JOHN WAIHEE
GOVERNOR

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

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LETTER NO. (P)1328.3

MAY 14 1993

Mr. Brian J. J. Choy
Director
Office of Environmental
Quality Control
Central Pacific Plaza
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Negative Declaration for Kula Hospital Elderly Housing
TMK 2-2-4:por. 34 and 76, Makawao, Maui

The Department of Accounting and General Services has not received any comments during the 30-day public comment period which began on April 8, 1993. The agency has determined that this project will not have any significant environmental effect and has issued a negative declaration. Please publish this notice in the June 8, 1993 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final EA. If there are any questions, please have your staff call Mr. Allen Yamanoha of the Planning Branch at 586-0483.

Very truly yours,

GORDON MATSUOKA
State Public Works Engineer

AY:jk
Attachments

85

1993-06-08-MA-FEA- Kula Hospital Elderly Housing

JUN - 8 1993

FINAL ENVIRONMENTAL ASSESSMENT

FOR

THE KULA HOSPITAL ELDERLY HOUSING

PROJECT

Prepared for:

State of Hawaii
Department of Accounting and General Services

DAGS Job No. 15-20-4289

May 1993

Prepared by:

Mitsunaga & Associates, Inc.
747 Amana Street, Rm. 216
Honolulu, Hawaii 96814

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PROJECT SUMMARY AND
NOTICE OF DETERMINATION FOR
PROPOSED KULA HOSPITAL ELDERLY HOUSING PROJECT

Proposing Agency:	State of Hawaii, Department of Accounting and General Services
Landowner:	State of Hawaii, Department of Health
Tax Map Key:	2-2-04:34 (portion) and 2-2-04:76

Proposed Action: The Department of General Services proposes to develop an affordable housing project for the elderly in Keokea Town in the Kula area in the Makawao District on the island of Maui (See Appendix B, Figure 2.2). The need for the new facilities have been well-documented in the Kula Hospital Elderly Housing Feasibility Study Final Report of 1988 which was unanimously approved by the Kula Hospital Elderly Housing Advisory Committee, and accepted by the Department of Health. The legislature subsequently approved funds for the design phase of the project. Need for the facilities also documented in the Kula Hospital Elderly Housing Project Planning Development Report (PDR) of March 1993 which was approved and accepted by the Kula Elderly Housing Planning Task Force. The general area is known as "Upcountry" because of its elevation and rural atmosphere. The project will consist of approximately 100 housing units and amenities.

The site of the proposed project is adjacent to Kula Hospital. The housing units will be constructed on land identified by Tax Map Key 2-2-04:76 and a portion of 2-2-04-34, both owned by the State of Hawaii. The housing portion will consist of approximately 13 acres.

The design features of the project are presented in the Kula PDR. It has been determined that the project will be one- and two-story in nature and "barrier free" to enable the elderly residents to live as independently as possible. The housing units will be designed to blend as much as possible with the rural atmosphere of the Kula area.

Determination and Supporting:

Based on the review of the Draft Environmental Assessment and comments received and Supporting: during the consultation phase, it has been determined that the project will not have a significant effect on the environment, as defined by criteria established in Section 11-100-12, Administrative Rules, Department of Health. Therefore, an environmental impact statement is not required for the proposed action.

The proposed facilities will be one-story and two-story and will be designed to blend in with existing rural atmosphere. This can be accomplished with minimal long-term impacts on flora and fauna, water quality, traffic, the visual and aesthetic environment, recreation, public services, utilities and public safety. Short-term impacts such as noise, dust, increased construction traffic, public safety hazards, and silt runoff from the construction site can be minimized through mitigative measures, as deemed necessary. The need for mitigative measures to protect potential historical and archaeological resources has been determined in consultation with the State Historic Preservation Office. (See Appendix B Department of Land and Natural Resources letter from William Paty, File No. 89-238, Doc. No. 4709E, regarding Historic Sites Division Inspection Report.)

Contact Person:

If there are any questions regarding this Notice of Determination, please contact Mr. Ron Maeda of Mitsunaga and Associates, Inc., at 945-7882.

1.0 SUMMARY OF PROJECT, IMPACTS AND MITIGATIVE MEASURES

1.1 Project Summary

Applicant:	State of Hawaii Department of Accounting and General Services
Landowner:	State of Hawaii
Project Description:	Congregate rental housing complex for elderly persons consisting of clusters of one- and two-story buildings with a total of 100 residential units, administrative/recreational building, laundry/housekeeping building and a sewage treatment plant. A variety of services for the elderly residents will be provided by nearby Kula Hospital.
Location:	Adjacent to Kula Hospital in Keokea Town in the Makawao District of Maui.
Tax Map Key:	2-2-04:34 (por.) and 2-2-04:76
Existing Use:	Grazing and housing
State Land Use Designation:	Housing Site: Urban Sewage Treatment Plant site: Agriculture
Community Plan Designation:	Housing & STP Sites: Agriculture
Zoning:	Housing Site: Interim, currently "Urban" re-zoned to "Apartment District (A-1)"
Lot Area:	Total Lot Area: 60.427 acres Lot Area of Project Site: Housing Area=803,000 s.f.

Sewage Treatment Plant Site=143,000 s.f.
Total Project Area=946,000 s.f.

Building Requirements for A-1 Zoning

Buildable Area:	25% of lot area = 236,500 s.f. max 56,599 s.f. provided
Floor Area-Lot Area Ratio:	40% of lot area = 378,400 g.s.f. max 77,525 g.s.f. provided
Height:	Two stories maximum
Min. Lot Area:	Exceeds 10,000 s.f.
Min. Lot Width:	Exceeds min. lot width of 70 ft.
Setbacks:	Minimum Bldg. Setback Required:
Front Yard	15 ft. for 1- and 2-story bldgs.
Side Yard	10 ft. for 1- and 2-story bldgs.
Rear Yard	15 ft. for 1- and 2-story bldgs.
Actual Provided:	
Front Yard	100 ft.
Side Yard	15 ft.
Rear Yard	Exceeds 15 ft.
Construction:	
Admin/Support/ Community Center	Type V 1 hr.
Dwelling Units	Type V 1 hr.
Community Center:	
Dining/Rec.:	A-3
Offices, storage, therapy, kitchen:	B-2
Living Units:	R-1 Apartment houses (Occupants are self-reliant tenants and not patients requiring constant housing supervision; therefore, 1- to 2-occupancy was not considered an appropriate classification for this project.)

1.2 Summary of Major Impacts and Mitigative Measures

The major impacts associated with the proposed project that have been identified can be classified as short-term and long-term. In the short-term, the proposed project will generate noise, dust, and exhaust fumes from construction activities and additional traffic from construction workers traveling to and from the site. Construction-related impacts will be mitigated by standard construction mitigation measures such as frequent watering to minimize dust.

In the long-term, the proposed project will have the major benefit of providing affordable housing to elderly persons, a critical need on Maui. Another benefit is that it would create employment since additional staff would be required at Kula Hospital to provide service to the elderly residents of the project. It is expected that Kula Hospital would generate higher revenues by providing these services, thereby reducing its dependence on State subsidies.

Certain long-term adverse impacts will also be generated by the proposed project. The demand for utilities such as water, electricity, telephone, and solid waste disposal will increase. Water is an issue, particularly in the Kula area, because of shortages experienced during periods of drought. There will be greater demands on public facilities such as parks, police and fire protection, and postal service. Traffic and exhaust generated by vehicles can be expected to increase because of travel by residents, their guests, and additional Kula Hospital staff. Many of these long-term adverse impacts cannot be substantially mitigated.

At a density of between six and seven units per acre, the proposed project will also affect the rural atmosphere of the area. The density of the project was determined in large measure by cost considerations. The cost per unit is reduced with greater density, among other factors, thereby making the units "affordable." Efforts to mitigate the visual effects of density will include design features such as landscaping the project to screen it from Kula Highway. However, the project will not conform with the rural atmosphere of the general area. One of the issues raised by the proposed project is whether its density is justified by the provision of affordable housing for the elderly.

2.0 PROJECT DESCRIPTION

2.1 Need and Purpose

The increase in the proportion and numbers of elderly persons on Maui reflects a demographic transformation occurring in Hawaii and the rest of the nation. In Hawaii, between 1900 and 1990, the elderly population segment (those 65 years or older) increased from 1.7 percent to 11.3 percent of the total resident population. In Maui County, the elderly population reflected the state average of 11.3 percent of the overall population in 1990, with the number estimated to be 11,359. According to the Maui County Office on Aging, Maui's elderly population is increasing at a current rate of 5 percent per year.

Not only is the general population aging, but the elderly population segment is itself getting older. In 1980, persons in Hawaii 85 years and older comprised 7.3 percent of the elderly population, and by 1990 this percentage moved up to 8.3. The Hawaii State Department of Business and Economic Development has projected that this percentage will be 10.2 by the year 2000, and 14.8 by 2010.

As the elderly population segment increases, their demand for goods and services will increase. However, securing adequate and affordable housing is particularly problematic for many of the elderly because of the overall lack of sufficient affordable housing. The elderly are especially impacted by the housing shortage because many are on fixed incomes. For example, the waiting list for Hale Mahaolu, an existing elderly housing project on Maui, has been in the vicinity of 300 with a waiting period for vacancies between two and three years. Clearly, there is a critical need on Maui for more affordable housing for the elderly. This need is well-documented in the Kula Hospital Elderly Feasibility Study (July 1988) by MPAC, Inc., which included a survey of Maui's elderly population and Kula Hospital Elderly Housing Project Development Report (March 1993) by Mitsunaga and Associates. The need for elderly housing has been further documented in the 3-Year Plan for the County of Maui for October 1, 1989 through September 30, 1992 which was submitted by the Maui County on Aging to the State of Hawaii Executive Office on Aging. One of Maui's goals stated in the plan is to provide "affordable housing for older adults who are aging in place." More specifically, the plan documents a need for "an additional 245

units for elderly housing." Other relevant data on Maui's elderly are documented in the U.S. Bureau of Census of Population and Housing Summary Tape File 1A Hawaii (1191). (See Table 2.1A & Table 2.1B in Appendix A for further details.)

While housing alternatives for the elderly were limited in the past to institutionalized long-term care services, the trend now is to provide a wide range of housing alternatives through a variety of intermediate supportive systems that aid independent living. Assisted Independent Living (AIL) programs are designed to keep the elderly in as independent a living environment as possible despite increasing functioning disabilities and frailties that often accompany advancing age. AIL programs are also referred to as "congregate housing."

Recognizing that the elderly population segment is heterogeneous, AIL programs provide for different levels of communal living and resident support services. While many different design alternatives exist, the typical congregate housing scheme consists of independent apartments or bungalows that appear to be conventional, but designed to be "barrier free" inside and outside, thereby making the activities of daily life as convenient as possible for the elderly occupants. The private units often share communal space that makes socializing and domestic care easier as residents become more frail and house-bound. Support services such as chore services, congregate dining, counseling services, and home health care are made available to individuals as needed.

Two critical factors in developing congregate housing are the availability of suitable land and the availability of appropriate services for the elderly. The State of Hawaii owns land in a comfortable country environment adjacent to Kula Hospital. Based upon its history as a care facility, Kula Hospital is capable of providing appropriate services designed for elderly persons living in a congregate housing project. The proposed Kula Hospital Elderly Housing Project is designed to take advantage of State land available near Kula Hospital and the capability of Kula Hospital to provide support services. It should be noted that the current operations of Kula Hospital must be subsidized by State general funds, and the proposed Kula Hospital Elderly Housing Project is expected to reduce this dependence.

The purpose of the proposed Kula Hospital Elderly Housing Project is to address the critical need for elderly housing, provide affordable and appropriately designed congregate rental housing to elderly persons, along with a wide range of supportive services designed to maintain independence as long as possible for the elderly residents.

2.2 Location

The Department of Accounting and General Services proposes to develop an affordable housing project for the elderly in Keokea Town in the Kula area in the Makawao District on the island of Maui. (See Appendix B, Figure 2.2.) The general area is known as "Upcountry" because of its elevation and rural atmosphere. The project will consist of approximately 100 housing units and amenities, and a sewage treatment plant.

It should be noted that there are plans to expand the project in the indefinite future to include additional housing and a senior center where a variety of services would be available.

The site of the proposed project is adjacent to Kula Hospital. The project will be constructed on land identified by Tax Map Key 2-2-04:76 and a portion of 2-2-04:34, both owned by the State of Hawaii. Although the total area of the two lots is 60.427 acres, the project area consists of 21.72 acres (946,000 s.f.), 18.43 acres (803,000 s.f.) for the housing portion, and 3.28 acres (143,000 s.f.) for a proposed sewage treatment plant. The State intends to retain ownership of this public facility. However, based on Kula community input there is considerable support for joint public-private management of the facility. These State-owned lands are under the control of the Department of Health through the auspices of Governor's Executive Order No. 2493 dated December 16, 1969.

2.3 Development Criteria

The particular needs of the elderly must be met when designing any kind of facility for them. For example, the design should compensate for reduced sensory and perceptive capabilities associated with aging. At the same time, however, efforts must be made to overcome the persistent stereotype of old age

as a period of deterioration. Rather, older people must be seen as individuals with an even greater diversity in terms of health, personality, intellect, and overall competence than other segments of society. The facility, itself, must enhance their dignity, support their independence, and encourage their involvement with others.

In recent years, a number of considerations have emerged as useful in the design of facilities for the elderly. While the following goal statements were originally developed to guide the design of senior centers, they are also recommended for use in designing domiciliary housing and retirement communities.[1]

Increase opportunities for individual choice.
The facility should provide an environment that permits the widest possible range of personal choices to the individual consistent with the needs of the group.

Minimize dependence and encourage personal independence.
The ability to do for one's self carries a sense of pride and increases self-esteem. Design supports should be unobtrusive so that those who are more competent are not made to feel dependent.

Reinforce the individual's level of competence.
Environmental supports will help those less able to function on a higher level of competence. We must remember, however, that competence refers to the means sufficient without excess.

Compensate for sensory and perception changes.
The aging process brings change to the individual's sensory mechanisms that can result in decreased perceptive ability. An older person may be unable to smell smoke, to hear an alarm or to see an obstacle in his path.

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[1]Schollenberger, Susan; Wiens, George; and Forman, Dave; The ABC's of Designing a Senior Center with Community Needs in Mind, (1991), pp. 36-39.

Recognize some decrease in physical mobility.
Walking, carrying, climbing, gripping, lifting, pushing and pulling are all motor functions that can become less adept or forceful during the aging process.

Improve comprehension and orientation.
Building products that confuse or produce conflicting information about the environment should be avoided. Spatial organization and circulation patterns should be simple and direct.

Encourage social interaction.
An older person's social contacts are often seriously reduced by retirement from work, loss of health or death of intimate friends. Some seek to establish new friends and acquaintances in the group setting.

Stimulate participation.
The loss of status brought about by retirement from work, a reduction in income and even aging in a youth-oriented society can reduce an individual's self-confidence.

Provide individual privacy.
Not everyone desires the same degree of social contact. Opportunities should also exist for those who want to enjoy more intimate contact with one or two others.

Reduce distractions and conflicts.
A successful facility may have many activities occurring simultaneously. The degree of separation is partly a matter of necessity and partly of choice.

Provide a safe environment.
A facility should incorporate safety features that are easy to comprehend and use, both in day-to-day living and in case of emergency.
Make activities and services accessible.
A central purpose of the program is to make a variety of activities and services available to older members of the community. The location and design of the facility should make it accessible to the largest number of older people.

Improve the public image of the elderly.
The appearance of the facility has the capability of changing false notions about the elderly. Its design should, by its character and aesthetic quality, improve the community's attitudes and concerns for its older population.

Plan for growth and change.
Gerontological facilities are new building types whose form is still evolving. Trends indicate that they will take on an expanded role as providers of services.

2.4 Description of Proposed Units

The proposed uses include clusters of residential units, support facilities, vehicular and pedestrian circulation, and a sewage treatment plant.

Residential Units

The proposed Kula Hospital Elderly Housing Project is a two-story cluster complex consisting of approximately 100 dwelling units, 90 of which will be one-bedroom units (574 s.f.), and 10 of which will be two-bedroom units (749 s.f.). Each unit will have a kitchen, bathroom, dining area, living room, bedroom(s) and lanai. Preliminary schematic plans have been prepared for the site, buildings, and unit floor plans. (See Appendix C, Figures 2.4A through 2.4I.) Preliminary drawings have also been prepared for the housing units, including designs for one-bedroom units (574 s.f.), and for two-bedroom units (749 s.f.) bedroom, and also excess units with an approximate 66 s.f. lanai area. (See Appendix C, Figures 2.4D, through 2.4G.)

Support Facilities

The overall complex will include a business administration office, common dining/recreation area, housekeeping rooms, laundry rooms, personal care facilities and an on-site medical dispensary. In addition, the complex will facilitate programs for on-call physician services, access to Kula Hospital's Out-patient Clinic and Pharmacy, and dietetic supervision.

Preliminary designs for the Administrative/Community building and the proposed laundry facilities are also shown in Appendix C, Figure 2.4H and Figure 2.4I

Security

Private security service will be employed to patrol the premises. A central security desk will be located within the lobby of the Administration/Community Center Building. The Maui County Police Department, headquartered in Wailuku, dispatches all police on the island.

Housekeeping

Private bonded housekeeping service will be hired for the residential units. A central housekeeping office is to be located at the Administration/Community Center Building. Housekeeping supplies and storage areas are to be located with the laundry facility.

Laundry

A separate common laundry and housekeeping facility (one per two or three clusters) will be considered to economize on construction costs and to create a "subgroup gathering/socializing place."

Vehicular and Pedestrian Circulation

Access to the site will be improved by providing a new roadway directly from Kula Highway. In addition, the road to the hospital will be improved. Parking will be provided adjacent to the housing. However, the State will seek a waiver to reduce the number of parking stalls from 200 to 100 due to the reduced demand of elderly residents.

Building clusters will be linked by walkways with minimal slope to allow the handicapped ease in circulation. Building clusters at different levels will be joined by ramps with a slope of 1:12 per UFAS. The walkways will be wide enough to provide for access of emergency vehicles, such as fire trucks and ambulances. Due to the steep terrain, the length of the ramps connecting the various building

clusters will be long. Thus, lift stations will be provided in addition to walkways to get from one level to another. The gradually sloped pathways can also be used for exercise paths by ambulatory elderly residents.

Kula Hospital will provide shuttles and gas powered golf carts for transporting residents within the grounds of the project and Kula Hospital. These carts are to be parked adjacent to each building cluster. (The quantity and allocation of carts will be determined at a later date by the Administrator.) Carts will be serviced, maintained and stored at a central location by the Administration/Community Center Building.

Sewage Treatment Plant

The project will need to have a secondary Sewage Treatment Plant in order to dispose of its wastewater. The proposed sewer system to accommodate anticipated sewage flow is explained in detail in the Civil Engineering Report in Section 3. of the Kula Hospital Elderly Housing Project Planning Development Report (PDR) of March 1993. The proposed sewer system is also shown in Figure 15, the Site Utility Plan as part of the Electrical Engineering Report in Section 3 of the PDR.

2.5 Funding

The Kula Hospital Elderly Housing Feasibility Study, issued in 1988, suggested four alternate arrangements for ownership, management, and financing. Administrative expenses have been estimated to be between $6,000 and $9,000 per month, depending upon management arrangements. Other monthly expenses, excluding debt service, but including such expenses as utilities, maintenance, and insurance were estimated to be $28,000 per month. Rental income was estimated to be $57,000 per month. These figures would need to be revised to reflect 1992-1993 costs of these services.

Based upon these figures, projections were made for different financing arrangements, as follows:

(1) Financing by a Non-established Private Firm with State Help.

(2) State Financed Project.

(3) Financing by an Established Private Firm with No State Help.

(4) Financing by an Established Private Firm with State Help.

Largely due to the high cost of borrowing money for the construction of the project, losses were projected under all of the various financing arrangements. These losses range from a projected $17,130 per month to $41,823 per month.

Due to the projected losses, the study suggested that the State Legislature appropriate funds for the construction of the project. Eliminating the need for debt service would enable the project to yield an annual net income of $334,332.

The total estimated construction cost, excluding the sewage treatment plant, is $16,263,000. The design cost is approximately $1,138,000 which is 7 percent of the estimated total construction costs. (See Planning Development Report (March 1993) by Mitsunaga and Associates, Inc.. Also, see the summary cost estimates for each aspect of the project construction as well as a breakdown by building provided in Appendix F.)

2.6 Development Timetable

Based on a preliminary estimate, site preparation and construction is expected to begin in mid-1994, and occupancy is projected for 1996.

It is expected that the project schedule will reflect the following tentative sequence.

1.	Acceptance of PDR	Jan. 1993
2.	EA	Jan. - Mar. 1993
3.	Acceptance of EA	Apr. 1993
4.	Design Phase	May 1993 - Apr. 1994
5.	Acceptance of Design	May 1994
6.	Construction	Jun. 1994 - Dec. 1995
7.	Occupancy	Jan. 1996

It should be noted that the construction phase is pending the completion of the water line (discussed in Section 3.12.1), rezoning requirements (discussed in Section 4.3.5), resolution of the unresolved issues (discussed in Section 11.0), and State legislative appropriation of funds.

3.0 AFFECTED ENVIRONMENT

3.1 Existing and Surrounding Uses

The site is adjacent to Kula Highway and is currently accessed through Kula Sanatorium Road and a one-lane "private" road that runs along the site perimeter from Kula Highway to Kula Hospital.

Five buildings currently exist on the site: three houses (two of which are used as residences for hospital staff, the other has been abandoned), an abandoned building, and "Wahine O'Kula" (the Kula Hospital Thrift Shop with its nearby storage shed). (See Figure 3.1A, Topographic Survey Map in Appendix B.) For a visual description of the site of the proposed project, see Appendix D for photographs of the site and the surrounding area.

Demolition will remove from service the two homes currently used for residence by hospital staff. Although future expansion plans call for employee housing to be developed by the State as a separate project, Kula Hospital may need to address interim housing for staff displaced by construction of the proposed project. (See Figure 3.11.2A in Appendix B.)

The surrounding uses and owners are as follows:

North of project site:	Rural; State; and Hawaiian Homes Land
South of project site:	Urban; Agriculture; State; and State Land Grants to several individual owners
East of project site:	Rural; Agriculture; State Land
West of project site:	Agriculture; State Land and small lot State Land Grant to the Board of Hawaiian Evangelical Association

3.2 Geology

3.2.1 Subsurface Composition

Kula is located on the slope of Haleakala, one of two shield volcanoes that make up the island of Maui. Haleakala is the much younger of the two, still showing the classic, rounded form of the typical shield.

The rocks of the main shield-building stage are theoleiitic basalts. These are rich in magnesium and iron and poor in alkalies (sodium and potassium), exhibiting a fine grained matrix and stony appearance. Many of the rocks of the late stage are alkalic basalts, which contain more alkalies than the theoleiitic basalts. Along with the alkalic basalts are hawaiite and mugearite, which also contain less iron and magnesium and more alkalies. On Haleakala the late stage lavas consist very largely of alkalic basalt and hawaiite. The post-erosional lavas of Haleakala are largely alkalic basalts.

3.2.2 Volcanic Activity

Haleakala last erupted in about 1790 and may be considered to be dormant.

3.2.3 Seismic Activity

The Island of Maui is in Seismic Zone 2, as established by the Uniform Building Code, indicating moderate damage risk from earthquake. The range of seismic risk varies from Zone 0, indicating no damage, to Zone 4, indicating major damage.

Major earthquakes in Hawaii, as elsewhere, are the result of faulting. Some of the faults are on the volcanoes, while others are on the ocean floor near the islands. The last large earthquake affecting Maui occurred in 1938. With a magnitude of 6.75, this earthquake had its epicenter about 40 kilometers north of Pauwela Point on the north shore of Maui. Experts believe that the epicenter was on one of the strands of the Molokai fracture zone, an extensive system of sea-floor faults that trends westward from Baja, California to Hawaii.

3.2.4 Topography

Much of the western portion of Haleakala is characterized as "slightly dissected upland," or slopes cut by widely spaced erosional gullies. The project site is on a moderate slope. The slope varies from 25 percent to 33 percent in steeper areas (which will not be built on) and from 5 percent to 8 percent in less steep areas (the buildable areas). The site slopes upward towards a south-southeasterly direction and downward towards a northerly direction. Through the use of the existing slope a visual emphasis can be created with views to the ocean and down slope. There are several large rock outcroppings on the project site. (See Figure 3.1A, Topographic Survey Map in Appendix B.) The project design uses the sloping terrain to its advantage by providing "ground floor" access to the second floor units. All units, therefore, will have ground floor access. (See Figure 2.4C in Appendix C.)

3.2.5 Major or Unique Features

Based on several site reconnaissance field surveys and the topographic surveys, there are no unique features.

3.2.6 Soils

Considerable research has been performed on the soils of Hawaii, and various systems have been designed for evaluating them from an agricultural perspective. These evaluations are generally in agreement with each other, and information from the most commonly cited sources are included in this section.

In 1967, the Land Study Bureau at the University of Hawaii published Detailed Land Classification - Island of Maui. One of the objectives of the report was to evaluate the quality, or productive capacity, of Maui lands. All land types were rated in two ways as follows:

(1) For overall suitability for agricultural use and

(2) For selected crops such as pineapple, vegetable, sugar cane, orchard, grazing, forage, and timber.

A five-class productivity rating was applied to each type of evaluation, using the letters A, B, C, D, and E, with A representing the class of highest productivity and E the lowest. Capital letters were used for Over-all Productivity Ratings. Lower-case letters were used for Selected Crop Productivity Ratings, except for timber. (Timber was given only two ratings, "Co," designating commercial forest land, and "NCo," designating non-commercial forest land.)
The site of the proposed project is composed of mainly Land Type 39, but also includes Land Type 40. (See Appendix B, Figure 3.2.6A.) The ratings for each of these Land Types are as follows:

Land Type 39

(1) Overall Productive Rating: D

(2) Productivity Ratings for Pineapple, Vegetable, Sugar Cane Orchard, and Forage: e
Productivity Rating for Grazing: b.
Productivity Rating for Timber: Co.
(See Appendix A, Table 3.2.6A.)

Land Type 40

(1) Overall Productive Rating: C

(2) Productivity Rating for Pineapple: d
Productivity Rating for Vegetable: c
Productivity Rating for Sugar Cane: e
Productivity Rating for Orchard: b
Productivity Rating for Forage: d
Productivity Rating for Grazing: b
Productivity Rating for Timber: Co
(See Appendix A, Table 3.2.6B.)

In August 1972, the Soil Conservation Service of the United States Department of Agriculture issued the Soil Survey of the Islands of Kauai, Oahu, Maui,

Molokai, and Lanai, State of Hawaii (Soil Survey), which contains "information about the soils of Hawaii that can be applied in managing farms, ranches, and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in appraising the suitability of tracts of land for farming, ranching, industry, or community development." In addition to descriptions of the soils, each is given a capability classification from I to VII, with I being the highest. Each soil is rated as irrigated or non-irrigated land.

According to the soil survey, the site of the proposed project includes two soil series and two phases of one of these series. The Kula series covers the great majority of the site. Kula Very Rocky Loam, 12 to 40 Percent Slopes (KxbE) covers most of the site, and Kula Loam, 12 to 20 Percent Slopes (KxD) covers a portion of it. The remainder of the site is covered by the Kaipoioi series, in particular Kaipoioi Loam, 7 to 40 Percent Slopes (KDIE). (See Appendix B, Figure 3.2.6B.)

The descriptions of these soil phases and their capability classification ratings are as follows:

(1) Kula Very Rocky Loam, 12 to 40 Percent Slopes (KxbE).

This soil has a profile like that of Kula cobbly loam, 12 to 20 percent slopes, except that rock outcrops cover 10 to 25 percent of the surface.

The description of Kula cobbly loam, 12 to 20 percent slopes, is as follows: This soil is on intermediate uplands. In a representative profile the surface layer is dark reddish-brown loam about 8 inches thick. The subsoil, about 46 inches thick, is dark reddish brown loam, silt loam, and silty clay loam that has subangular blocky structure. The substratum is slightly weathered basic igneous rock. The soil is slightly acid in the surface layer and slightly acid to neutral in the subsoil. Permeability is moderately rapid. Runoff is medium, and the erosion hazard is moderate. The available water capacity is about 1.8 inches per foot of soil. In places roots penetrate the rock.

Kula very rocky loam, 12 to 40 percent slopes is used for pasture and wildlife habitat. This soil received a capability classification of VI, nonirrigated.

(2) Kula Loam, 12 to 20 Percent Slopes (KxD)

This soil has a profile like that of Kula cobbly loam, 12 to 20 percent slopes, except that it is nearly free of cobblestones. Kula loam, 12 to 20 percent slopes is used for pasture and truck crops. This soil received a capability classification of IV, irrigated or nonirrigated.

(3) Kaipoioi Loam, 7 to 40 Percent Slopes (KDIE)

This soil is on smooth to rolling high mountain slopes. In a representative profile the surface layer is black loam about 10 inches thick. The subsoil, about 51 inches thick, is black and very dark brown silt loam or silty clay loam that has subangular, blocky structure. The substratum is ash and cinders. The soil is neutral in the surface layer and mildly alkaline to neutral in the subsoil. Permeability is moderately rapid. Runoff is slow to medium, and the erosion hazard is slight to moderate. The available water capacity is about 2.6 inches per foot in the surface layer and about 1.6 inches per foot in the subsoil. In places roots penetrate to a depth of 60 inches or more. This soil is used for pasture and wildlife habitat. This soil received a capability classification of VI, nonirrigated.

In addition to agricultural information, the soil survey also provides estimates of soil properties important in engineering uses. The estimates are based on field classification and descriptions, physical and chemical tests of representative samples, test data from comparable soils in adjacent areas, and on detailed experience in working with the individual kind of soil in the survey area. (See Appendix A, Table 3.2.6C.) The soils at the proposed project were researched with regard to suitability for building, especially in view of the slope of the land. Based on a review of the existing soil classifications with several experts in the

field, the general conclusion is that the soils at the project site are *stable and suitable* for the proposed low structures.

Another system established by the Board of Agriculture created three classes of Agricultural Lands of Importance to the State of Hawaii (ALISH). These classes are as follows:

(1) Prime Agricultural Land is land best suited for the production of food, feed, forage, and fiber crops. The land has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when managed properly.

(2) Unique Agricultural Land is land other than Prime Agricultural Land and is used for the production of specific high-value food crops. The land has the special combination of soil quality, growing season, temperature, humidity, sunlight, air drainage, elevation, aspect, moisture supply, or other conditions, such as nearness to market, that favor the production of a specific crop of high quality and/or high yield when the land is managed properly. In Hawaii, some examples of such crops are coffee and taro.

(3) Other Important Agricultural Land is land other than Prime or Unique Agricultural Land that is of state-wide importance for the production of food, feed, fiber, and forage crops. The lands in this classification are important to agriculture in Hawaii, yet they exhibit properties such as seasonal wetness, erodability, limited rooting zone, slope, flooding, or droughtiness, that exclude them from the "Prime" or "Unique Agricultural Land" classification.

The site of the proposed project has not been classified with respect to an ALISH rating because of its use as a hospital. However, lands immediately mauka of Kula Hospital have been classified as "Other Important Agricultural Land."

Yet another system, rating the agricultural suitability of land parcels and identifying Important Agricultural Lands (IAL), was specified by the Hawaii Land Evaluation and Site Assessment (LESA) Commission. Two basic components,

Land Evaluation (LE) and Site Assessment (SA) comprise a LESA system. The LE component measures agricultural productivity as determined by soils, topography, climate, and other physical factors. LE ratings for different soil types have been determined. The SA component assesses agricultural suitability due to the relative location of a parcel and other spatial aspects of land use. The LESA rating for a parcel of land would be determined by averaging the LE and SA scores. The University of Hawaii has been contracted to map SA factors, and this work is currently in progress. As such, SA ratings, and therefore composite LESA ratings for particular sites are not readily available.

LE ratings for the soils on the site of the proposed project are as follows. On Maui, Kula very rocky loam, 12 to 40 percent slopes (KxbE) was rated 42 on the LE scale. Kula loam, 12 to 20 percent slopes (KxD) was rated 67. Kaipoioi loam, 7 to 40 percent slopes (KDIE) was rated 51. For comparison purposes, the highest LE rating for soil on Maui is 93, and the lowest rating for soil on Maui is 15.

As noted previously, since SA ratings for particular sites are not readily available, composite LESA scores are also not available. However, cutoff LESA scores for each island have been determined, and lands with scores equal to or higher than the cutoff are categorized as IAL. For Maui, the cutoff LESA Score is 61.

In summary, a number of studies have contributed to the understanding and evaluation of the soils of the site of the proposed project. While there is general agreement that the soils of the site of the proposed project are of some value agriculturally, they are not of high quality.

3.3 Hydrological Characteristics

3.3.1 Ground Water

Ground water in the general area of the site of the proposed project consists of basal water in lavas. (See Appendix B, Figure 3.3.1.)

3.3.2 Surface Water

Based on site reconnaissance and topographical survey there is no evidence of surface water or wetlands on the site.

3.3.3 Flooding

The site of the proposed project is located in an area that has been classified by the Federal Insurance Administration as Zone C, designating "areas of minimal flooding." The Flood Insurance Rate Map (FIRM) panel for the area has not been printed because the entire area is in Zone C.

3.3.4 Drainage

Existing drainage is disposed of by surface runoff, and drainage swales that run across the site in several areas must be taken into consideration. A large drainage gulch is located just north of the project.

The increase in runoff due to development is estimated to be double that of the anticipated existing runoff from approximately 25 c.f.s. to 50 c.f.s. This additional runoff will be intercepted by the proposed internal drainage system shown in the Preliminary Site Utility Plan. Two major areas of runoff discharge are proposed. Runoff generated from areas on the east side of the parcel will be discharged across Kula Highway to an existing drainage basin. Runoff from the west side of the parcel will be conveyed to the onsite area between the Kula Sanatorium Road and Thompson Road to a sedimentation basin and allowed to sheet flow across Ulupalakua Road.

3.4 Traffic

3.4.1 Transportation Availability

Transportation to and from the site would be mainly automobiles. Since there is no daily bus route to Kula, a minishuttle bus could be used to take residents to and from the site. Presently, limited transportation services are provided to the

elderly by the Maui Office of Economic Opportunity and the Maui Center for Independent Living through coordination by the Maui Office on Aging.

3.4.2 Area Roadway System

The site of the proposed project is adjacent to Kula Highway, which provides access to Pukalani and Makawao to the north and Ulupalakua to the south.

Thompson Road is the only access to the proposed Kula Elderly Housing Development and serves as a small feeder roadway to Kula Highway. The roadway is a paved, two-lane road, which provides service to about twelve families in addition to the Kula Hospital.

Kula Highway curves just before the intersection with Thompson Road, limiting sight to about 150 feet from the Thompson Road stop sign. A "Do Not Pass" sign also restricts the use of the ongoing lane to pass slower vehicles. This sight limitation, given the existing speed limit of Kula Highway, will not create unusual traffic safety concerns or conditions at the Kula Highway intersection with Thompson Road.

The speed limit along Thompson Road is 15 miles per hour, and further up to the hospital it is reduced to 10 miles per hour. Along Kula Highway, the speed limit is 35 miles per hour. There is an additional one-lane residential road along Thompson Road about 250 feet from the intersection with Kula Highway. There are also about two residential driveway access points further along Thompson Road. All access is controlled by the State Department of Transportation, Highways Division. (See Appendix B, Figure 3.4.2, for a map of roads in the area and Appendix E, Traffic Analysis, Figures 1 and 2.)

A one-lane "private" road runs northerly from Kula Hospital, along the perimeter of the proposed project and joins Kula Highway approximately 240 feet from the intersection of Kula Highway and Thompson Road. Access to the site will be provided by this road and a new access road along Kula Sanatorium Road which will run through the site and connect to the existing "perimeter" road. To control traffic through the premises, the project design will minimize creation of additional roads that cut across the site.

The road to the hospital and the perimeter road will be improved. Parking will be provided adjacent to the housing, close to the buildings, for ease of access. The existing perimeter road and Kula Sanatorium Road will be used to access parking areas. A waiver for half the required parking stalls will reduce the number from 200 to 100 due to the reduced demand for parking by residents of an aged facility. (See Conceptual Site Plan in Appendix C.)

3.4.3 Traffic Volumes and Conditions

The existing traffic volumes for roadways near the site, as shown on Figure 1 in Appendix E, were taken in April 1992 by the State Department of Transportation, Highways Division.

There is no traffic flow or capacity problem at the Thompson Road/Kula Highway intersection, as shown by Tables 3 and 4 in Appendix E. The intersection is still running under critical volume capacity by a large margin.

The existing Level of Service at this intersection is Level A during the morning peak period and Level B during the afternoon peak period. The projected Level of Service with the project at full occupancy is Level B at both the morning and afternoon peak periods.

3.5 Climate

Climatological data have been collected at Kula Hospital by the National Oceanic and Atmospheric Administration (NOAA) for many years, so composite data can be expected to accurately predict future conditions. Generally, the highest temperatures and lowest rainfall occur in the summer months, and the lowest temperatures and highest rainfall occur in the winter months.

The most recent composite information for temperature is based upon data recorded from 1919 through 1978. During this period the annual average maximum temperature was 72.4° F., while the annual average minimum temperature was 55.0° F. The highest monthly average maximum temperature occurred in July (75.4° F.). The lowest monthly average maximum temperature occurred in February (69.7° F.). The highest monthly average minimum

temperature occurred in August and September (57.5° F.). The lowest monthly average minimum temperature occurred in February and March (52.5° F.). The most recent composite information for rainfall is based upon data recorded from 1916 through 1983. During this period rainfall has averaged 33.5 inches annually, with the highest average rainfall occurring in January (5.3 inches), and the lowest average rainfall occurring in June (1.7 inches).

The station recording wind data nearest to the project site was Kahului Airport. Based upon information compiled through 1963, the wind was generally from the northeast at a mean speed of 12.8 mph. The highest mean speed occurred in July (15.6 mph), while the lowest mean speed occurred in February (11.1 mph). The prevailing wind was from a northeasterly direction in each month except in January, when the prevailing wind was from a south-southwesterly direction, in February, when the prevailing wind was from a southerly direction, and in June, when the prevailing wind was from an east-northeasterly direction. (See Appendix A, Tables 3.5A, 3.5B, 3.5C, and 3.5D for more detailed information on rainfall, temperature, and wind.)

