEVATION: N/A

EQUIPMENT USED: MOBILE B-53

DEPTH OF BORING (FT.): 79

DATE DRILLED: 4-2-96

DEPTH TO GROUNDWATER: 11'

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)					
0		CH	CLAY; with gravel and sand, few roots -- few organic debris -- no organic debris, few gravel and sand		57	red brown	sl. moist to moist	very stiff	86	22.1	4.50	2.25					
8					13	dark red brown	moist to very moist	61	26.9	4.50	2.00						
					20	red brown		67	35.6	4.50	2.00						
					13			77	41.9	2.50	1.38						
16						OH	organic SILT; with organic debris and odor -- no organic debris, with shell fragments -- few shell fragments and organic odor -- few gravel and sand, no shell fragments or organic debris, more clayey -- some gravel and sand		8	dark gray to black	sl. moist to moist	soft	18	296	1.25	0.65	
										40		88.5	0.75	0.43			
24									3			55	78.2	0.25	0.33		
									5			43	111	0.43	0.50		
32									4			52	79.2	0.50	0.40		
									18			76	47.6	1.50	0.88		
40	17		75	49.8													
	20																
48		CH	CLAY; few sand and roots, few slickensides -- no slickensides or roots, few sand layers -- with sand, few gravel -- few gravel and sand						20	gray brown		sl. moist to moist	stiff	79	43.9	1.75	1.38
56									14	brown				81	44.0	1.25	0.63
					15		78	45.9	1.75	0.69							
64					108	orange brown gray	93	31.9	3.50	1.25							
72		(RX)	BASALTIC ROCK -- Recovered = 10' RQD Length = 6.42' RQD (%) = 64% Coring Time = 29.4 min				sl. moist to moist	very stiff to hard									
								mod. hard									
80			END OF BORING														

PROJECT NAME: INDEPENDENT LIVING FACILITY

PROJECT NO.: H-2616-F



PLATE

3

LOG OF BORING NO. 2

ELEVATION: N/A

EQUIPMENT USED: MOBILE B-53

DEPTH OF BORING (FT.): 109

DATE DRILLED: 4-3-96

DEPTH TO GROUNDWATER: 11.83'

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)						
0		CH	CLAY; some gravel and sand, few roots		28	dark red brown	moist	stiff	74	29.6	4.50	2.25						
8					29				77	19.6	4.50							
					40				84	27.1	4.50	2.25						
					33				78	38.0	4.50	2.25						
16									-- few sand, no gravel, some wet seams, few organic odor and debris	12	dark gray brown	mod. stiff	67	48.6	1.50	1.05		
									OH	organic SILT; few shell fragments, some organic odor		5	dark gray to black	soft	61	65.4	0.28	0.30
24												6			62	61.9	0.28	0.30
												4			52	84.0	0.28	0.34
32												5			60	61.6	0.28	0.32
40												5			60	62.7	0.14	0.10
												12			65	58.9	0.50	0.37
48									-- few shell fragments, more clayey	17	dark gray brown	mod. stiff	stiff	44.7				
	12	-- no shell fragments																
56		CH	CLAY		22	dark gray brown	mod. stiff	73	50.4	1.50				0.75				
					19			77	46.8	1.00				0.55				
64								-- with sand	13	75				47.8	1.25	0.48		
					15													
72								-- few gravel and sand	45	orange brown				very stiff to hard	91	33.5	4.50	1.63
80									60						34.6			
		(COB)	COBBLES				mod. hard											
		CH	CLAY; few gravel and sand		41		very											

PROJECT NAME: INDEPENDENT LIVING FACILITY

PROJECT NO.: H-2616-F



PLATE

4

LOG OF BORING NO. 2

ELEVATION: N/A

EQUIPMENT USED: MOBILE B-53

DEPTH OF BORING (FT.): 109

DATE DRILLED: 4-3-96

DEPTH TO GROUNDWATER: 11.83'

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
92		SM	silty SAND (basaltic decomposed rock); with gravel		71	gray brown		stiff to hard dense				
100		SC	clayey SAND (basaltic decomposed rock); with gravel		30	red brown				54.8		
					56	dark gray				41.6		
108		(RX)	BASALTIC ROCK -- Recovered = 5' RQD Length = 4.75' RQD (%) = 95% Coring Time = 13.33 min END OF BORING			gray		mod. hard				
116												
124												
132												
140												
148												
156												
164												
172												

PROJECT NAME: INDEPENDENT LIVING FACILITY

PROJECT NO.: H-2616-F



PLATE

4

LOG OF BORING NO. 3				ELEVATION: N/A								
EQUIPMENT USED: SIMCO 2400				DEPTH OF BORING (FT.): 60								
DATE DRILLED: 4-9-96				DEPTH TO GROUNDWATER: 9.75'								
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0	[Diagonal Hatching]	CH	CLAY; with gravel and sand	[Diagonal Hatching]	15	red brown	moist	mod. stiff	95	14.0	4.50	2.25
46					very stiff			89	23.3	4.50	2.25	
20					stiff			86	30.8	4.50	1.63	
8	[Vertical Lines]	MH	clayey SILT; few gravel, with sand and wet seams	[Vertical Lines]	2	dark red brown	[Water Droplet]	very soft	84	32.4		
16					[Wavy Lines]			OH	organic SILT; with organic debris -- no organic debris, with shell fragments -- few shell fragments -- more clayey	[Wavy Lines]	6	dark gray to black
24	3	very soft	70	54.3		0.28	0.28					
32	3		62	61.2		0.28	0.35					
40	3		56	77.4		0.75	0.42					
48	2		64	63.1		0.23	0.35					
56	[Diagonal Hatching]	CH	CLAY; few sand	[Diagonal Hatching]	13	dark gray		mod. stiff	77	43.7	1.00	0.81
64					11							
72		PROBE	PROBE		18	gray brown		stiff	80	45.1	1.00	0.63
80					7							
			END OF BORING		7							
					10							
					9							
					14							
					13							
					12							
					13							
					14							

PROJECT NAME: INDEPENDENT LIVING FACILITY	 SOIL INTERNATIONAL <small>A CORPORATION</small> <small>Geotechnical Consultants</small>	PLATE
PROJECT NO.: H-2616-F		5

LOG OF BORING NO. 4

ELEVATION: N/A

EQUIPMENT USED: SIMCO 2400

DEPTH OF BORING (FT.): 60

DATE DRILLED: 4-10-96

DEPTH TO GROUNDWATER: 10.42'

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0	[Diagonal Hatching]	CH	CLAY; with roots and gravel, with sand and multi-colored mottling, few pieces of carpeting	[Vertical Line]	20	brown and red brown	moist	stiff	92	21.2	4.50	2.25
14					mod. stiff			71	25.4			
19					stiff			73	36.5	4.50	2.25	
8	[Vertical Lines]	MH	clayey SILT; with multi-colored mottling	[Vertical Line]	10	red brown	[Water Symbol]	mod. stiff	70	40.3	3.25	1.88
16					soft			59	62.9	0.25	0.24	
16	[Wavy Pattern]	OH	organic SILT; with organic debris -- with fine sand and shell fragments	[Vertical Line]	6	dark gray to black	[Water Symbol]	very soft	70	56.8	0.75	0.33
24								77	43.4			
32								66	57.4	0.50	0.30	
40								82	43.2	2.00	0.50	
48								19				
40	[Diagonal Hatching]	CH	CLAY; with sand -- no sand -- with sand	[Vertical Line]	14	dark gray brown	[Water Symbol]		80	46.1	0.75	0.40
48												
56												
56	[Diagonal Hatching]	CH		[Vertical Line]	20	brown gray	[Water Symbol]	stiff	83	41.3	1.50	0.88
64												
56		PROBE	PROBE	[Vertical Line]	12	gray brown	[Water Symbol]	mod. stiff to stiff	86	38.3		
64		END OF BORING		[Vertical Line]	11							
64				[Vertical Line]	14							
64				[Vertical Line]	12							
72												
80												

PROJECT NAME: INDEPENDENT LIVING FACILITY

PROJECT NO.: H-2616-F



PLATE

6

LOG OF BORING NO. 5

ELEVATION: N/A

EQUIPMENT USED: SIMCO 2400

DEPTH OF BORING (FT.): 15

DATE DRILLED: 4-25-96

DEPTH TO GROUNDWATER: N/A

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0	[Hatched Box]	CH	CLAY; with gravel and sand, few cobbles -- some glass debris -- cobble at 6' -- some plastic debris -- few sand, no debris	[Vertical Line]	27	dark red brown	moist	stiff	81	22.6	4.50	2.25
7					mod. stiff			72	22.7			
10/0"					red brown	stiff		84	22.1			
6						stiff		69	33.3			
21					soft	76		47.1	1.00	0.63		
16		END OF BORING				dark red brown and orange borwn						
24						dark gray to black						
32												
40												
48												
56												
64												
72												
80												

PROJECT NAME: INDEPENDENT LIVING FACILITY

PROJECT NO.: H-2616-F



PLATE

7

LOG OF BORING NO. 6

ELEVATION: N/A

EQUIPMENT USED: SIMCO 2400

DEPTH OF BORING (FT.): 10.5

DATE DRILLED: 4-25-96

DEPTH TO GROUNDWATER: N/A

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		CH	CLAY: with gravel and sand, few cobbles		36	dark red brown	moist	mod. stiff				
		MH	-- cobble at 1.25'		46	red brown		stiff	78	26.2	4.50	1.63
8		CH	clayey SILT; some gravel and sand		18	red brown			85	31.2	4.50	2.25
			CLAY: with gravel and sand -- few sand, no gravel, some wet seams		9	dark gray brown and orange brown	very moist	soft	71	47.9	1.25	0.65
			END OF BORING									
16												
24												
32												
40												
48												
56												
64												
72												
80												

PROJECT NAME: INDEPENDENT LIVING FACILITY

PROJECT NO.: H-2616-F



PLATE

8

LOG OF BORING NO. 7

ELEVATION: N/A

EQUIPMENT USED: SIMCO 2400

DEPTH OF BORING (FT.): 60

DATE DRILLED: 4-26-96

DEPTH TO GROUNDWATER: 10'

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0	[Diagonal Hatching]	CH	CLAY; with gravel and sand, few cobbles -- few gravel and sand	[Vertical Line]	40	dark red brown	moist to very moist	stiff	81	17.9	4.50	2.25
8					25				92	21.0		
					21				80	40.6		
					8					45.9		
16	[Wavy Hatching]	OH	organic SILT; some organic debris -- with shell fragments, few organic debris	[Vertical Line]	3	dark gray to black	[Water Drop Symbol]	very soft	57	70.3	0.23	0.28
24					2				65	63.2	0.27	0.34
32					2				66	55.7	0.28	0.28
40					3				46	104	0.16	0.13
48					3				48	103		
48	[Diagonal Hatching]	CH	CLAY; few sand	[Vertical Line]	18	gray brown		stiff	79	43.7	1.00	1.05
56		PROBE	PROBE	[Vertical Line]	11	brown green gray		mod. stiff	60	69.6	2.25	0.44
64			END OF BORING	[Vertical Line]	9			stiff				
72				[Vertical Line]	7							
80				[Vertical Line]	6							
				[Vertical Line]	5							
				[Vertical Line]	7							
				[Vertical Line]	7							
				[Vertical Line]	8							

