DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
ACTING DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2004/ED-11(TC)

January 25, 2005

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Chapter 343, HRS
Environmental Assessment (EA)/Determination
Finding of No Significant Impact (FONSI)
Tusitala Vista

Applicant	:	Hawaii Housing Development Corporation
Landowner	:	Starts International Hawaii, Inc.
Agent	:	Kusao & Kurahashi
Location	:	2423 and 2429 Ala Wai Boulevard - Waikiki
Tax Map Key	:	2-6-024: 070 and 071
Request	:	Chapter 201-G, HRS and Waikiki Special District Permit
Proposal	:	New nine-story, 107-unit elderly rental apartment with 29 parking stalls and appurtenant site improvements.

Attached and incorporated by reference is the Final EA prepared by the applicant for the project. Based on the significance criteria outlined in Title 11, Chapter 200, Hawaii Administrative Rules, we have determined that preparation of an Environmental Impact Statement is not required.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final EA.

If you have any questions, please contact Anthony Ching of our Urban Design Branch at 527-5833.

Sincerely yours,

Barbara A Moon for

HENRY ENG, FAICP
Acting Director of Planning
and Permitting

HE:pl
Encl.

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FINAL ENVIRONMENTAL ASSESSMENT

Tusitala Vista
AFFORDABLE ELDERLY RENTAL APARTMENT DEVELOPMENT
2423 and 2429 Ala Wai Boulevard, Waikiki, Oahu
TMK: 2-6-24: 70 and 71

by its General Partner Tusitala Vista L.P.
HAWAII HOUSING DEVELOPMENT CORPORATION
Randolph G. Moore, Board Chair
Gary S. Furuta, Project Manager
725 Kapiolani Boulevard, Suite C-103
Honolulu, Hawaii 96813

APPLICANT/GRANT RECIPIENT

Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813

Accepting Agency/Responsible Entity

Mr. Eric G. Crispin, Director
Certifying Officer

Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Keith H. Kurahashi, Agent/Preparer

DECEMBER 2004

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TUSITALA VISTA
AFFORDABLE ELDERLY RENTAL
APARTMENT DEVELOPMENT
In Waikiki

TAX MAP KEY: 2-6-24: 70 and 71

I. INTRODUCTION

The applicant/grant recipient, Hawaii Housing Development Corporation, proposes to develop a nine-story, approximately 85 feet high, affordable elderly rental apartment building in Waikiki, known as Tusitala Vista, on two lots totaling 35,761 square feet. Tusitala Vista will be developed in accordance with the requirements of Chapter 201G of the Hawaii Revised Statutes (HRS), as amended. The nine-story building will provide 106 affordable rental units, one resident manager's unit, 29 at grade parking stalls, five of which will be accessible stalls, and one loading stall. Ingress and egress to Tusitala Vista Apartments will be via Tusitala Street. Tusitala Vista will be developed on the makai (south) portion of the lot. The developer also plans to joint develop the two parcels. The mauka (north) portion of the lot will be developed to provide 36 parking stalls for the City to operate, with ingress and egress to these stalls via Ala Wai Boulevard. There will be 8 two-bedroom units and 99 one-bedroom units. One of the two-bedroom units will be occupied by the resident manager. Five of the apartment units will be accessible to persons with disabilities. All other units will be adaptable. Amenities will include the availability of a multi-purpose room, laundry facilities, approximately 9,780 square feet

of open space, part of which is planned as a Private Park and a Victory Garden for the enjoyment of the residents.

The developer intends to provide a limited assisted living component that will be offered on an as needed basis to minimize the cost for these services to individual residents of the complex. The proposed elderly affordable rental apartment building is for elderly residents' (i.e., 62 and older) who earn at or below 50% of the area median income (AMI).

This Draft Environmental Assessment Report for the development of a multi-story affordable elderly rental apartment building is prepared pursuant to and in accordance with the requirements of Chapter 343 HRS and Chapter 200 of Title 11, Administrative Rules - Environmental Impact Statement Rules and Environmental Assessment (HUD recommended format per 24 CFR 58.36 revised 1/99). The action that triggers this assessment is the proposed use of Federal, State and City funds for the proposed development at 2423 and 2429 Ala Wai Boulevard in Waikiki. Work within the Waikiki Special District also serves as a trigger for compliance with the provisions of Chapter 343, HRS.

The type and amount of Federal, State and City funds involved with this project are as follows:

Description	Interim	Permanent
Equity	$ 100,000	$ 100,000
CDBG/HOME	$ 2,900,000	$ 2,900,000
RHTF-PA	$ 2,4311,662	$ 2,431,662
City Bank	$13,783,338	$ -0-

Federal & State		
LIHTC Equity	$ 976,822	$11,975,552
HCRC	$	$ 2,784,608

CDBG/HOME =
RHTF-PA = State Rental Housing Trust Fund - Project Award
LIHTC = Federal and State Low-Income HousingTax Credit
HCRC = Hawaii Community Reinvestment Corp.

All adjoining property owners were notified, by letter dated February 27, 2004, of the proposed project and of the developer's presentation before the Waikiki Neighborhood Board on the evening of March 9, 2004, please refer to Appendix II.

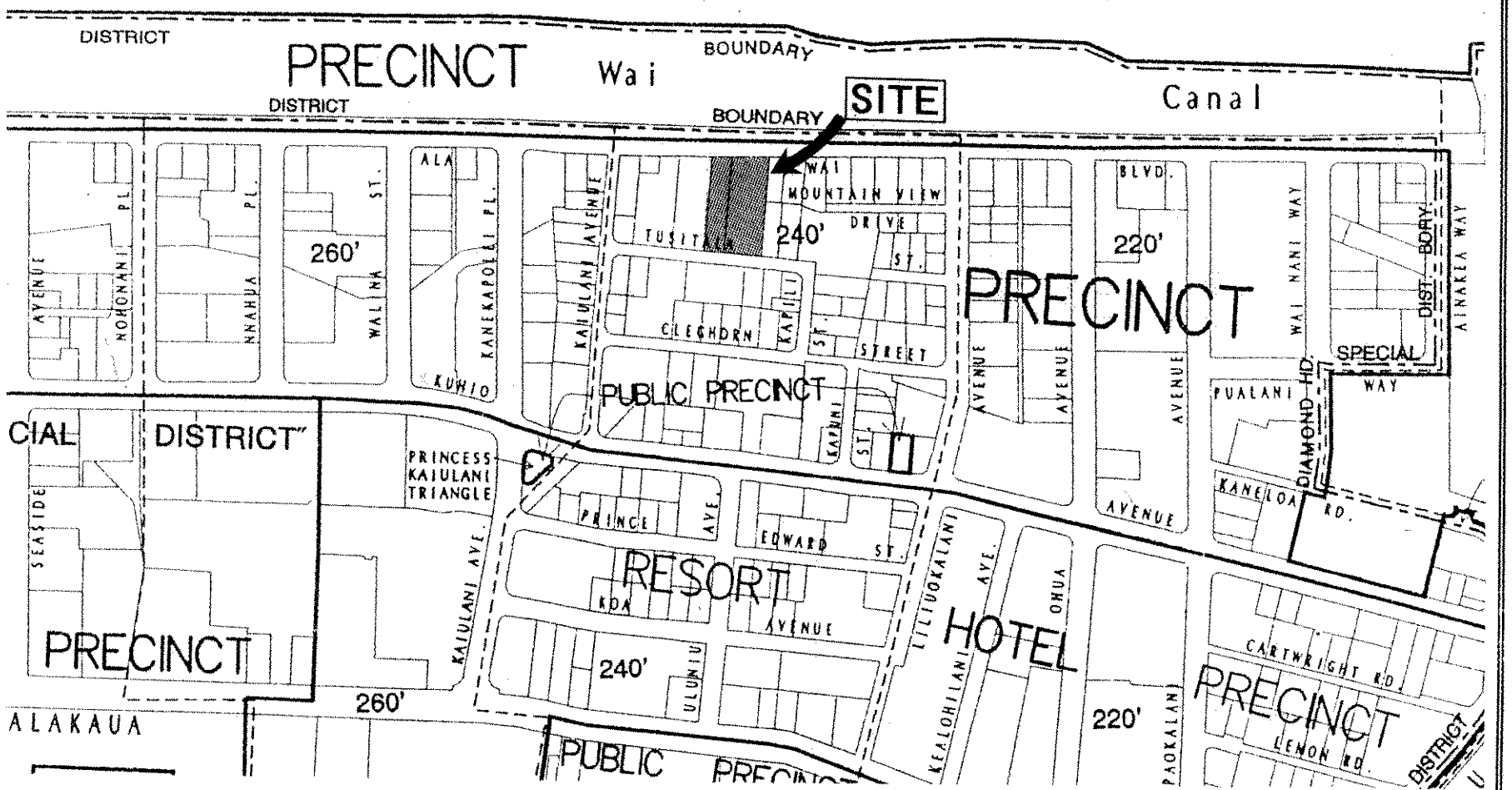
The proposed elderly affordable apartment use is permitted in the Apartment Precinct under the Land Use Ordinance (Section 21-9.80-5)as shown on Exhibit 1, Location and Zoning Map

II. GENERAL INFORMATION

A.	Project Name	:	Tusitala Vista
B.	Developer/Applicant/ Grant Recipient	:	Hawaii Housing Development Corp. 725 Kapiolani Blvd., Suite C-103 Honolulu, Hawaii 96813 Randolph G. Moore, Board Chair Gary S. Furuta, Project Manager

C.	Project Representative	:	Mr. Gary S. Furuta, Project Manager Phone: 429-7815
D.	Recorded Fee Owner	:	Starts International Hawaii, Inc. 1953 So. Beretania Street, PH-C Honolulu, Hawaii 96826
E.	Accepting Agency/ Responsible Entity	:	Department of Planning and Permitting (DPP) City and County of Honolulu 650 S. King Street, 7th Floor Honolulu, Hawaii 96813
F.	Certifying Officer	:	Mr. Eric G. Crispin, AIA
G.	Tax Map Key	:	2-6-24: 70 and 71
H.	Agent/Preparer	:	Kusao & Kurahashi, Inc. Planning and Zoning Consultants 2752 Woodlawn Drive, Suite 5-202 Honolulu, Hawaii 96822 Ph0ne: (808) 988-2231
I.	Location	:	2423 and 2429 Ala Wai Boulevard Honolulu, Hawaii 96815
J.	Estimated Project Cost	:	$21,542,541.00
K.	Lot Area	:	Total of 35,761 square feet TMK: 2-6-24: 70 = 23,644 square feet TMK: 2-6-24:71 = 12,117 square feet
L.	Zoning	:	Apartment Precinct (Exhibit 1)

ALA WAI GOLF COURSE P-2



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SCALE IN FEET

EXHIBIT 1
LOCATION/ZONING MAP

M.	State Land Use	:	Urban
N.	Development Plan Land Use	:	Higher-Density Residential/Mixed Use (Exhibit 2)
	Public Facilities Map	:	Additional Right-of-Way beyond 5 years (Exhibit 3)
O.	Special District	:	Waikiki Special District, Exhibit 4
P.	Existing Use	:	Vacant Parcels
Q.	List of Agencies & Community Groups Consulted, Pre-Draft EA:		
	City		Dept. of Planning & Permitting Board of Water Supply Dept. of Environmental Services Waikiki Neighborhood Board No.9 (see Minutes, Appendix II)
	State	:	Safe Drinking Water Division
	Federal	:	Environment Protection Agency Water Resources Agency
R.	List of Agencies Commenting on Draft EA: (Please refer to Appendix XII for Comments and our Responses)		
	City:		Dept. of Community Services Fire Department Dept. of Design & Construction (dated 8/30/04)