The average amount of sunshine for general areas on each of the major islands has been estimated by the Department of Business and Economic Development (DBED). The amount of sunshine falling on any area is measured in calories per square centimeter per day. According to DBED's Maui Sunshine Map, the site of the proposed project receives between an estimated 400 and 450 calories per square centimeter per day. For purposes of comparison, Wailuku also receives an estimated 400 to 450 calories per square centimeter per day, or about the same amount of sunshine. Makawao and Pukalani receive between an estimated 350 and 400 calories per square centimeter per day, or slightly less sunshine than the site of the proposed project. Kahului and Lahaina both receive between an estimated 450 and 500 calories per square centimeter per day, or slightly more sunshine than the site of the proposed project. (See Appendix B, Figure 3.5 for sunshine map)

3.6 Ambient Air Quality

The state and federal governments have established ambient air quality standards. (See Appendix A, Table 3.6A.) The State Department of Health has

installed samplers measuring particulate matter equal to or less than 10 microns in diameter (PM-10) at Lahaina and Kihei. These are the air monitoring stations nearest the site of the proposed project. Sulphur dioxide (SO_2) sampling has also been conducted at Kihei. (See Appendix A, Tables 3.6B, 3.6C and 3.6D.) The data indicate that state and federal standards for inhalable particulates (PM-10) and SO_2 are being met. Note that the State has standards for total suspended particulate matter (TSP), but it is measuring PM-10 particulates, for which it has no standards. PM-10 and TSP are not directly comparable.

The principal automotive pollutants, carbon monoxide (DCO), nitrogen dioxide (NO_2) and ozone (O_3) are not routinely monitored on Maui. However, the site of the proposed project is adjacent to Kula Highway, so vehicular activity affects air quality at the site. Also, occasionally volcanic air pollution from Kilauea Volcano on the Big Island can affect Maui's air quality.

3.7 Ambient Noise Environment

In the rural setting of the proposed project, the primary noise generator is traffic traveling along Kula Highway. Noise from sources such as traffic is commonly measured in A-weighted decibel units (dBA). The A weighting refers to the emphasis of certain sound frequencies over others to simulate the sensitivity of the human ear. The decibel scale is logarithmic, and a 10-fold increase in sound energy results in an increase of three dBAs, the smallest change in noise level considered to be noticeable by the majority of people.

Several federal agencies including the Department of Housing and Urban Development (HUD) normally allow residential uses at areas where the Day-Night Average Sound Level (Ldn) is less than 65 decibels (dBAs).

A 1991 noise study[2] indicates that because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-

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[2]AM Partners, Final Environmental Impact Statement for Kailua Elderly Housing Project, May 1991.
Y. Ebisu & Associates, Noise Study for the Proposed Kailua Elderly Housing Project, Kailua, Oahu, prepared by AM Partners, February 1991.

to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 Ldn does not eliminate all risks of noise impacts. Because of these factors, and as recommended in Reference 3, a lower level of 55 Ldn is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise. However, after considering the cost and feasibility of applying the lower level of 55 Ldn, government agencies such as FHA/HUD and VA have selected 65 Ldn as a more appropriate regulatory standard." (See Table 1.)

The study further states that , "As a general rule, noise levels of 55 Ldn or less occur in rural areas, or in areas which are removed from high volume streets." Given the rural location of Keokea Town and low traffic volume as demonstrated by the large margin by which the intersection of Thompson Road and Kula Highway operates under critical volume capacity, the project site satisfies this description of the 55 Ldn or less noise level setting. Even assuming full occupancy of the project, critical volume is still expected to be well under capacity. (See Section 3.4.3.) Therefore, noise levels are expected to remain within the 55 Ldn "Unconditionally Acceptable" level of exterior noise at full project occupancy, and significant impacts are not expected.

The various construction phases of the development project may generate significant amounts of noise; the actual amounts are dependent upon the methods employed during each stage of the process. Typical construction equipment noise ranges in dBA are shown in Figure 19. Earthmoving equipment such as bulldozers and diesel trucks will probably be the loudest equipment used during construction, generating noise levels as high as 95 dBAs at the nearest residential areas. Such exposures are not a long-term condition, and construction noise is not generally considered a significant impact.

Environmental criteria and Standards, Noise Abatement and Control, 24 CFR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, 1979.
"Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety;" Environmental Protection Agency (EPA 550/9-74-004); March 1974.

3.8 Existing Demand for Housing and the Social Environment

With a population of 100,504 in 1990, Maui County is the third most populous County in the State. According to projections by the Department of Business and Economic Development (DBED), Maui County's resident population will increase 45 percent by the year 2010 to 145,200. This rate is nearly twice as fast as Oahu's projected increase of 26 percent.

In 1990, there were a total of 42,261 housing units in Maui County, an increase of 27 percent from the 33,154 units existing in 1980. During that same period the resident population increased 42 percent. The demand created by the resident population growing more rapidly than the available number of housing units has resulted in steadily increasing housing costs.

High housing costs have affected the availability of affordable housing for all age groups. For example, in December of 1988 the mean price for a single family house on the island of Maui was $372,460, roughly three times the price appropriate for a household earning the median annual income of $34,000. While this situation reflects the development and sale of homes for a specialized luxury market, it also indicates a lack of units for less affluent markets.

In 1990, studies identified unmet housing needs to be approximately 7,500 units for Maui.[3] Every year about one-third of the households which are qualified and interested in buying houses make 80 to 140 percent of the median income. However, housing sales at prices affordable for such households - $175,000 or less - amounted to only 28 percent of sales on Maui for a period including 1989 and some time just prior to that year.[4]

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[3]PBR Hawaii, Lahaina Master Planned Project Final EIS, February 1990, p. IV-34.
[4]Ibid., p. IV-34.

The following statistics from a study[5] performed in 1989 indicate that housing conditions are unsatisfactory for many:

- In 6.7 percent of the homes surveyed, the number of people was greater than the number of rooms. This is "crowding" according to the U.S. Census definition.

- In 11.7 percent of housing units on Maui, two families share a home.

- In about 15 percent of Maui family households, at least one unrelated person was living with the family.

The Island of Maui, in general, and the Makawao District, in particular, have experienced substantial growth since 1970. Makawao's resident population of 9,979 in 1970 increased by 90.4 percent to 19,005 in 1980, and an additional 54 percent to 28,207 in 1990 making the district one of the fastest growing areas in the State of Hawaii.

In 1990, 125,005, or about 11.3 percent of the State's 1,108,229 resident population, were 65 years of age or older. For Maui the percentage was similar.

According to the 1980 U.S. Census, 64.9 percent of the people on Maui were Hawaii-born. Nearly 75 percent had been Maui residents for five or more years. The major ethnic groups represented in Maui County were Caucasian (33.6 percent in 1980), Japanese (22.1 percent), Filipino (18.9 percent), and Hawaiian (17.3 percent).

3.9 Economic Characteristics

The dominant economic activity in the Up-country area is agriculture. Major crops include pineapple, head cabbage, lettuce, and round onions. The production of ornamental flowers, such as carnations and protea, is also an important activity. The majority of crop and flower farms are small operations,

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[5]Study by SMS Research, 1989 as quoted by PBR Hawaii, Lahaina Master Planned Project Final EIS, February 1990, p. IV-44.

typically five to ten acres in size. The Kula area is a major truck crop and flower producing region of the state. Cattle ranching is also done in the upcountry area, primarily around Ulupalakua.

Maui per capita personal income in 1989 was $17,121, compared to a state per capita income of $18,379. In 1990, the island of Maui experienced the lowest unemployment rate in the state, at 2.4 percent, or 1,300 individuals. During the same period the statewide unemployment rate was 2.6 percent.

In 1990 the jobcount for Maui County was 55,000. Of this total, 48,300 were wage and salary jobs in the nonagricultural sector, which included contract construction (3,150), manufacturing (1,950), transportation-communication-utilities (3,000), trade (13,650), finance-insurance-real estate (3,350), services-miscellaneous (17,350), and government (5,850). Of the total jobcount for Maui, 2,600 were wage and salary jobs in the agricultural sector, 3,700 were self-employed in the nonagricultural sector, and 400 were self-employed in the agricultural sector. (See Appendix A, Table 3.9 for more details.)

3.10 Biological Resources

3.10.1 Flora

The project site is located on the leeward slope of Haleakala. Prior to human settlement, native vegetation prevailed in the general region. At lower elevations there was a variety of dry grassland, shrubland and forest types. This vegetation underwent a transition to more mesic native forests with increasing elevations, and at subalpine elevations to sparse native shrublands.

Upon settling East Maui, the early Hawaiians probably converted some of the land to pili (*Heteropogon contortus*) grassland and farmed dryland crops such as sweet potato (*Ipomoea batatas*). In the moister upland gulches, they may have encouraged other species they introduced to Hawaii such as kukui (*Aleurites moluccana*), which displaced native plants. However, the major effect of the Hawaiians was most likely their use of wildfire in shifting agricultural practices.

The large feral cattle populations of the 1800's had some impact on native vegetation. Feral goats also probably altered the native vegetation through chronic grazing. During the 1800's and early 1900's the native mesic forests of Kula were burned, harvested, and replaced by ranch pastures.

As the native vegetation declined, non-native (alien) plants such as kiawe (*Prosopis pallida*), lantana (*Lantana camara*), Christmas berry (*Shinus terebinthifolius*), and pasture grasses became established and displaced native plants. Some reforestation efforts were undertaken in the general area using non-native trees such as black wattle (*Acacia mearnsii*), silk oak (*Grevillea*), and pride of India (*Melia azederach*).

A biological study was performed in 1990 for a 6,000 acre parcel near the site of the proposed project.[6] According to the study, 179 or 30 percent of the state's rare plants are found on Maui, and 132 of these have been reported from East Maui. Ten rare plants have been reported to occur in or near the parcel that was the subject of the study. All of these rare plants were found on the young lava flows on the parcel. The site of the proposed project does not contain young lava flows. Also, most of the property has been inhabited and built upon by former and existing structures which reinforce the conclusion. There are no endangered plants on the site, additionally, most of the property has been disturbed by many sources, including construction of the sanatorium and related structures, farming of the land by sanatorium patients, grazing by horses and cattle and human habitation. Therefore, it is unlikely that any threatened or endangered species of flora exist on the proposed project site. Also, based on the field reconnaissance of the site on 1991 and 1992 there was no evidence of rare flora at the project site. It should also be noted that the U.S. Fish and Wildlife Service, in response to a request for information on the project site stated that, "there are no listed or proposed endangered or threatened species of animals or plants within the Fish and Wildlife Service's jurisdiction that would be expected to be found in the vicinity or, or would be affected by the project." (See letter from U.S. Fish and Wildlife Service of January 11, 1993 in Appendix B.)

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[6]The Nature Conservancy of Hawaii - Hawaii Heritage Program, Biological Database and Reconnaissance Survey of the Department of Hawaiian Home Lands Kula Parcel, October 1990, p. 19.

3.10.2 Fauna

The fauna of the area consists of introduced species which are common throughout the Hawaiian Islands. These include rats, mice, mongooses, cats, and dogs. Birds found in the region include the cardinal, barred dove, mockingbird, myna, golden plover, pueo, ricebird, house sparrow, white eye, and spotted dove.

There are no known endangered species of fauna within the project service area. Because the area has no wetland resources, there is little likelihood of encountering any protected waterbird species such as the Hawaiian coot, gallinule, stilt, or duck.

According to the biological study cited in the previous section,[7] the general areas surrounding the site of the proposed project supports a number of endemic species. However, based on a field survey of the specific proposed site it is not expected that development of the site will impose a significant impact to endangered bird populations supported within surrounding areas. (See letter from U.S. Fish and Wildlife Service in Appendix B.)

3.10.3 Unique Habitats

There are no unique habitats identified within the project site.

3.11 Historical and Archaeological Resources

3.11.1 Historical Overview

The site of the proposed project is located in Keokea Town in the Makawao District (Kula), Island of Maui. Makawao can be translated as "Watchful eyes of Wa-o" (timeless or eternity). Early accounts of the Makawao District generally either describe the area or relate early historical events to the area. Area

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[7] Ibid.

descriptions usually concern the atmosphere or weather, and in particular the unusual soft rain pattern typical of the area.

One account (Isabella Bird) in 1873 characterized the air as "sweet" and mentioned a sugar plantation. According to this account, the plantation was one of the finest on the islands, and owing to the slow maturity of the cane at about 2,000 feet above sea level, the yield was from five to six tons an acre. Water was scarce.

Although Keokea was Crown Land, the many small parcels granted there may be a result of an experiment in trial of fee ownership conducted by the Kamehameha III administration prior to the Great Mahele. In 1845, when the new law was written and partially enacted, the government decided to conduct an experiment, and Makawao was one of two places selected for it.

The King toured Maui in December 1845, and January 1846, visiting Makawao. An announcement was made that the entire district, with the exception of McLane's plantation, was to be offered for sale to the people in fee simple. The land was sold at one dollar per acre. Most of the parcels ranged from five to ten acres, and nearly 100 parcels were purchased.

The Kula area did not support taro farming, but potatoes could be grown there. The whaling ships that frequented Maui after 1840 created a strong demand for potatoes, both sweet and Irish. During the 1840s and 1850s the cultivation of potatoes was of great importance in the Kula district. In fact, Irish potatoes adapted so well to Kula that it soon became known as the "potato district." The potatoes were carried from this upland region down to the shore and taken to Lahaina or to ships docked at Kalepolepo.

The California gold rush increased the demand for potatoes, as well as other vegetables and vegetable products such as sugar and coffee. A potato "boom" commenced in the fall of 1849. Many people moved to Kula to farm. Government lands in Kula were offered for sale to native Hawaiians at the price of three dollars an acre to encourage the spirit of enterprise.

However, the potato boom was short lived, and when prices dropped the Hawaiians lost interest. However, the Chinese who had begun to lease lands in Kula during the 1840s took advantage of this agricultural opportunity. Although by the mid 1850s the demand for Kula potatoes had diminished, the Chinese population continued to grow. Between 1880 and 1910 approximately 80 Chinese families had moved to Kula. By 1900 there were approximately 700 Chinese living there.

In addition to Irish potatoes, the Kula farmers planted corn, beans, onions, Chinese cabbage, round cabbage, sweet potatoes, wheat and other grains, and even cotton. When the Hawaiian market exhibited low demand for corn, the farmers used it to raise pigs, ducks, and chickens, and marketed the animals instead. When the various crops were harvested, they were packed and transported on mule teams or wagons to Kahului and Makena harbors, then shipped to Honolulu.

Until 1905 there was little water piped into the area, and during droughts - which occurred every several years - the farmers had to pack barrels of water on mules from Polipoli Springs or from the beach or Olinda, both about eight miles away. Before 1850 Kula was naturally supplied with water by a large forest that was cut down in favor of creating farm plots. In 1905 the Kula Pipeline was built to transport water from Olinda, northeast of Kula. The contractor who built the pipeline was a prominent Kula resident, and labor was supplied by the men and women of the area.

During the 1910s and 1920s many families left Kula for various reasons, including severe drought, soil which was reaching depletion level, lack of educational opportunities for children, and loss of land due to parceling homesteads. In 1918 another mass exodus occurred. Some 40 families left Kula because the land they were leasing was sold to Harold Rice, who intended to use the land for ranching. Although the leases of the land had not expired, the farmers were not aware of their right to challenge the eviction.

In 1909, land in upcountry Maui was requested to provide a facility to treat tuberculosis patients. Financed by the county and territory, Kula Sanatorium was established in 1910. It consisted of two tent houses, including kitchen and dining

facilities, and accommodated 12 patients. The current five-story Kula Hospital building was completed in 1937 with federal and territorial funding and private donations. In 1957, elderly and medically indigent patients with chronic illnesses were admitted, and in 1960 psychiatric patients were admitted on an experimental basis. Deinstitutionalization in 1974 halted psychiatric patient admittances, but in 1976 a program for eight mentally retarded (MR) patients was initiated. The main hospital facility was renovated and a new 8-bed facility for the mentally retarded was constructed during the period of 1982-1985 at a cost of approximately $6 million.

Approximately 300+ acres of vacant land controlled by the State Department of Land and Natural Resources surround the hospital and are currently leased for cattle grazing. The soils in this area have been rated low to moderate in agricultural productivity.

Kula Hospital provides skilled nursing facility (SNF) and intermediate care facility (ICF) services to the elderly and chronically ill. A 105-bed facility, Kula Hospital has 95 SNF/ICF beds, 8 ICF/MR beds and 2 acute-care beds (reserved primarily for in-hospital patients). The annual occupancy rate is 96 percent.

3.11.2 Archaeological Resources

On November 10, 1988, Annie Griffin of the State's DLNR Historic Sites Division in charge of Maui-based projects conducted a field inspection of the project site and concluded that there would be *"no effect"* on significant historic sites. However, it should be noted that the field inspection report did mention the existence of three small, wooden buildings that are believed to be contemporaneous to the sanitarium, which are apparently proposed for demolition to make way for the elderly housing. Two are presently used as residences by hospital staff, and one has been abandoned. If these buildings were constructed before World War II, the Historic Sites Section Report recommends that the following mitigation procedure be undertaken prior to their destruction:

> The exterior and interior of the three buildings should be photographically documented with a large format (at least 4"

> x 5") camera. The negatives and 8" x 10" black-and-white prints should be submitted to the Historic Preservation Office. (See DLNR File No. 89-239, Doc. No. 4709E, and Figure 3.11.A in Appendix B.)

Since the structures were constructed before World War II, the State will follow the suggested mitigative measures prior to demolition. There also appears to have been a dispute whether the project site area and specific parcels identified by TMK 2-2-04:34 and TMK 2-2-04:76 (see Figures 3.11.1A - 3.11-10) were ever Hawaiian Home Lands. The lands on which the Kula Hospital are situated were government (crown) lands which by Governor's Executive Order (GEO) 2493 were set aside for public purposes (Kula Sanatorium) in 1969 to the Department of Health for management and administrative purposes. This was made clear in the review of the proposed study by the DLNR Land Management Division in which Director William Paty concluded that:

> "The Land Management Division has no obligations to the Department of Health's proposed Kula Hospital Elderly Housing Project. This proposed housing project will be built on State-owned lands presently set aside and under the control and management of the sponsoring agency, Department of Health, through the auspices of Governor's Executive Order No. 2493 dated December 16, 1969." (See DLNR File No. 89-238, Doc. No. 4709E in Appendix B.)

Moreover, when this question of ownership of these specific parcels were raised during consultation on the Planning Development Report (PDR) with Kula Community representatives in January 1992, renewed research efforts came to the same conclusion.

The research was conducted in January-February by an experienced lawyer who specializes in land use and land management issues. A summary of the findings are presented below in historical context.

At the time (1967-1969) that the Board of Land and Natural Resources considered the re-setting aside of lands for the Kula Sanatorium in GEO 2493, lands which belonged to the Department of Hawaiian Homes Land and government (crown) lands were clearly differentiated. Before GEO 2493 was issued, some 99 acres of Hawaiian Homes land had been part of the Kula

Sanatorium, but with GEO 2493 almost all of that acreage was returned to HHL. The only exceptions were about 22,683 square feet of Hawaiian Homes land which included the Kula Hospital's incinerator (16,297 s.f.), road easement (5,056 s.f.), and water pipeline easement (1,330 s.f.). Moreover, these uses (incinerator and easements) do not appear to be on the project site, but across the road from the Kula hospital. Thus, whether inventoried or not, the only connection between the Kula Hospital and Hawaiian Homes land is in the form of the incinerator and easements which are located across Haleakala Road, and not at the project site. We can also assume that since the file on GEO 2493 containing this history of the Hawaiian Homes land affected by the Kula Sanatorium was readily available by tax map key number, that this piece of Hawaiian Homes land is adequately "inventoried." (See Tax Maps of Water Tank Site No. 5 and Incinerator Site, Road Easement and Water Pipeline Easement in Appendix B.)

3.12 Utilities

3.12.1 Water

In 1985, 471.96 million gallons per day (mgd) of water was used on the island of Maui. Ground water sources accounted for 149.72 mgd, and surface water sources accounted for 322.24 mgd. Of the amount from ground water sources, 14.09 mgd was for domestic uses, 135.04 mgd for agricultural uses, and 0.59 mgd for industrial uses. Of the amount from surface water, 7.56 mgd was for domestic uses, 310.26 mgd for agricultural uses, and 4.42 mgd for hydroelectric uses.

The Island of Maui is divided into six aquifer sectors; specifically, Lahaina, Wailuku, Central, Koolau, Kahikinui, and Hana. (See Appendix B, Figure 3.12.1A.) The project site is served by the Kula Municipal System in the Central Sector. In Kula, water is an issue because the existing storage capacity is insufficient to provide adequate amounts of water during drought periods. As a result, water-use restrictions must be imposed periodically, and high costs are incurred to pump water from downslope to supplement the water supply.

Due to the high cost of pumping water during droughts, the County of Maui has enacted the "Kula Rule," to regulate subdivision applications and the size of

water meters in areas served by the Kula System. The Kula Rule enables the Board of Water Supply to control development in Kula by restricting the following: (1) All new subdivisions except for small "family" subdivisions; (2) Water service for any meter size in excess of five-eighths inch for any extension or connection from the upper Kula waterline: and (3) Water service for any meter size in excess of one and one-half inches for an extension or connection from the lower Kula waterline. The rule has been extended periodically since its establishment in 1977, and is in effect until March 21, 1993. It may be extended further.[8]

The Kula Municipal System consists of the Upper Kula System, the Lower Kula System, and the Supplement from the Makawao System. (See Appendix B, Figure 3.12.1B.) The source of water for the Upper Kula System is runoff water treated at a plant in Olinda with a capacity of 1.7 mgd. The source of the water for the Upper Kula System is within the Koolau Sector. The quantity of water drawn from the Upper Kula System was 0.85 mgd in Fiscal Year 1987. The source of water for the Lower Kula System is also runoff. The amount of water drawn from the Lower Kula System was 2.13 mgd in Fiscal Year 1987. During dry periods water shortages are experienced, and a "back-up" system was constructed to transport water through a series of pumps from the Makawao System. The quantity supplemented from the Makawao System was 0.26 mgd in the fiscal year 1987. In sum, the total amount of water from the Kula System was 3.24 mgd in fiscal year 1987.

Based on recent growth patterns, the Department of Water Supply has projected that 8.05 mgd will be needed in the year 2010. The projection assumes that the Kula Rule will remain in effect. Based upon this projection, the Department of Water Supply intends to develop approximately 5.6 mgd of additional capacity between 1989 and 2010. This capacity will be developed by improving intakes in the Up-country region and by increasing storage through the addition of several new reservoirs.

Since the Kula Rule restricts subdivisions and the size of new water meters, the proposed project may be allowable if it is not considered to be a subdivision.

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[8]Board of Water Supply, Administrative Rules, Title 16, Chapter 18, Sections 1 through 7, Kula Rule

(NOTE: According to information received from the Department of Water Supply staff during telephone conversations in March 1993, the Kula Rule expired on March 21, 1993.)

Another question concerning water is whether the existing infrastructure can accommodate the proposed project. According to the Department of Water Supply[9] a water line of approximately one inch in diameter runs along Kula Highway adjacent to the site, and a water line of approximately six inches in diameter runs mauka of the site at an indefinite distance from the site.

A water system exists on the project site itself. The hospital's water system is comprised of a 1 1/2-inch water meter from the county system to two private storage reservoirs totalling 700,000 gallons. Currently, only one of the storage reservoirs is being used. It has been reported that Kula Hospital once housed 200 patients, although it currently houses only 100.

The hospital system also includes fire protection from a 4-inch or 6-inch line to three fire hydrants. The project may be serviced from this system if its demands do not exceed and restrict the hospital's daily demands. Otherwise, a request for a larger meter or additional meters may be necessary. The required fire flow would have to be calculated for the proposed project, and the Department of Water Supply would subsequently determine whether it can accommodate the water requirement.

It should also be noted that the DLNR Division of Water and Land Development reviewed the subject study and had no specific comments to offer. However, since water is the critical concern in the Kula area, they did suggest that the water requirements for the facility be developed and submitted as soon as possible so that these needs can be planned for. (See DLNR File No. 89-238, Doc. No. 4709E in Appendix B.)

While specific concerns related to water have been identified, the effect of the Kula Rule on the proposed project has not yet been determined, nor has it been

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[9]Telephone conversation with Herb Chang, engineer with the Department of Water Supply, July 23, 1991.

determined whether the existing municipal water system can accommodate the water needs of the proposed housing project.

Due to the need for further discussions among community groups, Kula Hospital administration, Maui County and State of Hawaii officials regarding funding, the issue of water has not yet been resolved. Construction will begin when the "Upper Kula Water System" has been built (per memorandum from Administrator, Kula Hospital to Advisory Committee, Kula Hospital Elderly Housing Project).

The proposed water system to serve the domestic needs of the project is shown in Figure 15, The Site Utility Plan, as part of the Electrical Report in Section 3 of the Planning Development Report (March 1993). A detailed explanation of the water lines to serve the community and residential buildings and individual units, as well as the anticipated domestic demand, can be found in the first section of the Civil Engineering Report in Section 3 of the PDR.

3.12.2 Electricity

Electric power for industrial and residential use on Maui is supplied by Maui Electric Company, a subsidiary of Hawaiian Electric Company, Inc. Electric power will be provided through hook up to the existing county electrical system. There are existing power lines on the site. Load calculation for each unit, and the need for a back-up generator and the relocation of the power lines are explained in detail by the electrical engineering consultant in a comprehensive Electrical Engineering Report in Section 3 of the Project Development Report (March 1993).

3.12.3 Telephone

Telephone service for Maui, as for the rest of the State, is provided by GTE Hawaiian Telephone. Telephone lines will be connected to the existing local telephone system. The complex will be interconnected with a main switchboard and intercom system with emergency call buttons. (For details on distribution of phone lines on the site see the Electrical Engineering Report in Section 3 of the PDR.)

3.12.4 Gas

There are no underground gas lines in Keokea. However, storage tanks are used to provide gas to individual homes.

3.12.5 Wastewater

There are no public sewers in the Keokea area. Sewage treatment plants, cesspools, and septic tanks are regulated by the Department of Health.

The project will need to have a secondary sewage treatment plant in order to dispose of its wastewater. The proposed sewer system to accommodate anticipated sewage flow is explained in detail in the Civil Engineering Report in Section 3 of the PDR. The proposed sewer system is also shown in Figure 15 of the Site Utility Plan as part of the Electrical Engineering Report in Section 3 of the PDR.

3.12.6 Solid Waste

Residential solid waste generated in the area is collected once a week and disposed by the County at the Puunene landfill site on Omaopio Road in Central Maui. It is estimated that the quantities of solid waste to be generated by the proposed project will be about 3.5 pounds per person per day, based on the national average.

3.12.7 Drainage System

There is no drainage system in Keokea maintained by the County of Maui. The proposed drainage system to accommodate anticipated runoff is detailed in the Civil Engineering Report in Section 3 of the PDR.

3.13 Public Services

3.13.1 Schools

According to the 1990-1991 Directory published by the Department of Education, the public elementary schools, intermediate school, and high school nearest the site of the proposed project are:

School	Grades	Address
Elementary		
Kula Elem.	K-5	P.O. Box 299, Kula, HI 96790
Pukalani Elem.	K-5	2945 Iolani St., Pukalani, HI 96788
Makawao Elem.	K-5	3542 Baldwin Ave., Makawao, HI 96768
Intermediate		
Kalama Inter.	6-8	120 Makani Rd., Makawao, HI 96768
High		
Maui High	9-12	660 S. Lono Ave., Kahului, HI 96732

3.13.2 Parks and Recreation

The following park and recreation facilities are located in the Kula area:

Name	Ownership	Acres	Facilities
Harold F. Rice Park	County	3.8	Picnicking
Keokea Park	County	6.0	Playfields, courts, pavilions, restrooms, picnicking
Kula School	State	6.9	Playfields, courts

Polipoli Springs State Recreation Area	State	2.0	Picnicking, camping, hiking
Kula Botanical Garden	Private	8.2	Garden
Haleakala National Park	Federal	20,246	Picnicking, camping, hiking

In addition to the facilities listed above, Kula and Makawao Forest Reserves offer recreation opportunities such as hunting, hiking, and camping on about 2,093 acres.

3.13.3 Police

The Police Department Headquarters in Wailuku serves as the police station for the entire island, and all police are dispatched from there.

3.13.4 Fire

The county fire station nearest the site of the proposed project is the Makawao Fire Station located in Makawao town.

An existing fire hydrant line is located at the lower northwest side of the project site close to Kula San Road. A sprinkler system within the dwelling units is required.

Fire protection may be provided through three fire hydrants connected to a 4-inch or 6-inch line from the hospital water system. The project's fire protection needs may be serviced from this system if its demands do not exceed and restrict the hospital's daily demands. Otherwise, a request for a larger meter or additional meters may be necessary. The required fire flow would have to be calculated for the proposed project, and the Department of Water Supply would subsequently determine whether it can accommodate the water requirement. (See Civil Engineering Report in Section 3 of the PDR for the proposed Fire Protection

System). It should be noted that unit smoke detectors with an internal alarm will be provided within each unit. (See Electrical Engineering Report in Section 3 of the PDR for details.)

3.13.5 Medical Facilities and Emergency Services

Kula Hospital, adjacent to the site of the proposed project, focuses primarily on providing long-term care at the Intermediate Care Facility (ICF) and Skilled Nursing Facility (SNF) levels. Residents must travel to Wailuku-Kahului to receive other kinds of health services. However, as an integral component of the proposed project, Kula Hospital will provide/develop services appropriate for the elderly residents.

According to The 1991 State of Hawaii Data Book, the island of Maui has a total of 498 beds. Of the four hospitals, three have a total of 151 beds for acute care, two have a total of 339 beds for long-term care, and one has 8 beds for specialty care. In addition, there are 17 care homes with a total of 73 beds.

In 1990, there were a total of 8,650 acute care admissions on Maui. The average daily acute care census was 124, with an average length of stay of 5.2 days, and an average daily occupancy of 82.2 percent. There were 212 long-term care admissions on Maui in 1990. The average daily long-term care census was 314, with an average daily occupancy of 93.2 percent. The average length of stay was 544 days, highest in the state and considerably higher than the state average of 368 days.

3.13.6 Library

The public library nearest the site of the proposed project is the Makawao Public Library located in Makawao. The next closest public libraries are located in Kahului and Wailuku. The addresses of these libraries are as follows:

Library	Address
Makawao Library	1159 Makawao Ave., Makawao, HI 96768
Kahului Library	90 School St., Kahului, HI 96732
Wailuku Library	251 High St., Wailuku, HI 96793

3.13.7 Post Office

The United States Postal Service provides home delivery to the Kula area six days a week (Mondays through Saturdays). Home delivery services would be provided to the proposed project by the Kula Post Office.

4.0 PLANS, POLICIES, AND CONTROLS

4.1 Federal

The Army Corps of Engineers has regulatory authority over the waters of the United States, adjacent wetlands, and navigable fresh water features. The site of the proposed project contains none of these.

4.2 State

4.2.1 Hawaii State Plan

The Hawaii State Plan (HRS Chapter 226 - Hawaii State Planning Act) provides the overall policy framework to guide future development in the State. It is a comprehensive document consisting of three parts. Part I provides the overall theme, goals, objectives, and policies for the State. Part II establishes a statewide planning system, which includes functional plans in a variety of different areas to implement the goals, objectives, and policies set forth in Part I. In addition, the counties are directed to formulate general plans and development plans. The State Plan coordinates the State's planning process through the various functional plans, the county general and development plans, and the agencies and departments, boards, and commissions. Part III of the Hawaii State Plan consists of priority guidelines of statewide concern.

Sections of Part I (overall theme, objectives, plans, and policies) of the State Plan that are applicable to the proposed project, with comments, are as follows:

Sec. 226-19: Objectives and policies for sociocultural advancement--housing.

a) Planning for the State's sociocultural advancement with regard to housing shall be directed towards achievement of the following objectives:

(1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, livable homes located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals.

. . .

(b) To achieve the housing objectives, it shall be the policy of this State to:

(1) Effectively accommodate the housing needs of Hawaii's people.

(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.

(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.

. . .

Comments: While the stated objectives and policies apply to the population as a whole, the proposed project is designed to provide affordable housing and support services for one segment of the population, specifically, the elderly. It has not yet been determined whether the elderly residents will own or rent the units. However, as an affordable housing project, the project will expand the availability of housing alternatives for the elderly in general.

Sec. 226-20 Objectives and policies for sociocultural advancement-health.

. . .

(b) To achieve the health objectives, it shall be the policy of this State to:

(1) Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems.

. . .

Comments: The proposed project has been designed so that Kula Hospital, located adjacent to the elderly housing, will develop and provide appropriate health services specifically for the elderly residents. While Kula Hospital currently does not provide community-based services for the elderly, it has a long history of responding to the needs of the community.

One section of Part III of the Hawaii State Plan is applicable to the proposed project, as follows:

Sec. 226-106 Affordable housing. Priority guidelines for the provision of affordable housing.

(1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income, and gap-group households.

Comment: The soils of the project site have been rated low to moderate in agricultural productivity. The land is owned by the State of Hawaii. The proposed project will be designed for elderly persons in the low- and moderate-income, and gap-groups.

4.2.2 Hawaii State Functional Plans

The State Functional Plans delineate specific ways of implementing the Hawaii State Plan in a variety of areas such as health, housing, and education. The Functional Plans contain statements of issues, as well as policies, objectives, strategies, and implementing actions that should be taken within a two-to-six year period.

Three State Functional Plans are relevant to the proposed Kula Hospital Elderly Housing Project. Specifically, these are in the areas of health, housing, and human services. Sections of these Functional Plans that are applicable to the proposed project and comments are as follows:

Health Functional Plan

3 OBJECTIVE: HEALTH NEEDS OF SPECIAL POPULATIONS WITH IMPAIRED ACCESS TO HEALTH CARE

Increased availability and accessibility of health services for groups with impaired access to health care programs.

3A POLICY:

IMPROVE ACCESS TO HEALTH CARE FOR SPECIAL POPULATIONS

. . .

3A2 IMPLEMENTING ACTION:
Develop and implement programs to improve the health status of people who are elderly.

Comments: The elderly are one of the groups targeted by the Health Functional Plan. The services to be provided by Kula Hospital will be designed for the elderly residents of the proposed project.

4 OBJECTIVE: COMMUNITY HOSPITALS SYSTEM

Development of a community hospital system which is innovative, responsive and supplies high quality care to the constituencies it serves.

. . .

4B POLICY:

INNOVATIONS

Use innovative financial and service delivery arrangements to provide for new hospital facilities to meet community needs.

4B1 IMPLEMENTING ACTION:
Develop public-private partnerships to promote medically assisted housing for Hawaii's elderly and disabled residents on the neighbor islands. Currently high priority areas are Kula, Maui; Kapaa, Kauai; and Honokaa, Hawaii.

Comment: While the financing of the proposed project and the administration of its operations have not yet been determined, the Kula Housing Elderly Housing Feasibility Study describes the alternative of a private firm developing the project,

with and without State assistance. The proposed project will be located in Kula, one of the areas receiving high priority.

Housing Functional Plan

ISSUE AREA: RENTAL HOUSING FOR THE ELDERLY AND OTHER SPECIAL NEED GROUPS.
PROBLEM STATEMENT: Special needs groups include persons for whom social problems, age, or physical or mental handicaps impair their ability to live independently, and for whom such ability can be improved by more suitable housing conditions. Safe, decent and affordable rental housing opportunities for special need groups in suitable environments are very limited. Barriers to housing not only include limited affordable rental housing stock, but also fixed income, mental or physical impairments, and "not in my backyard" attitudes.

OBJECTIVE C: INCREASED DEVELOPMENT OF RENTAL HOUSING UNITS FOR THE ELDERLY AND OTHER SPECIAL NEEDS GROUPS TO AFFORD THEM AN EQUAL ACCESS TO HOUSING.

STRATEGY: The supply of rental units suitable for special needs groups must be increased by mobilizing limited public resources to develop new units; converting existing buildings to housing; and pursuing alternative living arrangements. A continuum of support services such as a network of information and social services must also accompany housing.

POLICY C(1): Effectively use public resources to provide rental housing projects for elderly and handicapped persons.

IMPLEMENTING ACTION C(1)(A): Develop affordable rental projects for elderly and handicapped persons.

Comment: The elderly have been identified by the Housing Functional Plan as a special needs group. The Plan specifically calls for the development of rental housing for the elderly, along with other special needs groups. The Plan also emphasizes the importance of developing support services to accompany housing. The proposed project accomplishes these aims.

POLICY C(3): Increase the use of alternative living arrangements for the elderly.

IMPLEMENTING ACTION C(3)(b): Incorporate congregate and other support services necessary for "aging in place."

Comments: Designed as a "congregate housing" project, the development will incorporate support services for the elderly residents. The services will be designed and delivered by Kula Hospital.

POLICY E(2): Wherever practical, develop affordable housing projects on public lands.

IMPLEMENTING ACTION E(2)(a): Survey and reserve for future development State- and county-owned lands which are suitable for housing development.

Comments: The proposed project will be constructed on State land.

Human Services Functional Plan

B. Description of the Problem

Problem Statement:

The existing long-term care system needs to be more responsive to the needs of a growing aged population. Increasing life expectancy and life-prolonging medical advances, as well as the "graying of the baby boom generation," have significantly increased the need for a continuum of services and opportunities to help maintain and care for the elders of our community (age 60 and older) in the community. The continuum should consist of a full complement of services that address social, health, personal, residential, transportation needs.

Supporting Narrative:

a. Existing continuum of services is skewed; biased toward institutionalization.

There is a need to develop more home support and community-based service options in order to prevent premature, inappropriate institutionalization; to delay institutionalization; to provide alternatives to institutionalization for the frail elderly. Traditionally, these options have been given little priority in either the Medicare or Medicaid program. Given the strong preference of older people to remain and be cared for in their own homes, the lack of access to home-based/community-based services is a pressing gap in the current long-term care system.

The availability of and access to personal care, chore, respite, case management, meals-on-wheels, and transportation services need to be addressed. This is especially true for rural areas where resources are limited and distance/lack of public transportation contribute to the problem, e.g., Waianae, Lanai, Molokai, and Kahuku.

Comments: The proposed project is based upon the concept of providing home support and community-based services to the elderly residents to prevent or delay institutionalization.

4.2.3 Comprehensive Master Plan for the Elderly

Act 225, SLH 1974 mandated the development of a Comprehensive Master Plan for the Elderly. Submitted in 1975 to the Hawaii State Legislature, the Plan provided a framework for program administrators, legislators, and members of the community to guide the development of systems-based, coordinated policies and programs for the elderly. In 1988 this Plan was revised by the Executive Office on Aging to reflect changes in demographics, in the socioeconomic environment, and in the service needs and individual resources of older adults.