PROJECT NAME: INDEPENDENT LIVING FACILITY

PROJECT NO.: H-2616-F

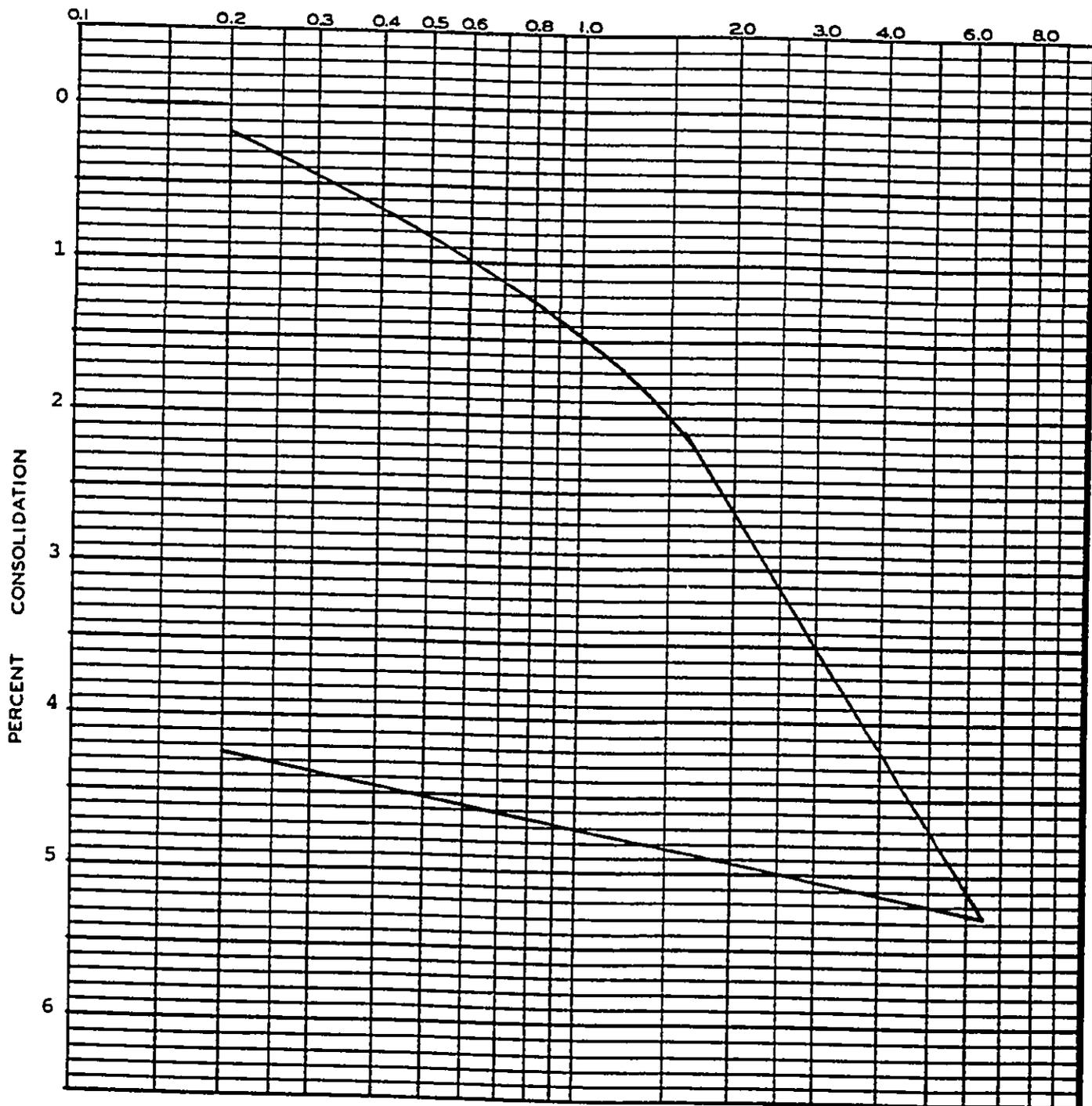


PLATE

9

CONSOLIDATION TEST DATA

PRESSURE IN KIPS PER SQUARE FOOT

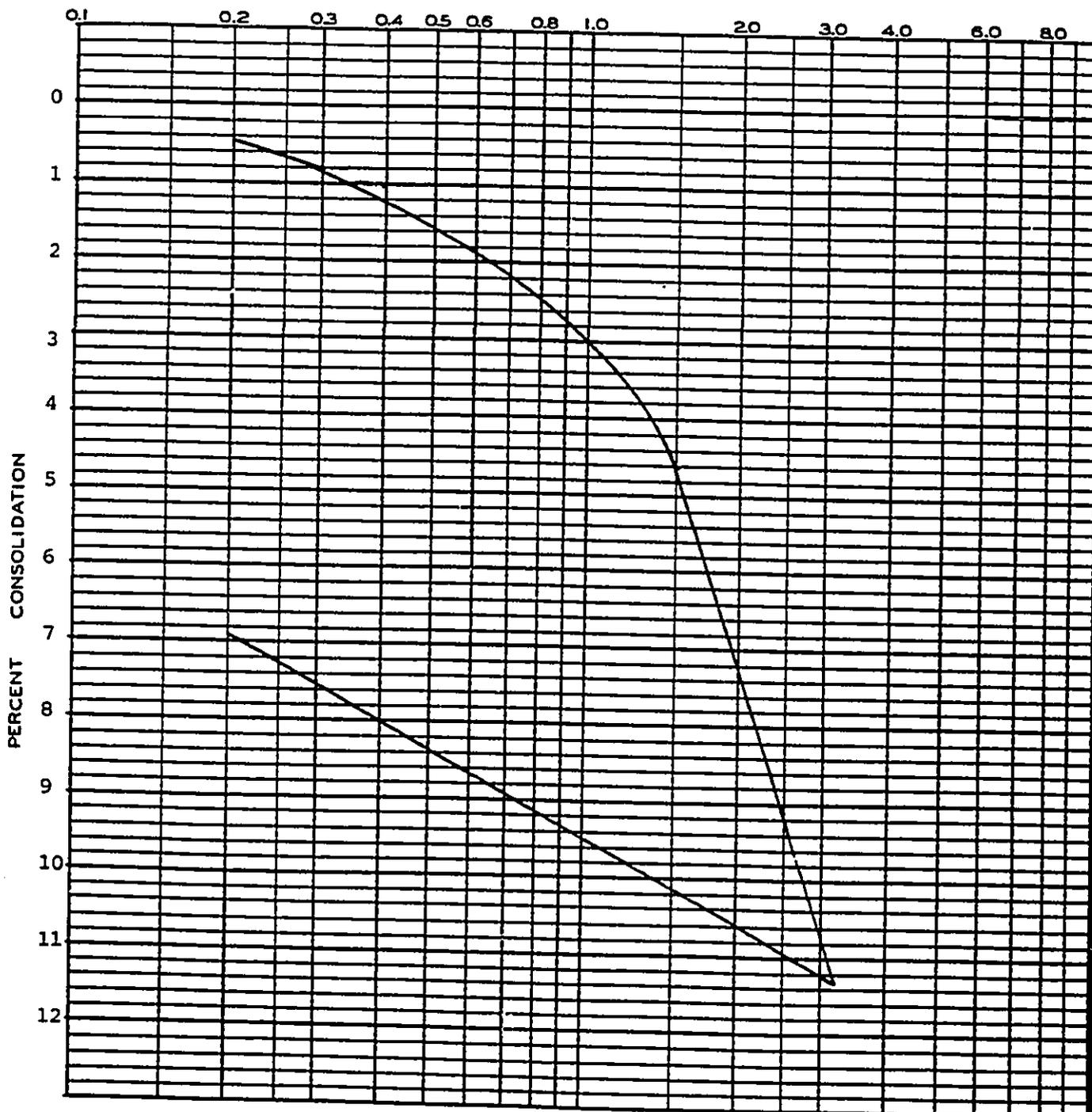


BORING / TEST PIT NO.: 1
 DEPTH: 9.5'
 WATER ADDED AT: 0.80 ksf

PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO. H-2616-F	SOILS INTERNATIONAL 99-1255 WAIUA PL. AIEA, HAWAII 96701	PLATE 10
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CONSOLIDATION TEST DATA

PRESSURE IN KIPS PER SQUARE FOOT



BORING / TEST PIT NO.: 1
 DEPTH: 15'
 WATER ADDED AT: 0.20 ksf

PROJECT:

INDEPENDENT LIVING FACILITY

PROJECT NO.

H-2616-F

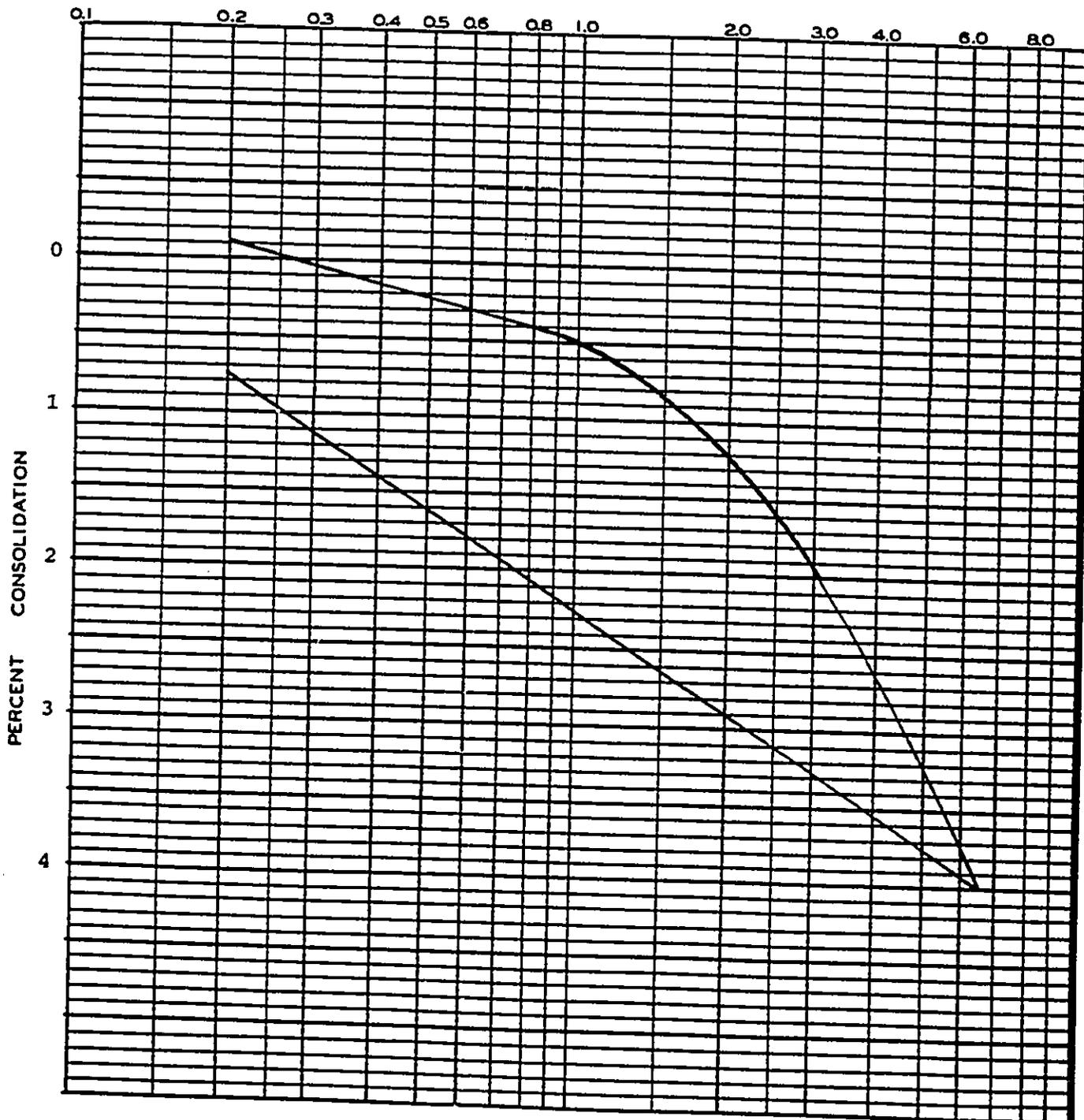
SOILS INTERNATIONAL
 99-1255 WAIUA PL.
 AIEA, HAWAII 96701