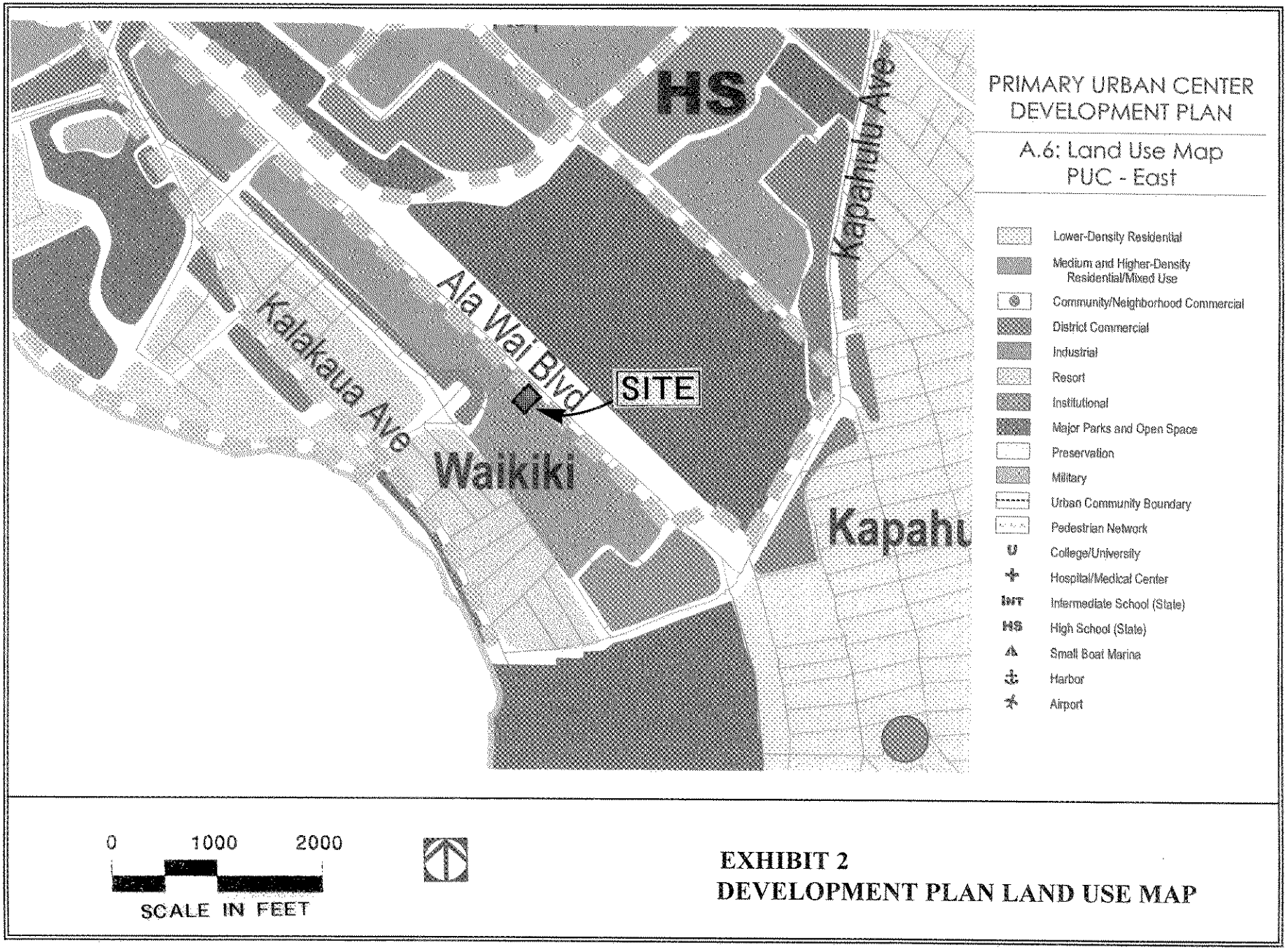


EXHIBIT 2
DEVELOPMENT PLAN LAND USE MAP

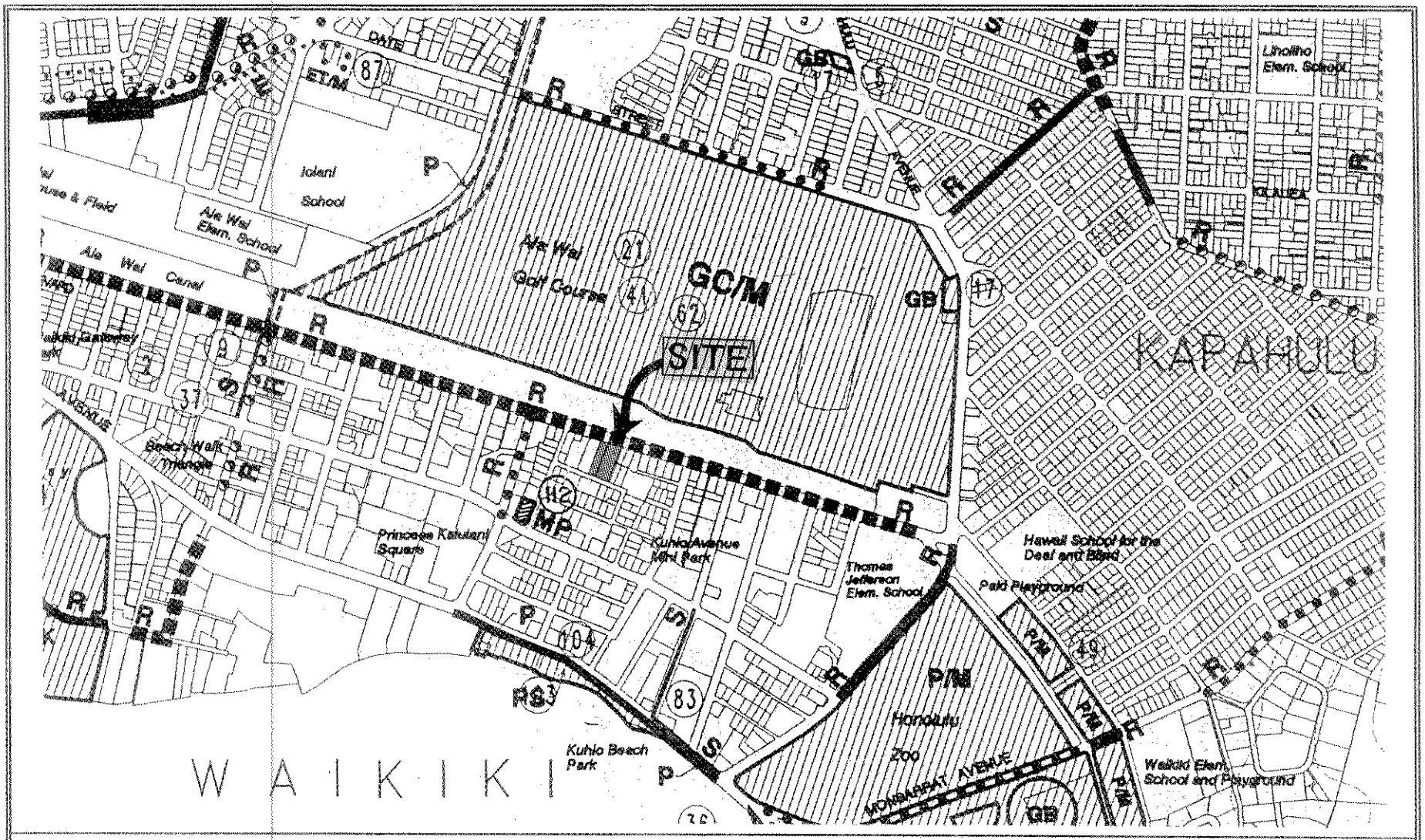
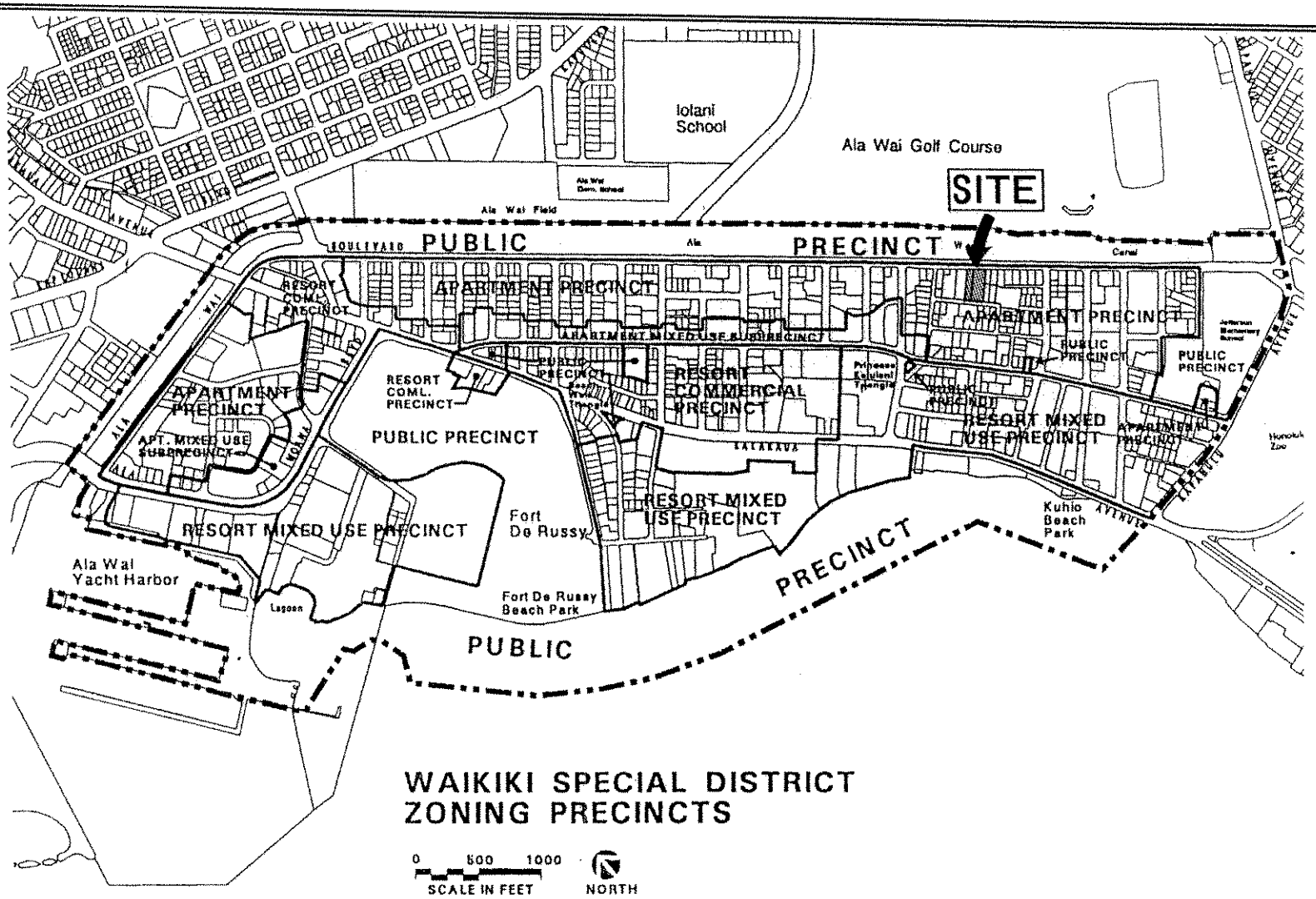


EXHIBIT 3
DEVELOPMENT PLAN
PUBLIC FACILITIES MAP



WAIKIKI SPECIAL DISTRICT ZONING PRECINCTS

EXHIBIT 4
WAIKIKI SPECIAL DISTRICT MAP

Board of Water Supply
Police Department
Dept. Of Planning & Permitting
Dept. Of Design & Construction
(dated 9/20/04)
Dept. of Transportation Services

State:

Office of Environmental Quality Control
Dept. of Land & Natural Resources, Historic Preservation Division
Dept. of Health, Clean Air Branch
Dept. Of Health, Noise Radiation & Indoor Air Quality Branch
Dept. of Transportation

III. DESCRIPTION OF PROPOSED ACTION

A. STATEMENT OF PURPOSE AND NEED FOR THE PROPOSAL

1. Purpose

Data@Work, Inc. a market research firm that specializes in analyzing residential real estate markets for developers, has been retained by the Hawaii Housing Development Corporation, General Partner of Tusitala Vista L.P., to perform a study analyzing the market for affordable senior rentals in Honolulu. The market study dated March 1, 2004, and titled, "Tusitala Vista - Affordable Senior Housing Market Study", focuses on the historical, current, and projected rental market

conditions and trends to help forecast the absorption for the proposed project.

".....Given the magnitude of the potential demand, we foresee that this project will receive a sufficient number of rental applications to be able to achieve 100% occupancy within the first six months of availability. We support this forecast with further evidence that the demand side of the market is strong and will continue strong for the next 1-2 years (baring any external shocks to the market, and/or the economy). The global economy is poised to grow at a much higher rate in the next 1-2 years than it has over the last 1-2 years. Furthermore, those economies that are the key to Hawaii's economy (Hawaii's major markets for recreational, national security and other goods and services) are also looking to experience strong growth (Japan and the US."

"On the supply side, we see continued tightening in the market rate rental market. We also see no new construction targeting this market segment, the affordable rental market for senior citizens looking for a residence suitable for aging-in-place. Finally, we point to the zero vacancies and the long waiting lists at the existing comparable projects that subsidize the rents for low-income elderly households."

"Thus, we see a level of current demand (26,068

households in 2003, potential demand) that is above and beyond the supply (4,509 rental units serving elderly renters at affordable rent levels). If there is a growth in the population due to better elderly services and lifestyles on Oahu, that in-migration from both the neighbor islands and the Pacific Basin could place an additional burden on the supply of affordable senior rentals."

"Summary & Projections: In sum, the combination of the new and existing rental demand was estimated as being well over the quantity needed to achieve full occupancy for the project. Given that, we predicted that the project should be able to achieve similar rental rates of other affordable rental projects and be able to reach final occupancy within a six to twelve month period after the project has been completed."

2. Need

The proposed affordable elderly rental apartment building will service the needs of elderly residents' (i.e., 62 and older) who earn at or below 50% of the area medium income (AMI). The development also hopes to provide a service similar to an assisted living component that will be offered on an "as needed basis" to minimize the maintenance cost for our senior residents who fall within the low income category of 50% and below the AMI. The purpose of providing these

services is to foster the "aging in place" concept and help the individuals manage living in their own apartments and community environment for as long as possible and as independently as possible. More details on the purpose and need for this project are listed in the following chapter.

B. GENERAL DESCRIPTION

1. Proposed Development

The proposed development will provide rental units affordable to elderly residents (i.e., 62 and older) who earn at or below 50% of the area median income (AMI). The concept of aging in place will be promoted by this development and seniors will be able to enjoy the company of friends and neighbors until age and/or illness place them in a position of requiring 24-hour care that is provided by long term care facilities. The development also hopes to provide a service similar to an assisted living component that will be offered on an "as needed basis" to minimize the maintenance cost for individual residents of the complex. The development, planned for seniors in the low income category, will try to minimize maintenance cost by developing individual programs of assistance for the seniors as they need it. The applicant has a Memorandum of Understanding with the Catholic Charities of the Diocese of Honolulu and more specifically with its Elderly

Services group to come to an agreement on the services that they will provide. As an example, a Catholic Charities counselor is available at Wistera Vista, Kalakaua Vista and Artesian Vista between 2 and 3 days per week for 8 hours per day. While at the property the counselor is available to assist the senior tenants in continuing to live independently as long as possible. Parking for the counselor is provided in one of the guest stalls, and office space is provided in an office off the multi-purpose room where the counselor and senior tenant can meet in private. The Catholic Charities Elderly Services group is expected to make available the following services:

i. Case Management - which is the comprehensive, holistic approach to the planning delivery of services to meet the client's needs.

ii. Set up classes for social, educational, and/or health needs - to prevent the social isolation of the residents and to foster preventive measures for health related areas.

iii. Provide chore services, such as light housekeeping.

iv. Provide transportation - to doctors, other medical, entitlement, or financial appointments.

v. Provide a shopping service - assist clients by doing their marketing (food shopping) or other shopping for them.

vi. Money management - help with direct deposits, check writing and bill paying.

vii. Arrange for personal care or health related needs - including bath assistance, assistance with other daily hygiene requirements, nurse monitoring and other daily activities that a resident requires assistance with. This may also include having doctors, nurses and other health practitioners come to the site to speak or to provide health related services, including blood pressure and cholesterol screening, and podiatry services.

viii. Establish linkages with all agencies and service providers in the community.

ix. Develop a directory of providers for use by project staff and residents and referring and linking residents to service providers in the community.

x. Educate residents on service availability, application procedures (including food stamps, rent rebates, Supplementary Social Security Income, Medicare, prescription assistance, energy assistance, etc.) client rights, and other relevant issues.

xi. Develop case plans in coordination with assessment services.

xii. Monitor the ongoing provision of services from community agencies.

xiii. Set up volunteer support programs with service organizations.

xiv. Help the resident build informal support networks with other residents, family and friends.

xv. Educate project staff on issues related to aging in place and service coordination.

xvi. Assess residents' functional abilities so that the appropriate case plans can be development.

xvii. Increase social interactions among residents and decrease isolation by some through the promotion of social activities and encouraging greater participation by all residents.