Relatedly, the Older Americans Act of 1965, as amended, and Chapter 349, HRS, identified the prime purpose of program efforts for the elderly to be assistance to permit them equal opportunity to full and free enjoyment of a variety of broad goals, including the following:

(1) Suitable housing, independently selected, designed, and located with reference to special needs and available at costs which older citizens can afford;

(2) A comprehensive array of community-based, long-term care services adequate to appropriately sustain older people in their community and home;

(3) Retirement in health, honor, and dignity; and

(4) Efficient community services which provide a choice in supported living arrangement and social assistance in a coordinated manner and which are readily available when needed with emphasis on maintaining a continuation of care for the vulnerable elderly.

In accordance with these goals, the Comprehensive Master Plan for the Elderly: Update 1988 has established a variety of goals, objectives, and recommendations for three target groups of elderly persons, specifically, the vulnerable group, the transitional group, and the self-sufficient group. Certain goals, objectives, and recommendations for the vulnerable group and the transitional group apply to the proposed project. These are as follows:

(1) For the Vulnerable Group

Overall program goal statement: To provide for a continuum of community-based to institutional programs for the vulnerable elderly.

Recommendations: The Executive Office on Aging shall advocate for the development of affordable housing for older adults and shall work in collaboration with State, County, and private sector units to plan, design, and develop toward the provision of such alternatives.

(2) For the Transitional Group

Overall program goal statement: To secure and maintain maximum feasible independence for older individuals capable of self-care with appropriate support services.

Recommendations: The Executive Office on Aging shall provide technical assistance to appropriate authorities on the need for the development and management of suitable housing to meet special needs of the Transitional Group of Older Adults.

By providing affordable housing with appropriate support services for elderly persons, the proposed project is consistent with the goals, objectives, and recommendations of the Comprehensive Master Plan for the Elderly: Update 1988. As recommended in the Update, the Executive Office on Aging has advocated for the development of this elderly housing project, along with others, collaborated with the various agencies involved, and provided relevant technical assistance.

4.2.4 State Land Use Designation

The proposed project is composed of housing units and a sewage treatment plant. The site of the proposed housing units, a portion of TMK 2-2-4:34 and TMK 2-2-4:35, has been designated as "Urban" by the State Land Use Commission. The sewage treatment plant site is in the Agricultural district.

4.2.5 Other State Permits and Approvals

Wastewater

A sewage treatment plant is planned as part of the proposed project. The Department of Health regulates sewage treatment plants. For approval, plans for the sewage treatment plant must be submitted to the Department of Health.

4.2.6 Handicapped Accessibility

UFAS

The Uniform Federal Accessibility Standards applies, and the State of Hawaii, Department of Health, Commission on Persons with Disabilities will review and comment on project plans and specifications. All units will be designed for handicapped accessibility.

4.3 County of Maui

4.3.1 General Plan

Maui County's current General Plan became effective on June 24, 1980, and was updated in 1990. The purpose of Maui's General Plan is to recognize and state the major problems and opportunities concerning the needs and the development of the county and the social, economic and environmental effects of such development to set forth the desired sequence, patterns and characteristics of future development.

The General Plan sets forth broad objectives and policies in a number of areas. The relevant objectives and policies in the following areas are as follows:

Housing

- *To provide a choice of attractive, sanitary and affordable homes for all our people.*
- *Encourage the construction of housing in a variety of price ranges and geographic locations.*
- *Encourage the establishment of additional senior citizen housing in various locations.*
- *Ensure that each community plan region contains its fair share of affordable housing.*

Comment: The proposed project satisfies these General Plan housing objectives and policies for the overall population by providing appropriate and affordable housing for one segment of the population, specifically, the elderly in a community and geographic location away from currently available, affordable elderly housing.

Health

- *To meet the health needs of all residents and visitors.*

- *Encourage the expansion and improvement of our hospitals and our public and private medical facilities.*

Comment: The proposed project satisfies these General Plan health objectives and policies for the overall population since it includes the development of appropriate services for the project's elderly residents by Kula Hospital.

4.3.2 Community Plan

The Makawao-Pukalani-Kula Community Plan, as adopted in 1980, is mandated by the Maui County General Plan. The purpose of the Community Plan is to establish a program for implementing the county General Plan within the Makawao-Pukalani-Kula region of Maui. This region is located in the western slopes of Haleakala and includes portions of the Haleakala Highway National Park. It should be noted that Maui County is in the process of updating all their Community Development Plans. Based upon General Plan objectives and policies and the desires of the community as expressed through the Citizens Advisory Committee, the following basic principles guided the development of the Community Plan:

(1) Preservation of the "Up-Country" way of life;

(2) Protection of the agricultural land base;

(3) Guide the majority of future growth in an efficient and economical manner; and

(4) Protection of environmental quality.

The Community Plan includes a number of recommendations in the following categories: socioeconomic aspects, physical aspects; support systems:

transportation and utilities, support systems: human services, and government. The recommendations most relevant to the proposed project and comments are as follows:

SOCIO-ECONOMIC ASPECTS

. . .

2. Population

a. Direct the majority of new residential growth to Makawao and Pukalani where public services can best accommodate it. Allow new growth in Kula which is consistent with the rural and agricultural environment, as reflected by existing patterns of development and as indicated on the Community Plan map. This will concentrate the resident population to reflect the efficient provision of public services.

Comments: While the site of the housing of the proposed project is designated as "Agriculture" on the Community Plan map, it is zoned "Interim" by the County and "Urban" by the State Land Use Commission. Efficiency in the provision of public services to the elderly will be maximized since a concentration of elderly persons will live in the proposed project. The project will be designed to be as consistent as possible with the rural environment.

PHYSICAL ASPECTS

1. Environment

a. Preserve environmental resources by maintaining important agricultural lands as an integral part of the open space setting in each community. Protect agricultural lands as an essential ingredient to the "up-country" atmosphere.

. . .

Comments: While a portion of the site consists of soil which has been classified as suitable for growing truck crops, most of the site consists of soils which are usually used for pasture and wildlife habitat.

b. *Preserve and enhance the "country" atmosphere in all communities to maintain the small-scale and western flavor inherent in the building style and mix of residences, ranches, and cultivated lands.*

Comments: The proposed project will be designed as far as practicable to maintain the "country" atmosphere of the area.

. . .

2. *Land Use*

The Land use plan illustrating the community plan recommendation is included as part of this report as Figure 2, page 15. (Note: On this map, the site of the proposed project is designated as "Agriculture.") The land use plan includes land use, transportation and community facility proposals.

. . .

Comments: While the site has been designated "Agriculture" by the Community Plan, it has been designated "Urban" by the State Land Use Commission and "Interim" by the County Department of Land and Codes. An "Interim" designation indicates that the County has yet to determine the land use designation. It should be noted that "publicly owned buildings" are allowed in the Interim District.

Agriculture

Community Plan Designation need to be changed to Public/Quasi however this is not necessary for issuance of building permit.

SUPPORT SYSTEMS: TRANSPORTATION AND UTILITIES

2. *Water Distribution*

Insure the adequate supply and quality of water.

Comments: The supply and use of water are critical issues in the Community Plan area, so much so that the County had declared a moratorium on the construction of residential subdivisions in the area through the "Kula Rule," which expired on March 21, 1993. At the time of

this writing, it is not clear whether the proposed project will be allowed. (For more information about water, see Section 3.12.1.)

SUPPORT SYSTEMS: HUMAN SERVICES

4. Housing

c. Provide increased opportunities for low and moderate income housing through coordinated government assistance programs; provision of variable housing densities in Pukalani and Makawao; and establishing more areas in Kula for single family lots on land not suitable for agriculture. Densities and housing types should be consistent with the character of these respective communities. In Makawao and Pukalani, intensification of the existing suburban character may be appropriate, while in Kula smaller single family lot sizes, based on County urban zoning, may be appropriate in areas specified on the land use map. Providing a mixture of housing types, smaller lot sizes, and coordinating assistance programs are all aimed at lowering housing costs and expanding housing opportunities.

Comments: The proposed project will provide affordable housing for elderly persons, thereby satisfying a housing need for a particular segment of the population. While the soil on the site can support agricultural activities, in general the soils have been rated as having low productivity value.

The density of the proposed project will be inconsistent with the surrounding area. However, the Plan also calls for smaller lot sizes, among other things, in an effort to reduce housing costs and expand housing opportunities.

Housing was further considered in the Makawao-Pukalani-Kula Technical Report, which was prepared in conjunction with the Community Plan. This report recognized that housing was becoming increasingly unaffordable because of the higher cost of

living, higher housing production costs, and lower wage levels in Hawaii as compared to the rest of the United States. In approaching the upcountry housing problems, the report suggested making smaller lots available, providing a variety of housing types to address the needs of all groups in the community, developing an efficient and economic pattern of development, and having flexibility in the standards and codes controlling housing development to reduce costs.

According to the report, providing a mixture of housing types, smaller lot sizes, and coordinated assistance programs are all aimed at lowering housing costs and expanding the choice of housing opportunities. For Kula in particular, the report suggests that based on County urban zoning smaller single family lot sizes, may be appropriate. The proposed project will be designed with these factors in mind.

d. *As delineated on the Community Plan land use map, limit new residential developments to areas which are contiguous extensions of or infill within the established residential pattern. Discourage a dispersed pattern of development, thereby reducing public service costs through an efficient settlement pattern.*

Comments: The proposed project is adjacent to Kula Hospital and between Kula Hospital and several small retail stores located across Kula Highway. The project itself will consist of a concentration of housing units.

4.3.3 Water Use and Development Plan

Adopted by Maui County ordinance, the Maui County Water Use and Development Plan is one of seven subplans which collectively comprise the Hawaii Water Plan, an integrated program for the protection, conservation, and management of the waters of the State. The formulation of the Hawaii Water Plan is mandated by the State Water Code (HRS Chapter 174C).

The Plan estimates the yields of the various aquifers, reports current usage in the different areas, and projects future needs. Based on future needs, the Plan recommends specific action to be taken.

Based on recent growth patterns, the Department of Water Supply has projected that 8.05 mgd will be needed in Kula in the year 2010. The projection assumes that the Kula Rule will remain in effect. Based upon this projection, the Department of Water Supply intends to develop approximately 5.6 mgd of additional capacity between 1989 and 2010. This capacity will be developed by improving intakes in the upcountry region and by increasing storage through the addition of several new reservoirs.

4.3.4 Area Plan on Aging

The Maui County Office on Aging has prepared an Area Plan on Aging for the three-year period from October 1, 1989 to September 30, 1992. The plan serves as a guide to the programs, services, and activities that the Office intends to pursue for the elderly of Maui County during this period.

Housing for the elderly is one of the many needs existing on Maui. According to the Area Plan, a total of 405 elderly housing units are occupied. Hale Mahaolu provides housing in Wailuku (284 units) and Molokai (79 units), and the Hawaii Housing Authority provides housing in Lahaina (42 units). According to the Area Plan, based on wait-list data, an additional 245 elderly need housing. As the Area Plan indicates, the shortage of elderly housing is part of the critical overall shortage of housing on Maui. As such, the Area Plan has established as one of its goals an expansion of housing for the elderly.

However, due to limited funding available to the Maui County Office on Aging, the agency was forced to prioritize its services and programs. In the process a number of needed services such as housing has not been funded. The agency strongly stated that not all services and programs identified as needed could be funded.

4.3.5 Zoning

The site of the proposed housing units has been zoned "Interim" by the County of Maui. "Publicly owned buildings" are a permitted use in the interim district. Should the State of Hawaii maintain ownership of the development, it appears that the proposed project is allowable. However, the matter may be disputed since the proposed project does not conform to the usual understanding of the term "publicly owned building."

Note: It has been determined by DAGS Planning Branch that the assumption for development of this project be rezoned to "Apartment A-1."

4.3.6 County Permits and Approvals

Water Supply

At this time there are questions of whether the proposed project would be allowable under current regulations from two perspectives, specifically, from a water use and from a zoning standpoint. The "Kula Rule," adopted by the Department of Water Supply to control development (see Section 3.12.1), restricts new subdivisions in the area. However, the proposed project may not be considered to be a subdivision, and , as such, may be allowable.

Special Use Permit

The site of the proposed sewage treatment plant is on land designated by the Land Use Commission as "Agriculture," and is not an allowable use. Application must be made for a Special Use Permit to the County Department of Planning. The County has jurisdiction in granting Special Use Permits in Agriculture districts for parcels less than 15 acres in size. Since the parcel on which the sewage treatment plant will be located is less than four acres, the County will determine whether or not to grant the Special Use Permit.

Building Permit

Assuming that a Special Use Permit is granted for the sewage treatment plant and that the proposed project is allowable with respect to the Kula Rule and to zoning regulations, then the remaining County permit required would be a building permit. Although the project is a permitted use in the "Interim district", the project design conforms with the more restrictive requirements of the "Apartment District (A-1)."

Apartment District (A-1)

Permitted uses, Maui County Code 19.12.010, Chapter 19.12: Any use permitted in the residential and duplex districts, i.e., housing for the aged, operated by government or non-profit organizations provided that the density is not increased more than 10 percent (Maui County Code 19.08.010, Chapter 19.08, Residential Districts):

Minimum Lot Areas	10,000 s.f.
Minimum Lot Width:	75 s.f.
Lot Coverage:	25% of the Lot Area
Floor Area-Lot Area Ratio:	Gross Floor Area < 40% Lot Area
Minimum Bldg. Setback:	
Front Yard	15 ft. for 1- and 2-story bldgs.
Side Yard	10 ft. for 1- and 2-story bldgs.
Rear Yard	15 ft. for 1- and 2-story bldgs.
Maximum Height:	2 stories or 30 ft.

Off Street Parking and Loading:

Apartment House, Apartment; Two parking spaces per dwelling unit. A State waiver of parking requirements will be requested to reduce the quantity of parking stalls by 50 percent of the required due to the type of facility being proposed at

this site. It is anticipated that not all residents will own a car, which is characteristic of this resident population.

Loading:

One loading space per parking lot except for one parking lot serving one building over 10,000 s.f., which will contain two loading spaces.

Handicapped Parking:

Based on 100 stalls, four accessible stalls are required; however, a total of five stalls will be provided (1 per parking lot).

5.0 SUMMARY OF MAJOR IMPACTS

5.1 Compatibility with Surrounding Environment

Agriculture is the dominant activity in the general vicinity of the site of the proposed project. Kula Hospital is adjacent to the project site, and several small retail stores are located across Kula Highway. At an average of between six to seven units per acre, the density of the proposed project is not compatible with the surrounding environment. However, efforts will be made to visually shield the proposed project from the highway and the project will be designed to minimize its visual impact. The impact of the proposed project on the surrounding environment must be weighed against the expected benefit of providing affordable housing to elderly persons.

5.2 Unique Natural Features

Based on field reconnaissance and topographic survey no unique natural features are known to exist on the site of the proposed project.

5.3 Water Resources

The proposed project would not adversely affect water quality in the area. The site is not contiguous to streams or the ocean. The design engineer will be required to develop detailed drainage and erosion control plans, including, but not limited to, hydrologic and hydraulic calculations, scheme for controlling erosion and disposal of runoff water, and an analysis of the soil loss using the HESL erosion formula. The plan shall verify that grading and runoff water generated by the project will not have adverse impacts on adjacent or downstream properties. The contractor will be required to implement erosion control practices in accordance with State and County erosion control standards to minimize impacts.

5.3.1 Natural Water Features

Based on field reconnaissance and topographic survey no natural water features are known to exist on the site of the proposed project.

5.3.2 Wetlands Protection

There are six major wetland areas located on Maui, none of which are situated anywhere near the proposed facility. The closest site is in Kahului along the coast. No natural water features are located on the project site. Also, based on field reconnaissance and topographical survey the proposed project will not affect any wetlands.

5.3.3 Coastal Zone Management

The site of the proposed project does not lie in the Special Management Area and is not regulated by the Coastal Zone Management Program.

5.4 Traffic

The site generated traffic will still allow normal flow of traffic at the intersection of Kula Highway and Thompson Road (as shown by Tables 3 and 4 in Appendix E). Since it is a rural roadway, traffic increase will be noticeable but not restrictive to traffic flow.

Traffic increases due to population, changes in land use, and roadway changes have not been taken into account. According to the increase in traffic over the past few years, any increases in traffic from these categories should be minimal in comparison to the site generated traffic.

The stretch of Thompson Road to the site itself is long and will be able to meet the new demands of the peak hours set by the increased traffic without creating a traffic flow problem. Left turns from Kula Highway should create minor flow problems, as traffic from the opposing lane is minimal.

The traffic generated by this project is still well within the roadway limits and can be comfortably handled by the present roadway system.

5.5 Air Quality

In the short-term during the construction of the project, the kinds of air quality impacts typically associated with construction activities are as follows: (1)

fugitive dust from demolition work and site preparation, and (2) exhaust emissions from site construction equipment. Indirectly, there could also be short-term impacts from slow-moving construction equipment traveling to and from the project site and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions can be expected to be generated from the demolition and removal of existing structures on the site and from grading and dirt-moving activities associated with site preparation. The emission rate for fugitive dust emission from construction activities is difficult to estimate accurately because it varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. State of Hawaii Air Pollution Control Regulations prohibit visible emissions of fugitive dust from construction activities at the property line. A dust control plan will be implemented for the construction phase of the project.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this type of equipment are typically diesel powered. Nitrogen oxide emissions from diesel engines can be relatively high when compared to gasoline powered equipment. However, the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. On the other hand, carbon monoxide emissions from diesel engines are low and should be relatively insignificant compared to vehicular emissions on the adjacent Kula Highway.

Indirectly, slow-moving construction vehicles on roadways leading to and from the project site could obstruct the normal flow of traffic to such an extent that overall vehicular emissions are increased. However, this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Commuting construction workers may also add to the traffic. However, those living in the Wailuku-Kahului area would be moving against traffic during peak traffic periods.

In the long-term, after construction has been completed, the major impacts on air quality will be from the exhaust of automobiles used by the residents of the

project, their visitors, any staff hired to administer and operate the housing project, and the additional staff hired by Kula Hospital to provide services for the residents of the project.

5.6 Noise

Impacts from traffic noise are not expected due to the relatively small volume of project traffic associated with the proposed development. Additionally, proposed project dwelling units are not expected to be exposed to traffic noise levels which exceed FHA/HUD standards. For these reasons adverse noise impacts from roadway traffic are not expected to result from the proposed project.

Residences and businesses near the proposed project site as well as the Kula Hospital may be sensitive to increased noise levels generated during construction. Noise impacts can be minimized through equipment selection, traffic control, and proper construction procedures. Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work and due to the administrative controls available for regulation of construction noise. These include requirements for mitigation measures established by the FHWA Federal-Aid Highway Program Manual, Procedures for Abatement of Highway Traffic Noise and Construction Noise (Volume 7, Chapter 7, Section 3) and the State Department of Health, Public Health Regulations, "Community Noise Control for Oahu" (Chapter 44B).

5.7 Social and Economic Impacts

5.7.1 Social Impacts

The major purpose of the proposed project is to provide affordable housing for elderly persons. As such it will fulfill a critical social need and relieve the existing shortage of housing for the elderly on Maui. The proposed project will consist of 100 housing units (90 1-bedroom and 10 2-bedroom units) for approximately 110 residents, and this will be the population increase in the area due to the proposed project.

5.7.2 Economic Impacts

In the short-term the proposed project will create employment for construction workers. In the long-term, jobs will also be created for the administration and operation of the proposed project. Additional staff will also be hired by Kula Hospital to provide various kinds of services to the elderly residents of the proposed project.

5.8 Vegetation and Animal Life

Earthwork operations will displace existing flora and fauna in graded areas, and wildlife species occurring in the area of the project site will temporarily be displaced to undisturbed areas due to land clearing for construction. This impact, however, is not anticipated to be significant since there are no threatened or endangered species known to inhabit the property. (See letter for U.S. Fish and Wildlife Service dated January 11, 1993 in Appendix B.)

Landscape plantings are expected to provide some replacement habitat on the site for many wildlife types which currently inhabit the site and there is the possibility that some mature trees could be retained within the project limits if their size and location is compatible with the design of the project.

Extensive landscaping will be introduced along the edges of the site along Kula Highway. The trees, shrubs, grass, and other landscape material to be planted will complement the existing vegetation of the surrounding area. Native vegetation species will be utilized wherever possible in the landscaping.

5.9 Historic and Archaeological Resources

On November 10, 1988, Ms. Annie Griffin, staff archaeologist of the State's DLNR Historic Sites Division in charge of Maui based projects, conducted a field inspection of the project site and concluded that there would be *"no effect"* on significant historic sites.

A recent site survey (see Figure 3, Topographic Survey Map) shows five buildings on the specific project site: three houses, (two used as residences for

hospital staff), an abandoned building and "Kala Iki" (The Kula Hospital Thrift Shop), including a nearby storage shed. According to Kula Hospital records, construction dates for these structures were as follows: three houses - 1918, 1922, 1924, respectively, thrift shop storage shed - 1922 and an abandoned building - 1931. The buildings are proposed for demolition to make way for the elderly housing. (See Figure 3.11.2A in Appendix B.) Since the buildings were constructed before World War II, the Historic Sites Selection Report recommends that prior to demolition, the mitigation procedure of photographically documenting each building be undertaken. The exterior and interior of each building should be photographed with a large format (at least 4"x5") camera. The negatives should be submitted to the Historic Preservation Office. (See DLNR File No. 89-239, Doc. No. 4709E, in Appendix F.)

Demolition will remove from service the two homes currently used for residence by hospital staff. Although future expansion plans call for employee housing to be developed by the State as a separate project, Kula Hospital may need to address interim housing for staff displaced by construction of the proposed project. (See Figure 3.11.2A in Appendix B.)

See Sections 3.11.1, 3.11.2 and Appendix B, Department of Land and Natural Resources letter from William Paty, File No. 89-238, Doc. No. 4709E regarding Historic Sites Division Inspection Report.

5.10 Utilities

With the implementation of the proposed project, the demand for utilities will increase, specifically, water, electricity, telephone, and solid waste disposal services. It is expected that the design of the proposed project will incorporate energy saving devices. For example, solar heaters may be incorporated in the design to reduce the need for electricity, thereby reducing operating costs. It should be noted that at this time it is uncertain whether sufficient water is available for the proposed project. See Section 3.12.1 for further details. In addition, it is not known whether the State Department of Health will approve the sewage treatment plant proposed for the project.

5.11 Public Facilities

The demand for certain public facilities will increase with the addition of the project's residents into the community. Those facilities which may be utilized by these residents include a nearby park, police and fire protection, a post office, and a hospital.

6.0 MITIGATIVE MEASURES

Impacts resulting from the implementation of the proposed project can be classified in two general categories, specifically, short-term construction-related impacts and long-term impacts resulting from the operation of the project.

6.1 Short-Term Impacts

Construction-related impacts such as dust and noise will be mitigated by standard construction mitigation measures. For a project of this type, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during construction, specifically fugitive dust and exhaust emissions from construction equipment. Dust control measures include frequent watering and dust screens to trap air-borne particulates. Equipment emissions associated with gasoline and diesel-powered engines are monitored on an annual basis and are not likely to violate air quality standards by short-term operations.

General construction noise is unavoidable. However, due to the temporary nature of the work and regulations related to construction noise, the impacts are not expected to adversely affect public health and welfare.

6.2 Long-Term Impacts

Both beneficial and adverse long-term impacts are expected from the proposed project, which will benefit society by providing much needed appropriately-designed affordable housing for elderly persons. Support services will also be available, allowing the elderly residents to "age in place" and delay or prevent institutionalization.

The adverse long-term impacts include the use of water by residents for daily living. Currently, water must be pumped at high cost to the Kula Water System during periods of drought. The County has established the "Kula Rule" to manage growth in the Kula district due to water shortages. (See Section 3.12.1 for more information.) Also, the project density of six to seven housing units per acre is expected to impact the rural agricultural setting of the general area. Other

long-term impacts include increased traffic and the resultant reduced air quality. These long-term adverse impacts cannot be substantially mitigated and must be compared with the substantial benefit of providing affordable housing for the elderly.

7.0 ALTERNATIVES CONSIDERED

7.1 Higher Density Development

The proposed project will include 100 housing units on approximately 16 acres of land, or a density of between six and seven units per acre. Such density is desirable from an efficiency standpoint because it reduces project costs, and, ultimately, the price that the elderly residents must pay for the housing. While the project will be designed to minimize the visual impact of this relatively high density project, the actual density will not conform with the existing rural setting of the area. Higher density than that planned for the proposed project will be in even lesser conformance with the existing rural setting.

7.2 Alternate Sites

The site adjacent to Kula Hospital was selected because Kula Hospital will design, develop, and deliver services appropriate for the elderly residents of the proposed project. This location minimizes the costs of delivering services. The development of services for the elderly will enable Kula Hospital to generate additional revenue, which is desirable, since its operations must currently be subsidized by the State.

A further reason that the site was selected is that it is owned by the State. As such, development costs will be minimized, thereby ultimately reducing the cost of housing for the future residents.

7.3 No Project

If the proposed project is not constructed, the site will probably remain largely unused.

8.0 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

No short-term exploitation of resources that will have negative long-term consequences have been identified. The proposed project will be of high quality and designed to endure for decades. The principal long-term benefits of the proposed project include the productive use of the property for residential purposes, specifically the provision of needed affordable housing units for elderly persons on Maui.

One alternate short-term use of the property would be to retain the present agricultural status and use of the property for grazing and limited housing. However, this appears to be less than the optimum use of the property. As residential units are developed, significant socioeconomic benefits to the community will result. These benefits are represented not only by the affordable housing provided to the elderly, but also in the form of increased job opportunities, both in the short-term for construction and in the long-term to provide services for the elderly residents.

9.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The development of the proposed project and resultant construction of housing units would result in the irreversible and irretrievable commitment of certain agricultural and fiscal resources. Major resource commitments include the land on which the proposed project is to be located, as well as money, construction materials, labor, and energy. Subsequent to the construction of the housing units, travel to and from the site by residents would require the consumption of petroleum products and petroleum-based electrical generation.

The impacts of using these resources should be weighed against the expected positive socioeconomic benefits to be derived from the project. Also, the consequences of taking no action or adopting another use of the property should be considered.

10.0 PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The adverse impacts of the proposed project which cannot be avoided may be classified as short-term and long-term effects. The short-term adverse impacts are construction-related. Long-term adverse impacts are related to water, the non-conformance of the density of the proposed project with the surrounding area, and traffic.

Impacts that cannot be avoided by the construction of the proposed project include the following: (1) airborne particulates in the form of fugitive construction dust; (2) noise generated by construction equipment; (3) exhaust emissions generated by construction equipment; (4) traffic disruption caused by construction equipment travelling along the adjacent thoroughfares; and (5) increased traffic and exhaust emissions caused by vehicles carrying construction workers travelling to and from the project site. Fugitive dust and noise can be reduced through standard construction efforts, but not completely eliminated. There will be compliance with all applicable State and County regulations.

In the long term, adverse effects that can be expected are the use of water, which must currently be pumped at high cost to the Kula Water System during periods of drought. (See Section 3.12.1 for more information.) Also, the project density of six to seven housing units per acre is expected to impact adversely on the rural agricultural setting of the general area. Other long-term adverse impacts include increased traffic and the resultant reduced air quality. These long-term adverse impacts cannot be substantially mitigated.

11.0 SUMMARY OF UNRESOLVED ISSUES

Unresolved issues are invariably associated with the planning and design stages of projects such as this. Consequently, the planning process, which includes the environmental assessment process, makes substantial efforts to identify and address these issues.

One of the major issues related to the proposed project is that of the availability of water. Under current conditions, the Kula Municipal System must pump water at high costs from another water system during drought periods. As such, the County has established the "Kula Rule" to restrict development in Kula. The County has planned improvements to the Kula Municipal System to accommodate increased demands which have been projected based upon the continuance of the Kula Rule. While the proposed project is not technically a subdivision, which would be restricted by the Kula Rule, water usage for the project would be similar to that of a similar sized subdivision. (See Section 3.12.1.)

A second issue that has been identified is the incompatibility of the density of the project with the surrounding area. At a density of between six and seven units per acre, the proposed project does not conform with the rural agricultural nature of the general area. Efforts will be made to minimize the visual impact of the proposed project, for example, by visually shielding the proposed project from Kula Highway. Also, the project will be designed architecturally to conform as much as possible with the "Upcountry" setting. However, the impacts of the density of the proposed project can only be mitigated to a degree. In brief, the proposed project raises the question of whether providing affordable housing for the elderly justifies its density and the additional use of water. However, the Planning Development Report (PDR) of December 1992 seems to have provided a design plan that is relatively barrier free and preserves much of the natural setting. (See Conceptual Site Plan and design of individual units in Appendix C.) In February 1992, the Kula Hospital Elderly Housing Project Planning Phase Committee members reconvened to meet with the consultants regarding confirmation of the feasibility study, whereby concerns and desires consistent with the study's findings were raised. Specifically the committee preferred that this project be funded by private sources as well as by the State and expressed

their desire not to have Kula Hospital financially reliant upon the Elderly Housing Project for income.

The decision as to whether the management of the new facility should be private, state or joint state/private will need to be resolved.

Other specific unresolved issues related to individual structures on the site will have to be resolved. One such issue is the continued use by hospital and area residents of the Thrift Shop which is located on the hospital site. The Thrift Shop structure is proposed to be removed and undergo photographic preservation procedures as outlined by the DLNR Historic Preservation Office. However, the Kula Hospital Elderly Housing Planning Committee has recommended that the Thrift Shop be preserved in some form to accommodate its continued operation on the hospital site. Another structure , one of the existing cottages which we will refer to as "Murray's house" is inhabited by an employee of the hospital. These cottages are also expected to be removed and undergo photographic preservation procedures outlined in Section 3.11.2 of this report. However, accommodations for these employees now living in these cottages will have to be arranged prior to the demolition and construction phase of the project.

Another unresolved issue involves a decision on the responsible agency. The Governor requested a determination on what agency would be responsible for this project before any funds were released. This issue of whether it should be a DOH project, other department, or under the administration of the Hawaii Finance Development Corporation (HFDC), is currently before the Legislature. The lands will be ceded to the responsible agency.

12.0 DETERMINATION

Based on the environmental assessment and comments received during the consultation phase, it has been determined that the project will not have a significant effect on the environment, as defined by criteria established in Section 11-100-12, Administrative Rules, Department of Health. Therefore, an environmental impact statement is not required for the proposed action.

The proposed facilities will be one-story and two-story and will be designed to blend in with existing rural atmosphere. This can be accomplished with minimal long-term impacts on flora and fauna, water quality, traffic, the visual and aesthetic environment, recreation, public services, utilities and public safety. Short-term impacts such as noise, dust, increased construction traffic, public safety hazards, and silt runoff from the construction site can be minimized through mitigative measures, as deemed necessary. The need for mitigative measures to protect potential historical and archaeological resources has been determined in consultation with the State Historic Preservation Office. (See Appendix B, Department of Land and Natural Resources letter from William Paty, File No. 89-238, Doc. No. 4709E, regarding Historic Sites Division Inspection Report.)

13.0 AGENCIES CONSULTED

Federal Agencies

U.S. Army Corps of Engineers
U.S. Postal Service

State Agencies

Department of Agriculture
Department of Education
Department of Health
Department of Land and Natural Resources
Land Use Commission
Office of State Planning
University of Hawaii - College of Tropical Agriculture and Human Resources

County Agencies

Department of Parks and Recreation
Department of Planning
Department of Public Works
Department of Water Supply
Fire Department
Mayor's Office of Information
Police Department

Companies, Community Organizations, and Individuals

The Gas Company

Dollie Griffiths, President
Kula Hospital Auxiliary

Bill Meyers, President
Kula Community Association

Companies, Community Organizations, and Individuals (cont.)

Kimie Lane, Chairperson
Planning Phase Committee
Kula Hospital Elderly Housing Project

Shirley Takahashi, Director
Kula Hospital

Elmer Cravalho
Tom Yagi
Representative Joseph Souki
Representative Daniel Morihara

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APPENDIX A

Persons 65 Years and Older Living Alone

Needs Assessment & 3 Year Planning Report

Evaluation of Land Type 39

Evaluation of Land Type 40

Estimates of Properties of Selected Soils

Island of Maui - Average Maximum Temperature (F)

Island of Maui - Average Minimum Temperature (F)

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Normals, Means, and Extremes

Summary of State of Hawaii and Federal Ambient Air Quality Standards

Hawaii Air Monitoring Data - Lahaina, Maui

Hawaii Air Monitoring Data - Kihei, Maui

State of Hawaii Annual Summary of Hawaii Air Monitoring Data

Jobcount by Industry, by Counties: Annual Average, 1989

TABLE 2.1A

EOA, 5/7/91

Persons 65 Years and Older Living Alone
(1980 and 1990)

			PSA #1	PSA #2	PSA #3		PSA #4
Year	Age Group	Total	Kauai	C&C of Honolulu	Maui	Kalawao	Hawaii
1980	65+	12,366	584	8,847	1,293	16	1,616
	(As % of total 65+)	16.3%	15.4%	16.1%	17.8%	40.5%	11.7%
1990	65+	20,933	1,109	14,868	2,038	16	2,902
	(As % of total 65+)	16.8%	16.6%	16.2%	17.9%	36.4%	19.2%

Source: U.S. Bureau of Census of Population and Housing. 1980. Summary Tape File 1A, Hawaii (1981); Preliminary counts from the Census of Population and Housing. 1990. Summary Tape File 1A, Hawaii (1991).

Note: The population counts set forth herein are subject to possible correction for undercount or overcount. The U.S. Dept. of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 15, 1991.

TABLE 2.1B

NEEDS ASSESSMENT REPORT
MAUI COUNTY OFFICE ON AGING

PROGRAMS/SERVICE	WHAT EXISTS	METHODOLOGY FOR DETERMINING "WHAT EXISTS"	WHAT SHOULD BE	METHODOLOGY FOR DETERMINING "WHAT SHOULD BE"	NEED
Promotion (Wellness)	49 elderly have been enrolled in Wellness classes.	Information from current service provider, Dept. of Health.	Services should be provided to 986 elderly.	9,000 Maui elderly age 65+ X *73% well elderly X 15% of elderly population who should be served = 986 well elderly who should receive preventive Wellness education. *Based on 1988 A.A.R.P.& A.O.A. data in "Profiles of Older Americans".	Services needed to additional 937 elderly.
21. Housing	405 elderly housing units are occupied.	Information from Hale Mahaolu and Hawaii Housing Authority.	Housing should be provided to 650 elderly.	230 elderly currently on wait lists for housing + 15 (5% anticipated increase in elderly population) + 405 already in housing units = 650 elderly who should receive housing.	An additional 245 elderly need housing.
22. Housing Assistance Program	444 elderly are being assisted in in locating or financing housing.	Information from Lokahi Pacific, Human Concerns Dept. Maui Catholic Charities, Hawaii Housing Auth., Hale Mahaolu, and Maui Econ. Opport.	466 elderly should be receiving Housing Assistance.	Current level of services to 444 elderly + 22 (5% increase in elderly population)= 466. Elderly population likely to increase by 5% in 1991 and by 5% again in 1992.	An additional 22 elderly need Housi Assistance annuall

TABLE 2.1B

SERVICE GOALS
3-YEAR PLANNING REPORT

GOAL # 4.0 GOAL STATEMENT: Have affordable housing for older adults who are aging in place.

IPE REFERENCE Transitional Older Adult, Goal 1

PROGRAMS SERVICES	OBJECTIVES	ANTICIPATED ACTIVITIES/ACTION STEPS	ANTICIPATED TIME LINE (START - END)	EVALUATION PLAN	RATIONALE FOR SELECTING OBJECTIVE
Housing	4.1 Elderly housing units will be expanded. This objective will be considered achieved when advocacy has resulted in funding for elderly housing.	Evaluate the need for more housing units in the county. Advocate the need for expanded elderly housing units.	Oct. 1989 to Sep. 1991. Oct. 1991 to Sep. 1992.	Measurement Standard: Advocacy has resulted in more funding for Data Required: Amount of funds pledged for housing Amount of additional units. Data Collection Method: Provider records.	Needs assessment indica that an additional 245 elderly housing units a needed. The County of Maui has a critical sho age of homes.

TABLE 3.2.6A

EVALUATION OF LAND TYPE 39

Overall Rating: D

Selected Crop Productivity Ratings

Pineapple: e

Vegetable: e

Sugar cane: e

Orchard: e

Grazing: b

Forage: e

Timber: Co

Machine Tillability: Not suited

Stoniness: Rocky

Depth: Variable

Slope (percent): 0 to 35, predominantly 32

Texture: Medium

Drainage: Well-drained

Mean Annual Rainfall (inches): 25 to 50

Elevation (feet): 1000 to 4000

Color: Dark reddish brown

Soil Series: Kula, Pane, Io

Major Existing Uses: Grazing, forest

District: Makawao

Source: Sahara, Tamotsu, et al, Detailed Land Classification – Island of Maui, Table 2, Land Study Bureau, University of Hawaii, Honolulu, Hawaii, May 1967 (LSB Bulletin No. 7).

TABLE 3.2.6B

EVALUATION OF LAND TYPE 40

Overall Rating: C

Selected Crop Productivity Ratings

Pineapple: d

Vegetable: c

Sugar cane: e

Orchard: b

Grazing: b

Forage: d

Timber: Co

Machine Tillability: Moderately suited

Stoniness: Nonstony

Depth (in inches): Deep, over 30

Slope (percent): 11 to 20

Texture: Medium

Drainage: Well-drained

Mean Annual Rainfall (inches): 25 to 50

Elevation (feet): 1000 to 3500

Color: Dark reddish brown

Soil Series: Kula, Pane, Io

Major Existing Uses: Grazing

District: Makawao

Source: Sahara, Tamotsu, et al, Detailed Land Classification – Island of Maui, Table 2, Land Study Bureau, University of Hawaii, Honolulu, Hawaii, May 1967 (LSB Bulletin No. 7).

TABLE 3.2.6C

ESTIMATES OF PROPERTIES OF SELECTED SOILS

Kula (KxbE, KxD)

Depth to bedrock: 2 - 5 ft.
Depth to seasonal high water table: Greater than 5 ft.
Depth from surface: 0 - 54 inches
Classification - Dominant USDA texture:
0 - 54 inches: Loam, silt loam, and silty clay loam
54 inches: Bedrock
Classification - Unified: ML
Permeability: 2.0 - 6.3
Available water capacity: 0.14 - 0.16
Reaction: 6.1 - 7.3
Shrink-swell potential: Low
Corrosivity - Uncoated steel: Low
Corrosivity - Concrete: Low

Kaipoioi (KDIE)

Depth to bedrock: Greater than 5 ft.
Depth to seasonal high water table: Greater than 5 ft.
Depth from surface: 0-61 inches
Classification - Dominant USDA texture: Loam, silt loam, and silty clay loam
Classification - Unified: OH or MH
Permeability: 2.0 - 6.3
Available water capacity: 0.13 - 0.15
Reaction: 6.6 - 7.8
Shrink-swell potential: Moderate
Corrosivity - Uncoated steel: Low
Corrosivity - Concrete: Low

From: Table 2 - Estimated Properties, Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, Soil Conservation Service of the U.S. Department of Agriculture, August 1972, pp. 156 - 167.