PLATE

11

CONSOLIDATION TEST DATA

PRESSURE IN KIPS PER SQUARE FOOT

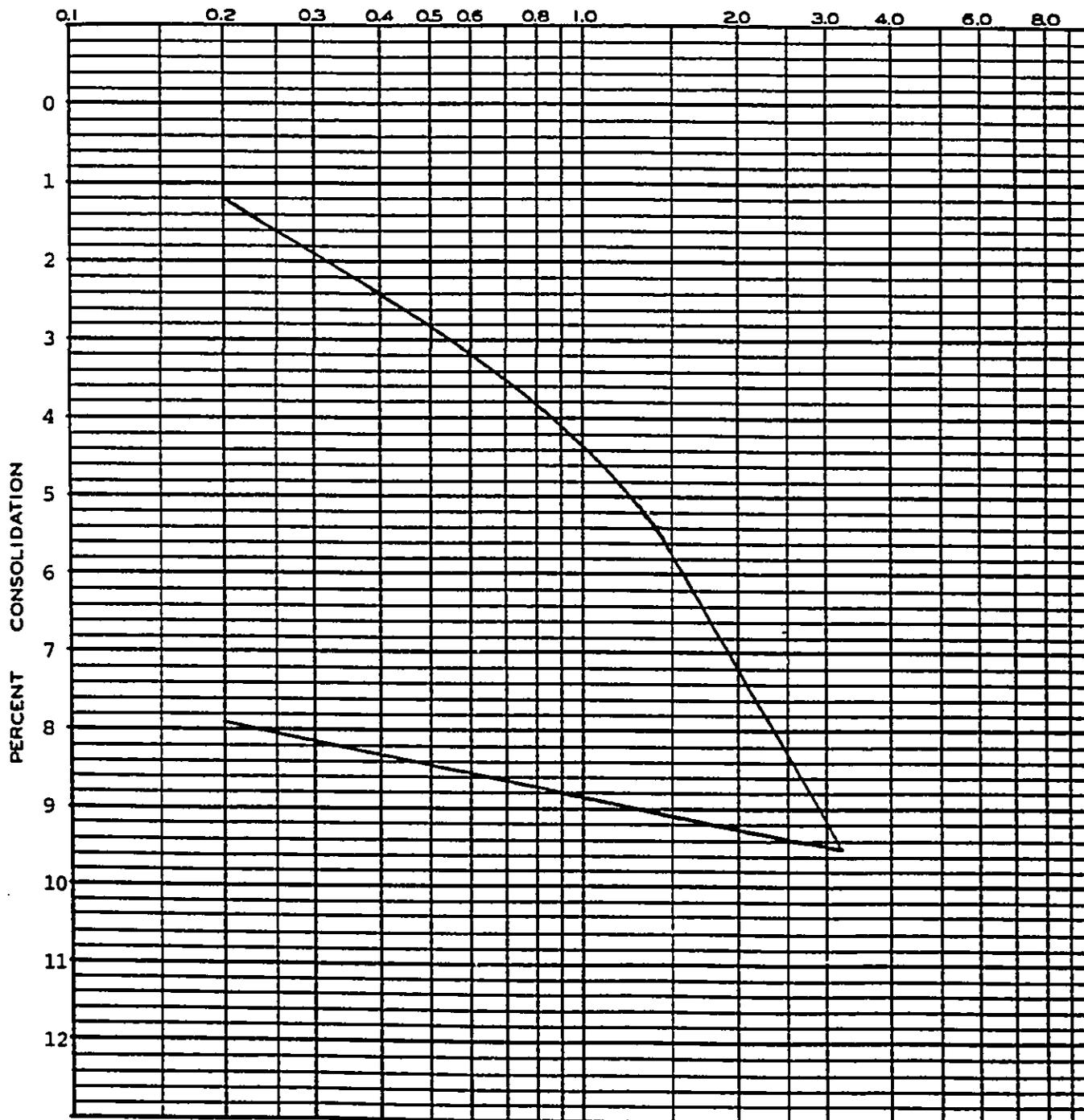


BORING / TEST PIT NO.: 1
 DEPTH: 50.5'
 WATER ADDED AT: 0.20 ksf

PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO. H-2616-F	SOILS INTERNATIONAL 99-1255 WAIUA PL. AIEA, HAWAII 96701	PLATE 12
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CONSOLIDATION TEST DATA

PRESSURE IN KIPS PER SQUARE FOOT

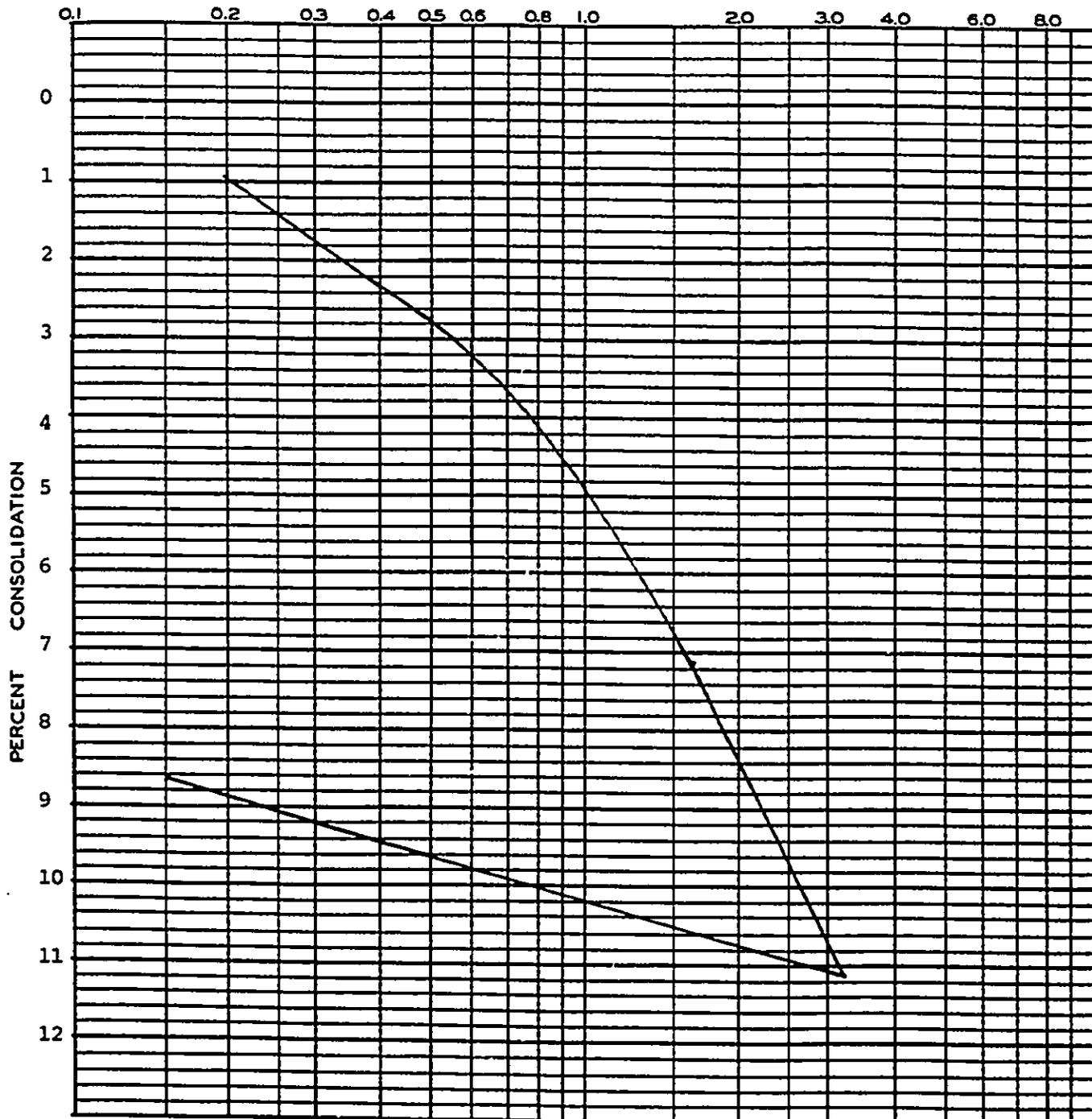


BORING / TEST PIT NO.: 2
 DEPTH: 25'
 WATER ADDED AT: 0.20 ksf

PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO. H-2616-F	SOILS INTERNATIONAL 99-1255 WAIUA PL. AIEA, HAWAII 96701	PLATE 13
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CONSOLIDATION TEST DATA