The multi-purpose room will serve as the focal point for the classes and services being offered and will provide a gathering place for the residents to socialize, enjoy classes, and participate in other activities.

The multi-purpose room will also be available as a congregate dining room. Catholic Charities Elderly Services would help coordinate a meal service with Lanakila Rehabilitation Center. Lanakila Rehabilitation Center currently does the Meals-On-Wheels and also provides lunches at 36 different meals sites throughout O'ahu. These meals are prepared in their kitchens and under the direction of a nutritionist so that the meals are balanced and appropriate for seniors. Cost per meal which are served on individual trays are approximately $4.00 per meal. The meal includes all utensils and milk. They may eat in the Multi-Purpose Room dining tables or take their meal back to their apartment. Catholic Charities would organize volunteers who would be living on-site to administer and serve the meals. The volunteering program, besides providing manpower to operate the group dining, also engage the senior in meaningful activities, which is helpful to the older adults.

The purpose of providing these services, on a non-denominational basis, is to foster the "aging in place" concept

and help the individuals manage living in their own apartments and community environment for as long as possible and as independently as possible.

The project site consists of two lots totaling 35,761 square feet. The developer plans to joint develop the two parcels through a Conditional Use Permit for Joint Development from the Department of Planning and Permitting. The Joint Development Agreement will allow the two parcels to be developed as one lot for the development of Tusitala Vista Apartments and a Public Parking Lot.

Tusitala Vista - The proposed nine story Tusitala Vista development will consist of 107, one and two-bedroom, apartment units. The finished height of the building, including the elevator shaft will be approximately 85 feet, whereas 240 feet is the allowable height in this Waikiki Apartment Precinct. Five of the apartment units will be accessible to persons with disabilities. All other units will be adaptable. The developer will provide 29 at-grade parking stalls, 5 of which will be accessible stalls, and one loading stall, for the exclusive use by Tusitala Vista residents. Ingress and egress to these stalls will be via Tusitala Street.

The one-bedroom units will measure approximately 420 square feet, and the two-bedroom units will measure

approximately 630 square feet. The applicant will provide all 107 of the apartment units, (100%), as affordable units for rent to households in the 50% and below AMI. The development will also include the following: an Entry Lobby with Two Elevators; an 828 square foot Multi-Purpose Room with adjoining full kitchen and restroom; a full Laundry Room; a Manager's Office; a Case Worker's Office; and a Mechanical and Electrical Room.

In addition to the indoor common areas, the exterior open space area of approximately 9,780 square feet will include landscaped areas surrounding the property, a private park area of approximately 2,600 square feet, and a victory garden of approximately 760 square feet. The concept of a victory garden has been used successfully in similar elderly rental projects built by this developer. The well-being of the elderly residents can be greatly enhanced by offering them the amenities of such a garden. Benches and picnic tables will also be provided within the private park areas to allow the residents a place to relax and socialize with their fellow residents and nearby neighbors.

The building will have a landscaped front yard setback of 15 feet on Tusitala Street. At the time of construction the developer will also complete the City's proposed 2-foot street

widening improvements along their property on Tusitala Street. Parking stalls No. 1 and No. 29 will encroach into the Tusitala Street front yard by about 5 feet. Please refer to Appendix I, Ground Floor Plans. The building will have a landscaped front yard setback of 15 feet on Ala Wai Boulevard. However, public parking stalls Nos. 11, 12, 26 and 27 will each encroach into the Ala Wai Boulevard front yard by about 8 feet.

The landscaped west side of the property will meet the 10-foot side yard setback. The landscaped east side of the property will meet the 10-foot side yard setback, except for a very small section of public parking spaces No. 8 thru No. 10 (from 6 inches to 2 feet).

Landscape treatment for the grounds of Tusitala Vista will consist of three medium canopy trees in the planting area along Tusitala Street, and three medium canopy trees in the planting area along the Ala Wai Boulevard to help minimize the visual impact of the structure. Five medium canopy trees will be planted along the west planting area, with four medium canopy trees being planted along the east planting area. Five additional smaller trees will be located within the residents' parking area. Ground cover and lawn will be planted in appropriate locations within the open space of the property A minimum 2-foot hedge is planned along the property line on

Tusitala Street and the Ala Wai Boulevard to help screen surface parking and to give privacy to residents resting or socializing within the open areas. The irrigation system will be connected to an existing water line that is designed to provide adequate water coverage to all planting areas. Reclaimed water will not be used for landscaping. The new automatic irrigation system will consist of spray heads and drip emitters. The landscape sprinkler system will be divided into zones, meaning, separate watering schedules in order to conserve and better manage our water supply.

Public Parking Lot - It is our understanding that the City desires to use the mauka (north) portion of the lot as a Public Parking Lot. This will give the City 36 additional parking spaces needed to replace spaces eliminated due to the Ala Wai Boulevard beautification project. Ingress and egress to these stalls would be via Ala Wai Boulevard. The developer will negotiate a lease agreement with the City at a later date, and it is our understanding that the parking lot will be managed by the City and County of Honolulu. The size and layout; estimated use and user characteristics, and fee structure and method of operation will be determined and negotiated with the City at a later date in the development of this project.

A four foot chain link fence with landscape planting on

the mauka side to screen the fence will separate the Tusitala Vista Apartments from the proposed Public Parking Lot.

2. Location

The development site is located at 2423 and 2429 Ala Wai Boulevard, Waikiki, in the Primary Urban Center of Honolulu. It is further located within the Waikiki Neighborhood Board District No. 9.

It is bordered by the Ala Wai Boulevard and Ala Wai Canal on its north side and Tusitala Street on its south side. Its east side neighbor is the Ala Wai Townhouse condominium with three parking levels and 17 residential levels. Its west side neighbors are two four-story low-rise apartment buildings, the Dynasty Apartments and Waikiki Bellevue Apartments.

3. Surrounding Area/Existing Conditions and Trends

The immediate surrounding areas in this Waikiki location are generally developed with medium to high-rise apartments buildings. The property is adjacent to the Ala Wai Boulevard and the Ala Wai Canal directly north of the site.

The greater surrounding area in Waikiki is developed with a mixture of rental apartment buildings, condominiums, hotels, businesses, churches and convenience services.

The proposed rental apartment use of the site is a permitted use that is compatible with the surrounding uses.

Should the proposed affordable elderly rental apartment not be developed, the project site will probably be developed with a "for sale" condominium.

4. Land Use Approvals

a. General Plan - Objectives and Policies

The proposed Tusitala Vista affordable elderly rental development supports the General Plan of the City and County of Honolulu, Chapter IV - Housing, as follows:

I. Objective A, Policy 1 - Develop programs and controls which will provide decent homes at the least possible cost.

ii. Objective A, Policy 12 - Encourage the production and maintenance of affordable rental housing.

iii. Policy 13 - Encourage the provision of affordable housing designed for the elderly and the handicapped.

iv. Objective C, Policy 2 - Encourage the fair distribution of low-and-moderate-income housing throughout the Island.

b. State Land Use

The project site is designated Urban under State Land Use and the proposed affordable rental apartment

development is consistent with this designation.

c. Development Plan

The proposed affordable elderly apartment development site is designated as Higher-Density Residential/Mixed Use on the new Primary Urban Center (PUC) Development Plan. The affordable elderly apartment development is consistent with this higher-density residential/mixed use designation.

Ala Wai Boulevard is planned for widening with additional right-of-way on the Development Plan Public Facilities Map in the beyond six years category. Based on a discussion with staff at the DPP, Traffic Review Branch, Ala Wai Boulevard is planned for widening by 5 feet on the mauka side of the street. The widening will not affect the project site.

There is a 2-foot road widening planned for the mauka side of Tusitala Street and the applicant will provide the widening and sidewalk improvements with this development. Since Tusitala Street is a minor street, this improvement does not show up on the Development Plan Public Facilities Map.

The proposed affordable elderly rental apartment development will conform to the vision, policies and

guidelines of the new Primary Urban Center (PUC) Development Plan for the following reasons:

i. "Section 2. The Vision of the PUC's Future - The PUC offers in-town housing choices for people of all ages and incomes."

Tusitala Vista will offer in-town housing to our elderly (i.e. 62 years and older) with limited incomes (those who earn at or below 50% of the area median income).

ii. "Section 3.3.2, Policies - Provide incentives and cost savings for affordable housing. Provide exemptions from zoning and building codes for housing projects that meet established standards of affordability, on a case-by-case basis."

The applicant for the affordable elderly rental apartment development is following this policy through the processing of a 201G permit application.

iii. Section 3.3.3 Guidelines - Review and revise zoning regulations and permitting processes to encourage innovative forms of housing and group living accommodations for people with special needs, such as the elderly or disabled, in all zoning district that allow dwellings.

Tusitala Vista will conform to these guidelines by its development in the Primary Urban Core of our Island, and more specifically in the heart of Waikiki, where elderly affordable rentals are in great need and extraordinarily high demand. After presenting the proposed project to the Waikiki Neighborhood Board the applicant was flooded with calls from area residents' requesting information on application procedures

c. Zoning

The development site is zoned Apartment Precinct. The proposed affordable rental apartment use is consistent with this zoning designation. It is located in a concentrated urban area where public services are centrally located and infrastructure capacities are adequate. In order to accommodate the provision of 100% of the rental units at affordable rates, Tusitala Vista will remain affordable for 61 years and the applicant will be requesting exemptions from certain design standards of the Apartment Precinct in the processing of the Chapter 201G, HRS, permit application. Please refer to Appendix VIII.

C. TECHNICAL CHARACTERISTICS

1. Use Characteristics

The applicant will provide 106 rental apartment units to those residents (i.e., 62 and older) who fall within 50% and below the area median income (AMI). However, should the project use Rental Housing Trust Fund financing, 10% of the units (11of the 1-bedroom units) will be targeted for tenants at 30% AMI with a HUD maximum monthly gross rent of $366.00. The remaining two-bedroom unit, that make up the 107-units, will be used by the resident manager.

The proposed rental rates are as follows, based on renting all the 1-bedroom and 2-bedroom units within the proposed development at 50% of AMI levels. The initial gross rent for the one-bedroom apartments will be $611.00 per month, compared to HUD's maximum of $616.00 per month. The initial gross rent for the two-bedroom apartments will be $733.00 per month, compared to HUD's current maximum gross of $739.00 per month.

Maximum income by household to quality for the 50% of AMI is $22,800 for one person and $26,100 for two persons. Maximum income by household to qualify for the 30% of AMI is $13,700 for one person and $15,650 for two persons.

2. Physical Characteristics

The proposed development will include a new 9-story concrete building consisting of 107 units, 8 two-bedroom apartments and 99 one-bedroom apartments. The building will have a finished height of approximately 85 feet, including the elevator shaft. There will be a total of 29 at grade parking stalls that will include five van accessible stalls, plus one loading stall, for the exclusive use of Tusitala Vista residents. 36 additional parking stalls, on this jointly developed property, will be offered for public use. A rendering, site plan, floor plans and elevation plans of the 9-story elderly affordable rental apartment building are provided in Appendix I.

The ground floor level of Tusitala Vista will include the following: an entry lobby with two elevators; the Manager's Office; a Case Workers Office; an 828 square foot Multi-Purpose Room that will include a full kitchen and an adjoining rest-room; a full Laundry Room; a Mechanical and Electrical Room; and 7 of the one-bedroom apartments.

Floors 2 thru 5 will contain all one-bedroom apartment units, each measuring approximately 420 square feet. Floors 6 thru 9 will contain the remaining one-bedroom apartments along with 2 two-bedroom apartments on each floor. The two-bedroom apartments will each measure approximately 630

square feet.

A total open space area of approximately 9,780 square feet will be provided on the development site, to include a private park, a picnic area, a victory garden and landscaped open space for use by the residents. The concept of a victory garden has been used successfully in similar elderly rental developments built by this developer. The well-being of the elderly residents can be greatly enhanced by offering them the amenities of such a garden.

The landscape treatment for Tusitala Vista development will consist of three medium canopy trees in the planting area along Tusitala Street, and three medium canopy trees in the planting area along the Ala Wai Boulevard to minimize the visual impact of the structure. Five medium canopy trees will be planted along the West planting area, with four medium canopy trees being planted along the East planting area. Five additional smaller trees will be located within the residents parking area. Ground cover and lawn will be planted in appropriate locations within the open space of the property. A minimum 2-foot hedge is planned along the property line on Tusitala Street and the Ala Wai Boulevard to help screen surface parking and to give privacy to residents resting or socializing within the open areas. The irrigation system will be

connected to an existing water line that is designed to provide adequate water coverage to all planting areas. Reclaimed water will not be used for landscaping. The new automatic irrigation system will consist of spray heads and drip emitters. The landscape sprinkler system will be divided into zones, meaning, separate watering schedules in order to conserve and better manage the water supply.

The apartment building will be designed to incorporate energy saving light fixtures, energy efficient window air conditioning (optional), energy efficient hot water heaters, and low flow plumbing fixtures.

Access to Tusitala Vista will be via Tusitala Street. Access to Tusitala Vista loading zone will be via Tusitala Street. Entrance to the Lobby/Elevator will be directly from the parking lot. The development will include one loading stall. The at-grade parking will contain 29 parking spaces, 5 of which will be van accessible stalls.

3. Construction Characteristics.

The development will be constructed over a nine month to one-year period. Construction will begin as soon as the applicant is able to receive approval of the development by the City, including building permit approvals.

The development will be built at or near existing grade

with a pile foundation. Excavation for the development should be limited to the footings and foundation of the structure. However, there will be some de-watering which should occur only with the construction of footings for the elevator shaft. The amount of water should not be much because the bottom of the elevator shaft excavation will be about minus 1. All water discharged shall be limited to the project site with no water being discharged off site.

Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust.

IV. IMPACTS

A. DEMOGRAPHIC IMPACTS

1. Residential Population

The development will provide 107 units (8 two-bedrooms and 99 one-bedroom elderly affordable rental housing units), one of the two-bedroom units will be a resident manager's unit. These units could support a resident population of 113 or more.

The General Plan Population Guidelines establish a

population range for the Primary Urban Center Development Plan Area for the Year 2010 of between 450,800 and 497,800 persons. In 2000 the actual population for the Primary Urban Center was 419,338. The additional population supported by this development will help the Primary Urban Center in reaching the population range planned in the Year 2010.

2. Visitor Population

The development will have no impact on the visitor population.