TABLE 3.5A

ISLAND OF MAUI

AVERAGE MAXIMUM TEMPERATURE (F)
(DATA UP TO 1978)

STATE KEY NO.	STATION NAME	ELEVATION (FT)	YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
258.	KIPAHULU	260	14	81.0	80.2	81.8	82.2	83.5	84.1	85.9	84.0	84.5	84.9	83.8	80.9	82.8
260.2	KEAWAKAPU BEACH	20	11	81.4	82.6	83.6	85.0	86.5	87.9	88.9	89.7	89.5	88.3	86.1	83.1	86.2
267.	KULA SANATORIUM (HOSPITAL)	3005	60	69.9	69.7	70.3	71.0	72.5	74.0	75.4	75.8	75.5	74.7	73.2	71.0	72.4
296.1	PIONEER FLD 12	50	13	80.3	81.2	81.7	82.5	84.1	85.4	86.6	87.0	87.4	86.5	84.3	82.1	84.2
307.2	POHAKEA BRIDGE	165	29	80.4	80.3	81.5	82.5	84.1	85.1	85.6	86.3	86.9	85.9	84.0	81.5	83.8
310.	HC&S FLD 913	85	28	79.0	79.1	80.0	81.2	83.1	84.8	85.3	85.9	85.9	85.1	82.4	79.6	82.6
311.	KIHEI	85	6	80.1	81.4	81.8	84.1	86.9	88.7	89.5	90.2	90.2	87.8	85.4	83.0	85.4
312.	PUUNENE AIRPORT	130	10	82.3	82.0	82.4	84.5	86.1	89.1	89.3	89.1	90.2	88.6	85.6	82.7	86.1
313.	HC&S FLD 811	270	28	79.3	79.3	80.8	82.4	84.9	87.0	88.2	88.5	88.2	86.6	83.8	80.3	84.1
315.	PULEHU	465	29	77.3	77.4	78.6	80.2	82.8	85.1	86.0	86.4	85.9	84.3	81.3	78.1	82.0
323.2	KULA HEIGHTS	2520	15	72.6	72.9	73.6	74.1	75.8	77.2	78.7	79.6	79.5	78.7	76.2	74.3	76.1
330.3	AIHAKULA ROAD	3360	2	68.3	69.1	68.8	70.2	71.1	73.6	75.3	75.0	76.1	74.4	71.3	69.6	71.5
338.	HALEAKALA RANGER	7030	38	59.9	59.1	59.0	61.0	62.9	66.2	66.0	66.4	65.3	64.4	62.4	60.3	62.6
338.4	SATELITE H'AKALA	10025	19	50.7	50.1	51.3	52.9	55.0	59.0	57.5	58.6	58.3	57.4	53.8	51.5	54.2
338.5	KOLE KOLE	10020	5	50.9	47.2	45.5	51.0	52.1	54.5	54.0	55.9	55.6	52.1	50.3	49.1	51.0
346.	KEANAE	970	11	71.1	72.5	72.5	73.9	74.8	76.7	76.8	76.8	77.4	76.6	74.1	72.7	74.6
350.	PAAKEA	1280	38	71.9	72.0	71.8	72.4	74.0	75.3	75.9	76.5	77.2	76.3	74.3	72.4	74.1
350.1	HAHIKU	740	10	72.9	71.9	72.8	74.1	75.9	76.9	77.0	77.3	78.9	76.4	74.7	72.9	75.3
354.	HANA	130	53	78.8	78.8	77.9	78.4	79.9	81.4	82.1	82.6	83.1	83.0	81.2	79.5	80.3
355.	HANA AIRPORT	60	28	78.5	78.4	78.9	79.7	81.3	82.9	83.3	83.9	84.3	83.0	80.9	78.6	81.2

TABLE 3.5B

ISLAND OF MAUI

AVERAGE MINIMUM TEMPERATURE (F)

STATE KEY NO.	STATION NAME	ELEVATION (FT)	YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
258.	KIPAHULU	260	14	64.4	64.6	63.9	64.8	66.0	66.2	66.9	68.4	68.4	67.4	66.7	64.4	66.1
260.2	KEAWAKAPU BEACH	20	11	61.6	60.5	61.6	62.7	63.6	65.2	66.1	67.0	66.5	66.3	64.6	62.3	64.1
267.	KULA SANATORIUM (HOSPITAL)	3005	60	52.7	52.5	52.5	53.4	54.9	55.9	56.7	57.5	57.5	57.1	55.5	53.7	55.0
296.1	PIONEER FLD 12	50	13	65.7	65.9	67.6	67.7	69.0	70.5	71.6	72.2	72.2	72.2	69.8	67.6	69.5
307.2	POHAKEA BRIDGE	165	29	63.6	63.9	64.4	66.2	68.0	69.4	70.7	71.5	70.9	67.4	101.5	65.6	70.4
310.	HC&S FLD 913	85	28	62.5	62.5	63.8	65.4	66.8	68.7	70.2	70.7	69.9	68.6	66.8	64.1	66.7
311.	KIHEI	85	0	60.6	59.4	60.4	61.7	63.8	65.0	65.9	66.6	67.2	66.2	63.3	61.0	64.1
312.	PUUNENE AIRPORT	130	10	59.7	60.1	60.4	61.5	63.1	64.3	66.3	66.9	65.3	64.9	63.4	60.8	62.8
313.	HC&S FLD 811	270	26	60.5	60.0	60.6	61.5	62.6	63.6	65.2	66.1	65.4	65.0	63.4	61.6	63.0
315.	PULEHU	465	28	60.9	60.2	60.5	61.5	63.0	64.2	65.2	65.8	65.6	65.2	63.5	61.6	63.1
323.2	KULA HEIGHTS	2520	15	57.1	56.3	57.1	57.8	59.3	59.8	61.1	61.6	61.4	61.3	59.8	58.2	59.3
330.3	AINAKULA ROAD	3360	2	68.3	69.1	68.8	70.2	71.1	73.6	75.3	75.0	76.1	74.4	71.3	69.6	71.5
338.	HALEAKALA RANGER	7030	38	41.4	40.9	41.1	42.5	43.6	46.2	46.7	47.1	45.2	45.4	44.4	42.8	43.9
338.4	SATELITE H'AKALA	10025	19	35.5	35.0	35.7	36.7	39.2	42.2	41.0	42.0	41.9	41.0	39.3	36.7	37.9
338.5	KOLE KOLE	10020	5	38.9	36.8	34.6	39.2	40.4	42.9	42.3	43.9	42.6	40.5	39.2	38.1	39.5
340.	KEANAE	970	11	59.3	58.3	58.7	60.3	61.0	62.5	63.8	64.3	64.1	63.5	62.1	60.4	61.5
350.	PAAKEA	1280	38	59.3	58.8	59.1	60.4	61.8	63.3	64.5	65.1	64.6	64.0	62.4	60.9	62.0
350.1	NAHIKU	740	10	59.8	59.5	60.1	61.8	63.4	64.5	65.3	65.7	65.5	63.9	62.8	60.9	62.4
354.	HANA	130	53	64.7	64.5	64.7	65.9	67.2	68.5	69.5	70.0	69.9	69.4	67.8	66.2	67.4
355.	HANA AIRPORT	60	26	63.2	63.4	64.3	65.5	66.7	67.8	68.6	69.3	68.9	68.3	67.2	65.2	66.3

TABLE 3.5C

MONTHLY AND ANNUAL RAINFALL SUMMARY, MAUI

(HOSPITAL)
SKN: 267.00 NAME: KULA SANATORIUM OBSV: KULA SANATORIUM ELEV(FT): 3005
DATA PERIOD: 1916-1983 NYRS: 66 READ:DAILY LAT: 20 42 12 LONG: 156 21 30

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MAX	22.8	15.9	14.2	14.3	8.3	12.1	5.5	7.8	6.3	5.5	11.3	20.3	70.7
75%	9.4	5.2	4.4	5.2	2.7	2.3	2.8	2.9	3.1	3.2	3.3	4.8	42.1
MED	2.9	2.9	2.2	2.4	1.4	0.9	1.4	1.6	1.7	1.7	1.7	2.3	32.0
AVG	5.3	3.8	3.2	3.4	2.0	1.7	1.8	2.0	2.1	2.1	2.3	3.8	33.5
25%	1.2	0.8	0.9	0.9	0.6	0.4	0.6	0.7	0.9	0.7	0.4	1.0	23.3
MIN	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	14.5

SKN: 267.20 NAME: POLIPOLI SPRING OBSV: BD OF AGF ELEV(FT): 6150
DATA PERIOD: 1955-1983 NYRS: 18 READ:MONTHLY LAT: 20 40 54 LONG: 156 19 54

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MAX	41.4	31.7	21.0	20.6	12.8	6.7	8.0	10.4	5.2	6.0	40.5	30.0	102.3
75%	18.0	9.1	8.7	6.0	4.3	4.0	4.1	3.1	3.8	4.0	5.3	7.7	69.1
MED	7.6	4.7	3.4	3.3	2.6	1.8	1.6	2.1	2.2	2.2	2.1	3.4	51.6
AVG	11.1	8.1	5.2	4.8	3.4	2.2	2.4	2.8	2.6	2.5	4.4	6.4	54.0
25%	2.8	2.6	1.8	1.8	1.4	0.8	0.6	1.4	1.7	1.1	0.7	1.6	37.4
MIN	0.1	0.1	0.1	0.4	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.1	25.9

SKN: 267.30 NAME: KULA HOUSE OBSV: KAONOULU RANCH ELEV(FT): 3090
DATA PERIOD: 1959-1983 NYRS: 18 READ:OTHER LAT: 20 44 0 LONG: 156 20 18

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MAX	23.4	14.7	10.3	9.8	9.8	3.8	5.1	5.9	9.0	3.6	9.1	9.6	65.1
75%	10.2	5.6	5.2	4.4	3.8	2.0	1.6	2.6	2.1	2.3	5.6	5.1	51.2
MED	4.4	2.2	2.3	2.6	1.1	0.6	1.1	1.3	1.2	1.1	2.6	2.7	29.1
AVG	6.1	4.2	3.2	3.1	2.3	1.1	1.3	1.7	1.8	1.3	3.1	3.2	34.1
25%	1.5	1.4	1.0	1.1	0.3	0.1	0.5	0.3	0.3	0.4	0.4	0.6	21.2
MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3

SKN: 267.40 NAME: KAONOULU OBSV: COOKE CM III ELEV(FT): 3150
DATA PERIOD: 1960-1982 NYRS: 21 READ:DAILY LAT: 20 44 10 LONG: 156 20 12

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MAX	21.8	14.3	12.1	9.0	8.5	3.2	5.0	4.9	8.7	4.0	8.0	9.6	65.9
75%	11.3	5.7	4.6	4.8	4.1	1.8	1.8	2.0	1.9	2.1	4.4	4.4	41.2
MED	4.5	3.2	2.2	2.3	1.4	0.7	0.8	0.7	1.1	1.3	2.2	1.6	28.9
AVG	6.9	4.4	3.3	3.2	2.5	1.1	1.4	1.3	1.8	1.3	2.8	2.9	32.5
25%	1.8	1.3	0.9	1.1	0.6	0.3	0.4	0.2	0.4	0.3	0.4	0.6	21.4
MIN	0.5	0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.2	0.1	0.0	0.0	14.3

SKN: 280.00 NAME: HAHALAWE OBSV: USGS ELEV(FT): 885
DATA PERIOD: 1930-1965 NYRS: 35 READ:OTHER LAT: 20 40 48 LONG: 156 2 48

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MAX	40.6	29.2	50.3	30.2	28.4	44.5	19.2	31.8	26.8	22.6	31.8	29.8	173.2
75%	19.6	22.3	21.6	19.1	16.2	17.8	16.4	20.0	18.9	17.7	24.0	20.1	132.4
MED	14.6	13.3	16.4	13.3	10.6	15.4	13.9	17.2	15.1	14.6	15.6	14.9	:20.0
AVG	16.0	14.7	17.8	15.6	13.3	15.6	13.4	17.4	15.4	14.3	16.4	16.0	121.6
25%	11.6	9.1	11.8	11.0	9.8	9.2	11.0	12.2	12.3	11.0	9.8	10.8	108.2
MIN	7.2	2.8	4.8	8.6	9.0	4.4	4.4	11.0	7.0	6.8	7.0	3.8	81.0

SKN: 281.00 NAME: HANAHULI OBSV: BUTLER G ELEV(FT): 380
DATA PERIOD: 1947-1976 NYRS: 27 READ:DAILY LAT: 20 41 30 LONG: 156 1 12

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MAX	24.9	20.6	12.7	27.2	12.2	7.7	12.1	11.0	12.3	16.1	18.4	16.2	129.2
75%	10.4	8.8	9.8	9.5	6.7	5.2	6.9	7.7	6.1	8.4	12.0	9.1	86.7
MED	7.4	6.0	8.8	4.8	5.2	4.0	5.9	6.2	4.2	5.4	7.1	5.4	74.9
AVG	8.5	6.9	7.6	6.8	5.6	4.2	5.9	6.1	4.9	6.3	8.3	6.5	77.5
25%	5.7	4.0	4.6	3.5	4.0	3.1	4.2	4.3	3.0	3.9	4.2	4.0	68.7
MIN	1.8	1.8	1.3	2.0	2.0	1.2	2.4	1.0	2.0	1.8	1.0	2.3	48.4

SKN: 282.00 NAME: HAMOA OBSV: ASHWORTH HAROLD ELEV(FT): 105
DATA PERIOD: 1895-1949 NYRS: 16 READ:DAILY LAT: 20 42 54 LONG: 156 0 14

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MAX	19.9	17.4	24.3	20.3	10.7	5.1	10.1	8.9	6.4	16.3	11.9	16.8	105.7
75%	7.8	6.9	11.9	10.1	6.1	3.8	4.9	6.7	5.1	6.7	8.0	7.2	69.5
MED	4.4	4.7	7.1	5.4	4.1	3.1	4.1	4.8	3.6	4.0	5.1	5.2	62.6
AVG	5.5	5.3	8.9	6.9	4.6	3.2	4.5	5.1	3.8	5.6	5.7	5.8	64.1
25%	2.2	2.9	3.8	2.1	2.8	2.7	3.3	3.4	2.6	3.0	3.1	3.7	49.4
MIN	0.7	1.4	0.8	0.8	1.6	2.1	2.6	1.9	1.1	1.6	1.8	2.0	42.2

SKN: 296.00 NAME: OLOWALU-P MILL OBSV: PIONEER MILL ELEV(FT): 5
DATA PERIOD: 1916-1977 NYRS: 60 READ:OTHER LAT: 20 48 42 LONG: 156 37 30

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MAX	45.3	20.6	12.1	10.0	2.5	1.2	0.4	2.4	2.6	4.2	9.1	11.0	73.1
75%	5.4	2.6	2.6	1.1	0.3	0.0	0.1	0.2	0.3	0.9	1.9	4.0	18.3
MED	2.0	1.0	0.9	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.2	1.4	11.2
AVG	3.7	1.9	2.1	1.0	0.3	0.1	0.1	0.2	0.3	0.6	1.4	2.4	14.1
25%	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	7.9
MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6

TABLE 3.5D

NORMALS, MEANS, AND EXTREMES

KAHULUI, HAWAII

LATITUDE: 20°54'N LONGITUDE: 156°26' W ELEVATION: FT. GRND 48 BARO 46 TIME ZONE: BERING WBAN: 22516

	(a)	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F:														
Normals														
-Daily Maximum		79.5	79.7	81.1	82.2	84.5	85.9	86.5	87.4	87.6	86.4	83.5	81.0	83.8
-Daily Minimum		63.4	63.4	64.8	66.2	67.0	68.7	70.4	70.9	69.8	69.1	67.5	65.3	67.2
-Monthly		71.5	71.6	73.0	74.2	75.8	77.3	78.5	79.2	78.7	77.8	75.5	73.2	75.5
Extremes (f)														
-Record Highest	26	89	88	90	91	92	93	94	96	95	96	93	90	96
-Year		1981	1981	1984	1981	1978	1981	1984	1983	1968	1973	1990	1983	AUG 1983
-Record Lowest	26	48	50	55	54	57	58	58	61	60	58	55	52	48
-Year		1969	1987	1990	1985	1985	1985	1965	1976	1975	1964	1985	1983	JAN 1969
NORMAL DEGREE DAYS:														
Heating (base 65°F)		0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling (base 65°F)		202	185	248	276	335	369	419	440	411	397	315	254	3851
% OF POSSIBLE SUNSHINE	28	64	65	64	62	67	72	71	71	73	68	63	63	67
MEAN SKY COVER (tenths)														
Sunrise - Sunset	32	4.8	5.0	5.4	6.0	5.4	4.9	4.7	4.6	4.7	5.2	5.1	4.9	5.1
MEAN NUMBER OF DAYS:														
Sunrise to Sunset														
-Clear	32	12.8	11.4	10.7	7.4	9.3	10.6	11.1	12.5	11.7	10.9	10.9	12.1	131.5
-Partly Cloudy	32	10.0	9.5	11.2	11.3	13.4	13.1	14.8	13.1	12.7	12.4	10.7	10.9	143.0
-Cloudy	32	8.2	7.3	9.1	11.3	8.3	6.3	5.1	5.4	5.6	7.8	8.4	8.0	90.7
Precipitation .01 inches or more	32	10.9	10.1	10.9	10.6	6.1	5.1	6.3	5.9	5.3	7.3	10.2	11.1	99.6
Snow, Ice pellets 1.0 inches or more	32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thunderstorms	32	0.9	0.6	0.5	0.6	0.3	0.0	0.2	0.1	0.1	0.3	0.4	0.5	4.4
Heavy Fog Visibility 1/4 mile or less	32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Temperature °F														
-Maximum														
90° and above	26	0.0	0.0	0.1	0.1	1.2	2.1	3.6	6.2	7.2	4.7	1.2	0.x	26.2
32° and below	26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-Minimum														
32° and below	26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0° and below	26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG. STATION PRESS. (mb)	11	1012.4	1013.6	1014.9	1014.9	1014.7	1014.2	1013.6	1013.2	1013.4	1012.8	1012.9	1013.2	1013.6
RELATIVE HUMIDITY (%)														
Hour 02	10	85	83	81	81	82	80	80	79	80	80	81	82	81
Hour 18 (Local Time)	26	83	81	77	75	71	69	70	71	70	73	76	80	75
Hour 14	26	63	61	59	59	56	54	55	55	55	57	60	61	58
Hour 20	26	77	75	74	73	71	71	71	71	71	73	75	76	73
PRECIPITATION (inches):														
Water Equivalent														
-Normal		4.21	3.27	3.00	1.18	0.66	0.28	0.41	0.50	0.36	0.87	2.26	2.85	19.85
-Maximum Monthly	36	14.46	8.31	10.90	14.29	4.36	2.50	1.65	1.54	1.43	5.66	9.27	10.19	14.46
-Year		1980	1972	1967	1989	1987	1967	1989	1982	1987	1985	1965	1988	JAN 1980
-Minimum Monthly	36	0.12	0.07	0.09	0.06	T	0.00	0.02	0.02	0.02	T	0.14	0.01	0.00
-Year		1977	1983	1957	1990	1972	1957	1973	1973	1972	1984	1980	1975	JUN 1957
-Maximum in 24 hrs	36	7.01	4.98	5.42	4.83	2.41	2.36	1.04	1.21	1.16	4.85	5.48	5.82	7.01
-Year		1980	1972	1967	1989	1987	1967	1989	1982	1965	1985	1965	1955	JAN 1980
Snow, Ice pellets														
-Maximum Monthly		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
-Year														
-Maximum in 24 hrs	36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
-Year														
WIND:														
Mean Speed (mph)	23	10.8	11.1	12.3	13.3	13.2	14.7	15.6	14.8	12.9	12.0	11.8	11.3	12.8
Prevailing Direction through 1963		SSW	S	NE	NE	NE	ENE	NE	NE	NE	NE	NE	NE	NE
Fastest Mile														
-Direction (!!)	23	SW	NE	N	E	E	E	NE	NE	E	E	SW	E	SW
-Speed (MPH)	23	44	40	43	36	34	33	37	35	33	36	41	36	44
-Year		1980	1971	1968	1976	1986	1986	1978	1975	1977	1975	1982	1971	JAN 1980
Peak Gust														
-Direction (!!)	7	SW	NE	E	NE	E	NE	E	NE	NE	NE	S	E	E
-Speed (mph)	7	49	46	49	45	43	44	46	45	43	46	51	54	54
-Date		1985	1990	1985	1987	1989	1990	1989	1984	1990	1985	1988	1988	DEC 1988

TABLE 3.6A

SUMMARY OF STATE OF HAWAII AND FEDERAL AMBIENT AIR QUALITY STANDARDS

	POLLUTANT	SAMPLING PERIOD	FEDERAL STANDARDS PRIMARY	FEDERAL STANDARDS SECONDARY	STATE STANDARDS
1.	Total Suspended Particulate Matter (TSP)	Annual Geometric Mean	75	60	60
	(micrograms per cubic meter)	Maximum Average in any 24 Hours	260	150	150
2.	PM-10	Annual	50	50	-
	(micrograms per cubic meter)	Maximum Average in any 24 hours	150	150	-
3.	Sulfer Dioxide (SO2)	Annual Arithmetic Mean	80	-	80
	(micrograms per cubic meter)	Maximum Average in any 24 hours	365	-	365
		Maximum Average in any 3 hours		1,300	1,300
4.	Nitrogen Dioxide (NO2)	Annual Arithmetic Mean	100		70
	(micrograms per cubic meter)				
5.	Carbon Monoxide (CO)	Maximum Average In Any 8 Hours	10		5
	(micrograms per cubic meter)	Maximum Average In any 1 hour	40		10
6.	Photochemical Oxidants (as O3)	Maximum Average In Any 1 Hour	240		100
	(micrograms per cubic meter)				
7.	Lead (Pb)	Maximum Average In Any Calender Quarter	1.5		1.5
	(micrograms per cubic meter)				

TABLE 3.6B

HAWAII AIR MONITORING D/ - Lahaina, Maui
PM-10* (ug/m³)
Monthly Average - 24 Hour Sampling

MONTH YEAR	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL AVERAGE
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987								14	19	-	-	13	15
1988	11	18	16	22	22	22	-[a]	-	-	-	-	-	18
1989	-	-	-	16	15	15	17	15	15	11	17	12	14
1990	10	12	14	19	15	14	17	-	22	24	-	24	17

*Particulate matter equal to or less than 10 microns in diameter.
[a]No sampling 7-88 to 3-89, no operator.

TABLE 3.6C

HAWAII AIR MONITORING DATA - Kihei, Maui

PM-10* (ug/m³)

Monthly Average - 24 Hour Sampling

MONTH YEAR	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL AVERAGE
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987	28	17	45	29	30	25	29	22	31	-	22	19	28
1988	-	21	26	22	31	29	35	29	-[a]	-	-	-	28
1989	-	-	-	13	30	25	25	22	39	22	24	17	24
1990	18	SAMPLER DOWN DUE TO CONSTRUCTION AT SAMPLING SITE.											

*Particulate matter equal to or less than 10 microns in diameter.

[a]Site down through March 1989, no operator.

TABLE 3.6D

STATE OF HAWAII
ANNUAL SUMMARY OF HAWAII AIR MONITORING DATA - 24-HOUR SAMPLING
December 31, 1989

	Dept. of Health, Oahu	Barbers Point, Oahu	Pearl City, Oahu	Liliha, Oahu	Waimanalo, Oahu	Lihue, Kauai	Lahaina, Maui	Kihei, Maui
PARTICULATE MATTER (ug/m^3)								
Parameters:								
a. Period of sampling (mos.)	12	-	-	12	-	-	-	-
b. Number of samples	59	-	-	58	-	-	-	-
c. Range of values	16-48	-	-	21-60	-	-	-	-
d. Arithmetic average of values	29	-	-	32	-	-	-	-
e. Number of days State AQS* exceeded	0	-	-	0	-	-	-	-
PM_{10} (ug/m^3) (particulate matter 10 microns or less in diameter)								
Parameters:								
a. Period of sampling (mos.)	-	12	11	12	12	11	9	12
b. Number of samples	-	58	47	55	56	47	39	37
c. Range of values	-	10-44	8-21	10-33	10-57	8-34	6-25	9-51
d. Arithmetic average of values	-	26	15	16	20	17	15	24
e. Number of days State AQS* exceeded	-	0	0	0	0	0	0	0
SULFUR DIOXIDE (ug/m^3)								
Parameters:								
a. Period of sampling (mos.)	12	12	-	-	-	-	-	9
b. Number of samples	52	54	-	-	-	-	-	39
c. Range of values	<5-8	<5-20	-	-	-	-	-	<5-5
d. Arithmetic average of values	<5	<5	-	-	-	-	-	<5
e. Number of days State AQS* exceeded	0	0	-	-	-	-	-	0
LEAD (ug/m^3)								
Parameters:								
a. Period of sampling (mos.)	12	-	-	12	-	-	-	-
b. Number of samples	51	-	-	57	-	-	-	-
c. Range of values	0-.1	-	-	0-.2	-	-	-	-
d. Arithmetic average of values	0	-	-	0	-	-	-	-
e. Number of days State AQS* exceeded	0	-	-	0	-	-	-	-

*Air Quality Standard. Particulate matter = 150 ug/m^3; Sulfur dioxide = 365 ug/m^3; PM_{10} = no state standard has been promulgated.

TABLE 3.9

JOBCOUNT BY INDUSTRY, BY COUNTIES: ANNUAL AVERAGE, 1989

Industry	State total	City and County of Honolulu	Hawaii County	Kauai County	Maui County
Nonagriculture, wage and salary	504,800	395,600	41,050	23,350	44,750
Contract construction	29,200	22,450	2,400	1,300	3,050
Manufacturing	21,300	16,050	2,350	1,000	1,900
Durable goods	4,200	3,750	200	(Z)	250
Nondurable goods	17,100	12,300	2,150	1,000	1,650
Food processing	9,350	5,400	1,750	850	1,350
Textile, apparel	2,550	2,500	(NS)	(NS)	(NS)
Printing, publishing	3,650	3,050	(NS)	(NS)	(NS)
Other nondurables	1,550	1,350	(NS)	(NS)	(NS)
Transp., commun., utilities	40,200	32,650	2,400	2,400	2,750
Transportation	30,100	24,950	(NS)	(NS)	(NS)
Communication	7,300	5,750	(NS)	(NS)	(NS)
Utilities	2,800	1,950	(NS)	(NS)	(NS)
Trade	132,950	102,050	11,400	6,400	13,100
Wholesale	21,950	18,500	1,750	400	1,250
Retail	111,000	83,500	9,650	6,000	11,850
Finance, insur., real estate	35,100	28,650	2,050	1,450	3,000
Services and miscellaneous	144,600	108,950	12,500	7,600	15,500
Hotels	37,000	18,700	6,000	4,250	8,050
Other services, misc.	107,600	90,250	6,500	3,350	7,450
Government	101,450	84,800	8,000	3,200	5,450
Federal	33,850	32,350	800	300	400
Air Force	2,350	2,250	(NS)	(NS)	(NS)
Army	5,550	5,450	(NS)	(NS)	(NS)
Navy	12,250	12,150	(NS)	(NS)	(NS)
Other	13,650	12,500	(NS)	(NS)	(NS)
State	53,550	42,650	5,300	2,000	3,600
Local	14,100	9,850	1,900	850	1,450
Agriculture, wage and salary	9,600	2,300	3,550	1,200	2,550
Sugar	3,300	450	1,000	950	900
Pineapple	1,850	700	-	-	1,100
Other	4,500	1,150	2,550	250	550
Nonagric., self-employed 2/	33,250	23,000	4,700	2,000	3,500
Agric., self-employed 3/	3,500	650	2,300	250	350
Labor disputes	(Z)	(Z)	-	-	-

Footnotes and source on next page.

From: Department of Business and Economic Development, The State of Hawaii Data Book 1990.

JOBCOUNT BY INDUSTRY, BY COUNTIES: ANNUAL AVERAGE, 1989 -- Con.

Z Fewer than 50.
NS Not shown separately.
1/ Revised from Data Book 1989, tables 342 and 343.
2/ Includes unpaid family workers and domestics. Data for 1987-1989 are not comparable to earlier years.
3/ Includes unpaid family workers.
Source: Hawaii State Department of Labor and Industrial Relations, Labor Force Data Book (March 1978), as revised annually through April 1990.

APPENDIX B

Project Location Map

Topographical Survey Map

Soils Map - Land Study Bureau

Soils Map - Soil Conservation Service

Ground Water Conditions

Area Roadway System

Estimated Average Daily Insolation - Island of Maui

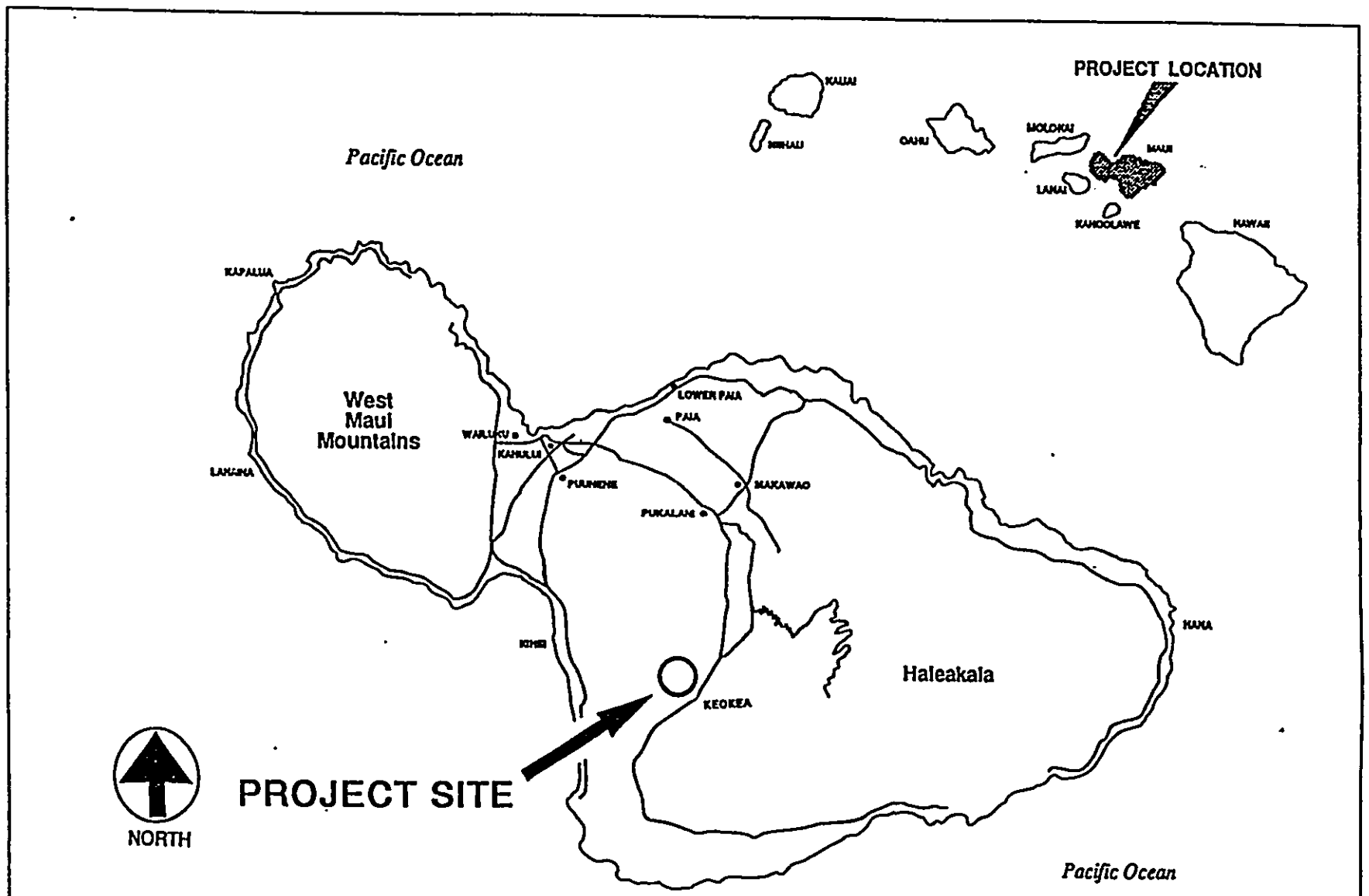
Island of Maui Aquifer Sectors

Map Showing Kula Water System Service Area (Municipal)

Dept. of Land and Natural Resources
- Letter from Director William Paty (File No. 89-238, Doc. No. 4709E) regarding :
  1. Historic Sites Division Field Inspection Report
  2. Division of Water and Land Development Project Review
  3. Land Management Division Project Review

Tax Maps:
- Water Tank Site No. 5
- Incinerator Site
- Road Easements
- Water Pipeline Easements
- Buildings Proposed for Demolition
- Proposed Sewer Treatment System

United States Department of Interior
- Fish and Wildlife Service
- Letter from Robert P. Smith
- Field Supervisor, Office of Ecological Services



PROJECT LOCATION MAP

FIGURE 2.2

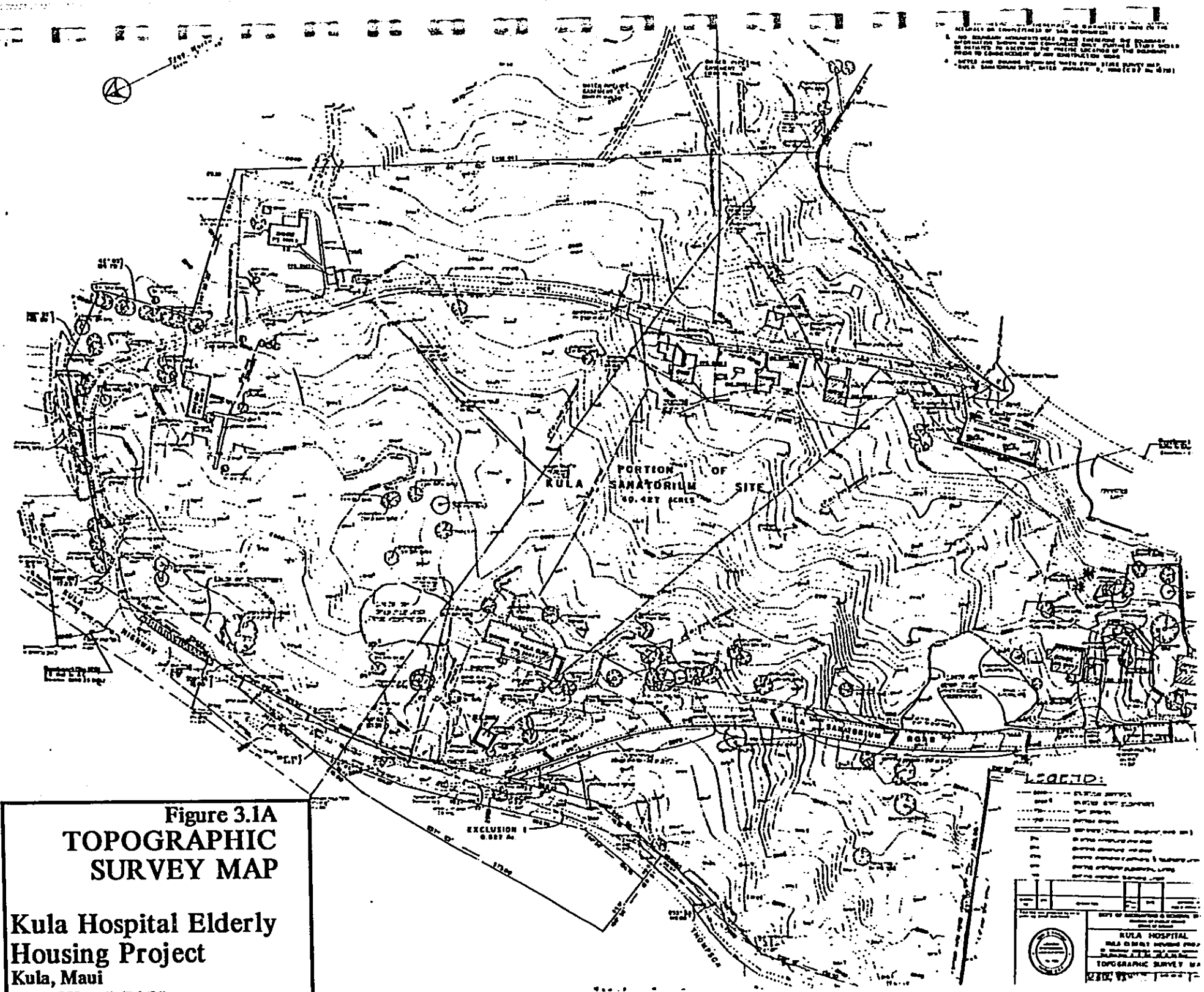


Figure 3.1A
TOPOGRAPHIC SURVEY MAP

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS

FIGURE 3.2.6A

SOILS MAP

From: Sakara, Tamotsu, et al, Detailed Land Classification – Island of Maui, Land Study Bureau, University of Hawaii, Honolulu, Hawaii, May 1967 (LSB Bulletin No. 7). Composite of Map Nos. 57, 58, and 65