PRESSURE IN KIPS PER SQUARE FOOT



BORING / TEST PIT NO.: 2
 DEPTH: 35'
 WATER ADDED AT: 0.20 ksf

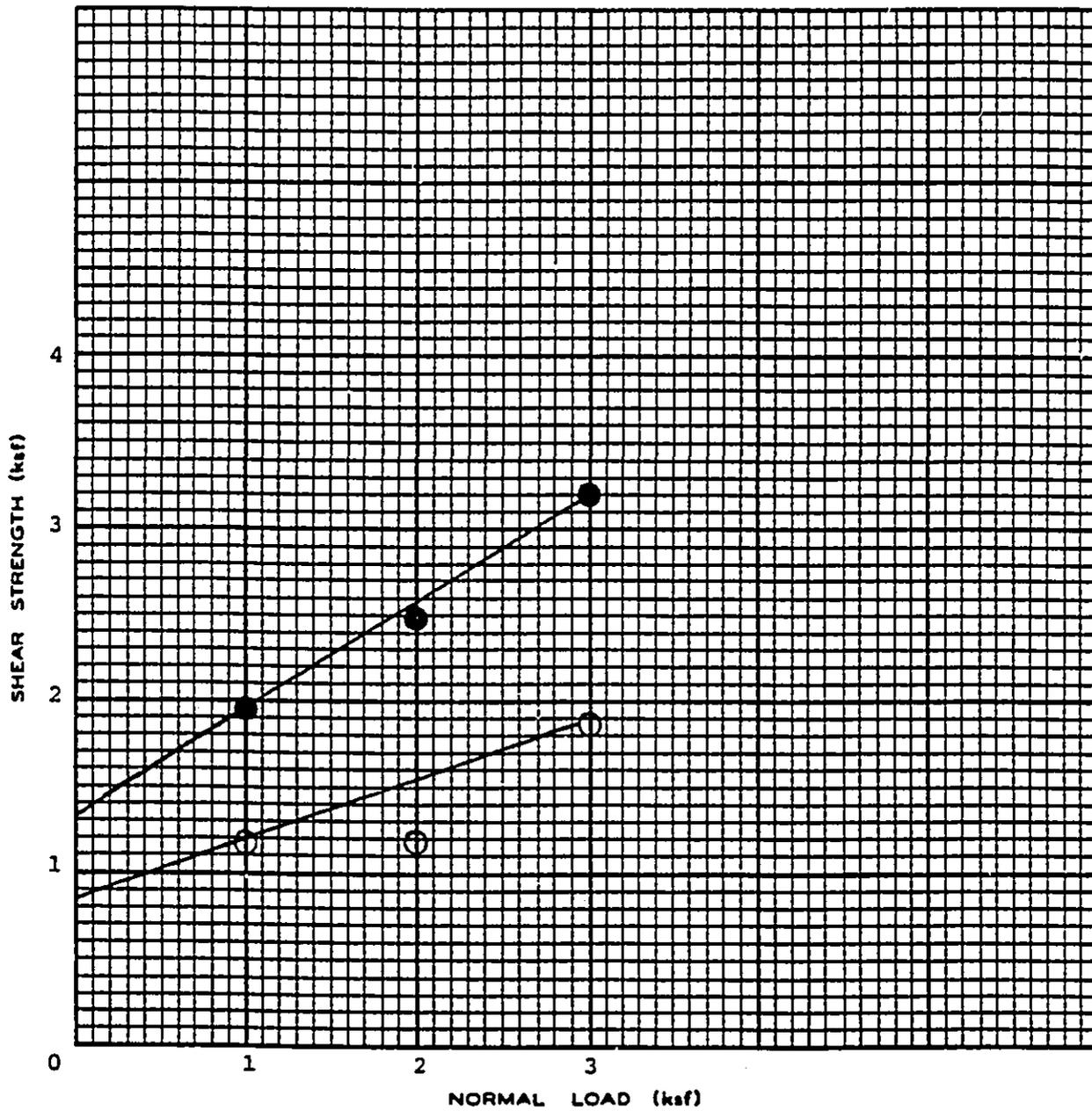
PROJECT:
 INDEPENDENT LIVING FACILITY

PROJECT NO.
 H-2616-F

SOILS INTERNATIONAL
 99-1255 WAIUA PL.
 AIEA, HAWAII 96701

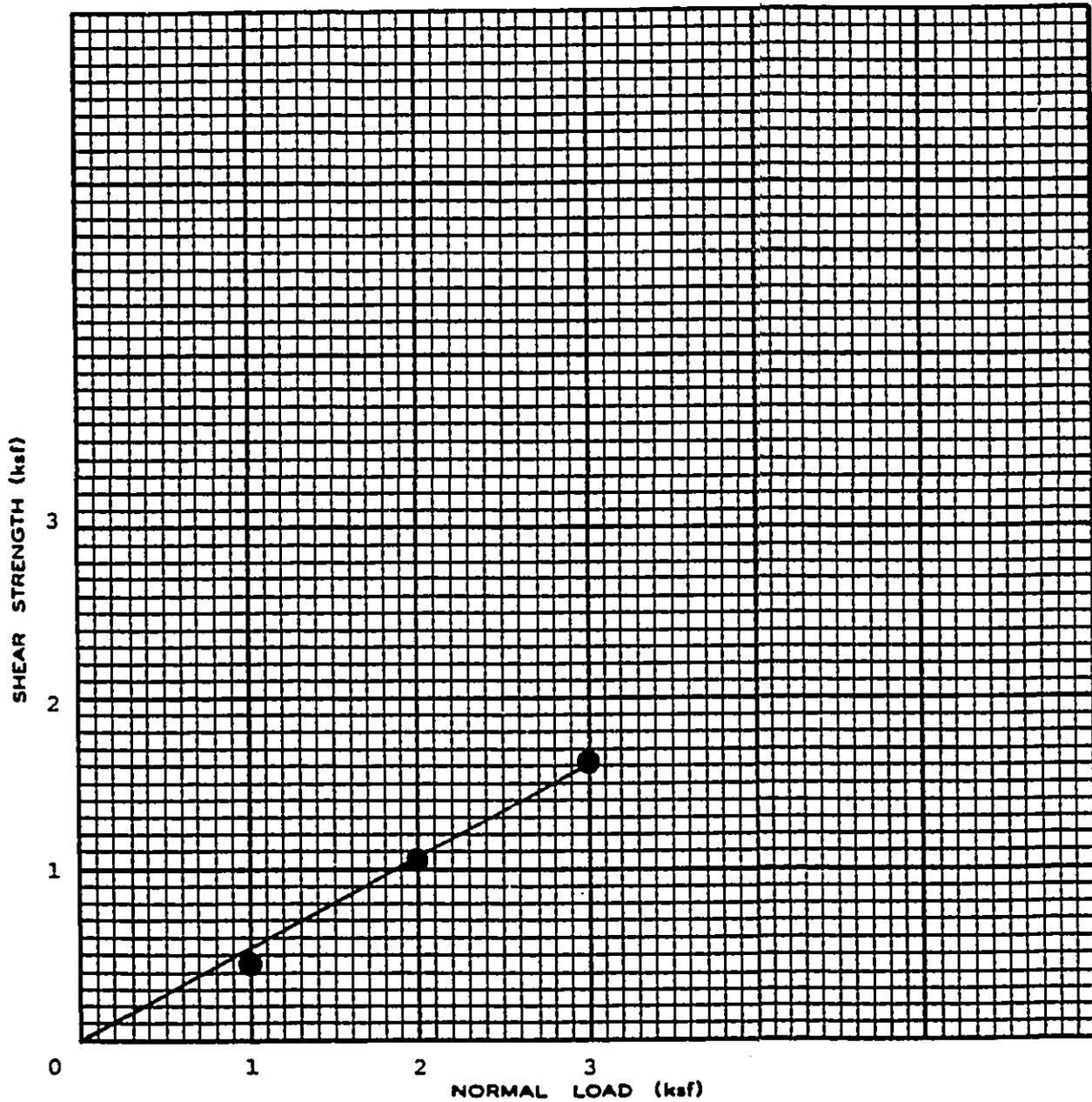
PLATE
 14

DIRECT SHEAR TEST



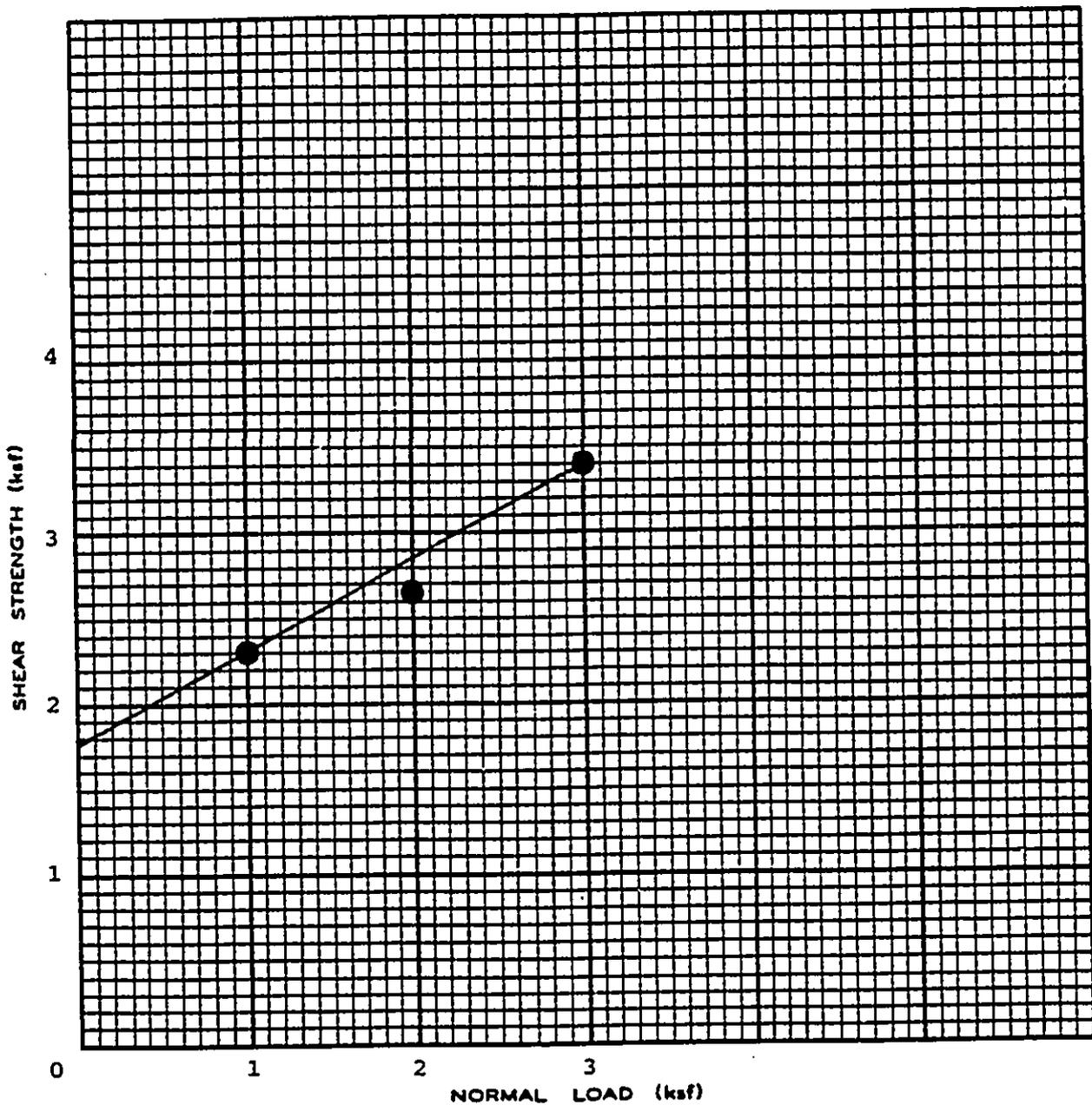
	LOCATION	DEPTH (ft.)	COHESION (psf)	ANGLE OF INTERNAL FRICTION	TEST CONDITIONS
●	B-1, S-4	9.5'	1320	32°	Field Density - Peak Strength
○	B-1, S-4	9.5'	850	20°	Field Density - Residual Strength
PROJECT: INDEPENDENT LIVING FACILITY			PROJECT NO. H-2616-F		SOILS INTERNATIONAL 99-1255 WAIUA PLACE AIEA, HAWAII 96701
					<u>PLATE</u> 15

DIRECT SHEAR TEST



	LOCATION	DEPTH (ft.)	COHESION (psf)	ANGLE OF INTERNAL FRICTION	TEST CONDITIONS				
●	B-3, S-5	15'	0	29°	Field Density - Peak Strength				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">PROJECT: INDEPENDENT LIVING FACILITY</td> <td style="width: 15%;">PROJECT NO. H-2616-F</td> <td style="width: 35%;">SOILS INTERNATIONAL 99-1255 WAIUA PLACE AIEA, HAWAII 96701</td> <td style="width: 17%;"><u>PLATE</u> 16</td> </tr> </table>						PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO. H-2616-F	SOILS INTERNATIONAL 99-1255 WAIUA PLACE AIEA, HAWAII 96701	<u>PLATE</u> 16
PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO. H-2616-F	SOILS INTERNATIONAL 99-1255 WAIUA PLACE AIEA, HAWAII 96701	<u>PLATE</u> 16						

DIRECT SHEAR TEST



	LOCATION	DEPTH (ft.)	COHESION (psf)	ANGLE OF INTERNAL FRICTION	TEST CONDITIONS				
●	B-6, S-1	4'	1780	29°	Field Density - Peak Strength				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">PROJECT: INDEPENDENT LIVING FACILITY</td> <td style="width: 15%;">PROJECT NO. H-2616-F</td> <td style="width: 30%;">SOILS INTERNATIONAL 99-1255 WAIUA PLACE AIEA, HAWAII 96701</td> <td style="width: 12%;"><u>PLATE</u> 17</td> </tr> </table>						PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO. H-2616-F	SOILS INTERNATIONAL 99-1255 WAIUA PLACE AIEA, HAWAII 96701	<u>PLATE</u> 17
PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO. H-2616-F	SOILS INTERNATIONAL 99-1255 WAIUA PLACE AIEA, HAWAII 96701	<u>PLATE</u> 17						

SUMMARY OF LABORATORY TESTS

EXPANSION TESTS:

(Swell under 1 psi surcharge, after air-dried)

Boring 1 @ 4.0': Swell = 8.6%

Boring 2 @ 1.0': Swell = 6.3%

Boring 6 @ 3.5': Swell = 0.7%

ATTERBERG LIMITS:

Boring 1 @ 4.0': LL=67, PI=36; CH

Boring 2 @ 1.0': LL=69, PI=39; CH

Boring 6 @ 3.5': LL=58, PI=21; MH

PROJECT: INDEPENDENT LIVING FACILITY	PROJECT NO.: H-2616-F	SOILS INTERNATIONAL: 99-1255 WAIUA PLACE AIEA, HAWAII 96701	PLATE 18
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APPENDIX I
WAIPAHU TRAFFIC EVALUATION

Appendix

Date: June 20, 1995

Waipahu Traffic Evaluation

On ~~Monday~~ June 9, 1995 and Wednesday, June 14, 1995, a traffic evaluation was conducted to determine the flow and density of vehicular and pedestrian traffic on Waipahu Depot Road, Hikimoe, and Mokuola Streets. Each street had an individual to monitor traffic and pedestrian flow from 6AM to 6PM. Two people were posted at the intersection of Mokuola and Hikimoe Streets. Another was stationed on Waipahu Depot Road. Each monitor had a form, see attachment, to count the number of vehicles and pedestrians and indicate the direction of flow. Because numerous amounts of vehicles and pedestrians used the streets, tick marks were used in the tallying form. The tick marks were summed up and the calculated numbers are in the attached tables. Table 1 shows the traffic count in hourly increments. Table 2 shows the total number of vehicles, pedestrians, and bicyclists on each street in hourly increments.

On Waipahu Depot Road, the busiest hour of vehicular traffic occurred at 12 PM on both days. This was due to the numerous offices and eating facilities that people leave or arrive on their lunch break. The busiest pedestrian traffic on Waipahu Depot Road was at 3 PM, where businesses were closing and people were going home. The busiest vehicular traffic was at 4PM on both Hikimoe and Mokuola Streets, when most people were heading to their residences in Waipahu or Waikele. The most pedestrian traffic was at 7AM and 9AM on Hikimoe and Mokuola, respectively. Table 3 shows the vehicular and pedestrian traffic during rush hours. The greatest density of vehicular movement occurred in the afternoon rush hours of 3-5PM. At this time, many people are heading to their residences in Waipahu, Waikele, or Kunia. The most pedestrians were active at the morning hours of 7-9AM. At this time, many of the pedestrians were elderly people walking on the sidewalks as a means of exercise.

Limitations to the study include number of monitors, number of days the study was conducted, the position of the monitors, and ~~overlapping the count of vehicles~~. More accurate results could have been calculated if the study was conducted for several more days. With added studies, an average and standard deviation could be calculated, yielding better statistical analysis. Because of the numerous amounts of vehicles and pedestrians, added monitors would yield more accurate results. The streets that were monitored cover a large area, where a single monitor may not be able to view all the action from a single place. The three streets are interconnected; therefore, overlapping count occurred which causes inconsistency in the results. To improve future traffic analysis, both the number of monitors and the number of days of analysis should be increased.