3. Character or Culture of the Neighborhood

The vacant property is located in an urban setting and more specifically within the heart of Waikiki. The site is surrounded by condominiums, high-and low-rise apartment structures, and numerous hotels.

The proposed rental apartment use of the site is in keeping with the existing character of this neighborhood . The 9-story 85-foot high development is well below the existing height limit of 240 feet for this site. Appendix V, Photographs of Site, show the varied heights of nearby apartment buildings and condominiums, and the proposed Tusitala Vista apartments will be in keeping with the surrounding properties, and is compatible with the character and culture of the neighborhood.

4. Displacement

The subject property has been a vacant lot for a number of years, therefore, there will be no displacement of dwelling units due to the proposed development.

B. ECONOMIC IMPACTS

1. Economic Growth

As a rental apartment development Tusitala Vista development will have primarily a secondary effect on economic growth by providing short-term construction jobs. The development will also provide a limited amount of long-term, employment for a resident manager, security guard and maintenance personnel.

2. Employment

As mentioned earlier the development will provide short-term construction jobs and a few long-term jobs in the form of a resident manager, security guard and a maintenance person. The development will also benefit existing service contractors, e.g. elevator maintenance companies, security companies, appliance companies etc., as well as businesses in the area.

3. Government Revenues/Taxes

Tax revenues will be generated by short-term construction work and also modest revenues by the long-term employment.

The approximate fee exemptions requested in the 201G application to the City and County of Honolulu are as follows:

a.	Building Permit Fee	-	$53,595.00
b.	Reduce Sewer Connection Fee	-	from $347,610.00 to $85,835.00

Although not part of the 201G application the following exemptions will be requested through other means:

a.	Real Property Tax	-	$ 20,000/yr
b.	GE Project development	-	$336,000.00
c.	GE operation expense	-	$ 11,000/yr.

C. HOUSING IMPACTS

1. Increase Supply

One hundred and six (106) affordable rental apartment units are planned for this development (plus an additional unit to be used by the resident manager) and they will increase the number of affordable rental units available to elderly residents in this much needed area of Waikiki.

2. Affordable Units

The applicant proposes that 100% of the rental apartment units will be affordable to those (i.e., 62 and older), who fall within 50% and below the area median income (AMI).

D. PUBLIC SERVICES

1. Access and Transportation

Access to Tusitala Vista will be via Tusitala Street

allowing for easy access to the parking spaces and lobby entrance. Access to the loading space will also be via Tusitala Street.

Access to the 36 additional public parking spaces being provided by the developer will be via Ala Wai Boulevard. The public parking lot is intended to address the shortage of parking in the area. The lot will replace any on-street parking lost because of the proposed Tusitala Vista project (e.g. to provide for preservation of line-of-sight from new driveways) as well as increase parking supply in the area. The parking lot is not expected to generate any new traffic in the area; rather, it is an improvement in one of the components of the transportation system (the temporary storage of private automobiles when not in use). Vehicular movements in and out_of the parking lot will be made by vehicles that would otherwise be on nearby streets (one could also argue that the provision of additional parking will reduce traffic by minimizing the need to circulate in the area in search of on-street parking). The impact of the parking lot to traffic, therefore, is minimal (if quantification is desired, the driveway volume could be estimated by assuming a complete turnover of the parking lot every two hours, with a +30% factor to account for peaking and drivers that encounter a full lot.

Peak hour driveway volume in one direction, therefore, would

be [{1=-.3}/2 hours x number of parking spaces, or 0.65 x number of spaces]. Other impacts would be related to the parking lot itself: additional noise and other emissions because the lot is closer than the street to sensitive receptors, headlight glare at night, the use of the lot as a gathering place. These impacts can be mitigated by appropriate fencing and landscaping treatments and security lighting.

The proposed expansion may involve some short term disruption of traffic for transportation of construction equipment to and from the site and delivery of building materials to the site. The delays are normally of short duration and will end when the construction is completed.

All construction activity will be within the fenced project site and the only work outside of the site will be limited to utility and driveway construction near the end of the project. The construction site will be fenced on all four sides to prevent theft and vandalism. During non-working hours, the project site will be locked down to prevent entry onto the property.

Julian Ng, Incorporated has prepared a traffic assessment for the elderly affordable rental apartment development. The traffic assessment is titled "Traffic Assessment for Tusitala Vista" (TMK: 1-2-6-24: 70 & 71) and dated February 25, 2004. Please refer to Appendix III - Traffic Assessment.

The Traffic Assessment section "Summary" states as follows:

> "The proposed Tusitala Vista development will have minimal impact to traffic conditions on streets in the surrounding area. Estimated total daily impact is less than 400 vehicle trips (total of entering and exiting) on a typical weekday. Highest hourly volume in one direction (approaching or leaving the site) is estimated at 20 vehicles per hour, compared with the guideline suggested by the Institute of Transportation Engineers that 'a traffic access/impact study be conducted whenever a proposed development will generate 100 or more *added* (new) peak direction trips to or from the site during the adjacent roadway peak hours or the development's peak hour.' "

Under On-Site Parking Provisions the Traffic Study further states:

> "The proposed Tusitala Vista will provide off-street parking at an approximate rate of 0.27 parking spaces per apartment. On-site parking ratios for other similar developments in urban Honolulu are shown in Table 2".

Table 2- On-site Parking at Various Honolulu Elderly Housing Developments

Development & Location	Total Units	Parking Provided	Ratio (spaces/units)
Kalunihuia, Aala Park	151	42	0.28
Makamae, Nuuanu	124	27	0.22
Paoakalani, Kalakaua	150	28	0.19
Midrise, Kalakaua	122	40	0.33
Kapunai, Liliha	162	57	0.38
Manoa Gardens, Manoa	80	40	0.50
Kalakaua Vista, Pawaa	81	37	0.46
Wisteria Vista	91	42	0.46
Artesian Vista	54	17	0.31

"The property management company (Prudential Locations) for the Kalakaua Vista and the Wisteria Vista sites reports that each site has seven vacant parking stalls that are unused by tenants, indicating that the demand at those sites are in the range of 0.37 or 0.38 per apartment. Parking demand in Waikiki is expected to be less than in other parts of Honolulu due to the many activities within walking distance and the availability of taxi and public transit services. The parking provided at Tusitala Vista should be adequate for the proposed use (rental apartments for the elderly)".

Julian Ng's traffic assessment concludes:

"The proposed development would have minimal impact to traffic and adequate access and parking can be provided".

We are requesting an exemption from the number of parking stalls required by the Land Use Ordinance, based on an analysis of the projected parking generation provided by our traffic consultant, Julian Ng, Incorporated. This analysis has determined that 0.27 parking spaces per dwelling unit, or 29 parking spaces, should be adequate for the use proposed, rental apartments for the elderly. The Land Use Ordinance states, 1 parking space per unit in this Waikiki Special District with no guest stall requirements.

To further support the adequacy of 29 parking stalls to accommodate the parking demands projected for Tusitala Vista, please refer to the table prepared by the former Department of Housing and Community Development, located in Appendix III, Traffic Assessment. This table indicates that the average parking ratio for tenant parking requirements is about 1 stall per 5 units in urban elderly housing developments. Our development may enjoy an even lower parking demand when developed because the senior affordable income group that this development will support is the group earning 50% and below the annual median income (AMI). For a single senior at or below 50% of the AMI, the income limit is $22,800 and for a family of two seniors it is $26,100.00. For a single senior at or below 30% of the AMI, the income limit

is $13,550, and for a family of 2 the income limit is $15,500.00. The typical senior household is a single elderly female. With the advanced age of each resident and the limited income, the cost of maintaining and up-keeping a car, in addition to other living expenses, such as rent, food and clothing may be cost prohibitive.

Other factors which, in this development, will minimize the need for vehicles for elderly residents are its convenient location to major bus lines. All bus services in this area of Waikiki are located on Kuhio Avenue approximately 800 feet from the proposed Tusitala Vista apartments. The nearest bus stop to Tusitala Vista is at Kuhio Avenue and Kaiulani Avenue. Bus #8 traveling west on Kuhio Avenue towards Ala Moana Shopping Center runs every 10 minutes. Bus No. 22 and/or No. 58 traveling west on Kuhio Avenue runs every 30 minutes. There is no bus service on Ala Wai Boulevard or Kalakaua Avenue.

The residents of Tusitala Vista will also be able to walk to a full service Food Pantry located on the corner of Kuhio Avenue and Kanekapolei Place, approximately 1,000 feet from the proposed Tusitala Vista. Concrete sidewalks exist on Tusitala Street, Kaiulani Avenue and Ala Wai Boulevard. Marked crosswalks are provided at the signalized intersection

of Kaiulani Avenue and Kuhio Avenue providing a safe crossing of Kuhio Avenue.

As in the applicant's other elderly apartment developments such as Wistera Vista, Kalakaua Vista, and Artesian Vista, Catholic Charities will offer transportation for shopping excursions for the residents of Tusitala Vista, taking them to and from their requested shopping area in a Catholic Charities 12 seater van. A donation of $1.00 is usual, however, this is voluntary.

In summary, it is projected that the proposed 107-unit rental apartment development will have minimal impact on traffic since it is anticipated that the majority of the elderly residents will not be driving. The 29 parking stalls being provided should be more than adequate to support the proposed apartment units.

As a note of interest, the Kalakaua Vista Affordable Elderly Rental Apartment building presently has 7 vacant stalls out of 29 tenant stalls, Wisteria Vista has 7 vacant stalls out of 32 tenant stalls.

2. Water

The Honolulu Board of Water Supply (BWS) currently provides potable water for the development site. No off-site water improvements are needed to service the proposed development.

The design of the development will incorporate water efficient toilet fixtures, low flow shower heads and sink faucets, for water conservation.

The existing water system is adequate to accommodate the proposed apartment building, according to a BWS letter (Appendix IV, Agency Comments) dated February 19, 2004.

The average daily water consumption (demand) per day for the 107-unit apartment building will be approximately 10,700 gallons per day, based on an assumption of 2 persons per unit (although our experience is that most units will be single occupancy) and an average of 50 gallons per day per person of domestic water consumption. Additional water used for irrigation of landscaping and ground maintenance will be minimal.

3. Wastewater

The average daily wastewater flow is based on 80 gallons per day per person of wastewater. The average daily wastewater flow calculations for the total 107 apartment units are as follows:

99 1-bedroom units x 80 gallons/day=7,920 gallons per day
(based on 1 person per 1-bedroom unit)

8 - 2 bedroom units x 80 gallons/day = 1,280 gallons per day
(based on 2 people per 2-bedroom unit)

Total: 7,920 + 1,280 = 9,200 gallons/day of wastewater flow

Please refer to Appendix IV for Sewer Connection Approval dated September 22, 2004.

In a letter, dated December 8, 2003, from the Department of Environmental Services they state that there is only 81 unit capacity for this project site. However, our request to accommodate the remaining 26 units flow, through the use of a holding tank with discharge occurring at off peak hours, was approved with the understanding that the project must be fully connected to the city wastewater system and the temporary sewage holding facility removed once the City completes their upgrade of the currently inadequate line. Please refer to Appendix IV, Agency Comments.

4. Drainage

The property is relatively flat and covered with rock, ground cover and shrubs with a slight makai up-slope. Existing ground elevations range between +4.3' (Ewa/mauka corner) and +6.8' (midpoint along Diamond Head boundary). The proposed development will have street frontage on Tusitala Street and on Ala Wai Boulevard with the required 15-foot front yard setbacks for both street frontages incorporated into the plans, along with the required 10-foot side yard setback. Tusitala Street and Ala Wai Boulevard, at this location, are improved with curbs and gutters that connect into

the City's system. The developer will maintain the existing drainage pattern (which flows toward Ala Wai Boulevard and Tusitala Street) on the site. The proposed development may reduce normal runoff from the site since the proposed development will introduce landscaping that is presently non-existent.

Design of onsite drainage systems will comply with "Rules Relating to Storm Drainage Standards, Department of Planning and Permitting, City and County of Honolulu, 2000". The applicant will also employ best management practices (BMP's) to control and reduce the discharge of pollutants during the construction of Tusitala Vista apartments.

On site drainage systems will be designed to accommodate a storm with a 10-year recurrence interval. Storm water runoff from a 10-year storm will be approximately 2 cubic feet per second for the existing conditions and 2 ½ cubic feet, approximately, with the proposed development. The design will attempt to not cause any adverse impacts due to the increased runoff.

The development site is in Zone AE (+6'), an area with base flood elevations determined, and in a "special flood hazard area inundated by 100-year flood". All units will be designed above the six foot elevation.

5. Solid Waste Disposal

The solid waste generated by the proposed expansion will be collected by a private refuse firm and will not impact municipal refuse services.

6. Schools

The proposed elderly affordable rental development will not impact the local school system as this development is for those 62 years and older.

7. Parks

Kapiolani Regional Park is located approximately 2,200 feet east of the project site. Kuhio Beach is located approximately 1,400 feet south of the project site, and Jefferson Elementary School playground is located approximately 1,800 feet from the project site. Two mini parks are located close by, the Princess Kaiulani Triangle Park and an un-named mini park located at Kuhio Avenue and Liliuokalani Avenue. The Ala Wai Golf Course is located directly across the Ala Wai Canal, north of the project site. However the entryway to the Ala Wai Golf Course is approximately 2,400 feet from Tusitala Vista on Kapahulu Avenue.

8. Police

The development site will be serviced by patrol officers

from District No.6, stationed at the Alapai Headquarter's Building. However, there is a Police Substation located on Kalakaua Avenue next to Kuhio Beach.

9. Fire

Waikiki Fire Station No. 7 is located approximately half a mile from the development site and will provide primary response in case of an emergency within 3 minutes. A fire protection system, as required by the Fire Department, will be provided per the Board of Water Supply standards. Civil drawings will be submitted to the Honolulu Fire Department for review and approval prior to the Building Permit being issued.

10. Utilities

a. Electric

The Hawaiian Electric Company has existing power lines serving this area and the applicant will coordinate the development of Tusitala Vista with Hawaiian Electric Company to ensure that the power lines will be able to support the proposed rental apartment development.

In addition, the design of the project incorporates energy efficient light fixtures in the common areas for energy conservation.

The applicant is providing battery, back-up emergency lights, which in the event of a power failure will provide safe access to stairs should evacuation become necessary. The resident manager can be called for assistance and if necessary request help from Catholic Charities or other service providers to assist in an evacuation.