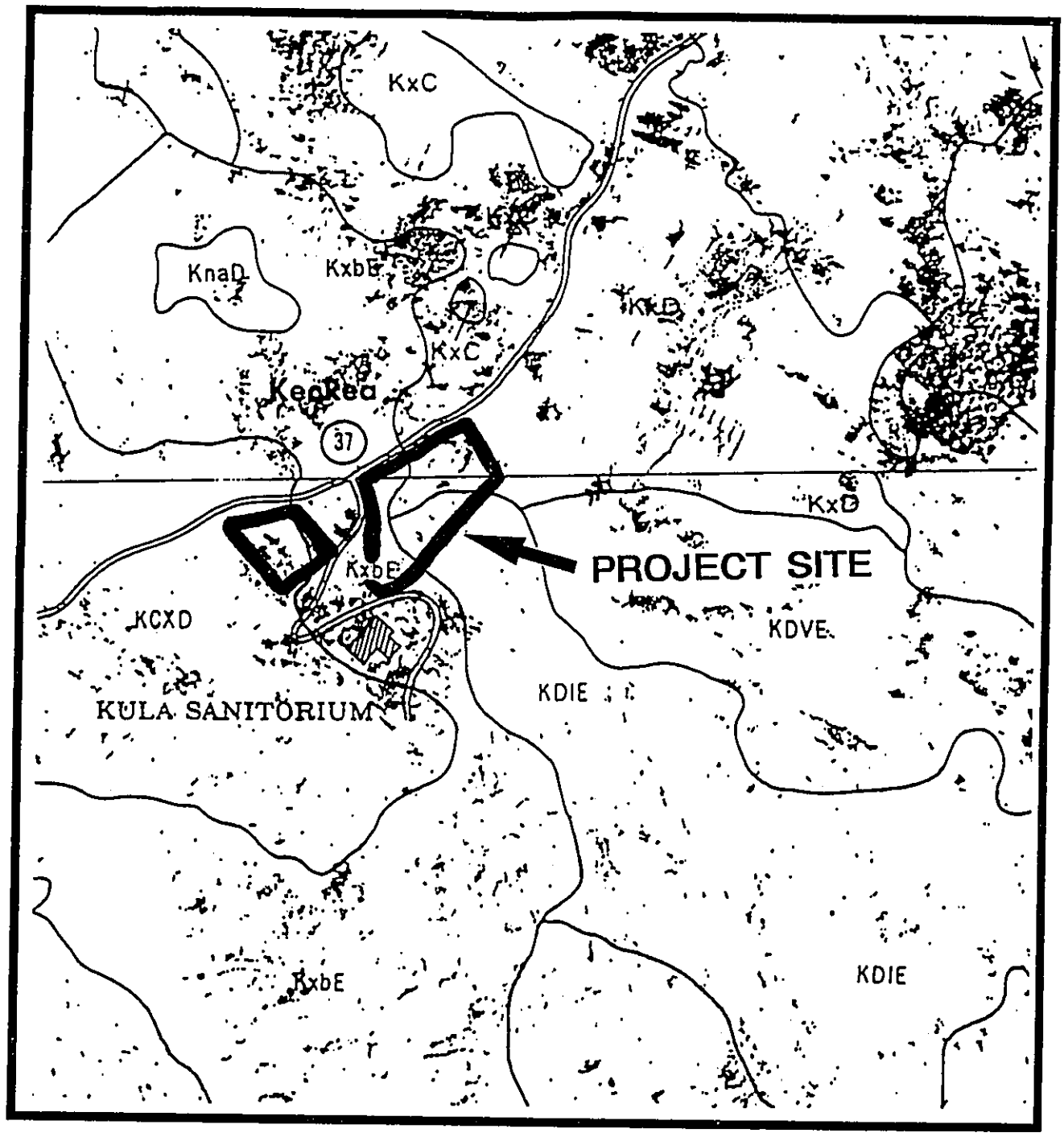
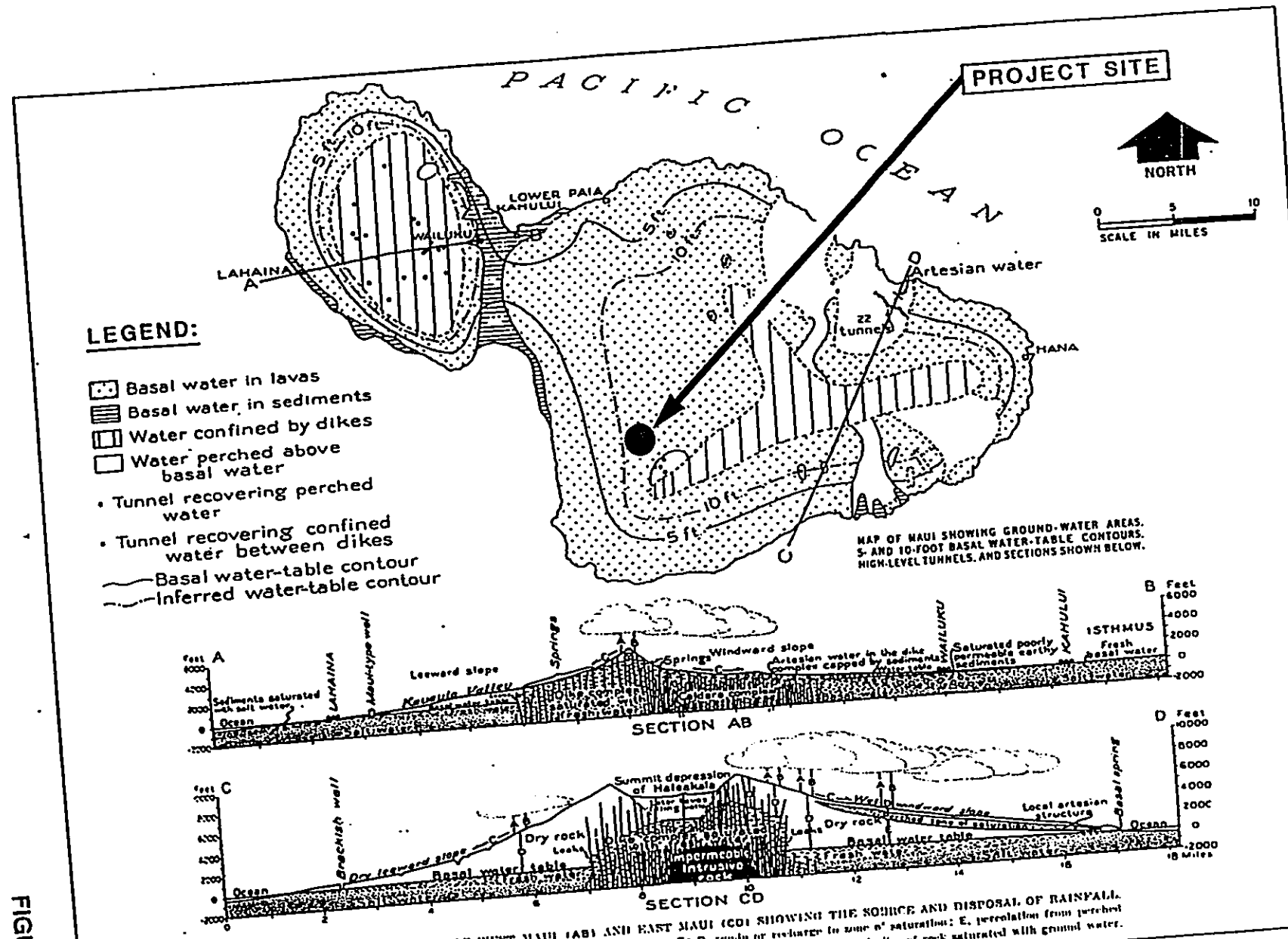


FIGURE 3.2.6B

SOILS MAP

From: United States Department of Agriculture, Soil Conservation Service, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, August, 1972.



SIMPLIFIED SECTIONS OF WEST MAUI (AB) AND EAST MAUI (CD) SHOWING THE SOURCE AND DISPOSAL OF RAINFALL. A, Rainfall; B, fly-off or evaporation and transpiration; C, run-off; D, run-in or recharge to zone of saturation; E, percolation from perched zone of saturation to basal water table. Shows the various high- and low-level springs and the bodies of rock saturated with ground water.

GROUND WATER CONDITIONS

FIGURE 3.3.1

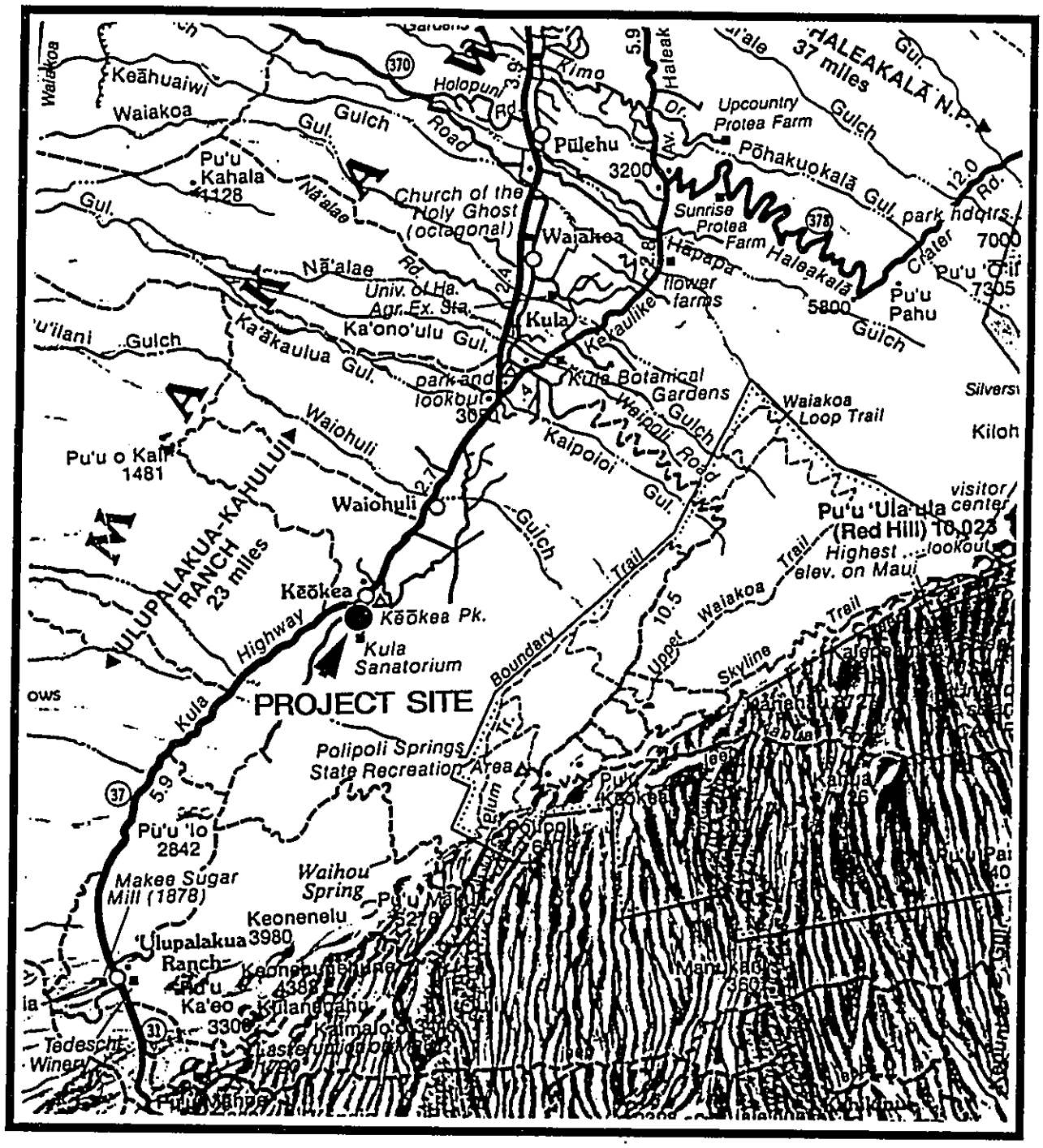


FIGURE 3.4.2

AREA ROADWAY SYSTEM

FIGURE 3.5

ESTIMATED AVERAGE DAILY INSOLATION

IN CALORIES PER SQUARE CENTIMETER PER DAY

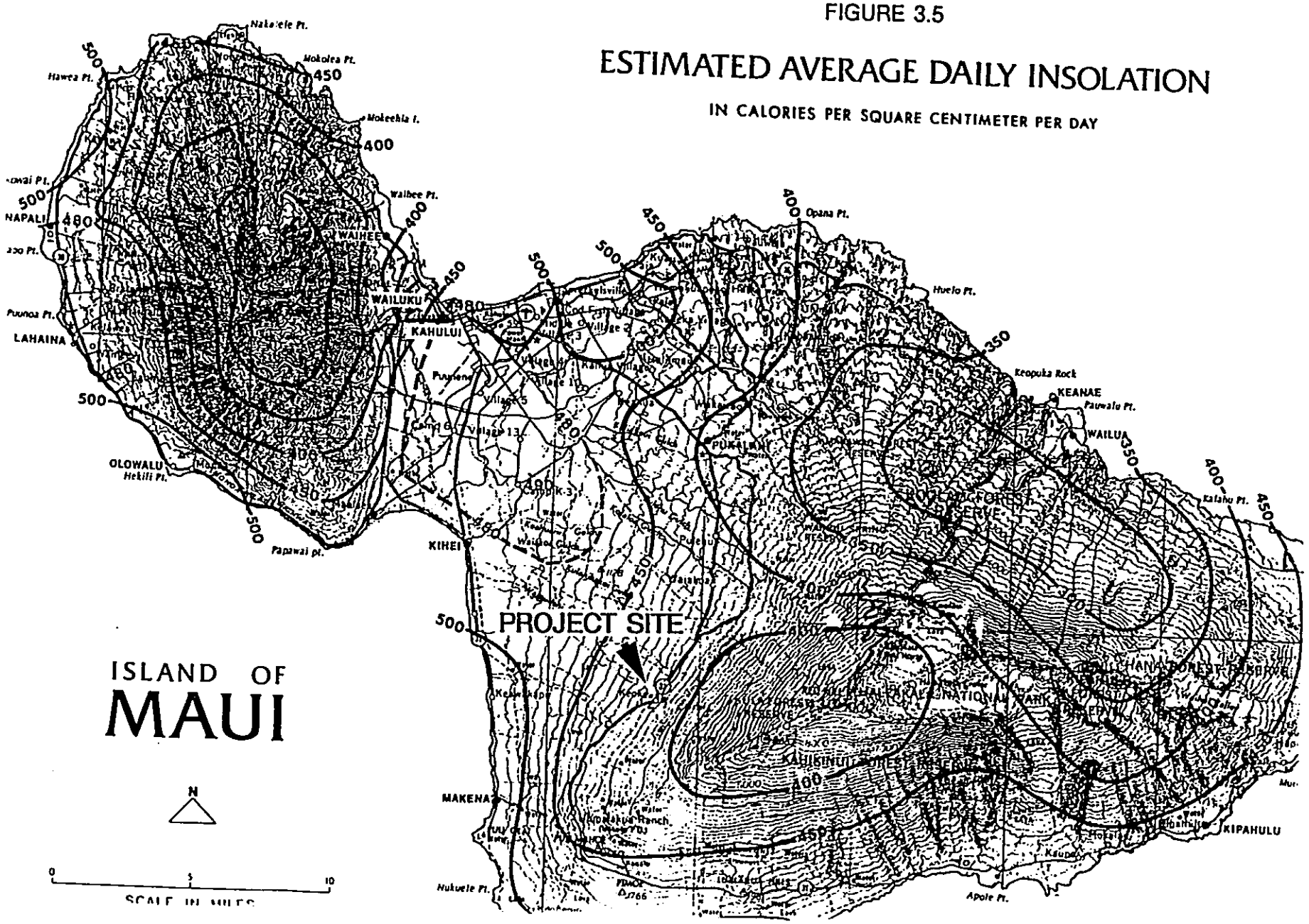
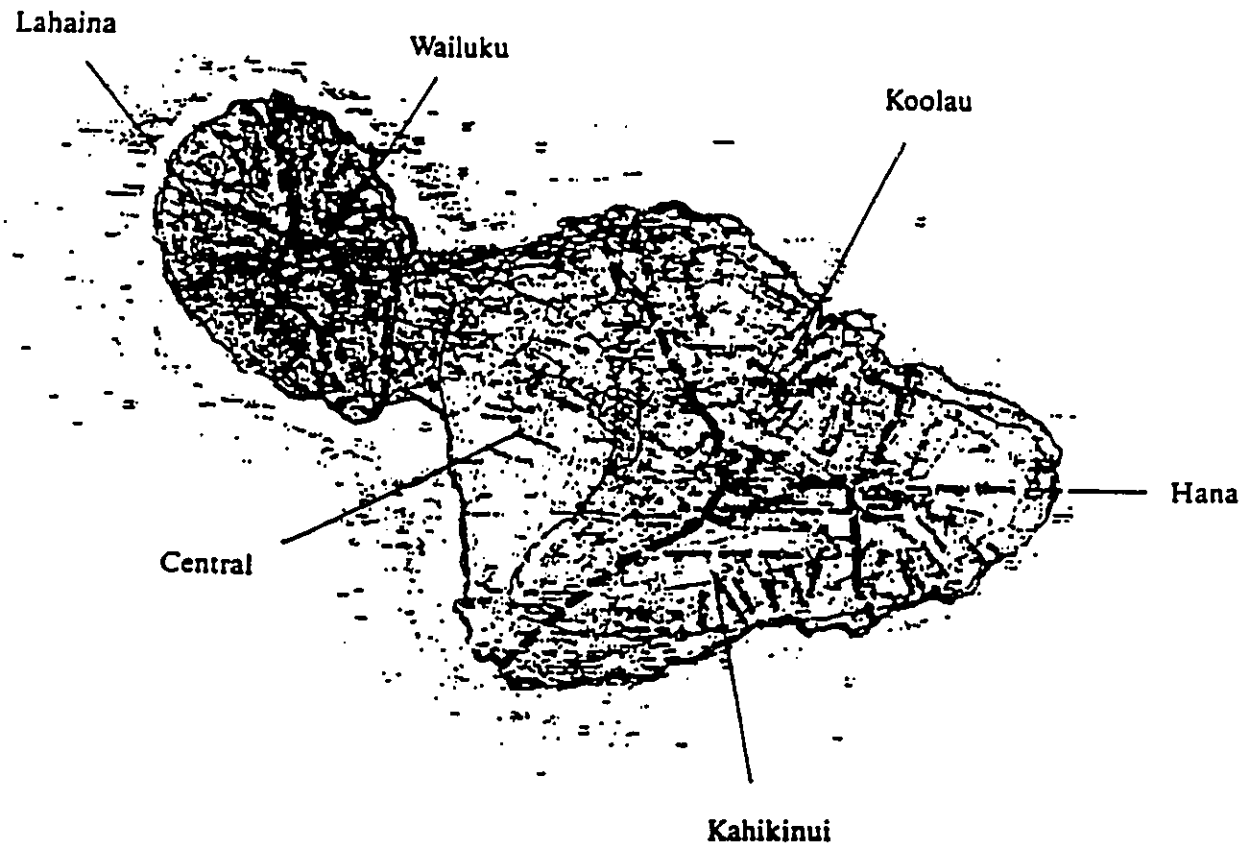


FIGURE 3.12.1A

ISLAND OF MAUI
AQUIFER SECTORS

From: Maui County Water Use and Development Plan



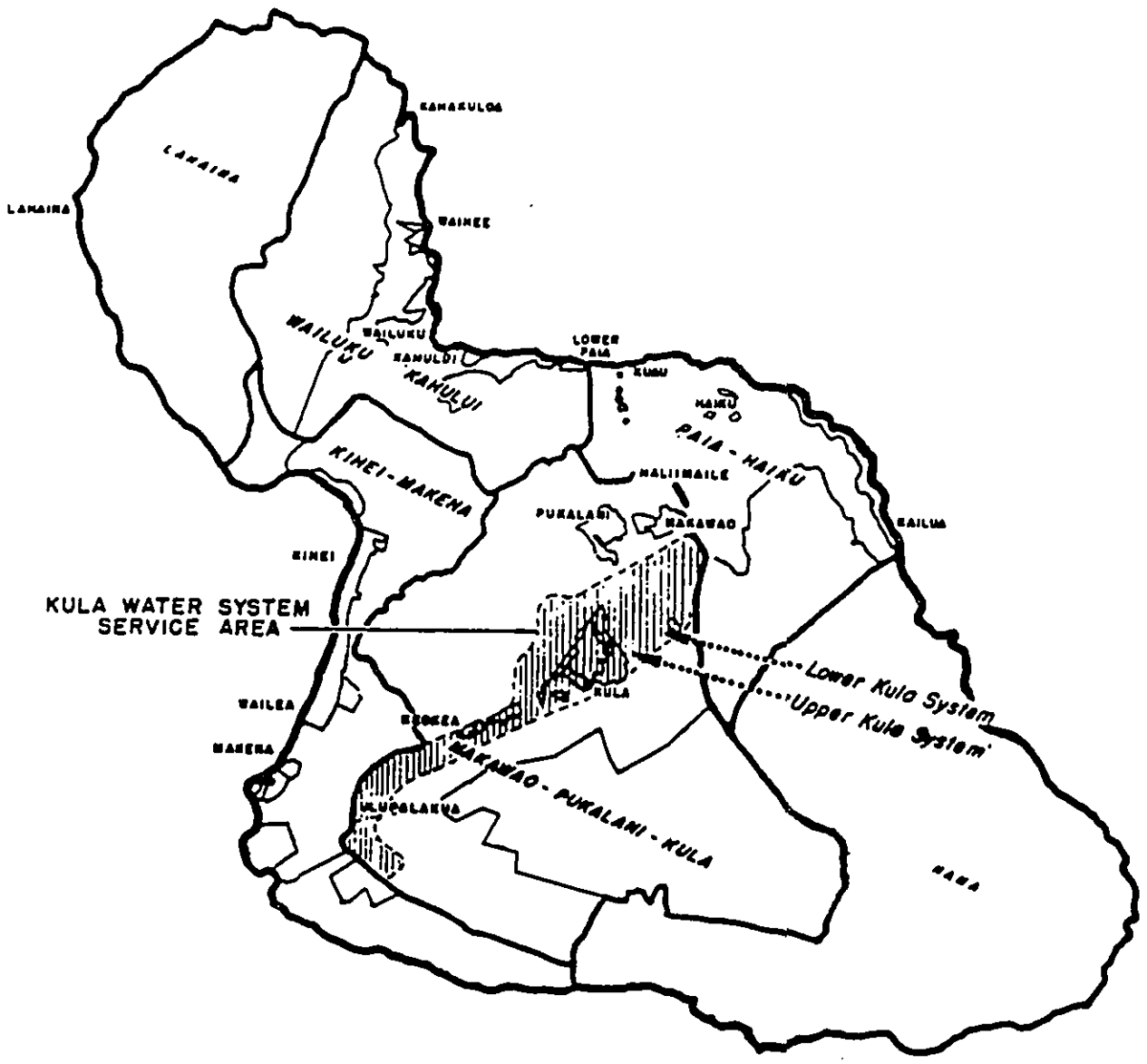


FIGURE 3.12.1B

MAP SHOWING
KULA WATER SYSTEM SERVICE AREA
(MUNICIPAL)

From: Maui County Water Use and Development Plan

TO:
ADMIN.
ARCH. ADMIN.
DEV.
PLAN. OR.
RES. MGT. BR.
PROJ. CONTROL
SW REC. PLAN.
CLERICAL STAFF
HIST. SITES SEC.

12/8 RC TO AG INFO

FOR:
CIRC.
COMMENTS & REC.
DRAFT REPLY
FILE
FOLLOW UP
INFO
SEE
SIGNATURE

JOHN WAIHEE
GOVERNOR OF HAWAII

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

DIVISION OF
STATE PARKS

DEC 5 10 40 AM '88

WILLIAM W. PATY
BOARD OF LAND AND NATURAL RESOURCES

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LIBERT K. LANDGRAF
MANABU TAGOMORI
RUSSELL N. FUKUMOTO

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

DEC 2 1988

FILE NO.: 89-238
DOC. NO.: 4709E

MEMORANDUM

TO: The Honorable John C. Lewin, Director
Department of Health

FROM: William W. Paty, Chairperson
Board of Land and Natural Resources

SUBJECT: Kula Hospital Elderly Housing
TMK: 2-2-04: 76 and portion of 34

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the materials you submitted and have the following comments.

Our Department's Historic Sites Section indicates that Ms. Annie Griffin, staff archaeologist handling the County of Maui, conducted a field inspection of the project area on November 10, 1988. Mr. Romel Dela Cruz, Administrator of the Kula Hospital, took Ms. Griffin around the proposed project site.

The proposed project site was found to be previously disturbed and contains no remains of historic sites. According to Mr. Dela Cruz, portions of the land were previously farmed by patients at the sanitarium. Some disturbance also occurred during the construction of the sanitarium and related structures. Therefore, we believe that the project will have "no effect" on significant historic sites.

However, there are three small, wooden buildings that Mr. Dela Cruz believes are contemporaneous to the sanitarium. These are proposed for demolition to make way for the elderly housing. Two are presently used for residence of hospital staff and one has been abandoned. If these buildings were constructed before World War II, we recommend that the following mitigation procedure be undertaken prior to their destruction:

1) The exterior and interior of the three buildings should be photographically documented with a large format (at least 4" x 5") camera. The negatives and 8" x 10" black-and-white prints should be submitted to the Historic Preservation Office.

Should you have any questions, please contact Ms. Annie Griffin at 548-6408.

Our Division of Water and Land Development has reviewed the subject study and have no specific comments to offer. However, since water is the critical concern in the Kula area, it is suggested that the water requirements for the facility be developed and submitted as soon as possible so that these needs can be planned for.

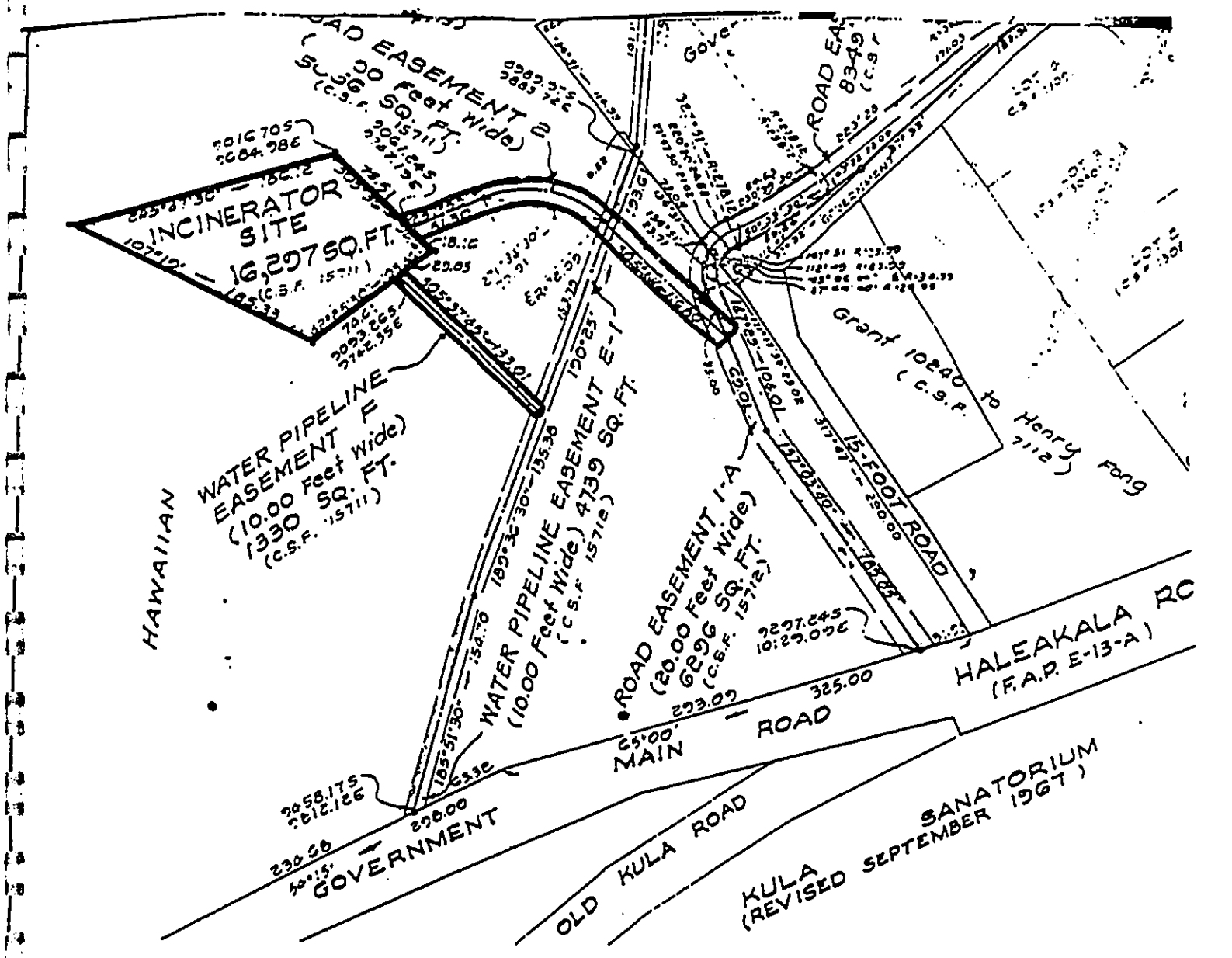
Improvements to the Kula Water System is currently under construction and more improvements are being planned which should alleviate some of the water problems in the area.

The Land Management Division has no objections to the Department of Health's proposed Kula Hospital Elderly Housing Project. This proposed housing project will be built on State-owned lands presently set aside and under the control and management of the sponsoring agency, Department of Health, through the auspices of Governor's Executive Order No. 2493 dated December 16, 1969.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.

WILLIAM W. PATY

FIGURE 3.11.1A



WATER TANK SITE No. 5 AND INCINERATOR SITE, ROAD EASEMENTS 1-A, 1-B, 1-C, 1-D, 2 AND 3 WATER PIPELINE EASEMENTS E-1, E-2, E-3 AND F

Keokea, Makawao (Kula), Maui, Hawaii

Scale: 1 inch = 100 feet

JOB M8-5785

L.C.S.H. I.S.M. FOLDER (Maui)

Note: All coordinates referred to PLANE ZONE 4
All Road Easements twenty (20.00) feet wide
All Water Pipeline Easements ten (10.00) feet wide

TAX MAP: 2-2-04:36

C.S.F. No. 15711 to 15719 incl.

SURVEY DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

P. Nuha Jan. 3, 1968

FIGURE 3.11.1E

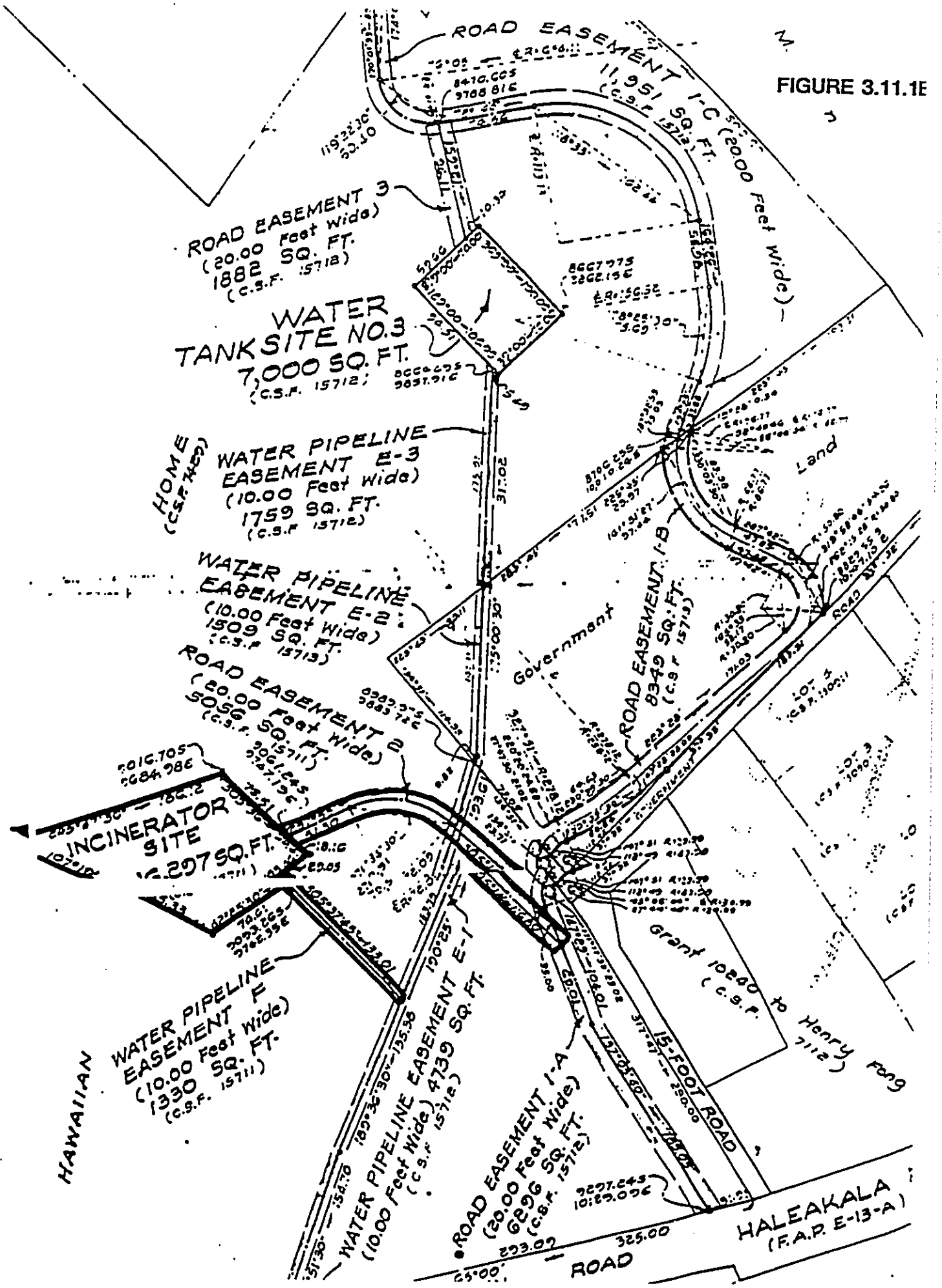
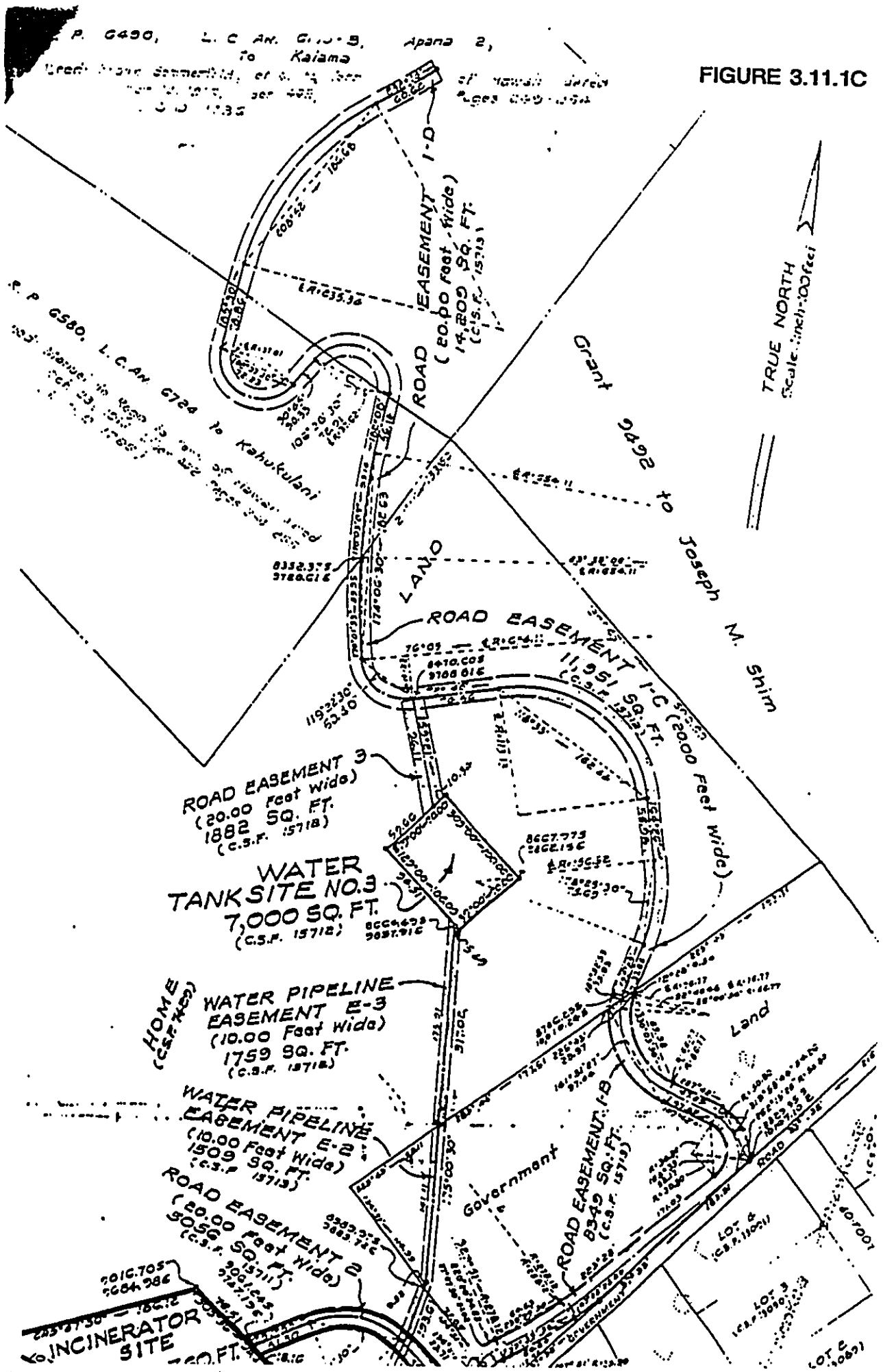