Table 1: Traffic Count in Hourly Increments

Waipahu Depot Road, 6/9/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Commercial, North Bound	5	10	30	20	20	8	15	12	7	30	15	13
Commercial, South Bound	5	17	23	25	25	20	33	8	13	51	27	10
Private, North Bound	33	108	143	241	211	267	273	275	263	324	356	312
Private, South Bound	99	204	250	267	218	233	309	250	283	411	265	345
Pedestrian/Bicycle, North Bound	19	16	26	45	40	21	49	19	29	95	53	44
Pedestrian/Bicycle, South Bound	24	22	43	63	35	21	37	20	12	60	50	25
Ped X-ing	15	35	51	49	41	27	47	5	25	83	77	57
Waipahu Depot Road, 6/14/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Commercial, North Bound	14	22	21	25	12	8	15	22	8	6	3	13
Commercial, South Bound	17	21	34	23	13	18	15	20	13	7	4	10
Private, North Bound	61	115	195	200	290	200	300	241	207	215	245	263
Private, South Bound	84	163	242	266	325	200	406	315	204	265	285	240
Pedestrian/Bicycle, North Bound	20	28	36	31	39	40	45	15	7	10	13	35
Pedestrian/Bicycle, South Bound	32	35	56	43	39	32	34	11	7	22	7	4
Ped X-ing	18	23	31	52	54	24	56	27	8	5	8	10

Mokuola Street, 6/9/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Commercial, North Bound	15	23	37	20	25	27	20	22	16	14	15	9
Commercial, South Bound	18	17	40	25	35	14	14	19	18	18	13	21
Private, North Bound	119	214	242	279	295	346	275	362	321	410	423	383
Private, South Bound	146	244	243	323	314	323	237	311	317	361	372	354
Pedestrian/Bicycle, North Bound	12	35	27	82	36	43	51	47	14	28	13	22
Pedestrian/Bicycle, South Bound	25	51	47	45	38	67	48	30	10	22	31	18
Ped X-ing	17	29	17	24	21	20	37	18	6	11	11	15
Mokuola Street, 6/14/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Commercial, North Bound	12	25	50	33	35	33	38	20	28	24	15	15
Commercial, South Bound	13	34	36	47	31	28	25	26	39	28	18	14
Private, North Bound	113	291	284	286	316	322	339	384	441	382	425	325
Private, South Bound	148	302	306	325	384	302	323	396	397	354	385	305
Pedestrian/Bicycle, North Bound	17	48	57	39	37	37	40	48	47	27	22	26
Pedestrian/Bicycle, South Bound	37	38	63	48	55	41	42	60	40	29	21	21
Ped X-ing	27	35	30	22	19	31	29	26	21	15	25	20

Hikimoe Street, 6/9/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Commercial, East Bound	6	15	21	28	26	25	32	18	20	7	6	8
Commercial, West Bound	9	10	23	19	20	16	26	20	11	12	9	8
Private, East Bound	68	150	181	190	240	178	204	173	172	200	235	258
Private, West Bound	55	162	170	174	182	147	126	172	112	158	151	163
Pedestrian/Bicycle, East Bound	21	38	13	42	43	22	33	44	23	24	15	25
Pedestrian/Bicycle, West Bound	29	36	26	33	29	15	29	23	10	7	18	15
Ped X-ing	21	39	37	39	53	21	49	32	15	15	18	25
Hikimoe Street, 6/14/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Commercial, East Bound	4	6	9	20	6	13	12	8	7	9	10	1
Commercial, West Bound	5	14	17	11	9	14	9	7	18	7	6	2
Private, East Bound	48	95	103	107	155	192	148	132	127	156	260	163
Private, West Bound	44	98	123	93	127	102	99	104	123	116	150	102
Pedestrian/Bicycle, East Bound	24	25	25	27	29	14	9	21	19	12	12	26
Pedestrian/Bicycle, West Bound	21	18	23	10	13	12	21	11	11	4	17	11
Ped X-ing	17	26	24	29	8	12	8	28	127	16	14	22

Table 2: Total Count on Streets in Hourly Increments

Waipahu Depot Road, 6/9/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Total Vehicles	142	339	446	553	474	528	630	545	566	816	663	680
Total Pedestrians	43	38	69	108	75	42	86	39	41	155	103	69
Total Ped X-ing	15	35	51	49	41	27	47	5	25	83	77	57
Waipahu Depot Road, 6/14/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Total Vehicles	176	321	492	514	640	426	736	598	432	493	537	526
Total Pedestrians	52	63	92	74	78	72	79	26	14	32	20	39
Total Ped X-ing	18	23	31	52	54	24	56	27	8	5	8	10
Mokuola Street, 6/9/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Total Vehicles	297	478	562	647	669	710	546	714	672	803	823	767
Total Pedestrians	37	86	74	127	74	110	99	77	28	50	44	40
Total Ped X-ing	17	29	17	24	21	20	37	18	6	11	11	15
Mokuola Street, 6/14/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Total Vehicles	286	652	676	691	766	685	725	826	905	788	843	659
Total Pedestrians	54	86	120	87	92	78	82	108	87	56	43	47
Total Ped X-ing	27	35	30	22	19	31	29	26	21	15	25	20

Hikimoe Street, 6/9/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Total Vehicles	138	337	395	411	468	366	388	383	315	377	401	437
Total Pedestrians	50	74	39	75	72	37	62	67	33	31	33	40
Total Ped X-ing	21	39	37	39	53	21	49	32	15	15	18	25
Hikimoe Street, 6/14/95												
Time (hourly)	6AM	7AM	8AM	9AM	10 AM	11 AM	12 PM	1PM	2PM	3PM	4PM	5PM
Total Vehicles	101	213	252	231	297	321	268	251	275	288	426	268
Total Pedestrians	45	43	48	37	42	26	30	32	30	16	19	37
Total Ped X-ing	17	26	24	29	8	12	8	28	127	16	14	22

Table 3: Rush Hour Traffic

Time	Morning Rush (7-9AM), Vehicle	Lunch Rush(11AM-1PM), Vehicle	Afternoon Rush(3-5PM), Vehicle	Morning Rush (7-9AM), Ped	Lunch Rush(11AM-1PM), Ped	Afternoon Rush(3-5PM), Ped
Waipahu Depot Road, 6/9/95	1338	1703	2159	215	167	327
Waipahu Depot Road, 6/14/95	1327	1760	1556	229	177	91
Mokuola Street, 6/9/95	1687	1970	2393	287	286	134
Mokuola Street, 6/14/95	2019	2236	2290	293	268	146
Hikimoe Street, 6/9/95	1143	1137	1215	188	166	104
Hikimoe Street, 6/14/95	696	840	982	128	88	72

APPENDIX J

REVISED LIST OF SECTION 201E EXEMPTION ITEMS

LIST OF 201E EXEMPTION ITEMS - REFER TO 201E APPLICATION FOR DETAILED EXEMPTION LIST:

ZONING:

1. Exemption from the Waipahu Special Area Plan from Single Family Residential to Multifamily Residential. REF: 12/95 "Waipahu Special Area Plan Report".
2. Exemption to allow apartment use, on a lot currently zoned R-5 Residential District, for a two story, twenty four unit apartment building of approximately 24,392 sf. In general, A2 Medium Density Apartment District regulations will be followed. REF: LUO Table 5.10C.

Exemption requests noted below are exemptions from A2 Medium Density Apartment District Requirements requirements.

YARDS:

3. Exemption to allow installation of an emergency self-contained 150 kw diesel generator in the front yard near the transformer and Electrical Room. The proposed generator will be approximately 4'-5" wide x 13'-6" long x 6'-10" high on a 6" high concrete pad. The alternative would be to locate this equipment in a parking stall, which would increase project costs and decreases available parking. REF: Ord 96-62, Section 21-3.30(a)(7)
4. Exemption to allow within the front yard an accessible ramp with handrails 36 inches in height. REF: Ord 96-62, Section 21-3.30(a)(7).
5. Exemption to allow within the front yard an enclosed 24" diameter trash chute (architectural appendage) attached to the front of the building facing Kauolu Place. The chute would terminate at an unroofed trash enclosure at grade. The trash chute was recommended by HUD. The chute enclosure will extend into the front yard approximately 36". REF: Ord 96-62, Section 21-3.30(c)
6. Exemption to allow an eight feet side yard at the south west corner of the proposed building at Stair #2 in lieu of ten feet. REF: LUO Table 5.10-C.
7. Exemption to allow a 5'-0" plant strip and 3'-0" to 5'-0" wide accessible path at the side yard along the west property line in lieu of a landscaped 10 feet wide side yard. Approximate length is 73 feet. REF: LUO Table 5.10-C

MAXIMUM BUILDING AREA:

8. Exemption to allow a Maximum Building Area of approximately 42% (12,989 sf) of the lot area in lieu of the required 40% (12,416 sf). Lot area of Parcel A was restricted by HUD requirement that the site be outside of flood hazard zones. Lot area was also restricted due to HFDC dimensional requirements for Parcel B.
REF: LUO Table 5.10-C

BUILDING HEIGHT:

9. Exemption to allow a maximum building height not to exceed 40 feet.

PARKING:

10. Exemption to allow 19 parking stalls in lieu of 30 stalls that would be required for multifamily housing. Of the 19 stalls, 9 will be designated as accessible stalls. All stalls will be full-size as the complex is geared for the severely disabled.
REF: Ord 96-62, Table 21-3.1(A)

LOADING SPACE:

11. Exemption from LUO 3.70-12 (b) to allow loading space of 8.5' x 19' with a vertical clearance of 10 feet in lieu of required 12' x 35' space with vertical clearance of 14 ft for floor areas in excess of 5,000 sf. *REF: LUO 3.70-12 (b)*

DRIVEWAYS:

12. Permission to provide a dropped curb at the proposed trash enclosure to facilitate pick-up of dumpster bins. Proposed dropped curb will be approximately 8'-0" wide.
13. Exemption to allow a 26 feet wide entry/exit driveway (in lieu of 25 feet) off of Kauolu Place to facilitate Handi-van entry to the site without impeding exiting traffic.

BUILDING DEPARTMENT:

14. Exemption from payment of Building Permit fees. *REF: Section 18-6.1 ROH.*

DEPARTMENT OF PUBLIC WORKS:

15. Exemption from the payment of Grading Permit Fee. *REF: Section 14-4.4 ROH.*

16. Exemption from the payment of wastewater facility charges and connection fees. If it is not feasible to exempt this fee, consideration to use rates in effect in February, 1997 and deferrment of payment until the project is substantially complete for occupancy. REF: Chapter 14, Section 10 ROH

17. Permission to install two (2) sidewalk drainage culverts at Kauolu Place.

BOARD OF WATER SUPPLY:

18. Exemption from the payment of Board of Water Supply development charges and meter costs for domestic water and fire protection water use. If not feasible to exempt this fee, consideration to use rates in effect during February, 1997 and deferrment of payment until the project is substantially complete for occupancy. REF: BWS Rules And Regulations, Section 1-102.

PRIVATE PARK REQUIREMENTS:

19. Exemption from Park Dedication requirements.

A. Per Park Dedication Rules and Regulations, this multi-family residential project is required to provide the lesser of the following park area calculations:

- (1) $10\% \times 24,498 \text{ sf} = 2,449 \text{ sf}$ of required park area
- (2) $24 \text{ units} \times 110 \text{ sf/unit} = 2,640 \text{ sf}$ of required park area

B. The project is planning to provide about 1,900 sf of outdoor park area, including raised garden plots. Adjacent to the outdoor park will be a Multipurpose room of about 775 sf. Other indoor recreation areas are a ground floor Lobby/Sitting Area of about 600 sf and a second floor Lobby Area of about 500 sf. Total outdoor and indoor recreation spaces will be approximately 3,775 sf.

C. Most of the residents of the facility will be confined to wheel chairs and it is anticipated that use of outdoor recreational areas will be limited.

D. REF: Chapter 22 Article 7 ROH - "Park Dedication Rules and Regulations".

APPENDIX K
COMMENT LETTERS AND RESPONSES

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 528-3111

JEREMY HARRIS
MAYOR



MICHAEL S. NAKAMURA
CHIEF
WILLIAM CLARK
DEPUTY CHIEF

RECEIVED
2-19-97

OUR REFERENCE BS-DL

February 18, 1997

Mr. Gerald Park
Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Thank you for your letter of February 11, 1997, requesting comments on the Draft Environmental Assessment for the Independent Living Apartment Complex in Waipio and Waikole, TMK: 9-4-17: 1 and por. 55.

This project should have no significant impact on the operations of the Honolulu Police Department.