Should the power failure continue for an extended period of time (which has been extremely rare in this highly urbanized area of Honolulu), the resident manager, again with possible assistance from service providers, will provide bottled water for drinking purposes.

b. Telephone

Verizon formerly GTE Hawaiian Telephone Company has existing utility service lines in the area. It is expected that these existing lines will be used to service this proposed apartment development. Development of Tusitala Vista will be coordinated with Verizon to determine if new lines will be required. No off-site work is expected.

c. Others

Cable television presently services other buildings

in the surrounding area and arrangements will be made with the appropriate firms to provide cable service to this rental apartment as well.

E. ENVIRONMENTAL IMPACTS

1. Historical and Archaeological Resources

The development site is not on the State or Federal Register of Historic Places.

The State Department of Land and Natural Resources , Historic Preservation Division in their review of our Draft EA recommended, in a letter dated September 2, 2004, that an archaeological inventory survey be carried out before any new construction, in order to identify historic sites that may be present on the subject parcel. Please refer to Appendix XIV.

Cultural Surveys Hawaii, Inc (CSH) has recently completed an archaeological inventory survey for Tusitala Vista, titled "Archaeological Inventory Survey for the Tusitala Vista Elderly Apartments, Waikiki, Kona District, O'ahu Island, and dated December, 2004. Please refer to Appendix XII of this report.

The archaeological inventory survey "Recommendations" section states as follows:

"Of the four sites recorded in the project area, SIHP site -6707 is recommended for data recovery, SIHP site -

6705 for further monitoring, and SIHP sites -6682 and -6706 for no further work.

1. No Further Work

SIHP site -6682 and -6707 are recommended for no further work. The features were mapped, placed on a plan view map and the immediate vicinity was tested for subsurface deposits. Based on the findings of the subsurface testing in these sites and research of historical documentation, it is believed that the information contained in these historic properties within the project property has been acquired and that no further archaeological documentation is necessary.

2. Monitoring

Results from the archaeological inventory survey indicate that the majority of the project area is free of archaeological resources and constraints. However, the identification of human skeletal fragments in the disturbed sediment of imported fill within the inventory survey fieldwork (SIHP site -6705) indicates possibility that additional fragmented human skeletal remains may be present within the fill material in project area. Based on the findings, an archaeological monitoring program is recommended with on-site and on-call monitoring of

initial subsurface impacts.

3. Data Recovery

Archaeological data recovery is recommended for SIHP site -6707. This is a li'i, (or terraced, ponded, field) retaining wall. It is a remnant of the extensive Moilili-Kapahulu-Waikiki network of irrigated taro fields constructed beginning in the fifteenth or sixteenth century and traditionally attributed to the chief Kalamakua, a significant personage in Hawaiian history. This field system, an impressive feat of engineering, took advantage of streams descending from Makiki, Manoa and Palolo valleys which also provided ample fresh water for the Hawaiians living in the ahupua'a.

Tentative research goals for a Data Recovery Plan include additional backhoe trenches to better delineate the horizontal extent of the wall, and hand dug trenches to obtain additional samples for a detailed radiocarbon age sequence and paleoenvironmental reconstruction based on pollen analysis.

The results of this research should be integrated into available previous archaeological and paleoenvironmental research within Waikiki to aid in constructing a comprehensive chronology of Hawaiian

settlement and agricultural practices in this important ahupua'a.

Data recovery should be implemented through plans submitted to the Department of Land and Natural Resources, State Historic Preservation Division (DLNR/SHPD) for review and approval."

Please refer to Appendix XII for the Archaeological Inventory Survey that includes the mitigation recommendations.

Cultural Surveys Hawaii, Inc. has completed a cultural impact evaluation for the project site, dated December 2004. Please refer to Appendix XII of this report. The scope of work is as listed below:

1. Examination of historical documents, Land Commission Awards, historic maps, and previously documented oral histories, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.
2. A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and

beliefs associated with the parcel and identify present uses, if appropriate.

3. Conduct consultations with persons and groups knowledgeable about the historic and traditional practices in the project area and region. CSH would focus particularly on previously recognized lineal and cultural descendants of families associated with Waikiki, circ 1850.

4. Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.

To date historical documents, maps and photographs were researched at the Hawaii State Archives; the Survey Office of the department of Accounting and General Services; the Hawaii State Library; the Bernice Pauahi Bishop Museum Archives and Library; Hamilton Library at the University of Hawaii at Manoa; the Mission Houses Museum Library; the State Historic Preservation Division (SHPD) Library; and the Library of Cultural Surveys Hawaii.

Hawaiian organizations, government agencies, community members and cultural and lineal descendants with

ties to Waikiki were contacted to: 1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and 2) identify cultural concerns and potential impacts within the project area.

Cultural Surveys Hawaii, Inc. will continue to work with SHPD and will appear before the Oahu Island Burial Council at its December, 2004 meeting to determine the appropriate disposition of the fragmented bones within the project site and to update the Council on the origination of the fill material on the project site.

The Archaeological Inventory Survey and Cultural Impact Evaluation have been completed. Both documents are included in Appendix XII of this report. The Archaeological Inventory Survey has been submitted to SHPD for review and acceptance.

2. Natural Resources

a. Water Resources

The Pacific Ocean (Kuhio Beach) is located approximately 1,400 feet south of the subject lot. The development will have no significant effect on this body of water.

b. Flood Plain Management

The development site is in Zone AE (+6'), an area with base flood elevations determined, and in a "special flood hazard area inundated by 100-year flood". All units will be developed above the six foot elevations.

c. Wetlands Protection

The development site is an urbanized lot that contains no wetlands.

d. Coastal Zone Management

The development site is not within the City's Special Management Area.

e. Unique Natural Features

The development site is level with soil suitable to support urban development as can be seen from other high rise structures on nearby lots. There are no unique features such as sand dunes or sloped areas where erosion would be a concern.

f. Sole Source Aquifers

There is no designated "sole source aquifer" within the vicinity of the proposed Tusitala Vista Apartments. The location of our development falls within the Nuuanu aquifer system that has a resource of 15 million gallons per day. The Board of Water Supply provides potable water for the development site and the existing water system is adequate to accommodate the

proposed apartment building according to a BWS letter dated February 19, 2004, see Appendix IV, Agency Comments).

g. Flora and Fauna

This urbanized site does not contain any wildlife habitats or rare or endangered flora or fauna.

h. Wild and Scenic Rivers Act - Federal

According to our discussion with staff at the Federal Commission on Water Resources there are no wild or scenic rivers designated in the State of Hawaii.

i. Agricultural Lands and the Federal Farmland Protection Policy

The development site is in an urban area where its use will not impact agricultural lands or lands with the potential for agricultural use. It is zoned Apartment Precinct in the Waikiki Special District.

j. Environmental Justice

The Environmental Protection Agency (EPA)defines Environmental Justice (EJ) as the "fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations and policies." The applicant will adhere to

all the required City, State and Federal environmental laws in the development of Tusitala Vista, an affordable elderly rental apartment building. Furthermore, the development of this project is intended to improve the living standards and quality of life for those elderly residents who fall within the 50% and below the area medium income (AMI).

k. Open Space

The vacant development site is zoned Apartment Precinct. The proposed development is situated in an urbanized and developed area and development of this site will not affect any important open space features in the area.

F. TOPOGRAPHY

The subject site is relatively flat with a slight makai up-slope. Existing ground elevations range between +4.3' (Ewa/mauka corner) and +6.8' (midpoint along Diamond Head boundary).

G. SOILS

The U.S. Department of Agriculture Soil Conservation Service Soil Survey Report for the Island of Oahu classifies the soils for this area as Fill Land. This land type consists of areas filled with material from dredging, excavation from adjacent uplands, garbage and bagasse and slurry from sugar mills. The areas are on the islands

of Kauai, Maui and Oahu.

Fill land, mixed (FL) - This land type occurs mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage and general material from other sources. Included in mapping were a few areas that have been excavated.

This land type is used for urban development including airports, housing areas, and industrial facilities.

H. NOISE

D.L. Adams Associates, Ltd., consultants in Acoustics and Performing Arts Technologies, conducted an Environmental Noise Assessment Report for Tusitala Vista Apartments. Their executive summary states as follows:

1.1 "The Tusitala Vista residential project is proposed to offer approximately 106 affordable senior rental units in the Waikiki area. The new building will be 9 stories tall and will incorporate "aging-in-place" services for its tenants. The existing site is a vacant lot."

1.2 "Continuous ambient noise levels on the existing property were measured at one location for approximately 12 hours. The predicted Ldn is less than 65 dBA and meets an "acceptable" rating, according to the HUD noise guidelines. Dominant sources of noise at

the project site generally include vehicular traffic in the area, occasional aircraft flyovers, pedestrians, and nearby construction noise."

1.3 "During the construction phase of the project, typical construction noises will be audible in the area. Noise from construction activities must comply with State Department of Health noise regulations as specified for construction related activities."

1.4 "After construction is complete, noise generated from stationary mechanical equipment on the project site must meet State Department of Health noise regulations, which allow adjustments for existing ambient noise levels."

1.5 "Noise from vehicular traffic in the area due to the project is not expected to significantly increase over the existing ambient noise levels. The increase in project generated traffic noise was calculated to be less than 1 dB."

The report further states under, Compliance with HUD Noise Guidelines:

"Based on the measured noise levels, an estimate of the Ldn at the measurement location is 65 dBA. As can be seen in Figure 3, the measurement location is much

closer to Ala Wai Boulevard (the primary noise source) than the residential units. Therefore, the predicated noise level a the residential units is well below the Ldn 65 dBA noise criteria. The residential units fall under the "Acceptable" category, according to the HUD noise guidelines."

Please refer to Appendix XIII Environmental Noise Assessment.

I. AIR QUALITY

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines. Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust.

Due to the minimal impact from traffic projected for the development as discussed in the previous section on Noise, vehicular emissions will have minimal impact on the surrounding area.

J. VISUAL IMPACT

The proposed structure will have a finished height of about 85 feet which is well below the 240-foot height limit of this Apartment Precinct. Since the project site is currently a vacant lot, the proposed development will block some mauka and Ala Wai Canal views from

existing apartment building makai of the subject site. However, with its mauka/makai orientation, mauka and makai view impacts are minimized. The proposed development will not affect important public views.

The visual impact of this particular structure is also minimized since it will be an in-filling of an Apartment Precinct lot surrounded on three sides by other apartment and condominium developments. As this and other underutilized Apartment Precinct lots are developed, the primary visual impact will be to existing nearby structures and not public views. However, since many of the existing nearby structures are high-rise apartment buildings, the proposed development will fall in the profile of these existing high rises. Looking at the enclosed photographs of the proposed location for Tusitala Vista one can see the many mid to high-rise apartment buildings throughout the surrounding area.

K. SHADOW STUDY

Mr. Leroy Syrop, the owner of the adjacent Dynasty apartment building, wrote to the Department of Planning and Permitting, letter dated April 7, 2004, stating his concern regarding the possible shadow cast over his building with the development of Tusitala Vista, and the detrimental affect that would have on his solar system. The applicant requested a shadow study from Mechanical Enterprises, Inc. And a copy of that study was submitted to DPP on March 29, 2004. In summary the shadow study concluded that the overall affect

of the proposed construction on the existing solar panels should be minor in comparison to other adjacent buildings. Please refer to Shadow Study, Appendix IX

L. HAZARDS

The development site does not contain any nuisances, airport clear zones, or other features which would jeopardize its development.

V. MAJOR IMPACTS AND ALTERNATIVES CONSIDERED

As mentioned throughout this report the proposed elderly affordable rental apartment will not have a significant impact on the surrounding area in terms of public services and the environment.

Positive socio-economic impacts are projected with the provision of affordable housing, and increases in employment both short term and long term.

A. NO ACTION

This alternative was considered and rejected due to the continuing negative cash flow that would result from payment of property taxes, maintenance cost and liability expenses for the vacant land.

B. MARKET RENTAL PROJECT

This alternative was considered but would result in greater

impacts to the surrounding neighborhood, primarily related to traffic.

The cost of construction and the cost of land make it unfeasible to develop a market rental development because market rental income will not be able to provide a reasonable return on the investment, and it could not be financed.

VI. MITIGATION MEASURES

Although the impacts from the proposed development are not expected to be significant, the following mitigation measures are planned to minimize impact on the surrounding area:

A. AIR QUALITY

The applicant's contractor will employ dust control measures where appropriate, including the use of water wagons, erection of barriers, and other methods for minimizing dust.

B. NOISE

The applicant will direct the contractor to comply with the State Department of Health (DOH) regulations specified for construction related activities to help mitigate the short term noise impacts during construction.

Noise generated my mechanical and electrical equipment needed for the apartment development will be sited to meet DOH noise regulations.

C. TRAFFIC

Parking for construction vehicles, vehicles belonging to

employees and subcontractors will be provided on site during construction in order to mitigate parking concerns in the immediate vicinity.

D. ARCHAEOLOGICAL

The applicant will work with the State Historic Preservation Division (SHPD) and the Oahu Island Burial Council (OIBC) on a reburial plan of the human bone fragments found during the recent Archaeological Study.

The applicant will further instruct the contractor (earthwork) to immediately stop work and contact the State Historic Preservation Division (SHPD) for review and approval of proposed mitigation measures should any previously unidentified historic sites (including but not limited to artifacts, shell, bone, or charcoal deposits, human burials, rock or coral alignments, pavings or walls be encountered during the construction. Work in the immediate area would be stopped until SHPD is able to assess impacts and make further recommendations for appropriate mitigation measures. Please refer to the Archaeological Inventory Survey in Appendix XII for mitigation recommendations.

VII. GOVERNMENT PERMITS AND APPROVALS REQUIRED

The development will require the following governmental permits or approvals:

- 201G Permit Approval from the Honolulu City Council.
- Conditional Use Permit for Joint Development of two or more lots. The applicant plans to apply for a Conditional Use Permit (CUP) for Joint Development of parcels 70 and 71, in order to provide 36 additional parking stalls for public use and operated by the City, with ingress and egress to these stalls via Ala Wai Boulevard.
- Waikiki Special District (WSD) Permit
- The Contractor will apply for a Trenching Permit, Grading Permit , Drain Connection License, Street Usage Permit, and Building Permit from the Department of Planning and Permitting, City and County of Honolulu.
- The developer will be requesting utility easements across TMK 2-6-024: 71, the proposed public parking lot, so that they can connect the sewer, water, fire, drainage, etc to the City system on Ala Wai Boulevard. The easement request will also cover appurtenances, both above and below ground, such as meters and the sewer holding tanks.

VIII. SIGNIFICANCE CRITERIA

The following review of the significance criteria indicates that the development will not have a significant impact on the environment.