FIGURE 3.11.1C



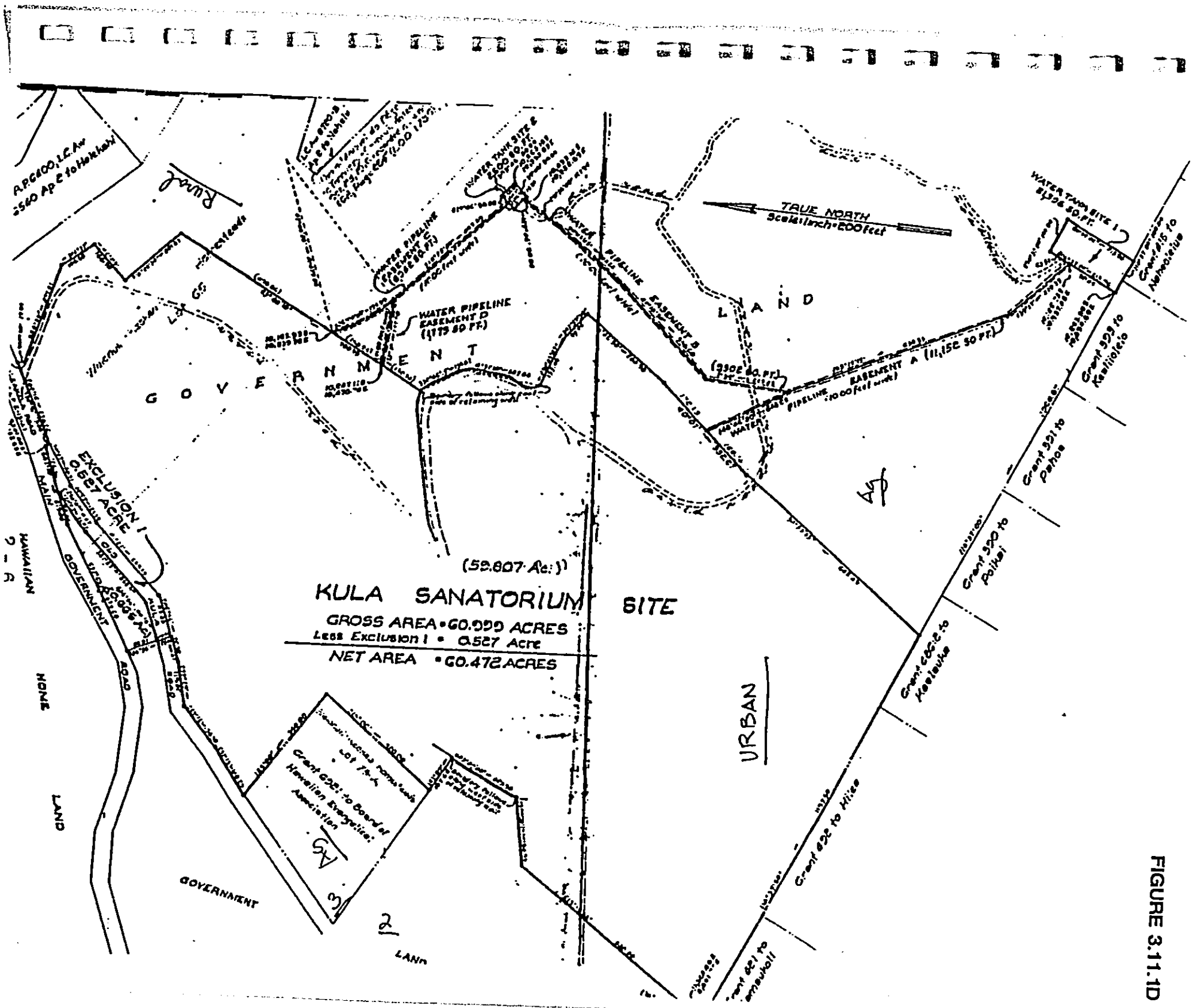


FIGURE 3.11.1D

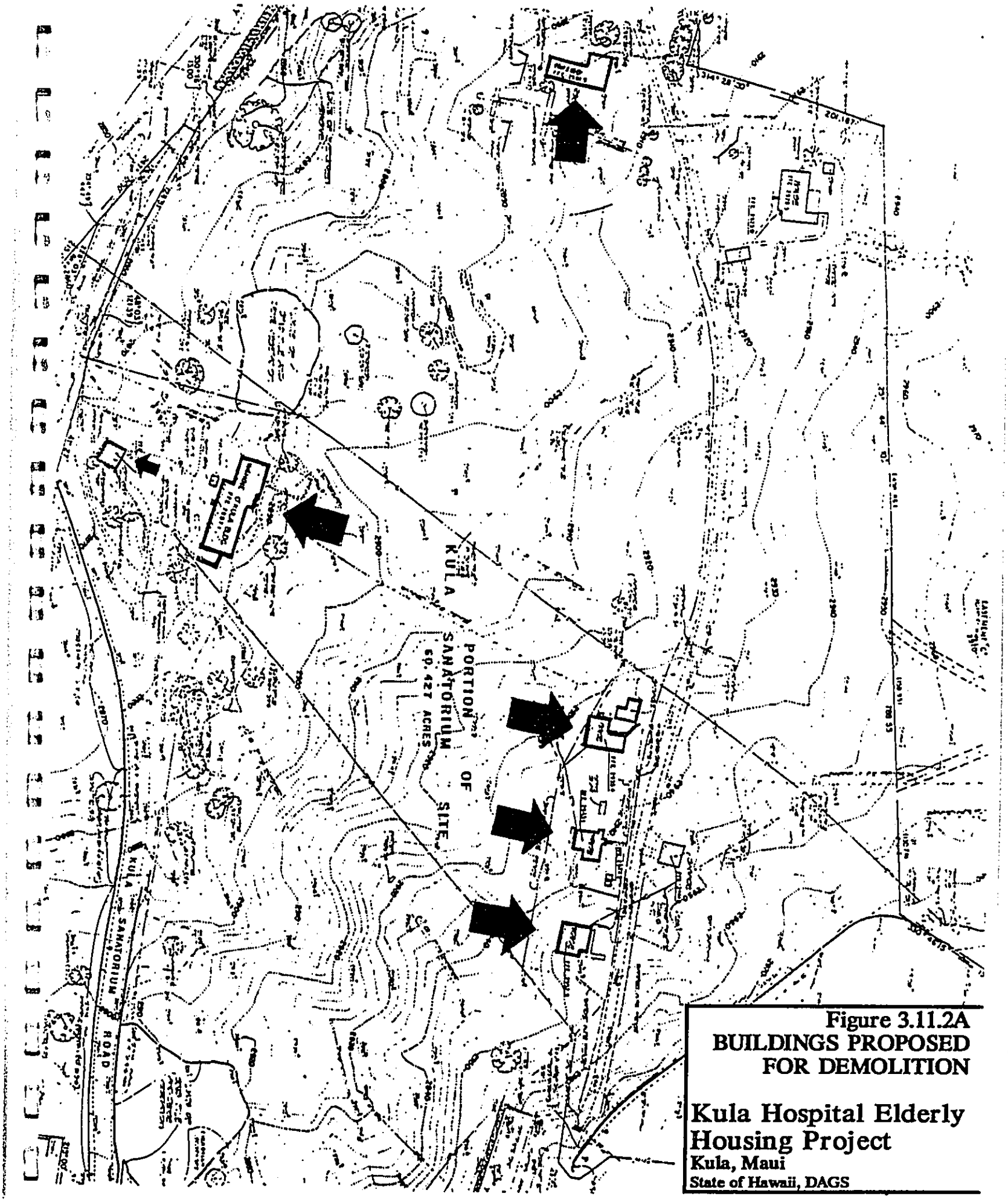


Figure 3.11.2A
BUILDINGS PROPOSED FOR DEMOLITION

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS

Proposed Sewer Treatment System

Currently, there exists no municipal sewer system within the Kula area. Thus, wastewater treatment and disposal must be taken care of onsite.

The proposed sewer system is also shown in the Preliminary Site Utility Plan.

Anticipated sewage flow calculations are as follows:

100 units x 2.5 persons/unit x 100 gal./capita/day = 25,000 gallons/day

This system is broken down into two distinct sections. A series of 4" sewer laterals service the lower buildings (30 units) which convey the wastewater to a single sewer manhole located along the Kula Sanatorium Road at an approximate elevation of 2,875 feet. The effluent will then have to be stored and pumped up to a central sewage treatment facility for treatment and disposal. Thus, the anticipated flow to the pump station is as follows:

30 units x 2.5 persons/unit x 100 gal./capita/day = 7,500 gal./day

The remainder of the site (70 units + recreation building) will be serviced by a separate collection system which will convey the wastewater across Kula Sanatorium Road and into the sewage treatment facility at an approximate elevation of 2,895 feet. The anticipated flow is approximately 17,500 gallons per day.

The State Department of Health is currently requiring secondary treatment of the wastewater with disposal of the effluent via leach fields.

Connection to the area of future expansion of the elderly housing units is also provided for.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

January 11, 1993

Ms. Terri-Lynn Kojima
Management Planning & Administration Consultants, Inc.
436 Piikoi Street
Honolulu, Hawaii 96814

Dear Ms. Kojima:

This responds to your December 23, 1992 request for information on endangered or threatened species of plants and animals which may be found in the vicinity of, or may be affected by, the proposed construction of the Kula Hospital Elderly Housing Project in Kula, Maui.

We have reviewed the information provided with your request and pertinent information in our files. To the best of our knowledge, there are no listed or proposed endangered or threatened species of animals or plants within the Fish and Wildlife Service's jurisdiction that would be expected to be found in the vicinity or, or would be affected by, the project.

Thank you for the opportunity to comment on the proposal.

Sincerely yours,

Robert P. Smith

Robert P. Smith
Field Supervisor
Office of Ecological Services

APPENDIX C

Schematic Plan - Kula Hospital Elderly Housing

Kula Hospital Elderly Housing Units

Kula Hospital Elderly Housing -
Administrative/Community and Laundry
Facilities

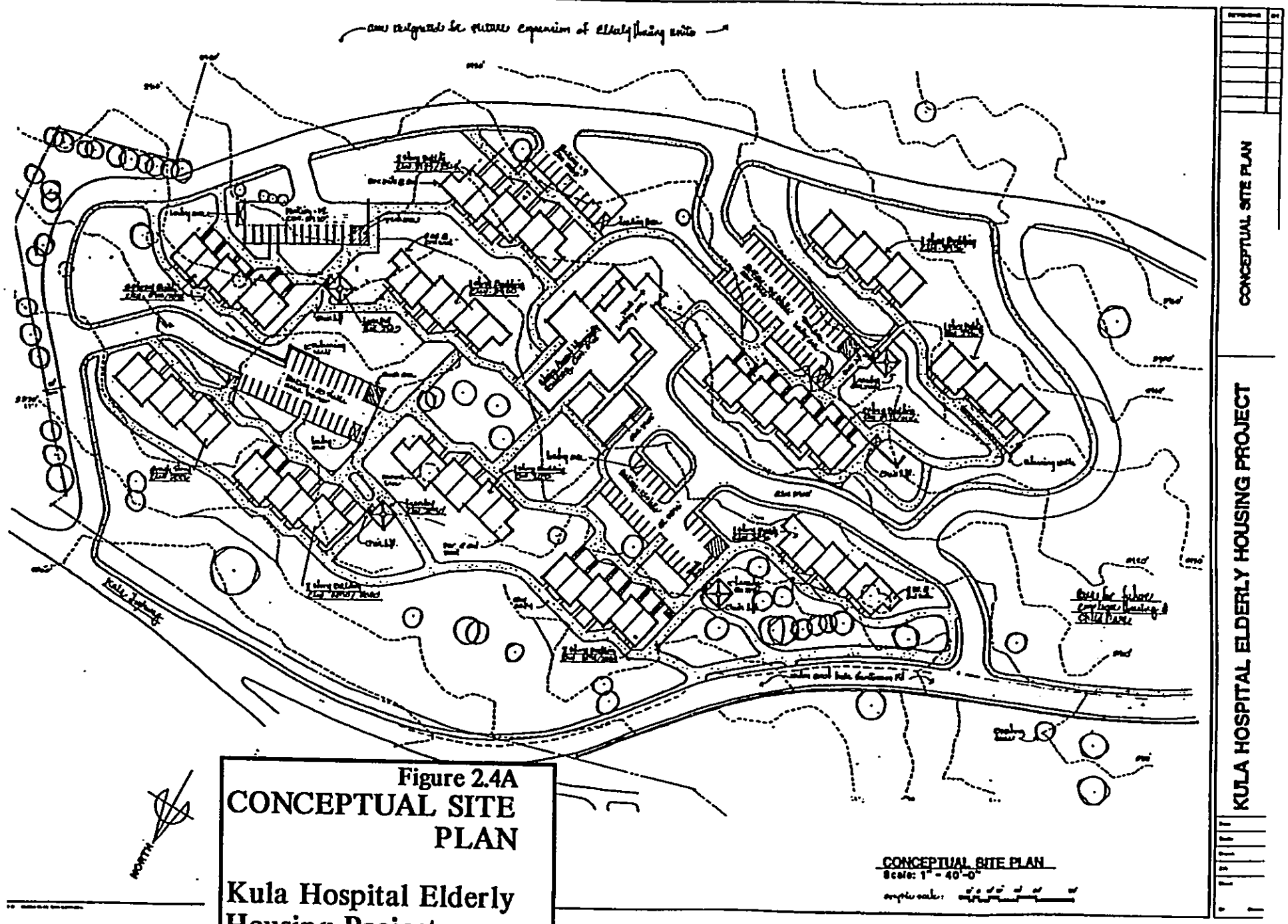
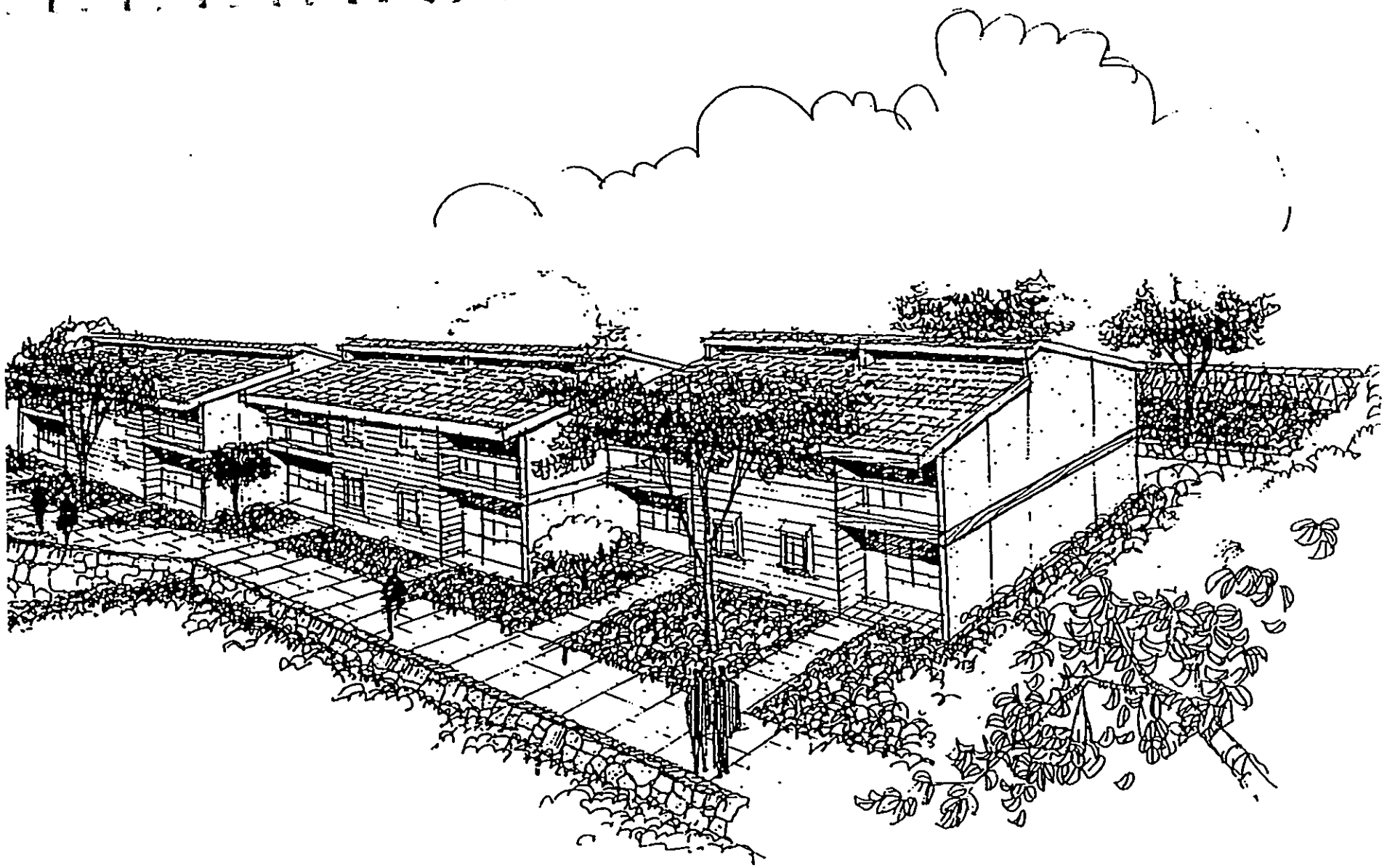


Figure 2.4A
CONCEPTUAL SITE PLAN

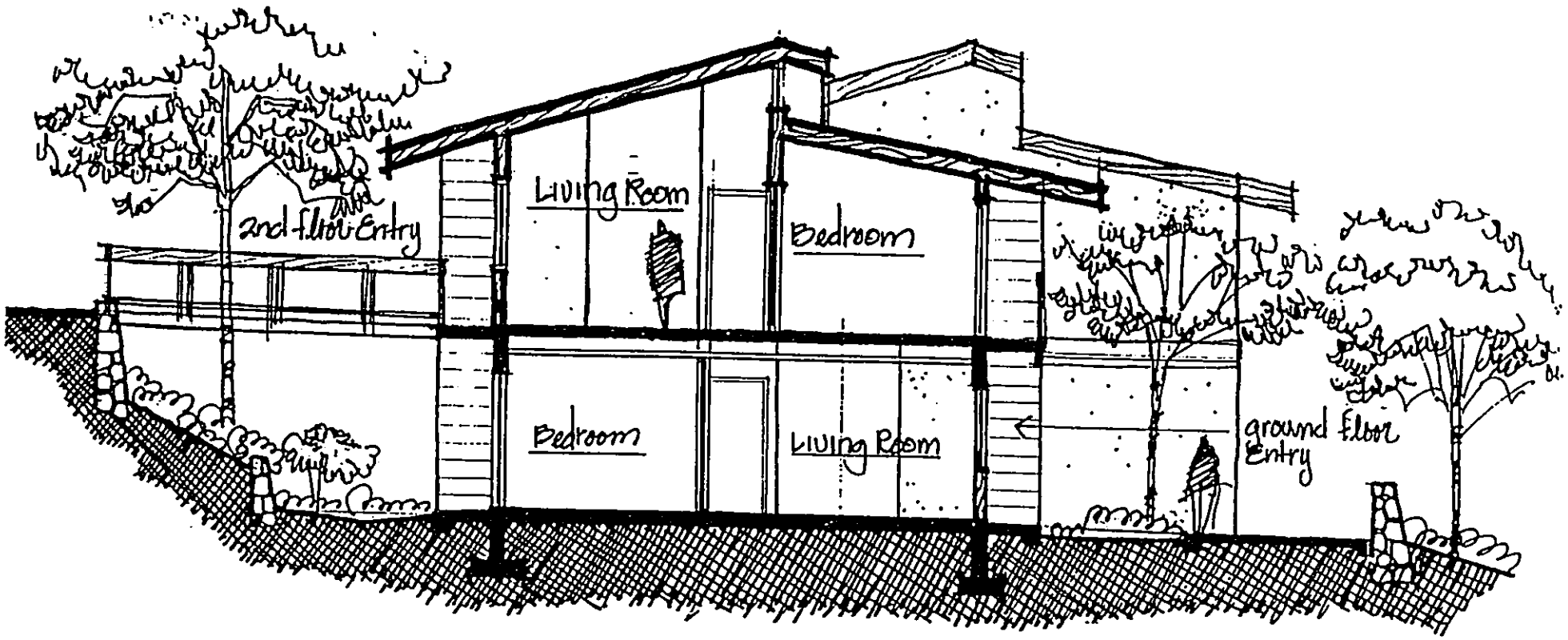
Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS



BUILDING PERSPECTIVE

Figure 2.4B

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS



SECTION THRU 2 STORY BUILDING

scale: 1/8" = 1'-0"

Figure 2.4C

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS

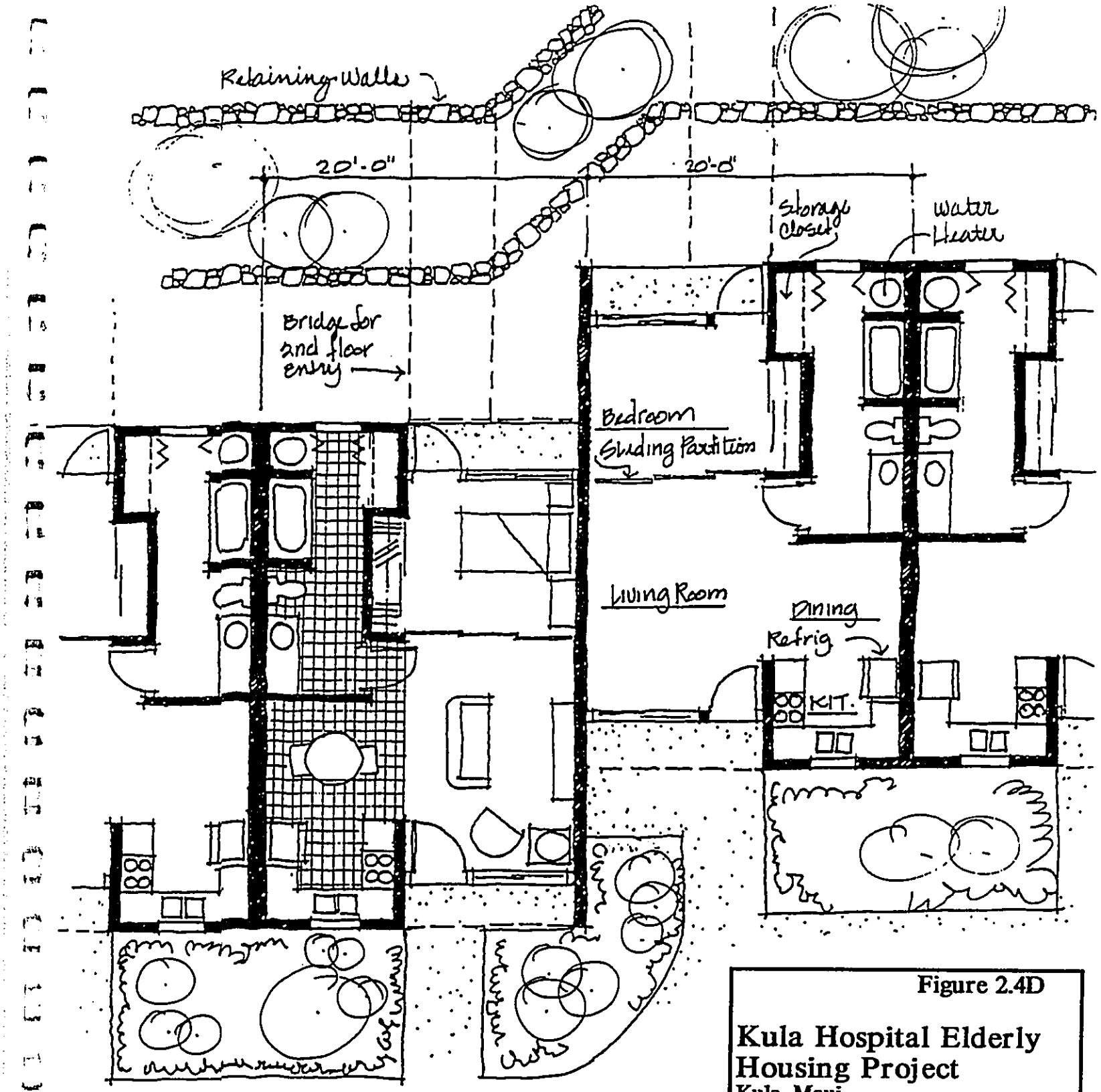


Figure 2.4D

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS

GROUND FLOOR
ONE BEDROOM UNIT

Scale: 1/8" = 1'-0"

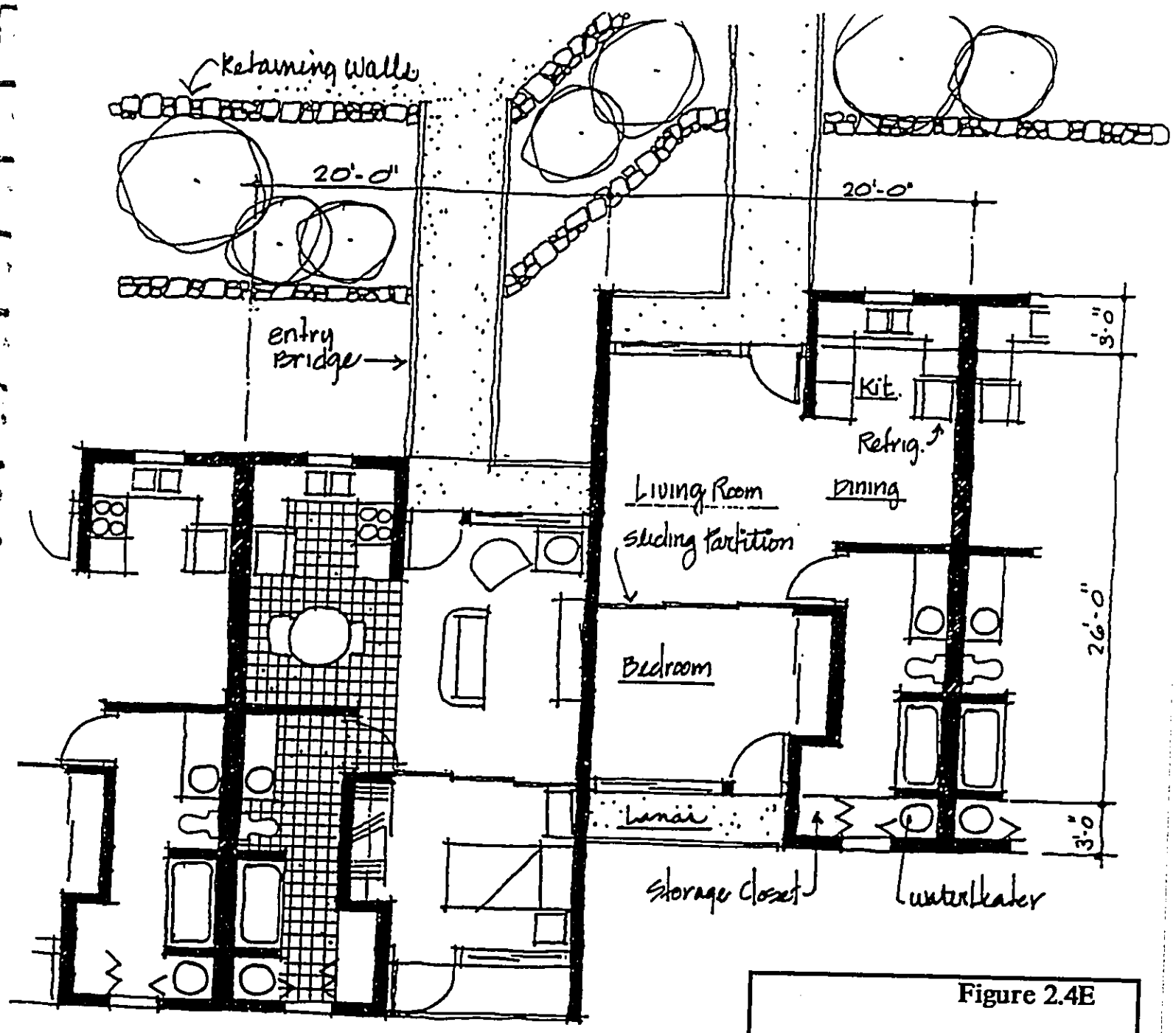


Figure 2.4E

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS

SECOND FLOOR ONE BEDROOM UNIT

Scale: 1/8" = 1'-0"

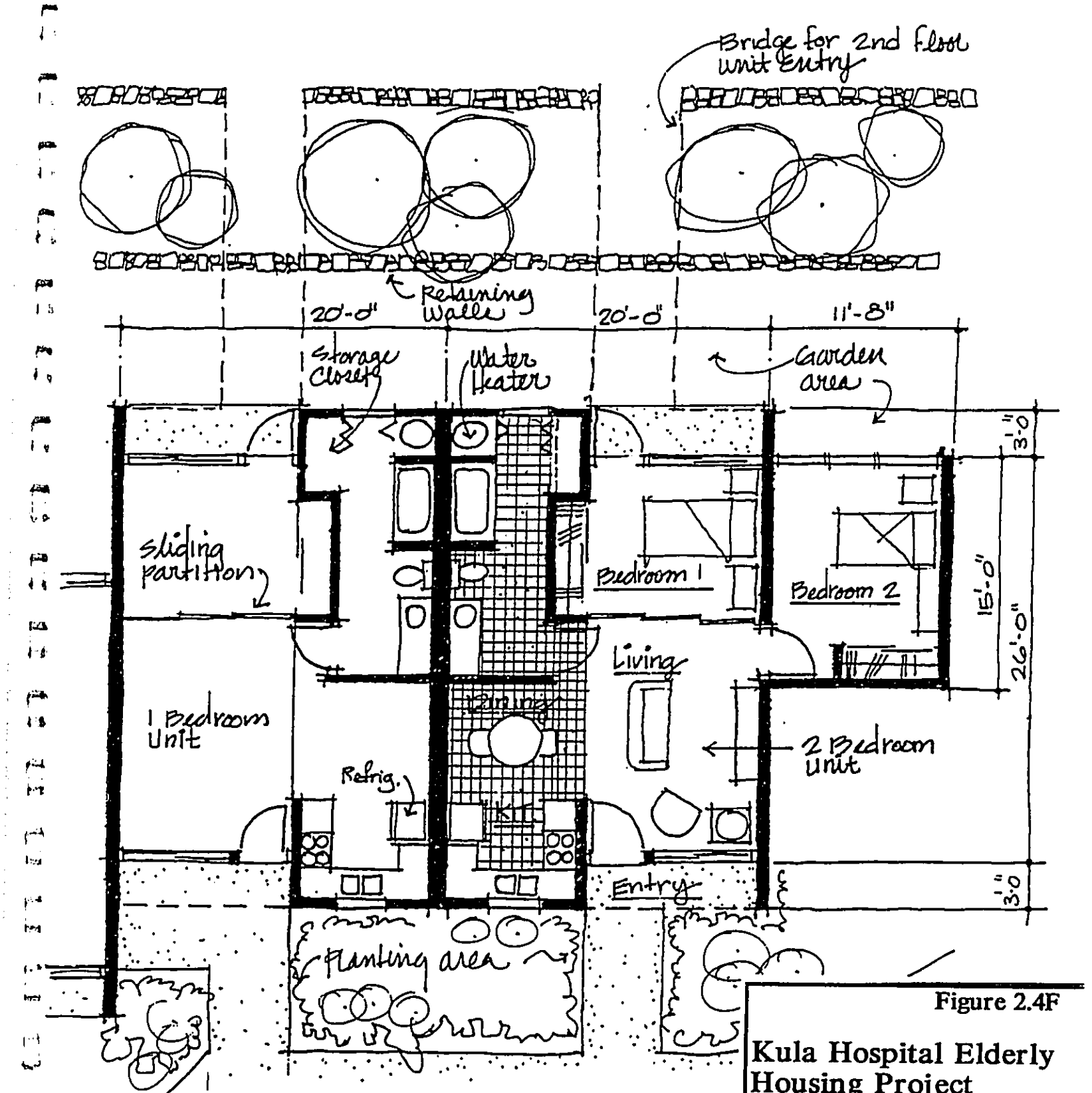


Figure 2.4F

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS

GROUND FLOOR TWO BEDROOM UNIT

Scale: 1/8" = 1'-0"

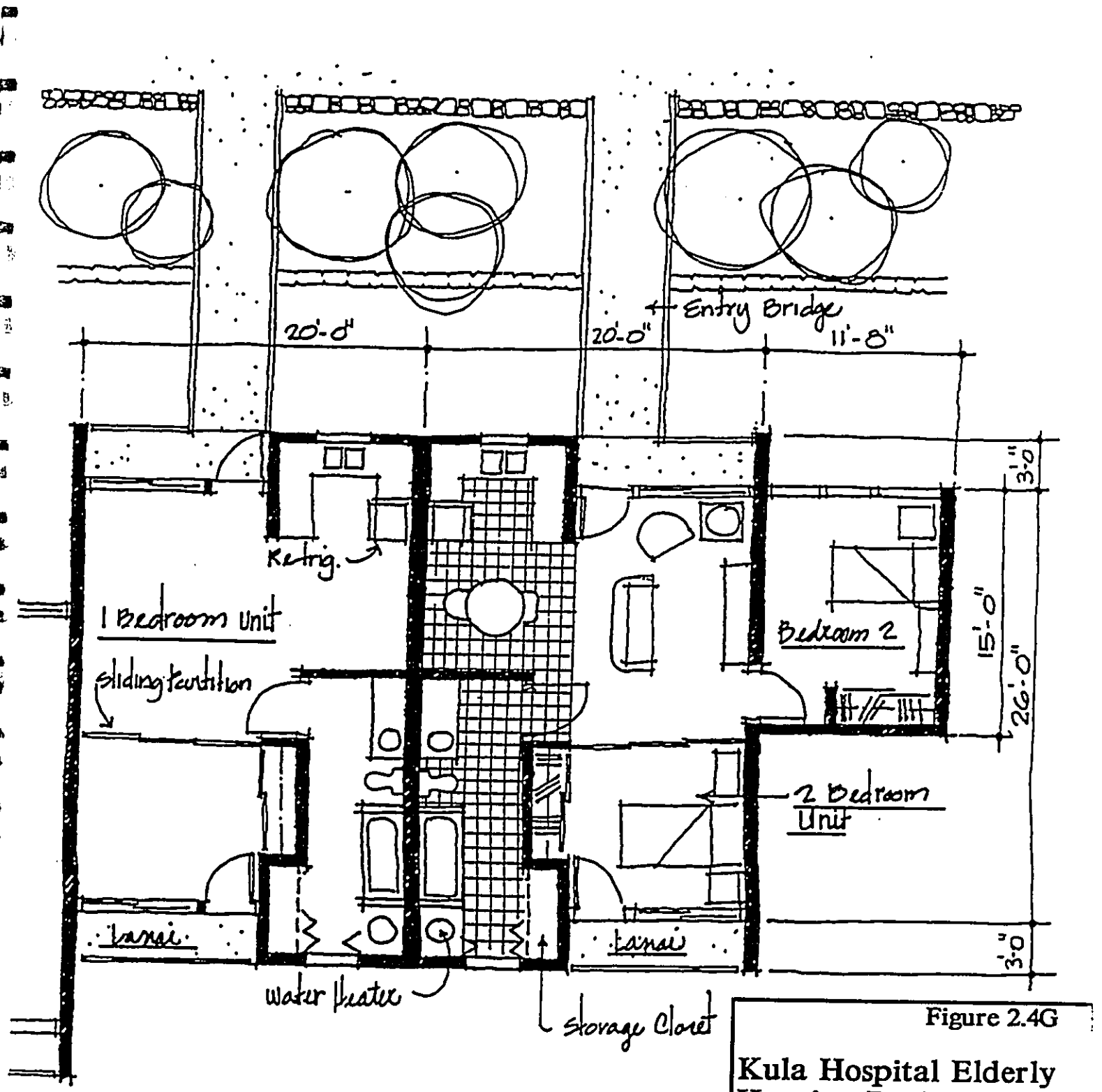
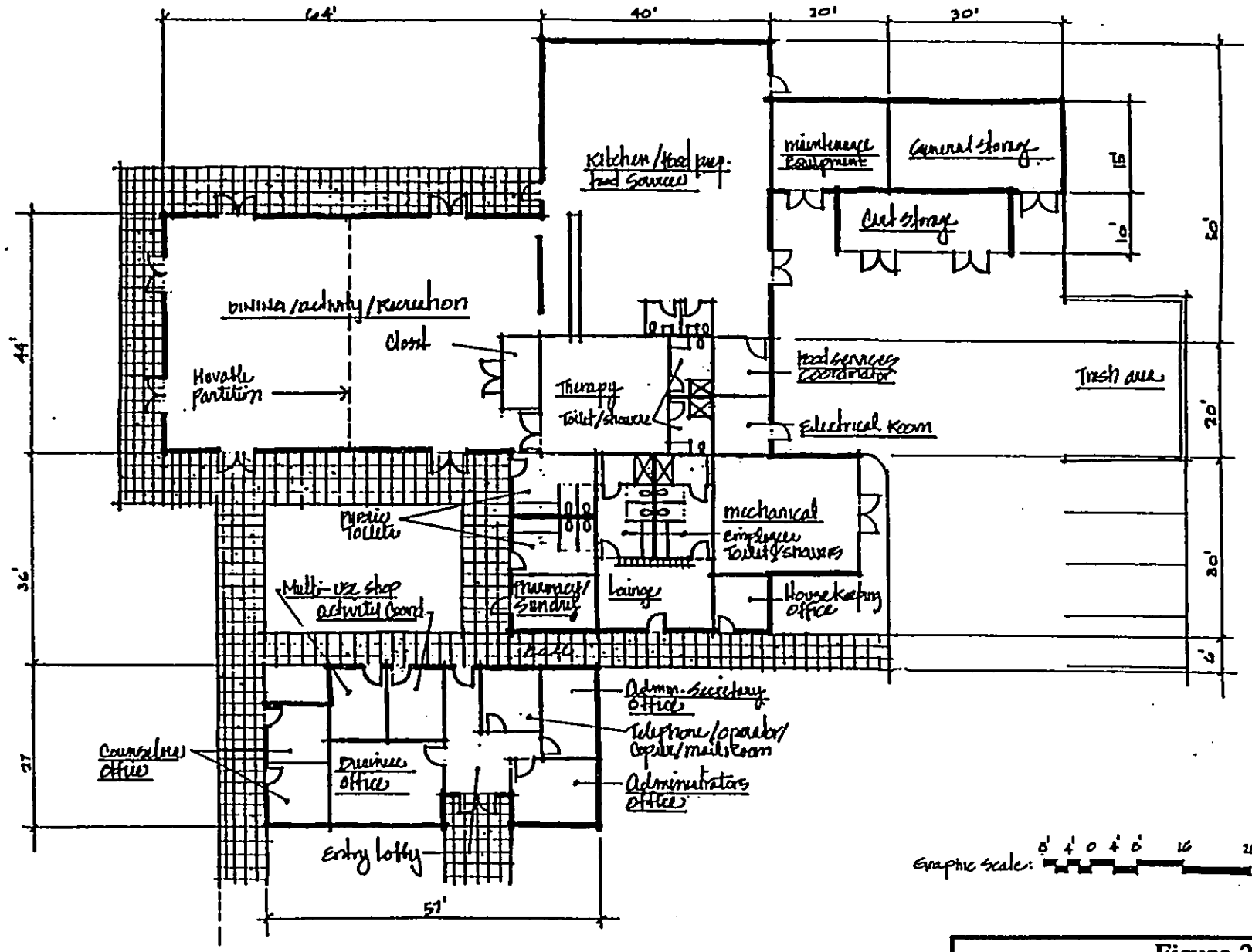