Thank you for the opportunity to comment.

MICHAEL S. NAKAMURA
Chief of Police

By *James Fenia*
JAMES FENIA, Assistant Chief
Administrative Bureau



GERALD PARK
Urban Planner

Planning
Land Use
Research
Environmental
Studies

1400 Rycroft Street
Suite 876
Honolulu, Hawaii
96814-3021

Phone/Fax
(808) 942-7484

April, 1997

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

Dear Chief Nakamura:

Subject: Independent Living Apartment Complex
Waikole, Ewa District, Oahu, Hawaii

Thank you for your letter of February 18, 1997 (BS-DL) indicating that "this project should have no significant impact on the operations of the Honolulu Police Department." Your comment has been incorporated in the Final Environmental Assessment.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park
Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

MANAGEMENT
DIVISION OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

February 24, 1997



Gerald Park
Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

SUBJECT: Historic Preservation Review -- Environmental Assessment (EA) for the
Independent Living Apartment Complex
Waipio and Waikole, Ewa, O'ahu
IMK: 9-4-17; 1 and 800.85

LOG NO: 19015 ✓
DOC NO: 9702EJ32

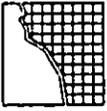
Thank you for providing us a copy of the Environmental Assessment for this project.
The EA correctly incorporates our comments that we believe that this project will have
"no effect" on historic sites.

If you have any questions please call Elaine Jourdana at 587-0015.

Aloha,

Don Hibbard, Administrator
Historic Preservation Division

EJjk



GERALD PARK
Urban Planner

• Planning
• Land Use
• Research
• Environmental
• Studies

1400 Rycroft Street
Suite 876
Honolulu, Hawaii
96814-3021

Phone/Fax
808 942-7484

April 8, 1997

Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
33 South King Street, 6th Floor
Honolulu, Hawaii 96813

Dear Mr. Hibbard:

Subject: Independent Living Apartment Complex
Waikole, Ewa District, Oahu, Hawaii

Thank you for your letter of February 24, 1997 (Log No. 19015, Document No:
9702EJ32) indicating that "this project will have no effect on historic sites."

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Chung, DHCD
E. Shinagawa, ILH



COMMISSION ON PERSONS WITH DISABILITIES

919 Ala Moana Boulevard, Room 101 • Honolulu, Hawaii 96814
Ph. (808) 586-8121(V/TDD) • Fax (808) 586-8129

RECEIVED
FEB 25 1997

February 24, 1997

Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park,

Subject: Independent Living Apartment Complex
TMK: 9-4-17: 1 por. 55
Waipio and Waialeale, Ewa District Oahu

Following are a few comments concerning the subject project:

1. Although the minimum requirements of the State Residential Housing Guidelines (see attached) only require 5% of the units to be fully accessible (approximately 2 of the units), because of the intended use of this apartment complex, recommend that all of the units along accessible routes be designed with the more stringent design criteria set forth in these guidelines. The Residential Housing Guidelines are more stringent than the Federal Fair Housing Guidelines in many ways, e.g., requires wider doorways, maneuvering clearances at doors, and larger bathrooms, among other things. Additionally, all common areas and community spaces are required to comply with the American with Disabilities Act Accessibility Guidelines (ADAAG).
2. A circulation path (accessible route) is required to the boundary of the site from each accessible dwelling unit. The accessible route must also connect to all common use areas on the site, and to other accessible apartment buildings.
3. Recommend that the smoke alarm system provided within the units be the audible and visual type. If an emergency alarm system is planned for the multipurpose room, lounge, or other general use facilities, then in addition to audible alarms, visual alarms are also required.
4. If parking is provided for tenants, visitors or both, then accessible parking is required. If a loading zone is provided, at least one must be accessible.

Recommend the loading zone provide a 8'-0" wide access aisle for side lift vans. The access aisle must connect to an accessible route.

5. Sprinkler systems and areas of rescue assistance should be considered as a means to facilitate safe evacuation in case of emergencies such as a fire. The Building Code may not require that this building be sprinkled, if such be the case, areas of rescue assistance would be required.
6. The planned private park should be designed to be accessible to ADAAG. Additionally, public right of ways, e.g., public sidewalks leading to the park, must be designed to be accessible. At the time of design for the reconstruction of the streets and sidewalk areas, the plan should consider how one would get to the park and other community amenities, e.g., bus stops, from the Independent Living Apartment Complex.

Sincerely,


Ben Gorospe
Facility Access Coordinator



GERALD PARK
Urban Planner

• Planning
Land Use
Research
Environmental
Studies

• 1400 Byron Street
Suite 876
Honolulu, Hawaii
96814-3021

• Phone/Fax
(808) 942-7484

April 8, 1997

Ben Gorospe
Facilities Access Coordinator
Commission on Persons with Disabilities
State of Hawaii
919 Ala Moana Boulevard, Room 101
Honolulu, Hawaii 96814

Dear Mr. Gorospe:

Subject: Independent Living Apartment Complex
Waikale, Ewa District, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment prepared for the subject project. We offer the following responses which are numbered to coincide with your comments:

1. All units will be accessible for tenants. Per Department of Housing and Urban Development requirements, the project is designed to comply with the Uniform Federal Accessibility Standards.
2. An accessible path will be provided to the boundary of the property
- 3/5. All dwelling units and common building areas will be equipped with smoke detectors and fire sprinklers.
4. Parking will be provided for residents and guests. Nine accessible parking stalls are planned and a separate loading zone is provided adjacent to the covered porte cochere.
6. The private park, which includes a lanai and barbecue area, can be accessed from the multi-purpose room inside the building and from an accessible route outside the building. An accessible ramp leads from the front of the building to the existing sidewalk along Kauolu Place.

We hope our responses adequately address your concerns. Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOA PAKA STREET, SUITE 425
HONOLULU, HAWAII 96819-1869



February 25, 1997

Mr. Gerald Park
Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Subject: Independent Living Apartment Complex
TMK: 9-4-17: 1 and por. 55
Waipio and Waialeale, Ewa District Oahu

We have reviewed the subject property's environmental assessment and have no objection to the approval of the project contingent upon the following conditions being met:

1. Automatic sprinkler system to be installed throughout the buildings including the private living areas. Sprinkler connections for fire department personnel shall be provided within 20 feet of the street front.
2. Smoke detectors shall be provided in the common areas and in the living quarters of the facility.
3. An approved electrically supervised automatic and manual fire alarm system shall be provided. The flow and tamper switches shall be connected to the fire alarm system and manual pull stations shall be provided and connected to the fire alarm system per Section 14.104 of the Fire Code of the City and County of Honolulu.
4. Activation and notification devices for the fire alarm system shall conform to all federal, state and local requirements.

If you need additional information, please contact Battalion Chief Charles Wassman of our Fire Prevention Bureau at 831-7778.

Very truly yours,

ANTHONY J. LOPEZ, JR.
Fire Chief

AJL/CW:bb



GERALD PARK
Urban Planner

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Land Use
Research
Environmental
Studies

1400 Rycroft Street
Suite 876
Honolulu, Hawaii
96814-3021

Phone/Fax
808 942-7484

April 8, 1997

Anthony J. Lopez, Jr., Fire Chief
Fire Department
City and County of Honolulu
3375 Koa Paka Street, Suite H425
Honolulu, Hawaii 96819-1869

Dear Chief Lopez:

Subject: Independent Living Apartment Complex
Waialeale, Ewa District, Oahu, Hawaii

We have passed your letter of February 25, 1997 on to the developer and architect for their consideration. We offer the following responses to your comments.

- 1/2) Automatic fire sprinklers and smoke detectors shall be installed throughout the buildings including private living quarters.
 - 3/4) Construction plans shall be submitted to your department for review. The fire alarm system shall conform to federal, state, and local fire codes.
- We hope our responses adequately address your concerns. Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

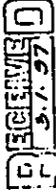
RECEIVED
2-28-97



DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FORT SHAFTER, HAWAII 96858-5440

SENT TO
ATTENTION OF

March 3, 1997



Planning and Operations Division

Mr. Gerald Park
Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

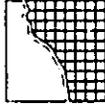
Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Independent Living Apartment Complex, Ewa, Oahu (THK 9-4-17: 1 and por. 55). The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

a. The information provided in the DEA does not identify any specific activities involving work in waters of the U.S.; therefore, a DA permit is not required. In the future, if the applicant proposes activities in, or having the potential to affect Wailani Stream, consultation should take place with our Operations Branch to determine if a DA permit may be required. Please contact Mr. Farley Watanabe for further information at 438-9258 (extension 14) and refer to file number 970000119.

b. The flood hazard information provided on page 7 of the DEA is correct.

Sincerely,

Paul Mizue, P.E.
Acting Chief, Planning
and Operations Division



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Urban Planner

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Environmental
Studies

1400 Rycroft Street
Suite 876
Honolulu, Hawaii
96814-3021

Phone/Fax
808/942-7484

April 8, 1997

Paul Mizue, P.E.
Acting Chief, Planning and Operations Division
Department of the Army
Pacific Ocean Division, Corps of Engineers
Fort Shafter, Hawaii 96858-5440

Dear Mr. Mizue:

Subject: Independent Living Apartment Complex
Waikale, Ewa District, Oahu, Hawaii

Thank you for your letter of March 3, 1997 informing us that a DA permit is not required. We shall add a statement in the Final Environmental Assessment indicating that no work is proposed in waters of the United States.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Chung, DHCD
E. Shinagawa, ILH

GTE Hawaiian Tel

Beyond the call

GTE Hawaiian Telephone Company Incorporated
P.O. Box 2200 - Honolulu, HI 96841 - (808) 646-4311

RECEIVED
3-7-97

February 27, 1997

Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Attention: Jason Ching

Subject: Independent Living Apartment Complex
Waipio and Waikole, Ewa District Oahu

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Independent Living Apartment Complex project in Waipahu.

GTE Hawaiian Telephone Company, HTCo, does not anticipate any problems in providing telecommunication services to the proposed development. However, further review will be required by HTCo during the design stages of the project. We look forward to working with you and your consultants to ensure all of your telecommunication needs are met.

If you have any questions or concerns, please call me at 483-8027.

Sincerely,

Jill Z.Y. Lee

Jill Z.Y. Lee
Senior Designer
Access Design and Construction

SENT

FEB 27 1997

cc: K. Ayano (A-5)
G. Park - Gerald Park Urban Planner
1400 Rycroft Street
Honolulu, Hawaii 96814-3021



GERALD PARK
Urban Planner

Planning
Land Use
Research
Environmental
Subjects

1400 Rycroft Street
Suite 876
Honolulu, Hawaii
96814-3021

Phone/Fax
808 942-7494

April 8, 1997

Jill Z. Y. Lee
Senior Designer
Access Design and Construction
GTE Hawaiian Telephone Company Inc.
P.O. Box 2200
Honolulu, Hawaii 96841

Dear Ms. Lee:

Subject: Independent Living Apartment Complex
Waikole, Ewa District, Oahu, Hawaii

We have passed your letter of February 27, 1997 on to the design consultants for the project. They will submit construction plans for your review during the design stage of the project. Thank you for participating in the environmental review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

BENJAMIN J. CAVETANO
DIRECTOR



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

225 SOUTH BERTANNA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE: 808-541-1100
FACSIMILE: 808-541-1100

RECEIVED
MAR 11 1997

GARY GILL
DIRECTOR

Robert Agres, Jr.
March 7, 1997
Page 2

March 7, 1997

Robert Agres, Jr.
Department of Housing and Community Development
650 South King Street, 5th Floor
Honolulu, Hawaii 96813

Attention: Jason Ching

Dear Mr. Agres:

Subject: Draft Environmental Assessment (EA) for Independent Living Apartment
Complex, Waipahu; TMK 9-1-17: 1 & por. 55

Please include the following in the final EA:

1. Provide a clearer location map that shows the areas surrounding Kauolu Place and the two elderly housing projects.
2. Provide a rendering of the final appearance of the apartment complex.
3. Indicate the landowner of this parcel and its state land use designation.
4. List all permits required for development of this project and their status.
5. Include in your discussion of construction activities any impacts from runoff, impacts to traffic and any related mitigation measures.

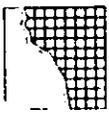
6. The draft EA mentions Crown Property and a "mixed use master plan" for Kauolu Development which includes the existing Kamalu - Hoolulu Elderly Housing for this parcel. The EIS law prohibits segmentation of larger projects and requires that full disclosure of impacts be made on projects in their entirety. Please provide a full analysis and discussion of this and all related projects, and indicate whether other projects are anticipated under this "master plan."