- No irrevocable commitment to loss or destruction of any natural or cultural resource would result.

The vacant development site is an urbanized lot that is mostly rock ground cover with overgrown shrubs and was previously developed.

The property is not listed on either the State or Federal Registers of Historic Places.

The vacant site and surrounding properties have been in urban use for many years and a number of different uses and buildings have existed on the property. Because the site has in the past been extensively developed with no previous record of historic or archaeological discoveries, the proposed development is not expected to have an impact on archaeological resources.

Although it does not appear that the development will impact on any historic site, the applicant will instruct his contractor (earthwork) to immediately stop work and contact the State Historic Preservation Division (SHPD) for review and approval of proposed mitigation measures should any previously unidentified historic sites (including but not limited to artifacts, shell, bone, or charcoal deposits, human burials, rock or coral alignments, paving or walls) be encountered during the development of Tusitala Vista approved under this Environmental Assessment. Work in the immediate area shall be stopped until SHPD is able to assess impacts and make further recommendations for appropriate mitigation measures.

- The action would not curtail the range of beneficial uses of the environment.

The proposed development will not curtail, but will instead enhance the range of beneficial uses of the environment. The present vacant property partially covered in asphalt is void of all natural landscaping, offering no beneficial use of the possible uses associated with the environment. With the development of the proposed Tusitala Vista, landscaping and an irrigation system will be installed where none exist at the present time. The development site will provide much needed affordable elderly rental units to meet the growing housing demands of the elderly.

- The proposed action does not conflict with the state's long-term environmental policies or goals and guidelines.

The State's environmental policies and guidelines are set forth in Chapter 343, Hawaii Revised Statutes, "State Environmental Policy". The broad policies set forth include conservation of natural resources and enhancement of the quality of life. As discussed earlier, the development does not adversely affect significant natural resources. With the proposed development, the existing vacant property will be developed to provide our seniors with affordable rental units. This will enhance the quality of life for senior residents of Tusitala Vista.

- The economic or social welfare of the community or state would not be substantially affected.

The development will give a temporary boost to the State's economy with the provision of short-term construction employment and related tax impacts, and a few long-term jobs in the form of a resident manager and a maintenance person.

The social welfare of the community would be positively affected by the development of this affordable elderly rental apartment building, to those in most need in our community. The Tusitala Vista Affordable Elderly Rental Apartment Development will offer an attractive living environment to the elderly and in addition will offer lush landscaping and open spaces, including a victory garden, all for the benefit of the elderly residents.

Residents in Tusitala Vista Apartments will have a long term positive economic affect on businesses in the area, as a source of new customers.

- The proposed action does not substantially affect public health.

The proposed action will not affect public health. The proposed land use is compatible with the surrounding residential and commercial developments.

- No substantial secondary impacts, such as population changes or effects on public facilities, are anticipated.

As mentioned earlier under "Residential Population" of our Draft EA the General Plan Population Guidelines establish a population range for the Primary Urban Center Development Plan Area for the Year 2010 of between 450,800 and 497,800 persons. In 2000 the actual population for the Primary Urban Center was 419,339. The additional population supported by this development will help the Primary Urban Center in reaching the population range planned in the Year 2010.

The existing water system is adequate to accommodate the proposed apartment building, according to a BWS letter dated February 19, 2004. (Appendix IV, Agency Comments).

Regarding sewer capacity, according to a letter dated December 8, 2003 from the Wastewater Branch of the Department of Planning and Permitting to our engineer, Dean Alcon & Associates, there is currently capacity for 81 units. Our request to accommodate the remaining 26 units flow through the use of a holding tank with discharge occurring at off peak hours was approved. However, the project must be fully connected to the city wastewater system and the temporary sewage holding facility removed once the City completes upgrades of the currently inadequate line. (Appendix IV, Agency Comments).

Julian Ng, Incorporated has prepared a traffic assessment report for the development, dated February 25, 2004, and titled

Traffic Assessment Tusitala Vista (TMK: 1-2-6-24: 70 & 71) His conclusion - "The proposed development would have minimal impact to traffic and adequate access and parking can be provided."

Public Parking Lot - The public parking lot is intended to address the shortage of parking in the area. The lot will replace any on-street parking lost because of the proposed Tusitala Vista project (e.g. to provide for loading zones or preservation of line-of-sight from the new driveways) as well as increase parking supply in the area.

The parking lot is expected to generate any new traffic in the area; rather, it is an improvement in on of the components of the transportation system (the temporary storage of private automobiles when not in use). Vehicular movements in and out of the parking lot will be made by vehicles that would otherwise be on nearby streets (one could also argue that the provision of additional parking will reduce traffic by minimizing he need to circulate in the area in search of on-street parking).

The impact of the parking lot to traffic, therefore, is minimal (if quantification is desired, the driveway volume could be estimated by assuming a complete turnover of the parking lot every two hours, with a +30% factor to account for peaking and drivers that encounter a full lot. Peak hour

driveway volume in one direction, therefore, would be [{1=0.3}/2 hours x number o parking spaces, or 0.65 x number of spaces]. Other impacts would be related to the parking lot itself: additional noise and other emissions because the lot is closer tan the street to sensitive receptors, headlight glare at night, and use of the lot as a gathering place. These impacts can be mitigated by_appropriate fencing and landscaping treatments and security lighting.

- No substantial degradation of environmental quality is anticipated.

The development will not result in a substantial degradation of the environment. Only minimal impact is projected during the construction phase. Excavation for the development should be limited to the footings and foundation of the structure. However, there will be some de-watering which should occur only with the construction of footings for the elevator shaft. The amount of water should not be much because the bottom of the elevator shaft excavation will be about minus 1. Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust. Only minimal impact is projected during the construction phase of the proposed development.

- The proposed action does not involve a commitment to larger actions, nor would cumulative impacts result in considerable effect on the environment.

  The proposed development does not involve a commitment to larger actions nor will it result in cumulative impacts to the environment. The proposed Tusitala Vista Affordable Elderly Rental Apartment will not generate future developments, creating a cumulative impact.

- No rare, threatened or endangered species or their habitats would be affected.

  No rare, threatened, or endangered species or their habitats would be affected in the proposed development.

- Air quality, water quality or ambient noise levels would not be detrimentally affected.

  Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines. Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust.

  Short term noise impacts at construction sites are a normal result of construction activity. The State Department of Health administers rules and regulations relating to the hours during which construction is permitted and the noise levels

permitted during those hours. The contractor will be required to apply for a permit from the State Department of Health should noise from construction activities exceed regulatory limits. The contractor will abide by the noise regulations incorporated into the permit.

Long term noise impact from the proposed development are expected to be minimal due to the nature of the proposed elderly rental apartment and the minimal increase in traffic projected.

Water quality would not be detrimentally affected by the proposed development, which will meet current City storm drainage standards. These current standards provide for cleaner run-off from new developments.

- The project would not affect environmentally sensitive areas, such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters or coastal waters.

The development site is in Zone AE with a flood elevation of plus 6' (+6').

The development will not affect tsunami zones, erosion-prone areas, geologically hazardous land, estuaries, fresh water nor coastal waters.

- Substantially affects scenic vistas and view planes identified in county or state plans or studies.

The proposed development will not impact on important public coastal or scenic views. The buildings mauka/makai orientation will further minimize visual impacts. Visual impact is also minimized since this structure will be an in-filling of this Apartment Precinct lot surrounded on three sides by other apartment and condominium developments.

- Requires substantial energy consumption.

  The Hawaiian Electric Company has existing power lines serving this area and the applicant will coordinate development of Tusitala Vista to ensure that the power lines will be adequate to support the proposed rental apartment development. Normal energy consumption for a nine story building of this nature is anticipated. The apartment building will be designed to incorporate energy saving light fixtures, energy efficient split system air conditioning and energy efficient hot water heaters.

IX. RECOMMENDATION

Based on this Final Environmental Assessment, we respectfully request a Finding of No Significant Impact (FONSI) for the proposed Tusitala Visit Affordable Elderly Rental Apartment Development in Waikiki.

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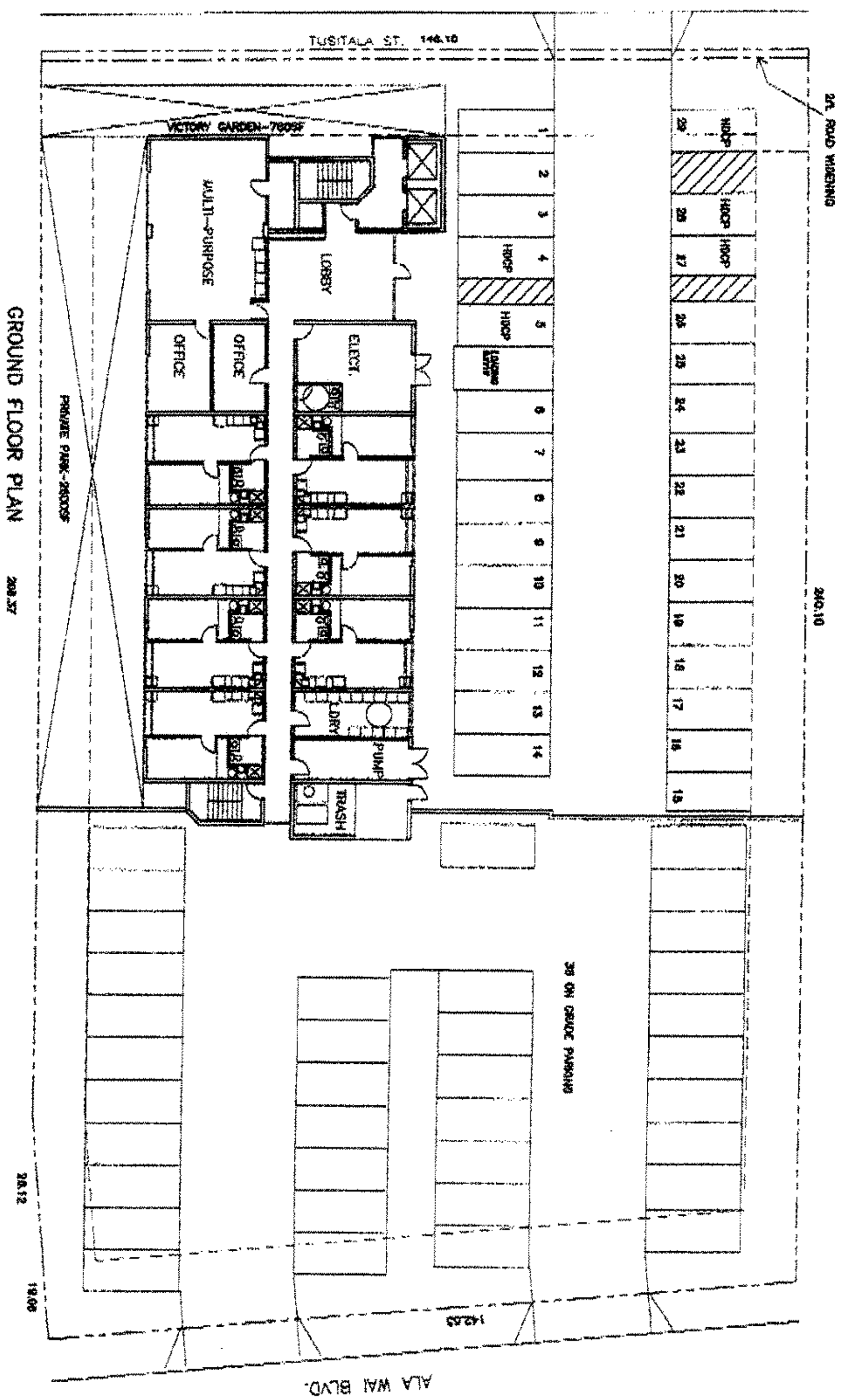
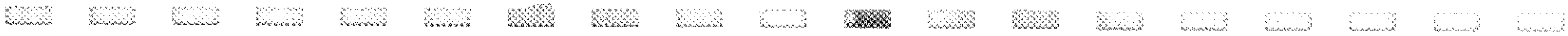
APPENDIX I

RENDERING, SITE PLAN, FLOOR PLAN, ELEVATIONS AND LANDSCAPING


TUSITALA ST.
VICTORY GARDEN
MULTI-PURPOSE
LOBBY
OFFICE
OFFICE
ELECT.
LDRY
PUMP
TRASH
GROUND FLOOR PLAN
35 ON GRADE PARKING
ALA WAI BLVD.



APPENDIX II

NOTIFICATION OF ADJOINING PROPERTY OWNERS'

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.rr.com

February 27, 2004

Dear Adjoining Property Owner:

Subject: Proposed Tusitala Vista Affordable Elderly Rental Development
TMK: 2-6-024: 70 and 71

On behalf of the applicant, Hawaii Housing Development Corporation, and in accordance with the requirements of the Department of Planning and Permitting (DPP) of the City and County of Honolulu, we are providing you as an adjoining property owner, notification of our upcoming presentation before the Waikiki Neighborhood Board No.9. On the evening of March 9, 2004 we will be presenting information regarding the proposed Tusitala Vista Affordable Elderly Rental Development described in the enclosed summary sheet. We will describe the 201G permit process, the Environmental Assessment process and the Waikiki Special District permit process and respond to your questions and/or concerns.

Date:	Tuesday, March 9, 2004
Time:	7:00 P.M.
Location:	Waikiki Community Center 310 Paoakalani Avenue Honolulu, Hawaii 96815

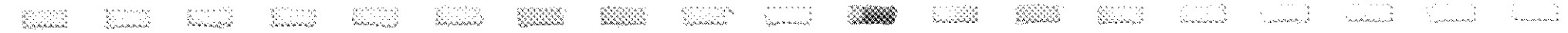
Should you have questions, please do not hesitate to call us at 988-2231.

Very truly yours,

Anne T. Kusao

for Keith Kurahashi

cc: Hawaii Housing Development Corporation



SUMMARY

TUSITALA VISTA AFFORDABLE ELDERLY RENTAL APARTMENT DEVELOPMENT
TMK: 2-6-24: 70 AND 71

The applicant, Hawaii Housing Development Corporation, proposes to develop a nine-story, approximately 77 feet high, affordable elderly rental apartment building located at 2423/2429 Ala Wai Boulevard in Honolulu, Hawaii. The nine-story building will provide a total of 107 rental units, 29 at-grade parking stalls, five of which will be accessible stalls. In addition to the 29 parking stalls a loading stall will be available with ingress and egress via Tusitala Street. The developer will be providing 36 additional parking stalls for public use, with ingress and egress to these stalls via Ala Wai Boulevard. There will be eight (8) two-bedroom units and ninety-nine (99) one-bedroom units. One of the two-bedroom units will be occupied by the resident manager. Five (5) of the apartment units will be accessible to persons with disabilities. All other units will be adaptable. Amenities will include the availability of a multipurpose room, laundry facilities, approximately 9,780 square feet of open space, part of which is planned as a Victory Garden for the enjoyment of the residents.