Figure 2.4G

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS

SECOND FLOOR TWO BEDROOM UNIT

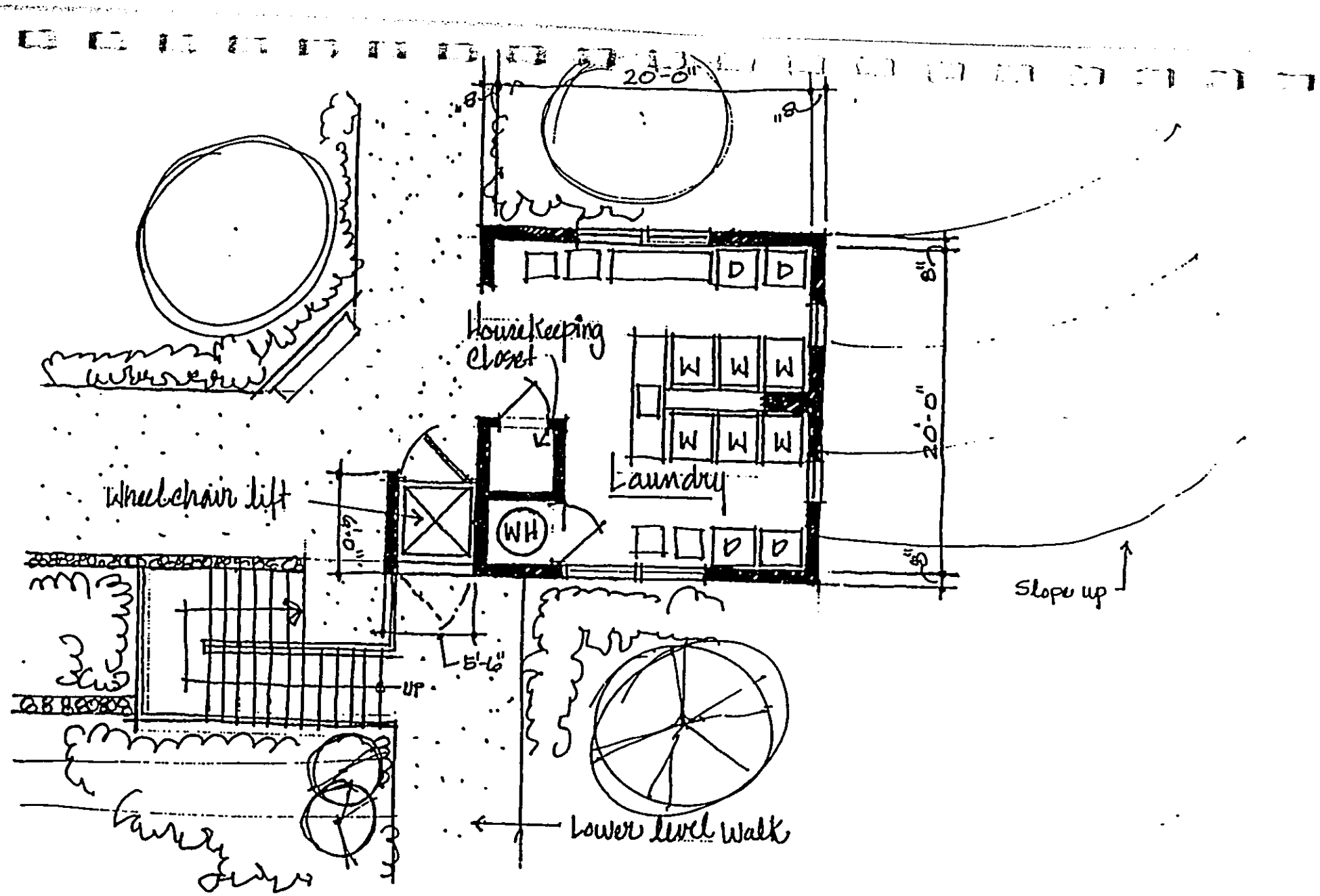
Scale: 1/8" = 1'-0"



ADMIN. / SUPPORT & COMMUNITY FUNCTIONS BUILDING

Figure 2.4H

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS



LAUNDRY BUILDING

SCALE: 1/8" = 1'-0"

Figure 2.4I

Kula Hospital Elderly Housing Project
Kula, Maui
State of Hawaii, DAGS

APPENDIX D

Visual Presentation of the Site of the Kula Hospital Elderly Housing Project

VISUAL PRESENTATION

OF

THE SITE OF THE KULA HOSPITAL ELDERLY HOUSING PROJECT

(From an initial site reconnaissance conducted in May, 1991)

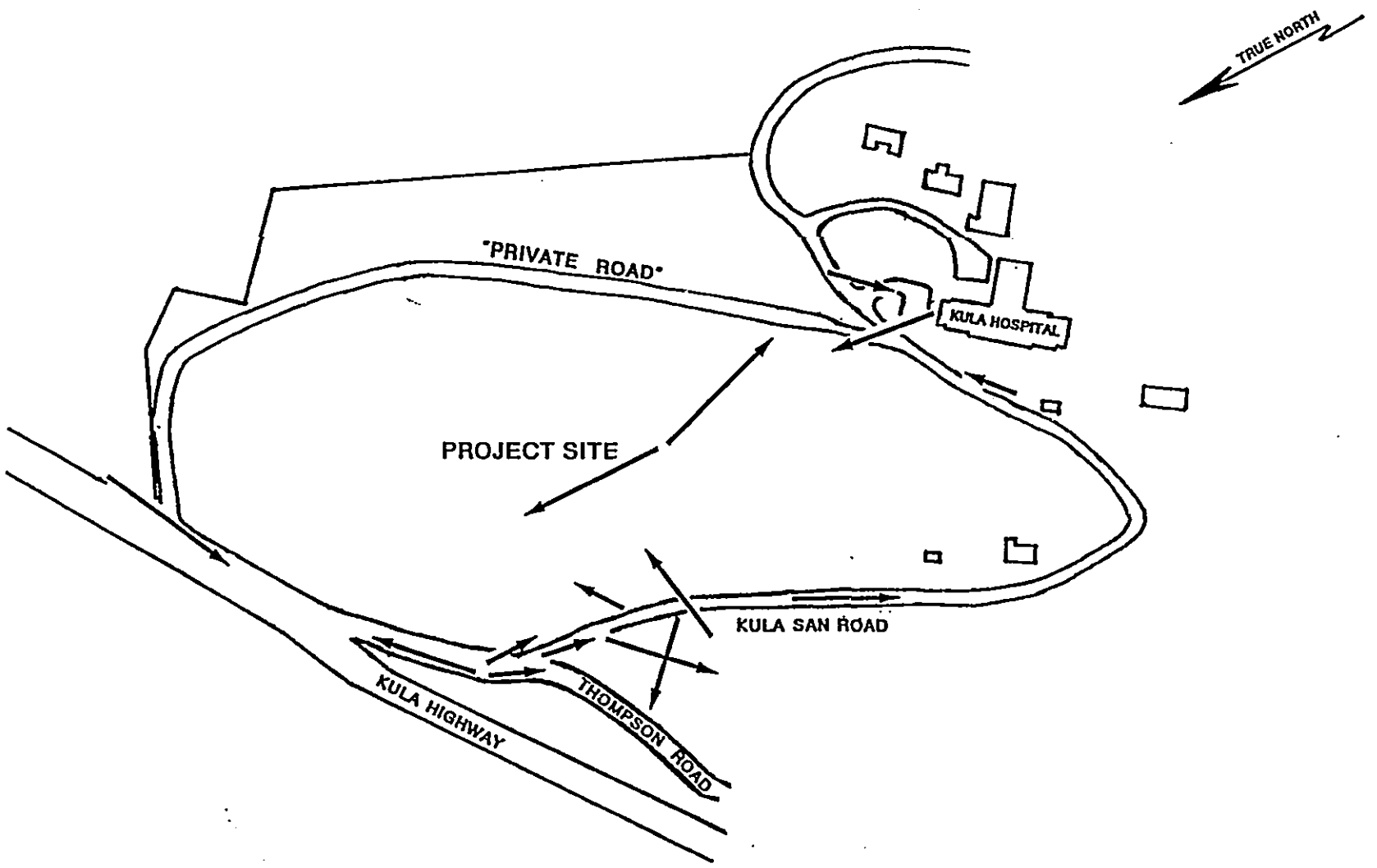
The purpose of this document is to provide a visual perspective of the site proposed for the Kula Hospital Elderly Housing Project on the island of Maui. Adjacent to Kula Hospital, the site is oval in shape and bordered by Kula Highway, Kula San Road, and a road without a formal name, but commonly known as "private road."

On the next page, a map describes the views of the photographs that follow. In addition, each photo includes an insert of a map showing the view.

The photographs include views of the following:

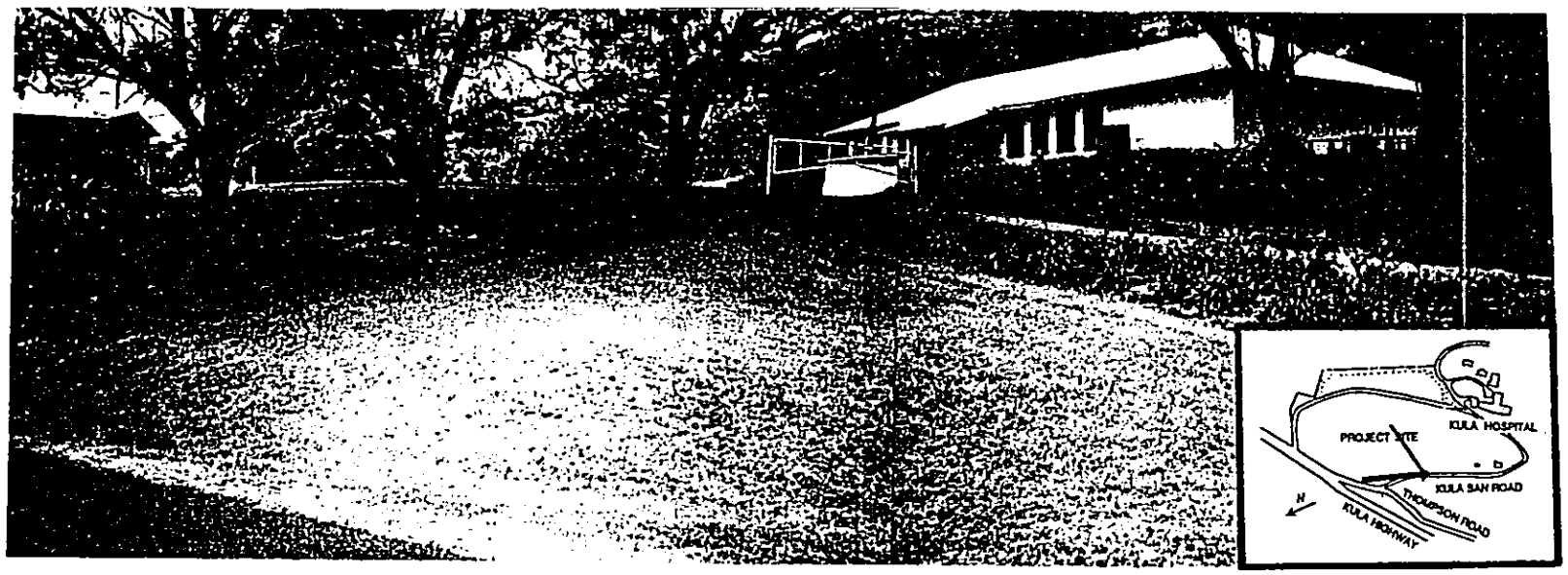
- Kula Hospital
- The project site and the private road as seen from Kula Hospital
- The project site as seen from within the site
- Kula Highway and businesses on Kula Highway across the street from the site
- Kula San Road and the project site as seen from Kula San Road
- The proposed site of the sewage treatment plant, which is bordered on two sides by Thompson Road and Kula San Road
- The Kula Hospital Thrift Shop

The photographs are meant to provide an understanding of the site that language alone cannot convey. However, it should be noted that there is no substitute for an actual survey of the site itself.



VIEWS OF PHOTOGRAPHS

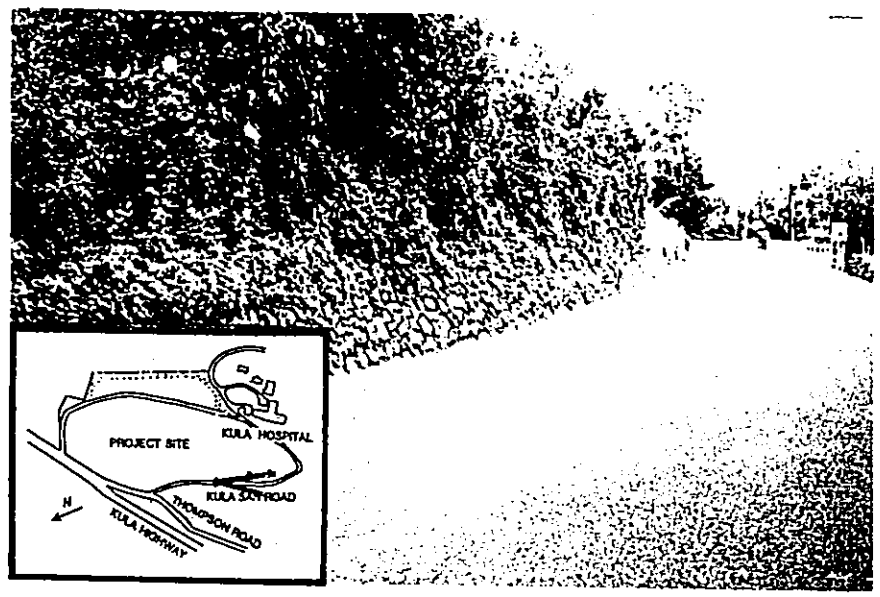
The project site viewed from Kula San Road facing northeast. The Kula Hospital Thrift Shop is in the center behind trees.



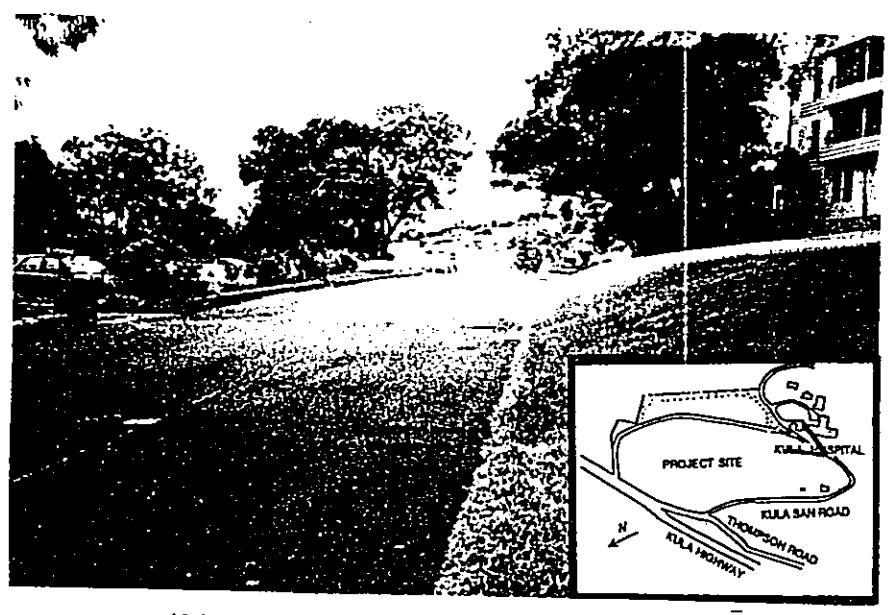
Kula Hospital Thrift Shop.

KULA HOSPITAL ELDERLY HOUSING PROJECT

The project site viewed from Kula San Road facing east.

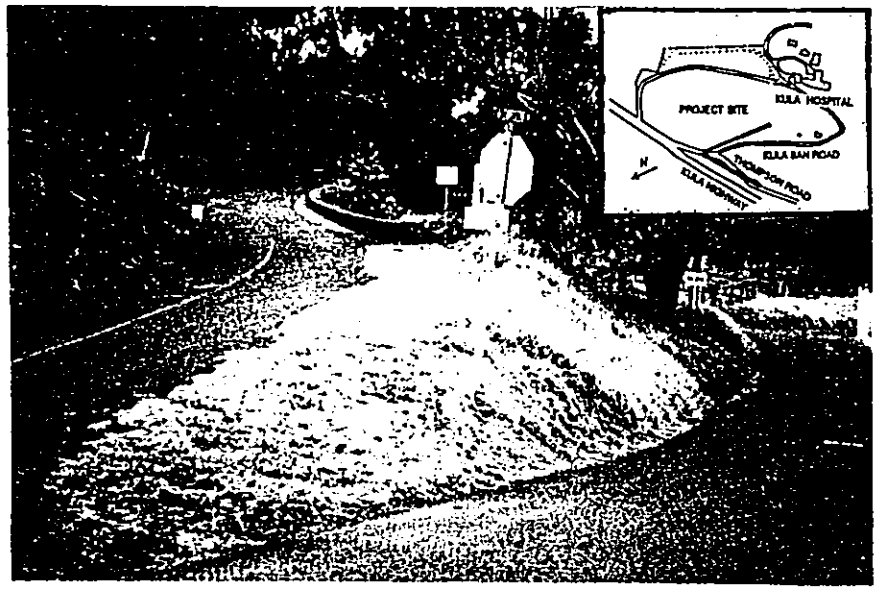


Kula San Road, looking south from above the Kula Hospital Thrift Shop.

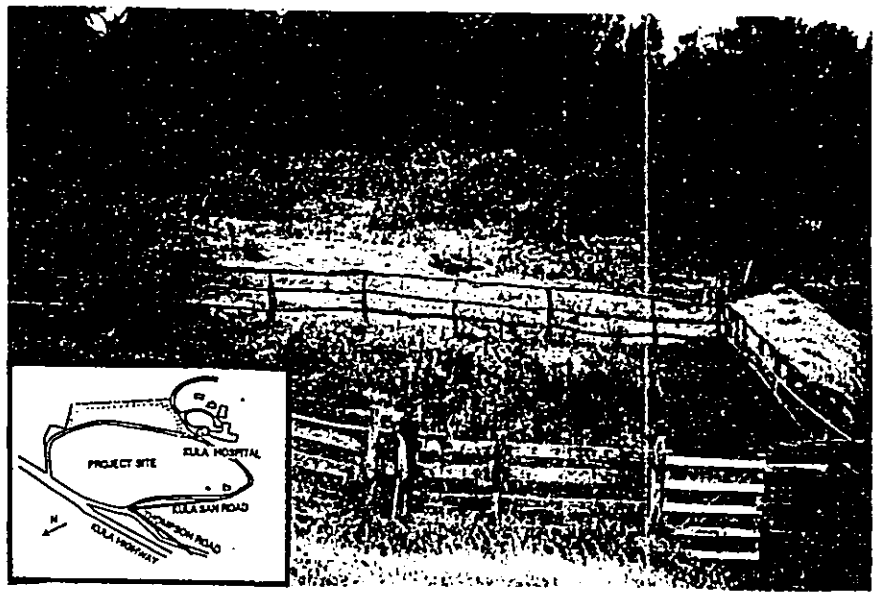


Kula San Road, looking northeast. Kula Hospital is on the right. The lower parking lot is on the left.

KULA HOSPITAL ELDERLY HOUSING PROJECT



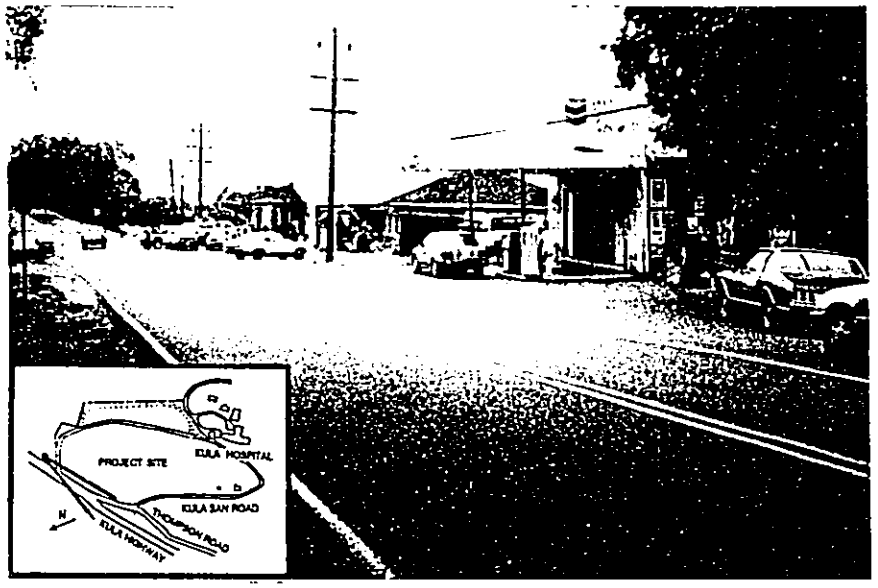
Junction of Kula San Road (left) and Thompson Road, facing south.



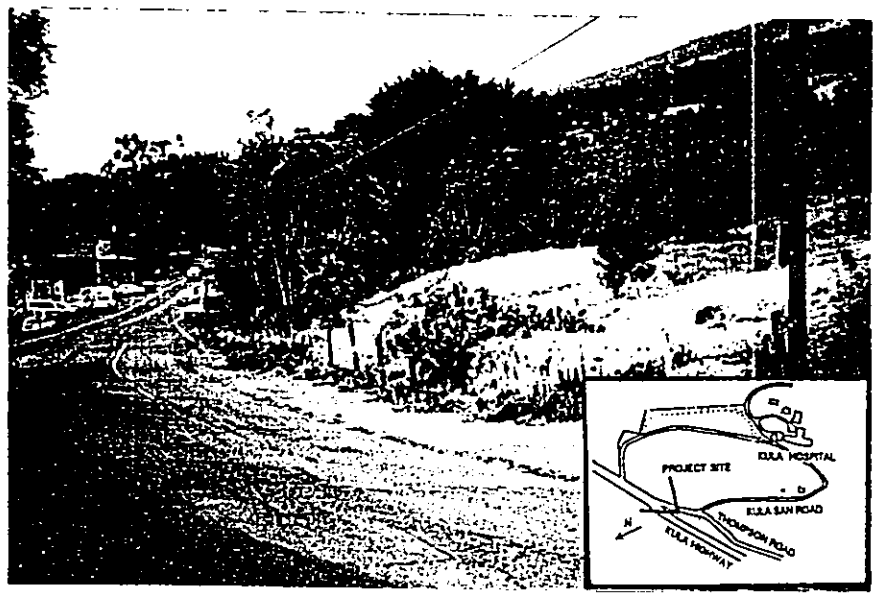
The site of the planned sewage treatment plant viewed from the junction of Kula San Road and Thompson Road, facing southwest.

The site of the planned sewage treatment plant viewed from Kula San Road facing west.

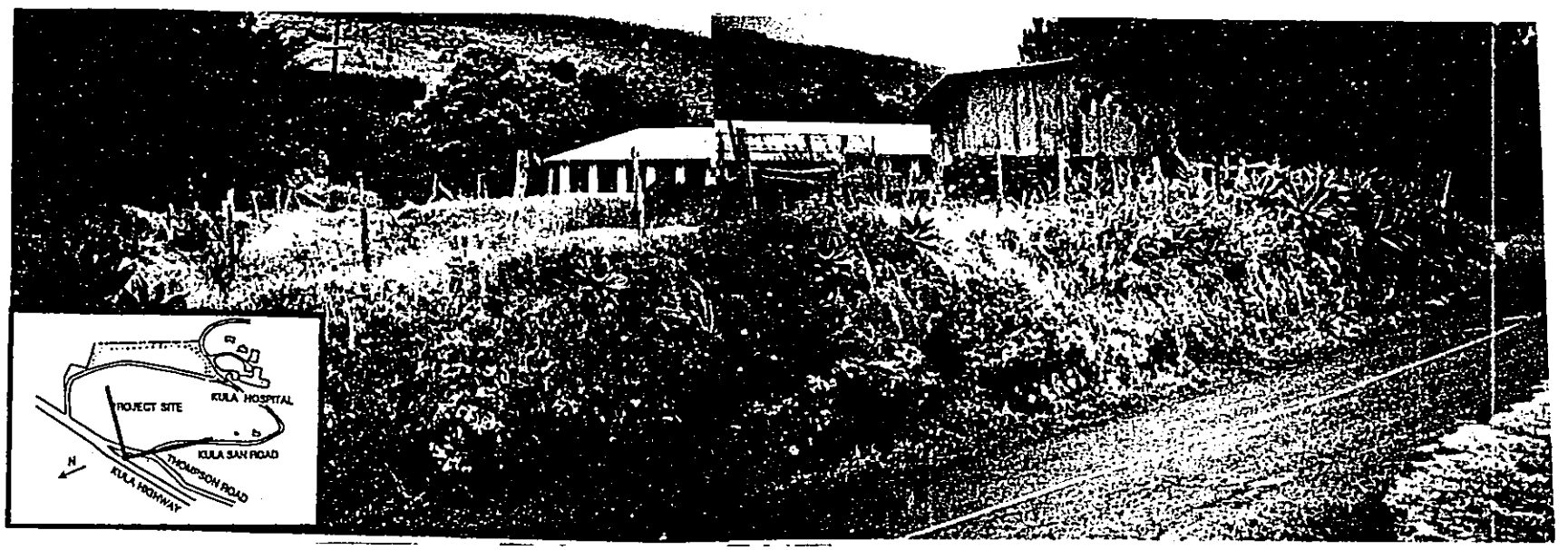
KULA HOSPITAL ELDERLY HOUSING PROJECT



Businesses across Kula Highway from the project site.



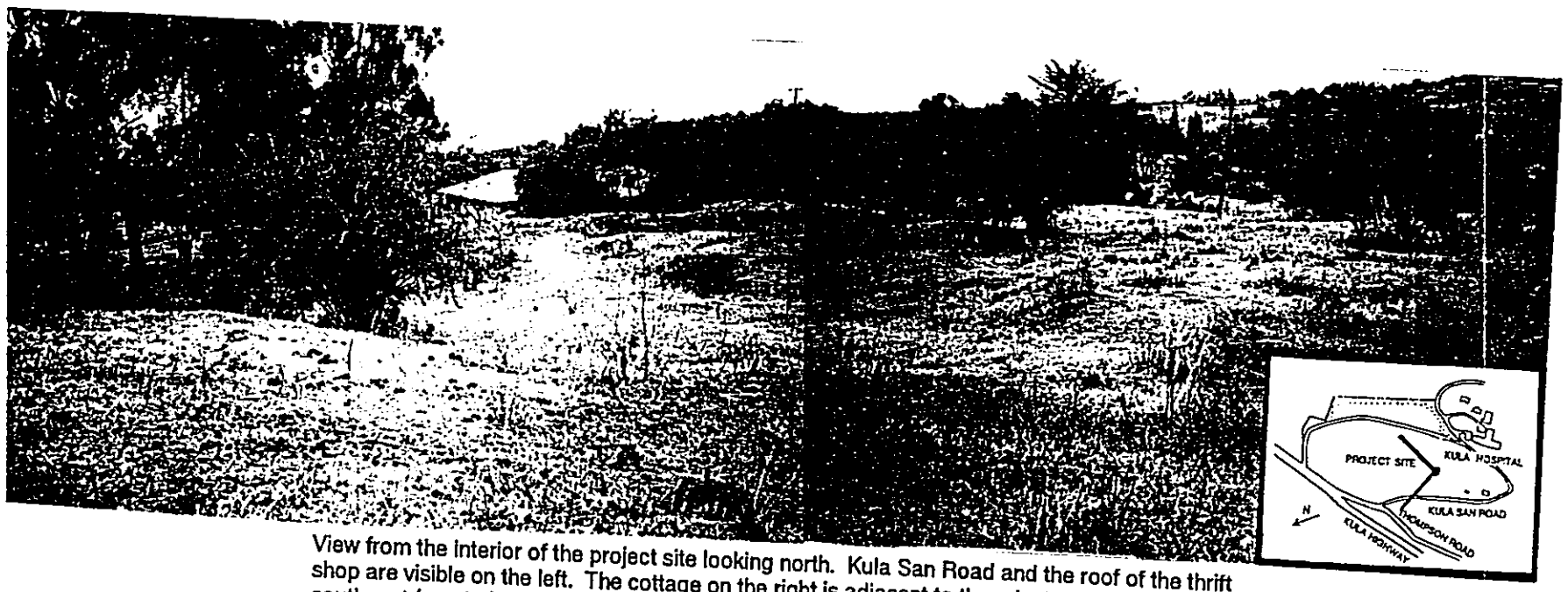
Junction of Kula Highway and Kula San Road as viewed from Kula San Road facing northeast. Project site is to the right of Kula San Road.



The project site viewed from Kula San Road facing east. Kula Hospital Thrift Store, painted white, is in the center.

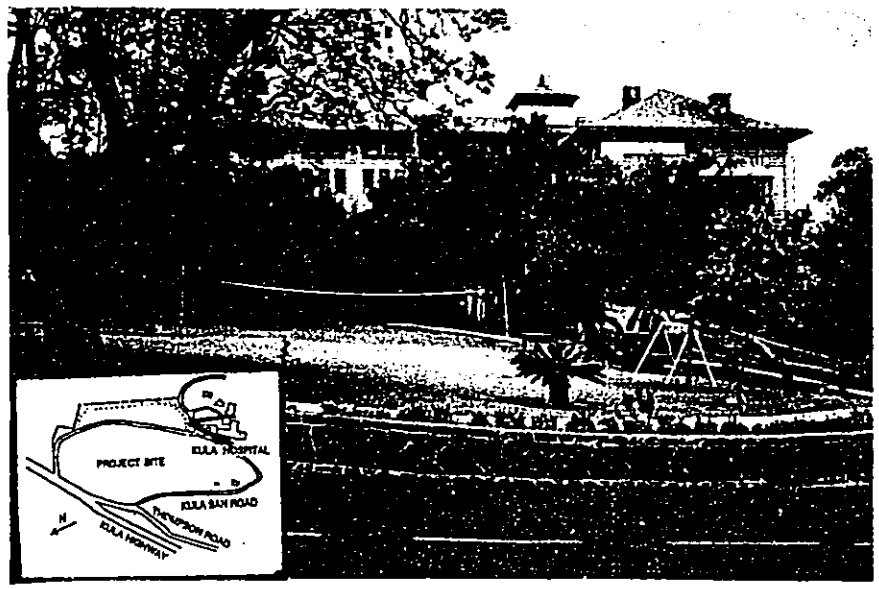
KULA HOSPITAL ELDERLY HOUSING PROJECT

View from the interior of the project site looking southeast (mauka). The retaining wall of the hospital can be seen in the upper right. To the left of the wall, roofs of two cottages along the private road can be seen.



View from the interior of the project site looking north. Kula San Road and the roof of the thrift shop are visible on the left. The cottage on the right is adjacent to the private road and is southeast (mauka) of the site.

KULA HOSPITAL ELDERLY HOUSING PROJECT



Front of Kula Hospital looking south from driveway.

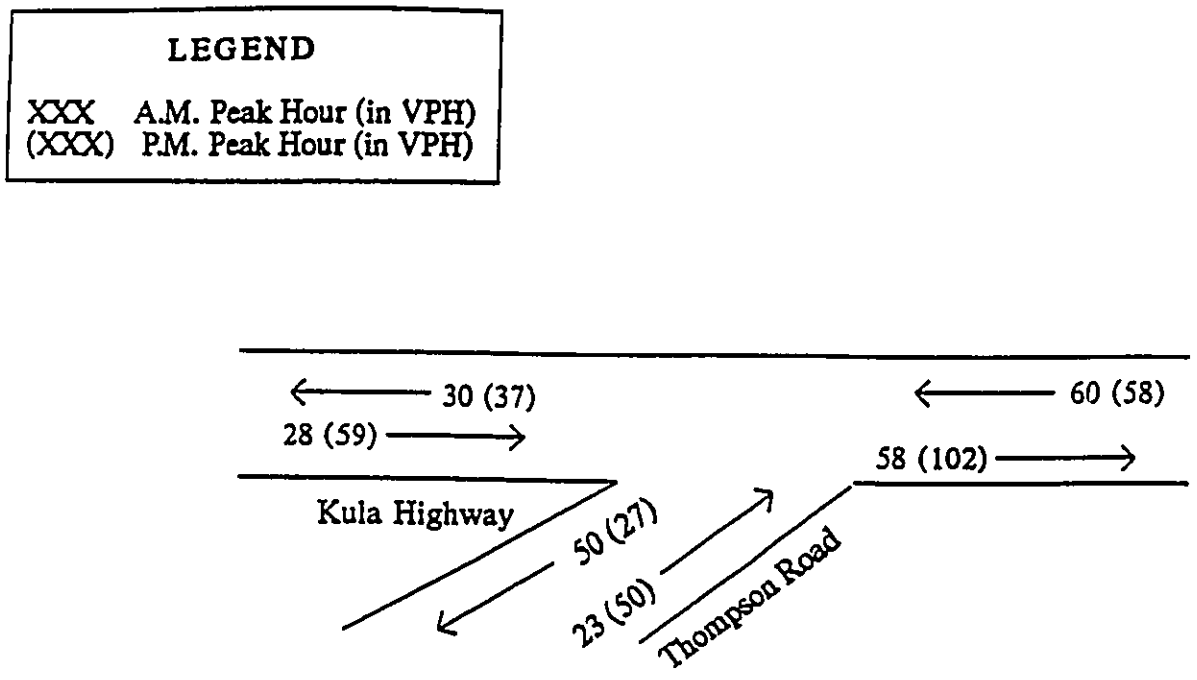
The project site viewed from the fourth floor of Kula Hospital. The project site is below the private road, and the future site is above the private road.

KULA HOSPITAL ELDERLY HOUSING PROJECT

Appendix E

Traffic Analysis

Figure 1: 1992 Existing Traffic



1993 Projected Traffic

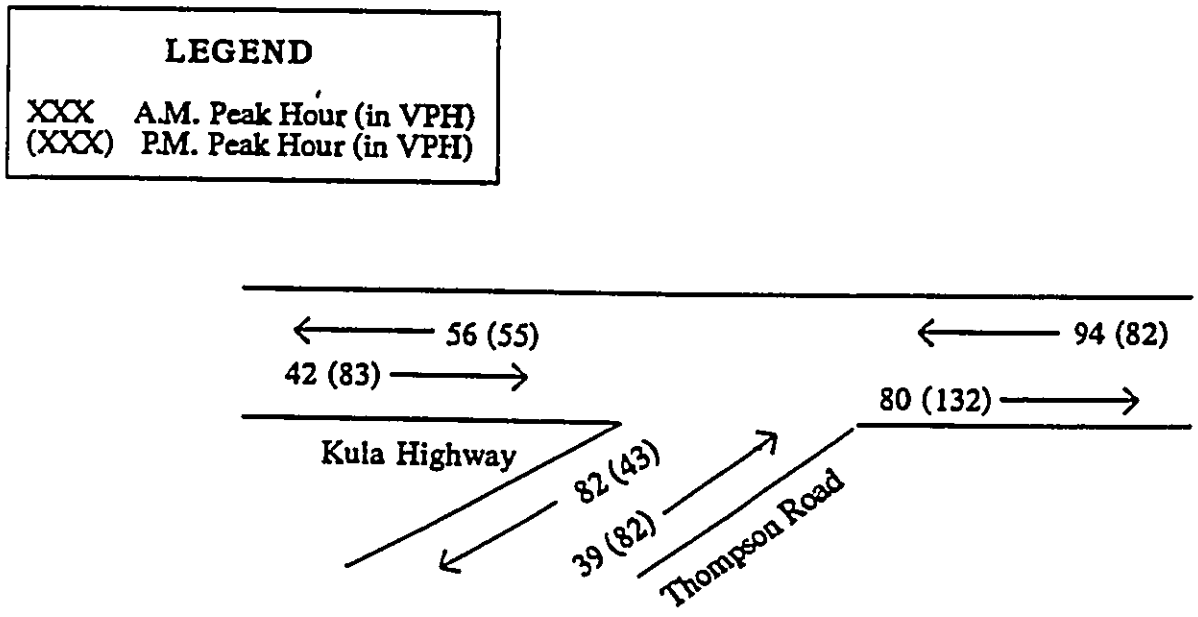


Table 1. Trip Generation Rates

RESIDENTIAL		AM	PM
	Average Trips	TOTAL	TOTAL
Retirement Community	3.30/unit	0.40	0.40

This table from the Institude of Transportation Engineers indicates the average daily trips that will be incurred per residential unit. In addition, it also indicates a fraction of the traffic that will occur during AM and PM traffic peaks at the site.

Table 2. Trip Generation

RECREATION		AM Peak			PM Peak		
	Daily (vpd)	IN	OUT	TOT	IN	OUT	TOT
Retirement Community	363	-	-	145	-	-	145

Calculations show that approximately an additional 145 vehicles will add to the daily AM and PM peak traffic. This is also assuming that the housing is completely occupied and operating at full capacity.

Table 3. Critical Road Volumes

	1988 Study CV/Capacity Status	Current Study CV/Capacity Status	
		without project	with project
Kula Highway/ Thompson Road	317/Under	333/Under	515/Under[1]

Note: CV = Critical Volume
1: This is the estimated Critical Volume at the worst possible condition (rush hour traffic, weekday).