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

Sincerely,


GARY GILL
Director

c: Elaine Shingawa
Gerald Park



GERALD PARK
Urban Planner

• Planning
• Land Use
• Precinct
• Environmental
• Studies

• 1100 Bacon Street
• Suite 17h
• Honolulu, Hawaii
• 96813-2021

• Phone/Fax
• 808 942-7464

April 8, 1997

Gary Gill, Director
Office of Environmental Quality Control
State of Hawaii
Leopapa A. Kamehameha Building
215 South Beretania Street, Suite 702
Honolulu, Hawaii 96813-2437

Dear Mr. Gill:

Subject: Independent Living Apartment Complex
Waialeale, Ewa District, Oahu, Hawaii

Thank you for reviewing the Environmental Assessment prepared for the subject project. We offer the following responses to your comments.

- 1) A new location map has been included in the Final Environmental Assessment.
- 2) In lieu of a rendering, we have added a drawing depicting exterior elevations and building sections as Figure 6 in the Final Environmental Assessment.
- 3) The property is part of a larger parcel owned by the Housing Finance and Development Corporation (HFDC), State of Hawaii. Independent Living Housing, one of three co-operations which established Independent Living Waipahu, has a Property Purchase Agreement to acquire the project site from the HFDC. Upon approval of the subdivision application, Independent Living Housing will lease the property to Independent Living Waipahu.

The state land use designation for the property is Urban.

- 4) A list of permits required for the proposed project and their status has been included in the Final Environmental Assessment.
- 5) Runoff impacts during construction and measures to mitigate potential adverse effects were discussed in the section on construction impacts.

During construction, the project site will be accessed from Kauolu Place. Traffic on Kauolu Place is generally light in both directions and motorists may be inconvenienced temporarily during construction work in the right-of-way and street side loading and unloading of construction materials. During these periods traffic speeds may be temporarily reduced and traffic rerouted around work sites. These impacts cannot be avoided and the Contractor will implement measures to minimize delays and inconveniences. Mitigating measures include posting advisory signs to alert motorists

Gary Gill
Page 2
April 8, 1997

of road work and posting flagmen to marshal traffic around work sites. There is no peak traffic hour per se on Kauolu Place and the delivery of construction materials will be scheduled to coincide with non-peak hours on Mokuola Street.

During sitework, heavy trucks will haul surcharge material to a disposal site off property. If trucks egressing onto Mokuola Street during hauling activities pose a traffic hazard, flagmen may be posted at the intersection of Mokuola Street and Kauolu Place for traffic control.

- 7) The Environmental Assessment prepared for the Independent Living Apartment Complex is not an attempt to segment a larger project to circumvent the EIS law. A Master Plan for Waipahu Crown Elderly Housing was prepared by the Housing Finance and Development Corporation, State of Hawaii in the early 1990's to guide the development of this state owned land identified as Crown Property. In the same year, an Environmental Assessment for the Waipahu Crown Elderly Housing Project was prepared. The Assessment addressed the development of the entire site for elderly housing, a senior citizens center, and a medical building. It was determined that development would not result in significant adverse environmental impacts and the document was filed with the Office of Environmental Quality Control as a Negative Declaration (Refer to Appendix D of the Draft EA).

Although the master plan did not propose the construction of this project, the Independent Living Apartment Complex is generally consistent with the development goals for Crown Property and within the threshold density of 330-345 units elderly housing units proposed in the 1990 Master Plan. Presently, the existing Kamalu and Hoolulu Elderly Housing project consists of 223 dwelling units in two, detached, 7-story buildings.

The environmental assessment/negative declaration prepared in 1990 was prepared for the entire development of Crown Property and there may not be a need to prepare separate environmental assessments for housing projects on the unimproved portions of Crown Property. However, the use of federal and county monies to help fund the project "triggered" the need to prepare this environmental assessment. Besides from its disclosure purposes, an EA for the Independent Living Apartment Complex is required to comply with federal and county environmental reporting requirements for the release of money for design and construction.

The HFDC is planning to complete the development of Crown Property. The agency is requesting proposals to construct a commercial-medical office building, additional elderly housing, and assisted living and special needs housing. These improvements

Gary Gill
April 8, 1997
Page 3

will be sited on the undeveloped sections of Crown Property. The Independent Living
Apartment Complex is not part of the proposed state projects.

We hope our responses adequately address your concerns. Your comments and our
responses have been incorporated in the Final Environmental Assessment.

Sincerely,

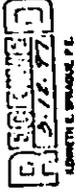
GERALD PARK URBAN PLANNER


Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

DEPARTMENT OF WASTEWATER MANAGEMENT
CITY AND COUNTY OF HONOLULU

800 SOUTH KING STREET, 3RD FLOOR, HONOLULU, HAWAII 96813
PHONE: (808) 537-8653 • FAX: (808) 537-8375



KENNETH E. SPRAGUE, P.E.
DIRECTOR

CHERYL A. OLUMBE, B.S.P.E.
DEPUTY DIRECTOR

In reply refer to:
WCC 97-33

March 11, 1997

Mr. Gerald Park
Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Subject: **INDEPENDENT LIVING APARTMENT COMPLEX
WAIPIO AND WAIKELE, EWA DISTRICT, OAHU**
TEIK: 2-4-17-LAND FOR-55

In reference to your letter dated February 11, 1997, regarding the subject project, the municipal wastewater system is available and adequate to accommodate the proposed 24-unit apartment complex. A "Sewer Connection Application" form has been submitted and approved on January 28, 1997. This project is liable for payment of a Wastewater System Facility Charge.

If you have any questions, please contact Mr. Scott Gushi of the Service Control Branch at 523-4886.

Very truly yours,

Ken E. Sprague
KENNETH E. SPRAGUE
Acting Director

April 8, 1997

Kenneth E. Sprague, P.E., Director
Department of Wastewater Management
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sprague:

Subject: Independent Living Apartment Complex
Waikale, Ewa District, Oahu, Hawaii

Thank you for reviewing the Environmental Assessment prepared for the subject project. In reference to your comment about payment of a Wastewater System Facility Charge, applicant is requesting a 201E exemption from the payment of wastewater system facility charges and connection fees. If this fee cannot be exempt, applicant is requesting consideration to use rates in effect in February, 1997 and defer payment until the project is substantially complete for occupancy.

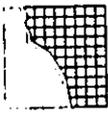
Your comment and our response shall be included in the Final Environmental Assessment. Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park
Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH



GERALD PARK
Urban Planner

PLANNING
Land Use
REGULATION
ENVIRONMENTAL
STUDIES

1400 Rycroft Street
Suite 876
Honolulu, Hawaii
96814-3021

Phone/Fax
(808) 942-7484

03/13/97 16:05 3108 2172888 PAT LEE & ASSOC.

Q001

WAIPAHU 2000 UPDATE COMMITTEE
c/o C.O. Andy Anderson, Chairman
94-114 Hualahu Street
Waipahu, HI 96797



February 28, 1997

Mr. Jason Ching
Department of Housing and Community Development
City and County of Honolulu
650 S. King Street
Honolulu, HI 96813

Dear Mr. Ching,

RE: ENVIRONMENTAL ASSESSMENT FOR INDEPENDENT LIVING
APARTMENT COMPLEX PLANNED FOR WAIPAHU, TMK 9-4-17; and
poroaa 55

Thank you for this opportunity to review the Environmental Assessment for the proposed Independent Living Apartment Complex planned for Kaulolu Plaza in Waipahu.

The Waipahu 2000 Update Committee has met since October 1994 to formulate a plan for Waipahu, focusing on the Sugar Mill site to include economic development, preservation of cultural heritage, and facilities and programs for youth and families to strengthen community ties. We have participated in the City Planning Department's Waipahu Town Plan, and are now participating in the Livable Communities Task Force.

We note that the subject facility addresses a growing need in our community as well as the rest of Oahu, by providing affordable housing for the physically challenged and disabled. The site is in close proximity to medical care facilities, stores and shopping areas and commercial activities, public transportation, and public facilities such as the library.

03/13/97 16:05 3108 2172888 PAT LEE & ASSOC.

Q002

A society should be measured not by its Gross National Product, but by the way it cares for its elderly, disabled and citizens less fortunate than most. Integrating our disabled into our neighborhoods and communities provides them the opportunity to live as normal and fulfilling lives as possible.

The Waipahu Neighborhood Board No. 22 is on record supporting the proposed Independent Living apartment complex. While our Waipahu 2000 Update Committee has not met to take a formal position on the proposal, an important goal of our Committee is to provide revitalization, both economic and social, to Waipahu town. Our Committee has supported social programs and facilities such as the Leeward YMCA and the FilCom Center as major components of the Waipahu 2000 Update Plan.

A poll of many of the members of our Committee was taken, and those comments were in approval of the project.

We therefore wish to extend our support to Independent Living Waipahu, Inc. to construct a facility in Waipahu to serve the needs of the disabled.

Sincerely,

C.O. "Andy" Anderson
Chairman, Waipahu 2000 Update Committee

cc: Waipahu Neighborhood Board #22
Waipahu 2000 Update Committee
Mr. Gerald Park, Urban Planner



April 8, 1997

GERALD PARK
URBAN PLANNER

WAIPAHU 2000 UPDATE COMMITTEE
c/o C.O. Andy Anderson, Chairman
94-114 Hualahu Street
Waipahu, Hawaii 96797

Survey

Land Use

Research

Environmental

Studies

1400 Konoct Street

Suite 812

Honolulu, Hawaii

96814-3021

Phone/Fax

808 947-7164

Dear Mr. Anderson:

Subject: Independent Living Apartment Complex
Waikole, Ewa District, Oahu, Hawaii

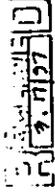
Thank you for reviewing the Draft Environmental Assessment prepared for the subject project. We especially thank you and your organization for your continued support of the efforts of Independent Living Waipahu, Inc. to build this facility for the disabled in Waipahu.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH




Patricia Uyebara Wong, Esq.
Manager
Environmental Department

March 14, 1997

Gerald Park
Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, HI 96814

Dear Mr. Park

Subject: Independent Living Apartment Complex

Thank you for the opportunity to comment on your February 1997 EA Independent Living Apartment Complex as proposed by Independent Living Yaipahu, Inc. We have reviewed the subject document and have no comments at this time on the proposed project. HECO shall reserve further comments pertaining to the protection of existing powerlines bordering the project area until construction plans are finalized. Again, thank you for the opportunity to comment on this document.

Sincerely,



cc:
Jason Ching
Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, HI 96813



WINNER OF THE EINSON AWARD
FOR DISTINGUISHED LEADERSHIP

April 8, 1997

Patricia Uyebara Wong, Esq.
Manager, Environmental Department
Hawaiian Electric Company, Inc.
PO Box 2750
Honolulu, Hawaii 96840-0001

Dear Ms. Wong:

Subject: Independent Living Apartment Complex
Waikole, Ewa District, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment prepare for the subject project. Construction plans will be submitted for your review during the design stage of the project. Thank you for participating in the environmental review process.

Sincerely,

GERALD PARK URBAN PLANNER



Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813



GENERAL MANAGERS
DIVISION



JONATHAN K. SHIMADA, PH.D.
DIRECTOR AND CHIEF ENGINEER
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: 935-3100
FAX: 935-3101

March 18, 1997

Mr. Gerald Park
Gerald Park Urban Planner
1400 Kycroft Street, Suite 876
Honolulu, HI 96814-3021

Dear Mr. Park:

Subject: Environmental Assessment (EA)
Independent Living Apartment Complex
TRK: 9-4-171-1 and POK 55

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

1. The EA should address conformance to the City Ordinance 96-34 regarding control of peak runoff.
2. Direct runoff from parking lot to planted area or use water quality inlets to filter out pollutants.
3. Provide adequate on-site parking.
4. The existing frontage condition may require repair and/or reconstruction in accordance with City standards and the Americans with Disabilities Act Accessibility guidelines. Also, curb ramps may be required.
5. For your information, Kauolu Place is owned by the State.

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

Very truly yours,

JONATHAN K. SHIMADA, PH.D.
Director and Chief Engineer



GERALD PARK
URBAN PLANNER
1400 Kycroft Street
Suite 876
Honolulu, HI 96814-3021
Phone/Fax
808 942-7184

April 8, 1997

Jonathan K. Shimada, Ph.D.
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Shimada:

Subject: Independent Living Apartment Complex
Waiale, Ewa District, Oahu, Hawaii

Thank you for reviewing the Environmental Assessment prepared for the subject project. We offer the following responses which are numbered to coincide with your comments.