The developer also intends to provide a limited assisted living component that will be offered on an as needed basis to minimize the cost for these services to individual residents of the complex. The proposed elderly affordable rental apartment building will be for elderly residents' (i.e., 62 and older) who earn at or below 50% of the area median income (AMI).

GENERAL INFORMATION

A.	Developer/Applicant	:	Hawaii Housing Development Corp. 725 Kapiolani Blvd., Suite C-103 Honolulu, Hawaii 96813 Randolph G. Moore, Board Chair Gary S. Furuta, Project Manager
B.	Recorded Fee Owner	:	Starts International Hawaii, Inc. 1953 South Beretania Street, PH-C Honolulu, Hawaii 96826
C.	Tax Map Key	:	2-6-24: 70 and 71
D.	Agent	:	Kusao & Kurahashi, Inc. Planning and Zoning Consultants 2752 Woodlawn Drive, Suite 5-202 Honolulu, Hawaii 96822
E.	Location	:	2423/2429 Ala Wai Boulevard (Exhibit 1)
F.	Lot Area	:	Total of 35,761 square feet TMK: 2-6-24: 70 = 23,644 square feet TMK: 2-6-24: 71 = 12,117 square feet
G.	Zoning	:	Apartment Precinct, Exhibit 1
H.	State Land Use	:	Urban
I.	Development Plan Land Use Map	:	Medium Density Apartment, Exhibit 2
	Public Facilities Map	:	Additional Right of Way, beyond 6 years, Exhibit 3
J.	Special District	:	Waikiki Special District, Exhibit 4
K.	Existing Use	:	Vacant Parcels

ALA WAI GOLF COURSE P-2

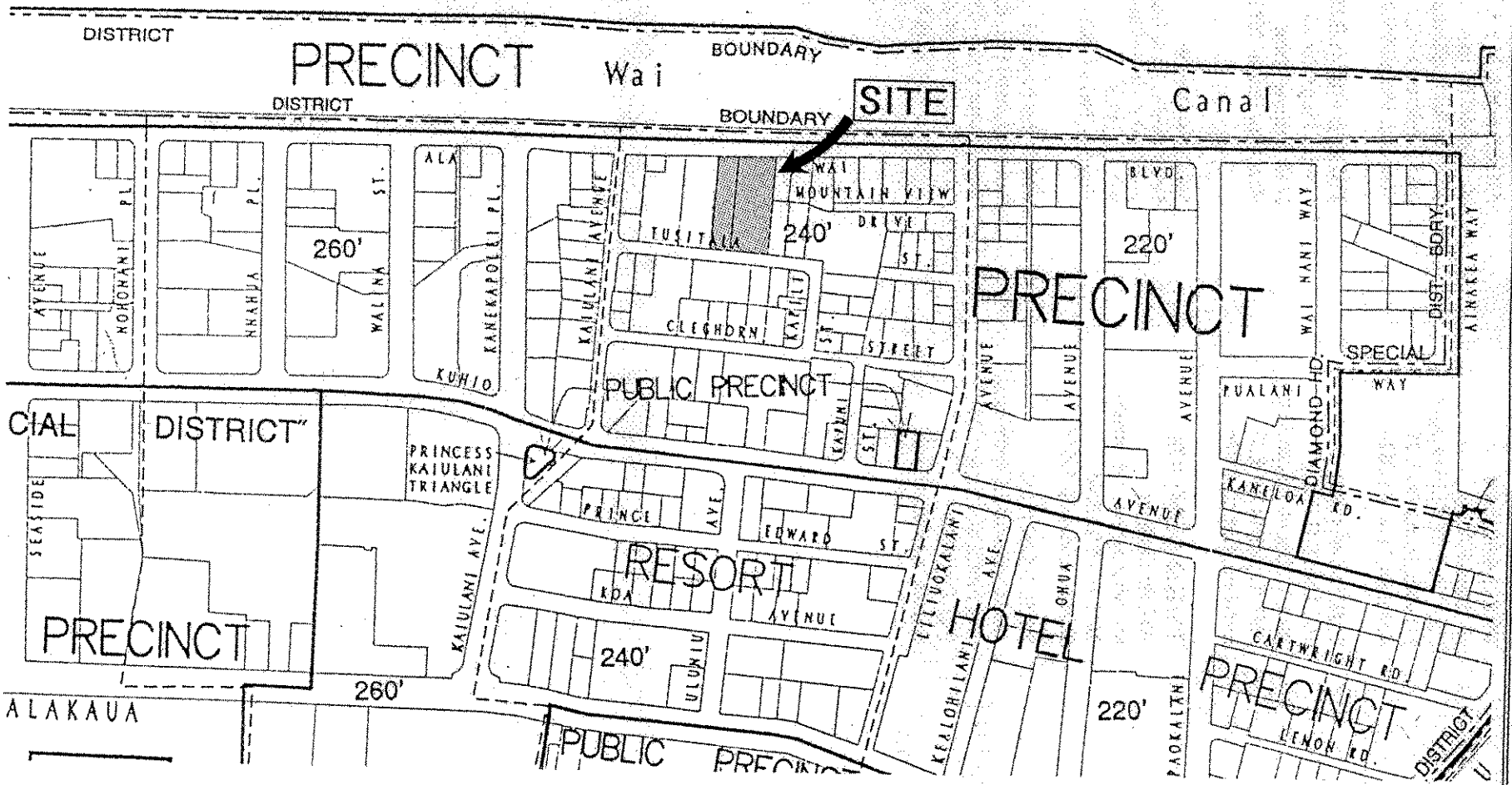


EXHIBIT 1
LOCATION/ZONING MAP

Tusitala Vista Apartments

2/18/04

TMK:2-6-024: 091
Mr. John Y.T. Wong
DBA Waikiki Bellevue Apts.
2048 Kapiolani Blvd, 29
Honolulu, Hawaii 96826

TMK:2-6-024: 073
Orlando Co Ltd
1110 University Ave, 508
Honolulu, Hawaii 96826

TMK:2-6-024: 059
Becker Properties & Leases LLC
No Address

TMK:2-6-024: 062
Tusitala Land Co. Inc.
P.O. Box 1578
Honolulu, Hawaii 96806

TMK:2-6-024: 091
Mr. Darryl Wong
DBA Waikiki Bellevue Apts.
2048 Kapiolani Blvd, 29
Honolulu, Hawaii 96826

TMK:2-6-024: 091
Ms. Alice S.G.Wong
DBA Waikiki Bellevue Apts.
2048 Kapiolani Blvd, 29
Honolulu, Hawaii 96826

TMK:2-6-024: 074
Waikiki Skyliner
Mr. Michael Ryon, Manager
2415 Ala Wai Blvd.
Honolulu, Hawaii 96815

TMK:2-6-024: 059
AOAO of Waikiki Townhouse
C/O Hawaiiana Mgmt. Co.
P.O. Box 4009
Honolulu, Hawaii 96812

TMK:2-6-024: 091
Ms. Dierdre M. Lau
DBA Waikiki Bellevue Apts.
2048 Kapiolani Blvd, 29
Honolulu, Hawaii 96826

TMK:2-6-024: 093
Skybird Properties Inc.
2442 Tusitala Street
Honolulu, Hawaii 96815

TMK:2-6-024: 059
First Hawaiian Bank Trust.
Attn: Real Estate Services
P.O. Box 3708
Honolulu, Hawaii 96811

TMK: 2-6-024: 061
Mr. Paul Stabile Tr. &
Ms. Bernice Stabile Tr.
2437 Tusitala Street, 403
Honolulu, Hawaii 96815

WAIKIKI NEIGHBORHOOD BOARD NO. 9

c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 400 • HONOLULU, HAWAII 96813

REGULAR MEETING AGENDA
TUESDAY, MARCH 9, 2004
WAIKIKI COMMUNITY CENTER
310 PAOAKALANI AVENUE
7:00 to 9:30 P.M.

WEB: www.neighborhoodlink.com/honolulu/nb9
E-Mail: bob2222@hawaii.rr.com

I. CALL TO ORDER, ROBERT FINLEY, CHAIRMAN
II. ESTABLISH A QUORM
III. APPROVAL OF MINUTES OF FEBRUARY 10, 2004MEETING
IV. UNFINISHED BUSINESS. None.
V. TREASURER'S REPORT
VI. CHAIR ANNOUNCEMENTS
SPECIAL MEETING IN MARCH 11, 2004
CITIZENS PROPOSAL FOR WAIKIKI 3 SITE – KEALOHA AIU

VII. FIRE DEPARTMENT REPORT
POLICE DEPARTMENT REPORT
CITIZENS' CONCERNS
BOARD OF WATER SUPPLY

VIII. ELECTED OFFICIALS
SENATOR GORDON TRIMBLE
REPRESENTATIVES GALEN FOX AND SCOTT NISHIMOTO
COUNCILMEMBER CHARLES DJOU
MAYOR'S REPRESENTATIVE ERIC CRISPEN
GOVERNOR'S REPRESENTATIVE DR. KADOHIRO
OTHERS

IX PRESENTATIONS
SPAM JAM – Rick Egged, Waikiki Improvement Association (WIA)
CONDOMINIUM PROJECT ON TUSITALA STREET – Keith Kurahashi, Kusao & Kurahashi
2121 KUHIO ZONING CHANGE REQUEST – Keith Kurahashi, Kusao & Kurahashi
SENATE BILL ON LEASEHOLD – Bret White

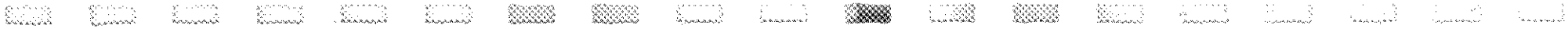
X. COMMITTEE REPORTS
XI. CHAIR REPORT
XII. ANNOUNCEMENTS
XIII. ADJOURNMENT

NOTICE...NOTICE...NOTICE

The next regular meeting of the Waikiki Neighborhood Board #9 will be held on April 13, 2004 in the auditorium of the Waikiki Community Center, 310 Paoakalani Avenue at 7:00PM.

Meetings can be viewed on Olelo every Friday night at 9 PM on Channel 54.

ANY DISABLED PERSON REQUIRING ACCOMIDATION TO PARTICIPATE AT THIS MEETING MAY CALL THE NEIGHBORHOOD COMMISSION OFFICE AT 527-5749 FOR ASSISTANCE.



WAIKIKI NEIGHBORHOOD BOARD

MINUTES OF REGULAR MEETING
TUESDAY, MARCH 9, 2004
WAIKIKI COMMUNITY CENTER

CALL TO ORDER: Chair Robert Finley called the meeting to order at 7:00 p.m. with a quorum present.

MEMBERS PRESENT: Leslie Among, Jeffrey Apaka, Tom Brower, Dolores Cook, Norman Duncan, Louis Erteschik, Robert Finley, Walt Flood, Raymond Gruntz, John Kaimi, David McCulloch, Mike Peters, Jim Poole, Rachel Simmons, Mary Simpson.

MEMBERS ABSENT: Neil Carmody.

GUESTS: Director Eric Crispin (Mayor's Representative – Department of Planning and Permitting), Kate Diggle and Chris Jared (Department of Transportation Services), Deputy Director Dr. Jane Kadohiro (Governor's Representative – Department of Health), Curtis Thatcher (Department of Health), Daniel Morin (Councilmember Charles Djou's Office staff), Councilmember Charles Djou, Puna Chai (Representative Scott Nishimoto's Office staff), Linda and Frank Vargo (Senator Gordan Trimble's Office staff), Lieutenant Tim Boswell (Honolulu Police Department – Waikiki Station), Captain Paul Nishihara (Honolulu Fire Department – Waikiki Station), Scot Muraoka (Board of Water Supply), Rick Egged (Waikiki Improvement Association), Roger Takabayashi (Hawaii State Teachers Association), Keith Kurahashi (Kusao & Kurahashi), Joan Nagua (Waikiki Community Center), Reggie DeSilva, Sweetheart Brown and Garry Navarro (Polynesian Adventures and Maui Divers), Bobby Brooks (Consulate of Peru), Michael Belatti and Elena Morgan (University of Hawaii), Sharon and Patrick Chun, Brenda and Rex Powell, Bill and Helen Sweat, Mr. and Mrs. William Uhrik, Mr. and Mrs. L. Brodersan, Brian McBride, Floyd Wilcox, Minori Ozawa, B. Hudman, Rosalie Melenka, Mia Ban, Marion Glatiotis, Homer Kalita, Richard Larson, Steven Fuertes, Louis Xigogiauis, John Souza, Maxine LaFlamme, Mary Cowing, Barbara Selchow, Corey Dillman, Jan Bappe, Brian Hann, Kealoha Aiu, Beth Harman, Bob Farrell (Olelo), Mahealani Hanohano (Neighborhood Commission Office staff).

ESTABLISH A QUORUM: A quorum was determined to be present.

Chair Finley announced with regret the passing of Board member David Oshiro. A moment of silence was observed.

APPROVAL OF FEBRUARY 10, 2004 REGULAR MEETING MINUTES: McCulloch moved and Duncan seconded to approve the February 10, 2004 Regular Meeting minutes as circulated. The motion carried unanimously, 11-0-0.

UNFINISHED BUSINESS: There was no Unfinished Business.

TREASURER'S REPORT: Peters reported the following for the month ending February 29, 2004: Th is a balance of $805.17 in the Operating Account; $1,909.76 in the Publicity Account and $120 in Refreshment Account.

The Treasurer's Report was filed subject to audit.

CHAIR ANNOUNCEMENTS: Chair Finley reviewed the following:

1) A Special Board meeting will be held on Thursday, March 11, 2004, 7:00 p.m. at the Waikiki Community Center to discuss upcoming legislation.
2) There was an incorrect report that a petition was being supported by the Board opposing the Kuhio Avenue Improvement Project, which is a part of the Bus Rapid Transit (BRT) and Livable Waikiki Project. The State Sunshine Law prohibits us from voting on items not on the agenda, however, citizens may voice their concerns tonight. The City has sent representatives to discuss the matter.