Table 4. Roadway Level of Service with/without Project

	AM Peak	PM Peak
Kula Highway and Thompson Road		
Without Project	A	B
With Project	B	B

Appendix F

Cost Estimates

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE | DATE: DEC. 1992 | SHT 1 | OF 9

PROJECT: KULA ELDERLY HOUSING PROJECT

PROJECT LOCATION: KULA, MAUI

DESCRIPTION OF WORK: PROJECT DEVELOPMENT REPORT

ESTIMATOR: M&A | CHECKED BY: M& A | APPROVED: M&A

No.	DESCRIPPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	SUMMARY				
1	General Conditions 5%	0.05	LS		$704,031
2	Earth Work	1	LS	569,750	$569,750
3	Landscaping	300,000	SF	3.50	$1,050,000
4	Building Demolition	7	EA	4,000	$28,000
5	Laundry Building	4	EA	81,664	$326,656
6	Chair Lift Stations	5	EA	30,000	$150,000
7	Build. 1 Fl., 1BR (6)	3	EA	549,011	1,647,034
8	Build. 1 Fl. 2BR/1BR (6)	3	EA	589,633	$1,768,900
9	Build. 2 Fl. 1BR (12)	3	EA	832,179	$2,496,537
10	Build. 2Fl. 2BR/1BR (12)	1	EA	879716.56	$879,717
11	Build. 2Fl. 1BR (16)	1	EA	1109571.9	$1,109,572
12	Admin./Supp./Comm. Bld.	9,778	SF	185	1,812,360
13	Exterior Electrical	1	LS	155000	$155,000
14	Building Fire Protection	1	LS	45000	45,000
15	Misc. Mech. Site Work	1	LS	6000	6,000
16	Pavement and Sidewalk	1	LS	592000	592,000
17	Site Utilities	1	LS	1028100	1,028,100
18	Site Fire Protection	1	LS	416000	416,000
				Subtotal	$14,784,657
	Contigencies, 10%				$1,478,466
	Total Construction Cost				$16,263,122

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE	DATE:	2 OF 9
PROJECT: Kula Elderly Housing Project		
PROJECT LOCATION:		
DESCRIPTION OF WORK:		
ESTIMATOR: M&A	CHECKED BY M& A	APPROVED: M&A

No.	DESCRIPPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	Building, 1 Fl/ 1BR (6)				
	Structural Excavation	217	CY	50	$10,850
	Slab on Grade Concrete	3,840	SF	8.80	$33,792
	Concrete Footings	58	CY	275	$15,950
	Concrete Masonry	1,736	SF	12	$20,832
	Metals, Misc.	1	LS	6,000	$6,000
	Wood Framing, Roof	6,966	BF	3.50	$24,381
	Counters & Cabinets	155	LF	166	$25,730
	Door Frames, Wood	18	EA	100	$1,800
	Wood Siding	1,296	SF	27	$34,992
	Wood Stud Walls	6,072	SF	2.13	$12,933
	Wood Roof Decking	5,160	SF	1.11	$5,728
	Closet Shelves	162	LF	10	$1,620
	Thermal Blanket Insul.	4,416	SF	1	$4,416
	Exterior Insul	1,584	SF	7.52	$11,912
	Concrete Tile Roofing	516	SQ	353	$182,148
	Wood Doors	30	EA	193	$5,790
	Sliding Windows	12	EA	462	$5,544
	Sliding Partition Panels	6	EA	500	$3,000
	Bi-Fold Doors 5'	6	EA	213	$1,278
	Bi-Fold Doors 2'-6"	6	EA	140	$840
	Awining Windows, Bay Type	12	EA	1058	$12,696
	Clearstory Windows	240	SF	20	$4,800
	Hardware	30	EA	133	$3,990
	Painting	16654	SF	1.15	$19,152
	Sheet Vinyl	612	SF	4	$2,448
	Carpet	184	SY	25	$4,600
	VCT	648	SF	1.6	$1,037
	Rubber Base	738	LF	1.9	$1,402
	Gyp. Bd. Walls	7038	SF	1.16	$8,164
	Gyp. Bd. Ceiling	4560	SF	1.36	$6,202
					$0
					$0
	Toilet Paper Holder	6	EA	30	$180
	Mirror w/ Med.Cabinet	6	EA	160	$960
	Grab Bars, Toilet (set)	6	EA	150	$900
	Grab Bars, Shower (set)	6	EA	120	$720
	Towel Bars	12	EA	40	$480
	Shower Rods	6	EA	30	$180
	Sheet Total				$477,446

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE	DATE:	SHT. 3 OF 9
PROJECT: Kula Elderly Housing Project		
PROJECT LOCATION:		
DESCRIPTION OF WORK:		
ESTIMATOR: M&A	CHECKED BY M&A	APPROVED: M&A

No.	DESCRIPPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	Cont. 1 Fl, 1Br unit Bldg				
	Disposal	6	EA	166	$996
	Refrigerator	6	EA	1,000	$6,000
	Range	6	EA	1,000	$6,000
	Range Hood	6	EA	300	$1,800
	Blinds,Mini	468	SF	7	$3,276
	Mechanical	1	LS	12,850	$12,850
	Electrical	1	LS	40,643	$40,643
	Sheet Total				$71,565
	TOTAL BUILDING COST				$549,011

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE	DATE:	SHT 4	OF 9
PROJECT: Kula Elderly Housing Project			
PROJECT LOCATION:			
DESCRIPTION OF WORK:			
ESTIMATOR: M&A	CHECKED BY: M & A	APPROVED: M&A	

No.	DESCRIPPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	BUILDING,2FL 1BR				
	UNITS (12)				
	Structural Excavation	217	CY	50	$10,850
	Slab on Grade Concrete	3,840	SF	8.80	$33,792
	Concrete 2nd flr.	82	CY	385	$31,570
	Concrete Footings	58	CY	275	$15,950
	Concrete Masonry units	3,284	SF	12	$39,408
	Metals				
	Wood Framing Roof	6,966	BF	3.5	$24,381
	Counters and Cabinets	310	LF	166	$51,460
	Wood Door Frames	36	EA	100	$3,600
	Wood Sidings	2,520	SF	27	$68,040
	Wood Studs	10,560	SF	2.13	$22,493
	Wood Roof Decking	5,160	SF	1.11	$5,728
	Closet Shelves	324	BF	10	$3,240
	Wood Rails	636	LF	50	$31,800
	Thermal Blanket Insul.	5640	SF	1	$5,640
	Exterior Insulation	2678	SF	7.52	$20,139
	Concrete Tile Roof	516	SQ	353	$182,148
	Wood Doors	60	EA	193	$11,580
	Sliding Windows	24	EA	462	$11,088
	Sliding Partitions	12	EA	500	$6,000
	Bi-Fold Doors 5'	12	EA	213	$2,556
	Bi-Fold Doors 2'-6"	12	EA	140	$1,680
	Hardware	60	EA	133	$7,980
	Awning Windows	24	EA	1058	$25,392
	Clearstory Windows	240	SF	20	$4,800
	Painting	27880	SF	1.15	$32,062
	Sheet Vinyl	1224	SF	4	$4,896
	Carpet	368	SY	25	$9,200
	VCT	1296	SF	1.6	$2,074
	Rubber Base	1476	LF	1.9	$2,804
	Gyp. Bd. Walls	12240	SF	1.16	$14,198
	Gyp. Bd. Ceiling	7560	SF	1.36	$10,282
	Sheet Total				$696,830

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE	DATE:	SHT. 5	OF 9
PROJECT: Kula Elderly Housing Project			
PROJECT LOCATION:			
DESCRIPTION OF WORK:			
ESTIMATOR: M&A	CHECKED BY: M & A	APPROVED: M&A	

No.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	Cont. 2 Fl. 1BR Bldg				
	Toilet Paper Holder	12	EA	30	$360
	Mirror w/ Med Cabinet	12	EA	160	$1,920
	Grab Bars Toilet (set)	12	EA	150	$1,800
	Grab Bars Shower (set)	12	EA	120	$1,440
	Towel Bars	24	EA	40	$960
	Shower Curtain Rod	12	EA	30	$360
	Disposal	12	EA	166	$1,992
	Refrigerator	12	EA	1000	$12,000
	Range	12	EA	1000	$12,000
	Range Hood	12	EA	300	$3,600
	Blinds, Mini	936	SF	7	$6,552
	Mechanical	1	LS	12850	$12,850
	Electrical	1	LS	79515	$79,515
	Sheet Total				$135,349
	TOTAL BUILDING COST				$832,179

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE	DATE:	SHT. 6 OF 9
PROJECT: Kula Elderly Housing Project		
PROJECT LOCATION:		
DESCRIPTION OF WORK:		
ESTIMATOR: M&A	CHECKED BY M& A	APPROVED: M&A

No.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	BUILDING, 1FL 1BR / 2BR UNITS (6)				
	Basic 1BR Bldg Cost				$549,011
	Cost For 2nd BR				
	Structural Excavation	24	CF	50	$1,200
	Slab on Grade, Concrete	350	SF	8.80	$3,080
	Concrete Footings	14	CY	275	$3,850
	Concrete Masonry Units	750	SF	12	$9,000
	Wood Roof Framing	64	BF	3.5	$224
	Door Frames	2	EA	100	$200
	Wood Roof Decking	360	SF	1.11	$400
	Closet Shelves	10	LF	10	$100
	Thermal Insulation	360	SF	1	$360
	Concrete Tile Roofing	3.6	SQ	353	$1,271
	Wood Door	6	EA	193	$1,158
	Sliding Window	2	EA	924	$1,848
	Hardware	6	EA	133	$798
	Painting	2717	SF	1.15	$3,125
	Carpet	39	SY	25	$975
	Rubber Base	107	LF	1.9	$203
	Gyp. Bd. Ceiling	360	SF	1.36	$490
	Blinds, Mini	80	SF	7	$560
	Electrical	1	LS	11,781	$11,781
	TOTAL BUILDING COST				$589,633

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE	DATE:	SHT. 7	OF 9
PROJECT: Kula Elderly Housing Project			
PROJECT LOCATION:			
DESCRIPTION OF WORK:			
ESTIMATOR: M&A	CHECKED BY: M& A	APPROVED: M&A	

No.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	BUILDING,2 FL. 1BR / 2BR UNITS (12)				
	Basic 2fl 1br building				$832,179
	Cost for 2nd BR				
	Structural Excavation	24	CF	50	$1,200
	Slab on Grade, Concrete	350	SF	8.80	$3,080
	Concrete Footings	14	CY	275	$3,850
	Conc. Slab 2nd Fl.	6	CY	385	$2,310
	Concrete Masonry Unit	1,263	SF	12	$15,156
	Wood Roof Framing	47	BF	3.5	$165
	Wood Door Frame	4	EA	100	$400
	Wood Roof Decking	360	SF	1.11	$400
	Closet Shelves	20	LF	10	$200
	Thermal Insulation	360	SF	1	$360
	Concrete Tile Roofing	3.6	SQ	353	$1,271
	Wood Doors	12	EA	193	$2,316
	Sliding Windows	4	EA	924	$3,696
	Hardware	12	EA	133	$1,596
	Painting	3906	SF	1.15	$4,492
	Carpet	78	SY	25	$1,950
	Rubber Base	214	LF	1.9	$407
	Gyp. Bd. Ceiling	720	SF	1.36	$979
	Blinds, Mini	160	SF	7	$1,120
	Electrical	1	LS	2,591	$2,591
	TOTAL BUILDING COST				$879,717

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE	DATE:	SHT. 8 OF 9
PROJECT: Kula Elderly Housing Project		
PROJECT LOCATION:		
DESCRIPTION OF WORK:		
ESTIMATOR: M&A	CHECKED BY: M& A	APPROVED: M&A

No.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	BUILDING, 2FL 1BR UNITS (16)				
	Basic 1Br build. 12 Units				$832,179
	Cost / Unit			69,348	
	Cost for additional units	4	EA	69,348	$277,393
	Building Cost				$1,109,572

MITSUNAGA & ASSOCIATES, INC.
747 AMANA STREET SUITE 216
HONOLULU, HAWAII 96814

CONSTRUCTION COST ESTIMATE	DATE:	SHT. 9 OF 9
PROJECT: Kula Elderly Housing Project		
PROJECT LOCATION:		
DESCRIPTION OF WORK:		
ESTIMATOR: M&A	CHECKED BY: M & A	APPROVED: M&A

No.	DESCRIPPTION	QUANTITY	UNIT	UNIT COST	TOTAL
	ADMIN/ SUPP./COMMON FUNCTION BUILDING				
	Standard Building Cost				
	Kitchen	2,000	SF	300	$600,000
	Office/ Recreation	7,778	SF	120	$933,360
	Additional Cost				
	Found./ Slab /Earthwork		LS	170000	$170,000
	Roof		LS	35000	$35,000
	Wall Insulation		LS	24000	$24,000
	Mechanical		LS	50000	$50,000
					$1,812,360
	Total Building Cost Per SF				$185
	LAUNDRY BUILDING				
	Building Cost	427	SF	170	$72,590
	Washers	6	EA	971	$5,826
	Dryers	4	EA	812	$3,248
	TOTAL BUILDING COST				$81,664

Appendix G

Minutes of Meetings with Community-based Planning Committee

Kula Hospital Elderly Housing Project - Environmental Assessment (EA)

Meeting Minutes

Wednesday, March 17, 1993
Kula Hospital Conference Room, 3rd Floor
Kula, Maui, Hawaii

I. Called to Order. The meeting among the Kula Hospital Elderly Housing Planning Phase Committee members and project consultants was called to order at 1:40 p.m. by Mr. Roy Katsuda in the absence of Chair Kimie Lane.

II. Attendance. The following individuals were in attendance:

Name	Organization	Tel. No.	Fax No.
Dollie Griffiths	Kula Hospital Auxiliary	878-1552	
Murray Spooner	Kula Hospital	878-1221	
Mark Andrews	Kula Community Association	878-6679	
Shirley Takahashi	Kula Hospital	878-1221	878-1791
Floyd Kawabata	Kula Hospital	878-1221	878-1791
Former Mayor Elmer Cravalho	Community Representative	878-6011	877-5967
Roy Katsuda	Hale Mahaolu	877-6242	871-6638
Zoe Reith	Kula Community Association	878-2134	
Susan Shirota	Kula Hospital	878-1221	
Paula Williams	Kula Hospital	878-1221	
Bill Bates	Maui Economic Opportunity, Inc.	871-9591	
Abe Wong	Kula Hospital	878-1221	
Ross Prizzia	Mitsunaga & Associates, Inc. (MPAC, Inc.)	522-6066	522-6069
Terri Kojima	Mitsunaga & Associates, Inc. (MPAC, Inc.)	522-6066	522-6069

III. Minutes. The minutes of the previous meeting, February 19, 1993, were reviewed and approved as distributed, with the following clarification: In response to R. Katsuda's inquiry on whether specific design details could be removed or added, e.g. details of the kitchen, pharmacy, etc., during the design stage (paragraph VII. Summary, on page 4); the group was informed that changes could be incorporated during the design stage. The February 19, 1993, minutes will be included in the *Kula Hospital Elderly Housing Project Development Report* as an official documentation of community input.

IV. Purpose/Background. The purpose of the meeting was to give the Committee members an opportunity to comment and provide input on the *Draft Environmental Assessment (EA) for the Kula Hospital Elderly Housing Project* document, which was distributed earlier for their review.

V. Project Development Phases and Overview of Environmental Assessment (EA)/Environmental Impact Statement (EIS) Process. Consultant R. Prizzia gave a brief presentation on the typical development phases for new projects and then focused on the EA/EIS process, at which stage the Kula Hospital Elderly Housing Project is at, in an attempt to create an awareness and understanding of the State procedures and guidelines governing the project.

A. The following chart was presented as a visual aid to outline the development phases.

Typical Development Phases for New Projects
• Feasibility Study
• Site Selection -- EA (Environmental Assessment)/ EIS (Environmental Impact Statement)
• PDR (Project Development Report) -- *EA (Environmental Assessment)/* (present stage) EIS (Environmental Impact Statement
• Design
• Construction

B. EA/EIS Process. The consultant proceeded to give a general overview of the EA/EIS process (see Attachment 1, which was distributed to the meeting participants).

1. The group was advised of the following:

a. The Feasibility Study of 1988 and subsequent meetings by the Kula Hospital Elderly Housing Planning Phase Committee reaffirmed the proposed project site adjacent to Kula Hospital to be the recommended and only feasible site for the project. Their recommendation was also reaffirmed in the Draft PDR of December 1992. Therefore, the project moved to the PDR/EA phases. An EIS had been considered in 1990-91 and even begun in a preliminary phase, but was re-evaluated.

b. The Department of Land and Natural Resources and other government agencies had surveyed the proposed site and, as a result, i.e., no presence of endangered species of flora or fauna, no significant archaeological findings ("no effect" on significant historic sites), etc.; the project requirement was downgraded from an EIS to an EA in 1991.

c. The Kula Hospital Elderly Housing Project is now in the EA process. If necessary, the project could be upgraded to an EIS. The consultants had initially approached the project from an EIS perspective, and, therefore, the categories required by the EIS process have been covered.

d. The EA/EIS reports are comprised of disclosure documents. The State designates those agencies that are required to be contacted during the pre-assessment consultation phase. In addition to those agencies, the consultant has worked closely with the Kula Hospital Elderly Housing Planning Phase Committee, who represents the cross-section of the community from the start of the project to ensure that any additional concerns and needs are incorporated into the EA document. The consultants welcomed any input at this time on the EA document. The group was informed that the Notice of Availability of the EA document would be published in the *OEQC Bulletin*, and there would, subsequently, be a 30-day period to receive any additional comments.

VI. Unresolved Water Issue. E. Cravalho reiterated the specific conditions and priorities regarding the water issue, i.e., water needs of the Hawaiian Home Lands project in the Waohuli-Keokea area and water needs of farmers in the Kula area have precedence over the Kula Hospital Elderly Housing Project. *Discussion on the water issue by the general* membership followed.

A. Water Lines. There is a "need to know" the impact of water on the farming area and an update on the County's priority on what lines will be worked on. The Department of Water Supply has failed to determine how existing users will be accommodated. There are no plans for the upper line. Activity is being concentrated on the lower line, which has delivery capacity and is being used to supplement the upper line.

B. Irrigation. Maui Pine is adding several hundred acres of pineapples that will require irrigation. Their "no-net-reduction" policy of replacing every gallon taken out has been abandoned. If the water from the lower line is used for irrigating the pineapple fields, then the Hawaiian Home Lands will be unable to secure water from the lower line, and insufficient water will cause an uprising of the farmers in a basically agricultural community. Maui Pine is obtaining their meter under the Kula Rule. (Note: The moratorium on the construction of residential subdivisions in the area through the "Kula Rule" ends on March 19, 1993. Page 60 of the Draft EA document makes reference to this moratorium.)

C. Water Meters. M. Andrews informed the group that there is a list of applicants for water meters, and the meters are issued on a first-come-first served basis; that is, there are no criteria based on need--a project's basic design is required, payment made for a resource development fee; and an application submitted for a meter.

VII. Other Issues

A. Funding.

1. S. Takahashi informed the group that funding in the amount of $565,000 for the planning and design of the project has been appropriated. Funds available for the design phase will cover less than one-third of the design estimate.

2. F. Kawabata advised against committing any funds to design and construction at this time and suggested that the group inquire of DAGS when the design phase begins.

B. Fiscal Feasibility of Operations. R. Katsuda expressed concern over the availability of funds to operate the Kula Hospital Elderly Housing program once the facility has been built. He referenced page 13 of the EA document and commented that the estimated $57,000 in monthly rental income will meet only half the cost of operations. P. Williams commented that operations dictate design.

The consultant advised the group that the 1988 Feasibility Study presents four operations scenarios that may be considered by future management.

C. Development Time Table (Section 2.6, page 15). The consultant assured the group that this was only a preliminary and tentative estimate of the project schedule, which could easily be modified. It was reiterated that the construction phase would not begin until the water and other unresolved issues were addressed and resolved.

VIII. Public Forum. Due to the critical nature of the water issue, that is, its scarcity and the possible conflict over priority over its use, it was the Committee's general feeling that public discussion was warranted. E. Cravalho and others felt strongly that a public meeting would be a positive step to inform the community of the proposed Kula Hospital Elderly Housing Project. It would afford the average community member an opportunity to comment on the project and voice their concerns. E. Cravalho commented that public meetings reduce adverse public reaction, and the survival of a project is oftentimes dependent on public support, as was the case of Hale Mahaolu. R. Katsuda added that the Planning Phase Committee represents the community at large; however, disclosure never hurts, and public reaffirmation is welcomed.

It was moved by M. Andrews and seconded by B. Bates that R. Katsuda approach the Board members of the Kula Community Association at their next Board meeting on April 1, 1993, and request that the Kula Elderly Housing Project be included as an agenda item for the upcoming Kula Community Association meeting scheduled for May 20, 1993. The motion was carried. The consultants were requested to be in attendance, and they agreed upon DAGS' approval.

IX. Procedures for Providing Input/Comments. M. Andrews inquired on the means for submitting comments on the project. He and many others are not familiar with and do not have ready access to the *OEQC Bulletin* , and unlike Federal projects that provide for public meetings at the start of the project, the State does not require a public forum. Consultant R. Prizzia advised the group that comments may be submitted by the following means:

A. In Writing. Participants could forward their comments in writing directly to Mitsunaga and Associates, Inc.;747 Amana, Rm. 216; Honolulu, HI 96814; or to MPAC, Inc.; 436 Piikoi Street; Honolulu, HI 96814. The consultant informed the group that written comments from various agencies will also be included in the Final EA document.

B. Consultation Form. Participants may call in or contact project consultants in person to provide input on the project. Comments will be annotated on a consultation form, which will then be incorporated into the EA document.

C. Meeting Minutes. Minutes of community-based committee and/or public meetings may be submitted to the project consultants. The minutes of the meeting would be incorporated in the EA document under the "Minutes of Meetings with Community-based Committees," Section of the EA document, accordingly.

Note: The consultant's presence or absence at the planned public meeting need not be of concern regarding inclusion of the community needs and concerns discussed. The minutes should reflect these needs and concerns and they will be incorporated into the EA document.

X. Summary. The review of the project development phases and overview of the EA/EIS process was intended to inform participants of the State rules and regulations governing the Kula Hospital Elderly Housing Project, which are also applicable to other State projects. The group was informed on the input methods to insure maximum disclosure of community needs and concerns.

The consultant impressed upon the Kula Hospital Elderly Housing Planning Phase Committee that their comments, needs, and concerns are points well taken, and from the start of the project every effort has been made and will continue to be made to represent their input in the EA document. The primary purpose of these meetings and the distribution of courtesy "advanced" copies of the Draft EA documents to each Committee member are ways to ensure that the Committee is kept apprised of the project and any input reflected. The Committee members were encouraged to submit any additional comments either individually or collectively by the methods stated in paragraph IX, above.

It was evident that a public forum is desired by the Planning Phase Committee, especially in light of the various unresolved water and other issues. Although the consultants are not in a position to arrange such a meeting, they welcome the input from this meeting scheduled for May 20, 1993. Input may be submitted in the form of meeting minutes to be incorporated in the EA document.

Consultant R. Prizzia informed the group that the March 1993 Draft EA includes a *Summary of the Unresolved Issues* under Section 11.0 on pages 80 and 81. The consultant had ensured coverage of these issues in the EA document at previous meetings with the Planning Committee during the PDR phase of this project.

Additionally, documentation of E. Cravalho's telephone discussion regarding the "Special Concerns of the Kula Hospital Elderly Housing Planning Phase Committee" (proposed Section 12.0) will be incorporated under the *Comments to the Draft EA* Section of the EA document, as agreed to by the Committee members.

Minutes of this meeting and any other community/public meetings that address this project shall be incorporated upon submission, as appropriate.

Finally, subsequent to the "Notice of Availability" in the *OEQC Bulletin* (Note: publication date is scheduled for April 8, 1993), participants will have another 30-day period to provide additional comments. Consultant R. Prizzia is personally committed to ensure that any comments from the Planning Phase Committee are included in the EA

document upon receipt during an additional 30-day period in an attempt to receive maximum community input for a successful project.

X. Adjournment. The meeting was adjourned at 3:30 p.m.

Respectfully submitted,

Terri Kojima, 3/23/93

Terri Kojima
MPAC, Inc.

Date

Overview

of

ENVIRONMENTAL ASSESSMENT (EA)//ENVIRONMENTAL IMPACT STATEMENT (EIS) PROCESS

- **Federal Law:** *NEPA (1969, Revised 1975)*

- **State Law:** *Chapter 343, Hawaii Revised Statutes (HRS - 1974)*, which requires government agencies to:
  - — Provide an analysis of environmental consequences
  - — Prepare a document disclosing this analysis for public and government review

- **Disclosure Documents**
  - — EA (Environmental Assessment); if there is a significant impact, then:
  - — EIS (Environmental Impact Statement)

- **Major Points**
  - — Description of project
  - — Description of existing conditions in area of project site
  - — Does it fit with existing State, County, and/or Community plans, Land-Use, Zoning, etc. designations?
  - — What is the overall impact to the community?...and the specific impact in each of the designated categories, e.g., soil, water, etc.
  - — Mitigative measures/unresolved issues

Appendix H

Comments during pre-assessment consultation

MPAC
MANAGEMENT PLANNING & ADMINISTRATION CONSULTANTS, INC.

CONSULTATION FORM

Project: Kula Hospital Elderly Housing Project EA

Organization: Soil Conservation Service - Olinda/Kula Soil and Water Conservation District

Name: Mr. Paul Otani

Position: Director **Phone:** 877-3331 (W) 572-9068 (H)

Summary of Main Points:

Mr. Otani, representative for the diversified agricultural industry, expressed grave concern over the distribution of water to any new development projects in the Kula area before meeting the present needs--and, specifically, the needs for the farming industry operations which have not been met, yet.

Presently, it is DWS policy to issue water meters based on the size of a specific parcel--not based on type of usage, i.e., agricultural, residential, etc. The waterline is presently shared by the various user groups. The Olinda/Kula Soil and Water Conservation District, in conjunction with the federal, state, and Maui County governments are planning a project to acquire water designated for agricultural use only. This would entail construction of infrastructure--water storage and a waterline specifically for water designated for agricultural use. A "needs assessment" was conducted sometime during 1984-1986. The project is presently in the process of planning for its infrastructure. It will be requested that this proposed agricultural waterline be exempt from the Clear Water Act, which would incur a cost savings to taxpayers.

Mr. Otani expressed concern over the dilemma of trying to fill a market need (agriculture products) in accordance with public policy, i.e., State Agriculture Plan, but with insufficient water to do so--the insufficiency of water is not necessarily due to the lack of water, but to the inadequate delivery system. His feelings are that **priority should be given to meet the present needs**, of which an improved water distribution system to

(continued on next page)

Comments (optional):

Interviewed by: Terri Kojima

Date: April 9, 1993 **Time:** 10:00 a.m.

CONSULTATION FORM (page 2)

Project: Kula Hospital Elderly Housing Project EA
Name: Mr. Paul Otani

accommodate the diversified agricultural industry is among, before allocating and expending funds on new development projects. Mr. Otani is not against all "development," however, he feels there is a need for balance. If priority is repeatedly given to new developments, and none to the diversified agricultural industry to meet their increased water needs over what is presently supplied via the insufficient, existing waterlines, then displacement of the agricultural industry may become a reality in a community that has traditionally been an agricultural community. Presently, because of the inadequate water distribution system, crop selection has been hampered and production limited since it is based on water availability--the agricultural industry is financially strapped and headed for more "hard times" for the next 3-6 years which would be necessary for mitigative measures (new agricultural water line, etc.) to come into place.

MPAC

MANAGEMENT PLANNING & ADMINISTRATION CONSULTANTS, INC.

CONSULTATION FORM

Project: Kula Hospital Elderly Housing Project EA

Organization: County of Maui, Department of Water Supply

Name: Herb Chang

Position: Engineer Phone: 243-7835

Summary of Main Points:

Maui County DWS engineer Herb Chang confirmed that the Kula Rule expired on March 21, 1993. The DWS is in the process of drafting two new rules:

1- Method to incur an assessment fee. Applicants for water meters would be charged a fee. These funds would be used to improve water storage, water transmission, and water source development.

2- Categories of Water Availability. The second rule being worked on is intended to establish the amount of water available in multiple areas. The island of Maui is being subdivided based on the existing community plans. Each area will then be assigned to a specific water availability category based on the following criteria:

A- Sufficient water for most developments

B- Amount of available water sufficient for 5-year period assuming development continues at the present rate.

C- No water available for development

The above rules are in draft form, only, at this time. The finalized versions must be approved by the Maui Mayor, and then passed by the City Council.

Comments (optional):

Herb Chang requested a copy of the Draft Environmental Assessment report for review and comments be sent to DWS Director David Craddick. (The document was forwarded with MPAC cover letter dated April 2, 1993, by T. Kojima.)

During the March 17, 1993 meeting with the Kula Hospital Elderly Housing Planning Phase Committee, members commented that the Kula Rule would end in two (2) days on March 19. This date was premature. DWS advised consultant of the March 21, 1993 expiration date.

Interviewed by: Terri Kojima

Date: April 1, 1993 **Time:** 3:00 p.m.

MPAC
MANAGEMENT PLANNING & ADMINISTRATION CONSULTANTS, INC.

CONSULTATION FORM

Project: Kula Hospital Elderly Housing Project EA

Organization: Kula Catholic Community

Name: Fr. Michael Owens

Position: _____ Phone: 878-1261

Summary of Main Points:

Fr. Michael Owens major concerns were on the availability of water and sewage treatment issues. He commented that the Kula Hospital Elderly Housing Project was an excellent concept, however, he did not feel comfortable about expending funds to further the project without first having resolved the water and sewage issues.

Ideally, he advocated community cooperation among the various proposed projects and community concerns, i.e. Hawaiian Home Lands, farmers concerns, etc., to plan sharing of limited resources (water) and one major sewage treatment plant to service the area, in lieu of individual projects planning separate sewage treatment facilities which would not be the most economical use of scarce funds

Fr. Owens commented that the EA document satisfactorily addressed these issues. He was favorable toward the concept of the project and its location in that the close proximity of the proposed elderly housing complex would allow the Church to readily reach the clients. If the project had not been proposed, Fr. Owens felt that he would have made it a Church priority to meet this need.

He would definitely feel more comfortable if the water and sewer issues were resolved before proceeding with the project. To do otherwise would risk the waste of scarce funds in a time of economic hardship.

Comments (optional):

Interviewed by: Terri Kojima

Date: April 1, 1993 **Time:** 3:30 p.m.

MPAC
MANAGEMENT PLANNING & ADMINISTRATION CONSULTANTS, INC.

CONSULTATION FORM

Project: Kula Hospital Elderly Housing Project EA

Organization: Kula Hospital Auxiliary Thrift Shop (Kala Iki)

Name: Dollie Griffiths

Position: President, Kula Hospital Auxiliary **Phone:** 878-1552

Summary of Main Points:

D. Griffiths expressed strong sentiment for the preservation of the Thrift Shop (Kala Iki), which is the only fundraiser for the Kula Hospital. The Thrift Shop provides a community-wide service and has an established reputation for providing quality merchandise in the only thrift store on the island that has been departmentalized.

The present location is satisfactory, since roadside parking on the access road to Kula Hospital provides much needed parking space.

The present facility is approximately 3,000-3,500 s.f. and the Thrift Shop is in need of additional space. A minimum of 4,500 s.f. is desired to provide ample work and display space. Ideally, a new and larger facility on a site with "ample" parking is desired; however, D. Griffiths felt that this option may not be feasible and, therefore, Kala Iki could "make do" with the existing space, but no less.

D. Griffiths gave the consultants a tour of the facility. The main structure was built by the State around 1916. This section has single-wall construction and is in need of renovation. The higher priorities for renovations would be the ceiling in the storage/bathroom area and a work area to sort incoming merchandise. The following extensions have been built on to the facility by the State:

- A ramp to provide access to Kala Ike for handicapped patrons ($15,000)
- A 500-square-foot double-wall extension (used for displaying women's apparel

Comments (optional):

On a "sale day," the Thrift Shop has about 18-22 volunteers to serve the Kala Ike patrons. Kala Iki's hours of operation: 2nd and last Saturdays and 3rd Tuesdays (9:30 a.m. to 1:00 p.m.)

Interviewed by: Ross Prizzia and Terri Kojima

Date: 3-17-93 **Time:** 4:00 p.m.

SPECIAL CONCERNS OF THE KULA HOSPITAL ELDERLY HOUSING PLANNING PHASE COMMITTEE

The Kula Hospital Elderly Housing Planning Phase Committee is comprised of members of Kula-based community organizations, community leaders, and agency representatives.

The membership of the Committee is listed below:

Name	Organization
Kimie Lane	Chair, Kula Hospital Elderly Housing Planning Phase Committee
Elmer F. Cravalho	Former Mayor, Kula Community
Dollie Griffiths	Kula Hospital Auxiliary
Shirley K. Takahashi	Kula Hospital
Mark Andrews	Kula Community Association
Lloyd Kawabata	Kula Hospital
Bill Bates	Maui Economic Opportunity, Inc.
Mary Monden	Kula Community
Gladys Kanoa	Waeoheli-Keokea Homestead
Paula Williams	Kula Hospital
Zoe Reith	Kula Hospital Auxiliary
Murray Spooner	Kula Hospital
Roy Katsuda	Hale Mahaolu
D.G. White, M.D.	Kula Hospital
Fr. Michael Owens	Kula Catholic Community
Stephanie Aveiro	County of Maui
Abe Wong	Kula Hospital
Susan Shirota	Kula Hospital
Roy Fusato	City Office on Aging
Tom Yagi	Retired Union Leader

1. **Hawaiian Home Lands Subdivision**

Concern by Gladys Kanoa of Kula Hawaiian Homestead Association is that the Hawaiian Home Lands Subdivision and the dire need for homes for those eligible of Hawaiian ancestry should take priority over the building of elderly housing units in the Kula Community. Other concerns include the scarcity of water and the priority need of a sewer treatment facility to service the proposed Hawaiian Homestead Housing project.

Another concern is the location and potential impact of the sewer treatment plant for the Elderly Housing. One solution is that a similar sewer treatment prepared for the Kula Hospital could also be used for the Hawaiian Homes Project which presently proposes individual septic tanks for each unit. Ideally, the proposed sewer treatment plant to serve the entire community mentioned in the County General Plan and the Kula Develop Plan could be developed to serve both projects and future community projects.

2. **Community Involvement**

A concern expressed by former Mayor Elmer Cravalho is the inadequacy of public hearings and participation by the public. Former Mayor Cravalho feels that the process should provide more opportunity for public input prior to moving ahead with the development of the project. Mr. Cravalho is also concerned that the development time table (Section 2.6) should note that the unresolved issues need to be addressed along with other building requirements prior to the construction phase of the project.

3. **Adequacy of Water and Priorities**

Concern by former Mayor Cravalho is not only for the inadequacy of water, but also for the "capacity" to transfer water to the site, which will incur additional off-site construction costs. Priority for access to available water is also a concern of Mr. Cravalho.

E. Cravalho expressed concern that Hawaiian Home Lands has diversified needs in Up-country Maui, and "family subdivision" should have precedence over the Elderly Housing Project regarding water concerns.

4. Private Versus Public Management

The assumption of "private management" was made based on the direction provided in the 1988 Feasibility Study which recommended the program be privately managed and designed for relatively independent living. Additionally, in the interest of economics, the report concluded that shared services with Kula Hospital (fee for service from Kula Hospital) would create an avenue for the State to be reimbursed.

This direction was stipulated again in February 1992, at which time the Kula Hospital Elderly Housing Phase Committee also advised that the initial concept of a "well" elderly housing concept should be pursued. The Draft and Final Project Development Reports reflect these assumptions. However, some members of the Committee are concerned and feel that the design phase will require closer scrutiny by the State, i.e., DOH and DAGS and other relevant Maui and Kula community-based organizations, regarding the implications of private management and some specific design details, e.g., the kitchen, the pharmacy, etc.

5. Preservation of the Thrift Shop (Kala Iki)

Concern was expressed by Dollie Griffiths, President of the Kula Hospital Auxiliary, regarding the demolition of Kala Iki. E. Cravalho also feels that if the position of the Committee is to preserve Kala Iki, then the design should be accommodating.

Two possible solutions posed were that the Thrift Shop could be moved to the area of the designated Community Function Building area in the conceptual design, or the design could be adjusted so that the designated housing unit in the Thrift Shop area could be moved slightly to allow the Thrift Shop to stay where it is. (Ron Maeda of Mitsunaga and Associates, Inc., feels that either one of these adjustments can be made part of the design phase of the project.

6. Displacement of Persons Living in Cottages

Murray Spooner expressed concern that the cottage he is living in will have to be removed to make way for the Elderly Housing Project. The cottages are expected to be removed and undergo photographic preservation in accordance with official DLNR procedures discussed in Section 3.11.2 of this report. As noted in Section 11.0 - *Unresolved Issues*, accommodations for employees now living in these cottages will have to be arranged prior to the demolition and construction phase of the project. Alternative solutions may also include housing allowance and/or incentives for present and future employees of Kula Hospital and the Elderly Housing facilities.

JOHN WAIHEE
GOVERNOR OF HAWAII

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STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

March 12, 1993

LOG NO: 7625
DOC NO: 9303AG15

MEMORANDUM

TO: Gordon Matsuoka
State Public Works Engineer
Department of Accounting and General Services

FROM: Don Hibbard, Administrator

SUBJECT: **Historic Preservation Review of the Draft Environmental Assessment for the Kula Hospital Elderly Housing Project**
Keokea, Makawao, Maui
TMK: 2-2-4: 34 (por.) and 76

Thank you for the opportunity to comment on this document.

It appears that historic preservation concerns have been adequately addressed in this Draft EA. Item 3.11.1 (pages 34-37) presents a summary of historical land use in the Kula region and a brief history of Kula Sanatorium which is near the project site. Our previous comments and recommendation for mitigation procedure on the pre-World War II buildings that will be demolished have been included in Items 3.11.2 (page 37) and 5.9 (pages 70-71). Also, a copy of our department's previous comments in a December 2, 1988 memorandum has been attached (Appendix B).

Should you have any questions, please contact Ms. Annie Griffin at 587-0013.

AG:bek

DIVISION OF PUBLIC WORKS

TO	INITIAL FOR YOUR:
1 State P.W. Engr	Approval
P.W. Secy	Sign
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Qual Cont. Engr	
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CONSULTATION FORM

Project: Kula Hospital Elderly Housing Project

Organization/agency: Hawaiian Homes Community Board

Division/section (if applicable): _____

Name of person: Gladys Kanoa

Position of person: _____ Phone: _____

Summary of main points:

General feelings are that Hawaiian Homes should take priority over elderly housing given limited resources. However, she feels that the Kula Hospital Elderly Housing PDR and EA documents were well prepared by the Consultants and hopes that some of the results could be applicable for both Elderly Hospital and Hawaiian Homes.

The major concern with proposed Kula Hospital Elderly Housing Project is the availability of water for the proposed housing subdivision for Hawaiian Homes on the property across the road from Kula Hospital.

Another concern is the location and potential impact of the sewer treatment plant for the Elderly Housing. One solution is that a similar sewer treatment prepared for the Kula Hospital could also be used for the Hawaiian Homes Project which presently proposes individual septic tanks for each unit.

Ideally, the proposed sewer treatment plant to serve the entire community mentioned in the County General Plan and the Kula Develop Plan, could be developed to serve both projects and future community projects.

Comments (optional):

_____

_____

Interviewed by: Ross Prizzia

Date: January 22, 1993 Time: 10:00 a.m.

doc/kula/consul/kanoa

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

January 11, 1993

Ms. Terri-Lynn Kojima
Management Planning & Administration Consultants, Inc.
436 Piikoi Street
Honolulu, Hawaii 96814

Dear Ms. Kojima:

This responds to your December 23, 1992 request for information on endangered or threatened species of plants and animals which may be found in the vicinity of, or may be affected by, the proposed construction of the Kula Hospital Elderly Housing Project in Kula, Maui.

We have reviewed the information provided with your request and pertinent information in our files. To the best of our knowledge, there are no listed or proposed endangered or threatened species of animals or plants within the Fish and Wildlife Service's jurisdiction that would be expected to be found in the vicinity or, or would be affected by, the project.

Thank you for the opportunity to comment on the proposal.

Sincerely yours,

Robert P. Smith

Robert P. Smith
Field Supervisor
Office of Ecological Services

Appendix I

Comments on Draft EA

(No comments were received on the Draft EA)