- 1) Peak run-off shall be controlled by constructing an on-site storm water retention/percolation system to contain the increase in storm water run-off generated by the 10 year design storm for a period of one hour.
- 2) Run-off from the parking lot shall be directed to the planter area and onsite retention/percolation system prior to being dispersed to the adjacent street.
- 3) A waiver to the on-site parking requirement is being requested through the 201E exemption process.
- 4) The frontage along Kauolu Place shall be repaired/upgraded to comply with ADA requirements where applicable.

We hope our responses adequately address your concerns. Your comments and our responses have been incorporated in the Final Environmental Assessment. Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



RECEIVED
APR 15 1997

RANDALL K. FUJIKI
DIRECTOR AND BUILDING SUPERINTENDENT
CITY AND COUNTY OF HONOLULU

PB 97-170

March 18, 1997

Mr. Gerald Park, Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

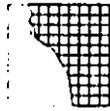
Subject: Independent Living Apartment Complex
TMK: 9-4-17:1 and por. 55
Waialeale and Waialeale, Ewa District Oahu

We have reviewed the subject document as requested and have no comments to offer. We appreciate the opportunity to review the document.

Should there be any questions, please contact Warren Sato at 527-6370.

Very truly yours,

RANDALL K. FUJIKI
Director and Building Superintendent



GERALD PARK
URBAN PLANNER

- 1400 RYCROFT STREET
SUITE 876
HONOLULU, HAWAII
96814-3021
- PHONE/FAX
(808) 947-7484

April 8, 1997

Randall K. Fujiki
Director and Building Superintendent
Building Department
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Independent Living Apartment Complex
Waialeale, Ewa District, Oahu, Hawaii

Thank you for your letter of March 18, 1997 indicating that you have no comments. Your letter will be included in the Final Environmental Assessment. We appreciate your participation in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

DEPARTMENT OF PLANNING
CITY AND COUNTY OF HONOLULU
550 SOUTH KING STREET, 9TH FLOOR, HONOLULU, HAWAII 96813-2017
PHONE: (808) 525-4111 • FAX: (808) 525-4550



RECEIVED
APR 22 1997

DISTRICT CHIEF
CHIEF PLANNING OFFICE
DONALD W. HARRIS
HONOLULU CITY PLANNING OFFICE
LW 2/97-0370

March 20, 1997

Mr. Gerald Park
Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Environmental Assessment (EA) for Independent Living
Apartment Complex. TRK: 2-4-17-1 and par. 55, Waipahu, Oahu

In response to your letter of February 11, 1997 regarding the subject EA, we note that the subject site is designated as Public Facilities in the Waipahu Special Area Plan (SAP) adopted by City Council in 1996. It is in the vicinity of the Civic Center Site which includes the existing civic center, the new Waipahu Public Library, existing elderly rental housing, and planned facilities including a senior citizen center and low-rise public rental units. We have no objections to the proposal as it is generally consistent with the intent of the Waipahu SAP to consolidate government services and community facilities in that area. We recommend that the design and site planning of this project be consistent with the design guidelines in the Waipahu SAP.

Thank you for the opportunity to comment. Should you have any questions, please call Lin Wong of our staff at 523-4485.

Sincerely,

PATRICK T. ONISHI
Chief Planning Officer

PTO:js



GERALD PARK
Urban Planner

Urban
Land Use
Research
Environmental
Studies

1400 Rycroft Street
Suite 876
Honolulu, Hawaii
96814-3021

Phone/Fax
(808) 942-7484

April 8, 1997

Patrick T. Onishi
Chief Planning Officer
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Onishi:

Subject: Independent Living Apartment Complex
Waikole, Ewa District, Oahu, Hawaii

Thank you for reviewing the Environmental Assessment prepared for the subject project. We will note in the Final Environmental Assessment that the "project site is designated as Public Facilities in the Waipahu Special Area Plan (SAP) adopted by the City Council in 1996".

Your recommendation that the design and site planning of this project be consistent with the design guidelines in the Waipahu SAP has been passed on to the architect.

Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Ching, DHCD
E. Shimagawa, ILH

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA
711 KAPOLANI BOULEVARD, SUITE 1200
HONOLULU, HAWAII 96813



3-24-97

CHERYL D. SOON
DIRECTOR
ASSEM. CL. MANAGER, JR.
DEPUTY DIRECTOR

March 21, 1997

TSP/97-00711R

Mr. Gerald Park
Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Subject: Independent Living Apartment Complex, Waijio and
Waikale, Ewa District, Oahu

In response to your February 11, 1997 letter, the draft environmental assessment for the subject project was reviewed. It is our understanding that Kau'olu Place is currently under the jurisdiction of the Housing Finance and Development Corporation and will remain under its jurisdiction after the project is completed. However, if the intent is to turn Kau'olu Place over to the City at a later date, the following concerns should be addressed:

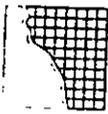
1. Appropriate signage should be provided at the driveway locations to inform motorists of the one-way circulation pattern.
2. The dropped curb along Kau'olu Place for the trash enclosure should be removed. All trash pick-up and maneuvering should occur on-site.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation System Planning Division at 527-6976.

Sincerely,

Cheryl D. Soon
CHERYL D. SOON
Director

cc: Mr. Jason Ching, Department of
Housing and Community Development



GERALD PARK
Urban Planner

Planning
Land Use
Research
Environmental
Studies

1400 Rycroft Street
Suite 876
Honolulu, HI 96814-3021

Phone/Fax
808 942-7104

April 8, 1997

Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Independent Living Apartment Complex
Waikale, Ewa District, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your comments.

1. The Housing Finance and Development Corporation has informed applicant that Kau'olu Place, a private roadway, was not designed to be dedicated to the City and County of Honolulu.
2. Due in part to agency comments, the one-way circulation pattern into the project has been revised to one, two-way driveway. If necessary, appropriate signage shall be provide at this driveway.
3. Applicant will be requesting a 20 IE exemption to allow the drop curb along Kau'olu Place for the trash enclosure.

We hope our responses adequately address your concerns. Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park
Gerald Park

cc: J. Ching, DHCD
E. Shinagawa, ILH

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
140 SOUTH KING STREET, 7TH FLOOR, HONOLULU, HAWAII 96813
PHONE: (808) 531-4414 FAX: (808) 531-8743



RECEIVED
MAR 26 1997

JAN MAOE SULLIVAN
DIRECTOR

LORETTA K.C. CHOI
MANAGER
97-00934 (DT)

'97 EA Comments Zone 9

March 25, 1997

Mr. Gerald Park
Gerald Park Urban Planner
1400 Rycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Comments To Draft Environmental Assessment (EA)
Independent Living Apartment Complex
Tax Map Keys: 9-4-17: 01 and POR. 55

We have reviewed the above-referenced project to construct a two-story, 24-unit apartment complex to house handicapped persons. We have the following comments to offer:

1. The Final EA should include a "Table of Contents" at the beginning of the EA.
2. A topographic map showing existing and finished contours should be included in the Final EA.
3. Page 14 of the Draft EA mentions that silt fences will be installed to mitigate erosion and discharge of pollutants onto adjoining roads and properties. The Draft EA states that other erosion control measures will be implemented to minimize short- and long-term erosion of the drainage swale. These erosion control measures should be mentioned in the Final EA.
4. Our department is currently processing a consolidation and resubdivision application for the above properties. This application must be approved by our department prior to construction of the project.
5. A floor plan of the one- and two-bedroom units should be included in the Final EA.

Mr. Gerald Park
Page 2
March 25, 1997

6. As mentioned in the Draft EA, the project is an affordable housing project that is requesting exemptions from zoning, planning, and construction standards under Chapter 201E-212 and Chapter 46-15.1, Hawaii Revised Statutes (HRS). We will further review this proposal under City review of 201E exemptions, including design appropriateness for the site and community.

7. Page 2 of the Draft EA mentions that 24-hour attendant care is contemplated. The Final EA should specify whether the proposed facility will have 24-hour attendant care. A Conditional Use Permit (CUP), Type 2 will be required if the project provides a 24-hour attendant to care for the tenants, unless a CUP exemption is added to your list of Section 201E exemption items (in Appendix J).

You may contact our Zoning District Changes Branch regarding the CUP at 523-4299. Our Subdivision Branch can answer any questions regarding your subdivision application at 527-5838. Ms. Dana Teramoto of our staff can answer any other questions you may have at 523-4648.

Very truly yours,

JAN MAOE SULLIVAN
Director of Land Utilization

JNS:am

9700934.djt



GERALD PARK
Urban Planner

Planning
Land Use
Research
Environmental
Studies

1400 Pirot Street
Suite 870
Honolulu, Hawaii
96813-3021

Phone/Fax
808 947-7484

April 8, 1997

Jan Naoe Sullivan, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Sullivan:

Subject: Independent Living Apartment Complex
Waikale, Ewa District, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment prepared for the subject project. Our responses are numbered to coincide with your comments.

1. A Table of Contents has been included in the Final Environmental Assessment.
2. A topographic map depicting existing contours has been included in the Final EA as Figure 4. A topographic map depicting final or finished grades is not completed.
3. Best management plans for erosion control shall be prepared by the consulting civil engineers and submitted with a grading permit application.
4. No response offered.
5. Typical unit plans have been included in the Final EA as Figure 5.
6. No response offered.
7. Applicant will not provide 24-hour attendant care. Providing 24-hour care will be determined at a later time by others such as home care agencies.

We hope our responses adequately address your concerns. Your comments and our responses have been incorporated in the Final Environmental Assessment. Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
600 SOUTH BERTANHA STREET
HONOLULU HAWAII 96841
PHONE (808) 527-6190
FAX (808) 533-2714



March 21, 1997

JEREMY HARRIS, Mayor
WALTERO WATSON, JR., Chairman
MAURICE H. YAMAGUCHI, Vice Chairman
MAZU MATASUDA
MELISSA J. LUM
FOREST C. MURPHY
JOATHAN K. SHIMADA, PhD
BARBARA SUSTANTON
RAYMOND H. SATO
Manager and Chief Engineer

Mr. Gerald Park
Gerald Park Urban Planner
1400 Kycroft Street, Suite 876
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Subject: Your Letter of February 11, 1997 on the Draft Environmental Assessment for the Independent Living Apartment Complex, Waipahu, OAHU. TRKI 9-1-171, EXHIBIT A AND 53

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the proposed project.

We have the following comments to offer:

1. The developer is required to obtain a water allocation from the State Department of Land and Natural Resources.
2. The existing off-site water system is presently adequate to accommodate the proposed apartment complex.
3. The availability of water will be determined when the building permit application is submitted for our review and approval. If water is made available, the applicant will be required to pay our Water System Facilities Charges for transmission and daily storage.
4. The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.
5. If a three-inch or larger water meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.
6. A Board of Water Supply approved reduced pressure principle backflow prevention assembly is required to be installed immediately after each domestic water meter serving the site.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

Raymond H. Sato
RAYMOND H. SATO
Manager and Chief Engineer



GERALD PARK
URBAN PLANNER

• Planning
• Land Use
• Research
• Environmental
• Studies

• 1400 Kycroft Street
Suite 876
Honolulu, Hawaii
96814-3021

• Phone/Fax
808 942-7494

April 8, 1997

Raymond H. Sato
Manager and Chief Engineer
Board of Water Supply
630 South Bertania Street
Honolulu, Hawaii 96843

Dear Mr. Sato:

Subject: Independent Living Apartment Complex
Waikole, Ewa District, Oahu, Hawaii

Thank you for reviewing the Draft Environmental Assessment prepared for the subject project. Our responses are numbered to coincide with your comments.

- 1) Applicant shall request a water allocation from the State Department of Land and Natural Resources.
- 2) Thank you for confirming that the existing off-site water system is adequate to accommodate the proposed development.
- 3) Applicant is requesting a 201E exemption from the payment of development charges and meter costs for domestic water and fire protection water use. If this fee cannot be exempted, applicant is requesting to use rates in effect during February, 1997 and defer payment until the project is substantially complete for occupancy.
- 4) On-site fire protection requirements shall be coordinated with the Honolulu Fire Department.
- 5/6) Construction drawings shall be submitted to the Board of Water Supply for review and approval.

We hope these responses adequately address your concerns. Your comments and our responses have been incorporated in the Final Environmental Assessment. Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park
Gerald Park

c: J. Ching, DHCD
E. Shinagawa, ILH