CITIZEN'S PROPOSAL FOR WAIKIKI THEATRE III – Kealoha Aiu reported the following: He proposes to restore the Waikiki Theatre III to its original appearance for educational programs that would aid in the war against prostitution and drugs through "aloha" and "hooponopono". A full presentation will be made at next month's Regular Board meeting.

HONOLULU FIRE DEPARTMENT (HFD): Captain Paul Nishihara, of the Waikiki Station, reported the following for the month of February 2004: 1) There were 14 structure, 1 rubbish and 1 vehicle related fires; and 119 medical, 5 search/rescue and 13 miscellaneous emergency calls for response. 2) Fire Safety Tip: "Cooking fires are the leading cause of home fires and the second major cause of death among older adults. If you are cooking and must leave the kitchen, even for only a few minutes, turn off the stove. Keep a fire extinguisher (with a maximum rating of 2A10BC) in or near your kitchen and learn how to use it. Inspect the fire extinguisher regularly to ensure that it has not expired." 3) Suggestion of the Month: "Keep fire hydrants in your neighborhood clear of obstructions, including parked cars, debris and weeds." 4) HFD is concerned about the width of the currently coned lanes on Kuhio Avenue due to the construction. They feel that the roadway is becoming too narrow.

Among arrived at 7:15 p.m. (12 members present).

HONOLULU POLICE DEPARTMENT (HPD): Lieutenant Tim Boswell distributed police statistics totals for the months of February 2004 and reported that a large fight ensued during the Cure for Cerebral Palsy Block Party during the Mardi Gras events. There were about 5,000 in attendance and it is suspected that fights broke out due to the large crowd and inebriation. HPD is recommending that no events be held on the streets of Waikiki that involve the sale of liquor.

Discussion followed: 1) Among expressed concern regarding vehicles racing in the parking lot located at 352 Hobron Lane during the evening hours. 2) A resident requested statistics on pedestrian and vehicle accidents and where they occurred. Lieutenant Boswell will look into the traffic accident that occurred on Hobron Lane two weeks ago. 3) Lieutenant Boswell stated that HPD issued over 700 noise violation citations last year and 81 so far this year. 4) A resident expressed concern regarding HPD's mobility around the Kuhio Avenue roadway improvements during responses.

Flood and Simpson arrived at 7:20 p.m. (14 members present).

BOARD OF WATER SUPPLY (BWS) – Scot Muraoka reported the following for March 2004: 1) There was one main break at 2357 Kuhio Avenue on February 2, 2004. 2) There are no new BWS projects scheduled for April 2004. 3) BWS is hosting a workshop for all Neighborhood Board members on Saturday, April 17, 2004, 9:00 a.m. at Honolulu Hale Courtyard. Registration begins at 8:30 a.m. BWS officials will lead discussions on a variety of topics ranging from current projects to new initiatives to day-to-day operations. All Board members will receive invitations from BWS Manager and Chief Engineer Clifford Jamile. Those interested are asked to fill out the registration form and return it by April 7, 2004. 4) This week is Detect a Leak Week. Leak dye tablets will be available from March 7 to 13, 2004 at all Satellite City Halls and at the BWS building on South Beretania Street. Dye tablets are to be placed in toilet tanks and colored dye in the toilet bowl indicates a leak and the gasket needs to be replaced. Sheraton Hotels, the Chamber of Commerce of Hawaii, the Sierra Club and BWS jointly sponsor this program. 5) Entry deadline for BWS' entries for the 2004 Water Conservation Poster Contest, themed "Conserving Water for Life" is March 10, 2004. Oahu school children from kindergarten to 6th grade are eligible. Winning posters will be displayed at City Hall in May 2004. For more information call 748-5041.

Discussion followed: Muraoka indicated that the current heavy rains are increasing Oahu's water tables because residents tend to use less water for their lawns and washing vehicles. Although the rains have been heavy it takes years for the water to percolate into the BWS water systems.

CITIZENS' CONCERNS:

KUHIO AVENUE IMPROVEMENT PROJECT – Kate Diggle, Public Coordinator and Chris Jared, Project Manager reported the following: The Kuhio Avenue Improvement Project is a coordination between Waikiki Vision Group and Livable Waikiki Program. A notice of public information meeting was mailed to all businesses with a Kuhio Avenue address and all residents in the Kuhio Avenue corridor on November 13, 2003. Pat Lee, of Pat Lee and Associates, was available at the November 18, 2003 Regular Board meeting to answer questions about the project and announced the informational meeting for a noise variance for the project on November 20, 2003 at Jefferson Elementary School. At the November 20, 2003 public meeting a power point presentation was made and most of the attendees were in support of the improvements. Various fliers and newspaper announcements notified the public of construction. Further information can be found at www.oahutrans2k.com or by calling the hotline at 864-1914.

Board members and residents made the following complaints regarding the current construction on Kuhio Avenue: 1) The newly painted lines on Kuhio Avenue indicate that there may be no left turns from Royal Hawaiian Drive onto Kuhio Avenue but the signs indicating that a left turn may be made is still present. Jared will look into the matter. 2) When the construction is over the lighting synchronization will be changed to reflect the changes in vehicular circulation, which will be an improvement to traffic flow. 3) Discussion ensued regarding the width of the roadway after the construction is completed. The makai lanes will be about 12 feet wide, including the curbs and gutters. 4) It was suggested that Waikiki residents use Kalakaua Avenue to bypass the construction on Kuhio Avenue. It was noted that although traffic will be difficult during the duration of the project the results will be an overall improvement to traffic flow. 5) A full presentation on the Kuhio Improvement Project was requested. 6) Trees and other landscaping will be done in the medians that are currently being constructed. 7) The improvements do not take away lanes of traffic but some, not all of the dedicated turn lanes will be eliminated. 8) The Bus Rapid Transit (BRT) System vehicles will travel on both sides of Kuhio Avenue. Dedicated bus lanes will only be on Kuhio Avenue from Kalaimoku Street to Launiu Street (one block). 9) The areas that are currently coned off at the intersection of Kuhio Avenue and Kaiolu Street are to prohibit vehicles from entering the area near sidewalks to make travel safer for pedestrians. 10) Residents expressed concern regarding the changes to the circulation in and out of their condominiums. 11) Residents spoke in opposition to the City spending taxpayer dollars to worsen the traffic in Waikiki. 12) It was mentioned that transportation is part of the service industry and should be handled by the private sector and not government ran and that government should handle health and safety. 13) A resident noted that area residents are abusing the free parking on Ala Wai Boulevard and renting their condominium parking stalls. 14) Concern was expressed regarding congestion, safety and maintenance caused by the new medians. 15) It was suggested that police officers be used to direct traffic during the construction period. 16) A resident noted that Hawaii is ranked number four in pedestrian deaths in the nation and that bringing the sidewalks closer together makes it safer for pedestrians to cross Kuhio Avenue. 17) A resident expressed concern regarding the gridlock that would be caused during an evacuation situation.

ELECTED OFFICIALS:

SENATOR GORDON TRIMBLE – Linda Vargo distributed Senator Gordon Trimble's report and announced that the following meetings will be held to discuss Global Positioning System (GPS) technology, cost to customers and businesses due to the lack of competition to Matson and wasted monies and dangers of rushed decision making by government: 1) March 16, 2004, 6:00 p.m. at Jefferson Elementary School; 2) March 17, 2004, 5:30 p.m. at McKinley High School; 3) and March 18, 2004, 6:00 p.m. at Kaiulani Elementary School. The guest speaker will be Charles Trimble, who is currently the Chairman of the US GPS Industry Council and head of Trimble Navigation Limited.

Vargo will look into what bills Senator Trimble supports or opposes.

REPRESENTATIVE GALEN FOX – There was no representative present.

REPRESENTATIVE SCOTT NISHIMOTO – Puna Chai, distributed Representative Scott Nishimoto's report and highlighted the following: 1) A Town Hall meeting will be held on March 17, 2004, 6:00 p.m. at Washington Intermediate School Cafeteria sponsored by Councilmember Ann Kobayashi, Senator Brian Taniguchi and Representatives Scott Nishimoto, Scott Saiki and Kirk Caldwell. 2) A Prescription Drug Forum will be held on Wednesday, March 17, 2004, 5:30 p.m. at Hilton Hawaiian Village to address affordability of prescription drugs

and engage the public in dialog about policy solutions, including Hawaii Rx Plus. 3) Classes from Liliuokalani and Waikiki Elementary Schools visited the State Capitol in February 2004. 4) HB 1770 relating to motor vehicle alarm systems, seeks to increase fines for repeatedly allowing car alarms to sound for longer than five minutes.

The matter passed the House Standing Committees on Transportation and Judiciary and will crossover to the Senate.

COUNCILMEMBER CHARLES DJOU – Councilmember Charles Djou distributed his report and highlighted the following: 1) He opposes the BRT System and a resolution requesting the Mayor to halt the City's plans to move forward with the project will be heard tomorrow. 2) The Mayor released his fiscal year 2005 budget. The Mayor proposes to increase the commercial property tax rate by 7%, which comes on top of a 15% increase last year. Anyone that goes to a supermarket, shopping mall, restaurant will ultimately pay for the tax increase. 3) Resolution 03-240 gives the Ethics Commission the power to impose fines on ethics violators.

Discussion followed: Peters noted that at a recent budget meeting held by the Neighborhood Commission concern was expressed regarding the possibility of the City Council cutting the NCO budget so that it would be inoperable. He noted that the Neighborhood Boards play a useful role in the governmental decision making process. Councilmember Djou stated that due to the current budget deficit all department budgets need to be cut. He feels that the Boards do play an important role but should not take precedent over emergency services.

MAYOR'S REPRESENTATIVE – Director Eric Crispin reported the following: The Mayor has submitted a balanced budget without significant tax rate and fee increases: 1) There is no increase in residential real property rates or sewer fee increases. 2) There is a moderate increase in commercial property tax rates, which is still less then it was 10 years ago. 3) The islandwide recycle pilot program will begin in July 2004 (two weekly pickups, at no charge). 4) Rent-to-Own Program, offered to current residents of City owned low-income housing participants, where City-owned property is sold at no interest and no down payment. Money raised from the sale of property will eliminate a $117 million debt and a projected $30 million will be placed into the City's Rainy Day Fund. 5) There has been an average annual increase of 1.86% in the Executive Operating Budget from 1994 to 2005, with an increase of 60,000 people. 6) There are 8.7% fewer employees than there were in 1994. 7) The $47.5 million increase (4.1% since last year) in the City's budget is mostly due to escalated fixed costs such as collective bargaining pay raises, State retirement system, State health fund and workers compensation. 8) There are 757 less City employees in 2005 than there were in 1994 but there has been an increase in police, firefighters and lifeguards. 9) The proposed 2005 Capital Improvement Program (CIP) Budget is $286.5 million. 10) Schofield Sunset at the Park will be held on March 20 and 21, 2004 to extend aloha and mahalo to the 4,500 soldiers that will be deployed to Iraq and Afghanistan. Movies to be shown: Saturday – "Pirates of the Caribbean" and Sunday – "Seabiscuit". Identification cards are required for entry onto the base. 11) Crispin is trying to expedite the application in DPP to prepare evidence to redevelop Waikiki Theater III for a cultural interpretive center. He stated that photo documentation may be needed. He has requested that the Department of Land and Natural Resources (DLNR) look into the historical significance of the site. 12) Deputy Director Barbara Kim Stanton is recovering from her accident and is in much better health. 13) The City's Rent-to-Own Program includes fee-simple condominiums and maintenance fees are factored into their rent. Buyers will need to go through the loan process.

Discussion followed: 1) Discussion ensued regarding the City's pilot Recycling Program and the fact that the City does not pick up trash at condominiums. Crispin stated that the pilot program is only geared for single-family residences. Simmons stated that her condominium recycle their trash and saves money in the process. 2) The Rent-to-Own Program properties are sold in blocks to developers at market rates and reduces the City's debt burden.

GOVERNOR'S REPRESENTATIVE – Director Dr. Jane Kadohiro, of the Department of Health (DOH) reported the following: 1) The Governor has established initiatives to fix flaws in Hawaii's Rx Law to improve discounts on prescription drugs. 2) The U.S. Secretary of Homeland Security Tom Ridge praised security in Hawaii for how it has handled its safety issues. 3) Residents were encouraged to support the Governor's Citizens Achieving Reform in Education (CARE) initiatives and the option to allow voters to decide on the matter.

Chair Finley requested that Dr. Kadohiro attend the Board's Special Meeting to be held on March 11, 2004.

OTHERS:

HALE O HONOLULU – Curtis Thatcher, of DOH – Adult Mental Health Division, reported the following: Hale O Honolulu is a psychotherapy and social rehabilitation facility located in Waikiki. He noted the need for volunteers and donations.

HAWAII STATE TEACHERS ASSOCIATION (HSTA) – President Roger Takabayashi, of HSTA, distributed copies of HSTA's "Six Steps to Better Schools" and reported the following: HSTA is opposed to decentralization of school boards and supports elected Board of Education (BOE) as opposed to the Governor's appointed Board of Standards Commission. HSTA is also in support of many of the Governor's proposed CARE measures such as a weighted student formula. HSTA has no standing position regarding the Governor's proposal to take principals out of the union. There is currently a principal shortage in Hawaii.

PRESENTATIONS:

SPAM JAM – Rick Egged, of the Waikiki Improvement Association (WIA), reported the following: The 2nd Annual Spam Jam will be held on April 23 and 24, 2004. The event offers entertainment, street vendors and menu choices.

McCulloch moved and Among seconded to support the 2nd Annual Spam Jam. The motion carried unanimously, 14-0-0.

TUSITALA VISTA AFFORDABLE ELDERLY RENTAL APARTMENT DEVELOPMENT – Keith Kurahashi, of Kusao and Kurahashi, reported the following: The Hawaii Housing Development Corporation, proposes to develop a nine-story, approximately 77 feet high affordable elderly rental apartment building at 2423 and 2429 Ala Wai Boulevard. The building will provide a total of 107 rental units, 29 at-grade parking stalls (including five handicapped). A loading stall will be available with ingress and egress via Tusitala Street. The developer will be providing 36 additional parking stalls for public use with ingress and egress via Ala Wai Boulevard. There will be eight, two-bedroom units and 99, one-bedroom units. Five of the apartment rentals will be accessible to persons with disabilities and all other units will be adaptable. Amenities will include the availability of a multi-purpose room, laundry facilities and approximately 9,780 square feet of open space, including a victory garden for the residents. A limited component will be offered on an as needed basis to minimize the cost of these services to individual residents. Elderly residents of 62 years of age or older who earn at or below 50% of the area median income (AMI) qualify.

Gruntz arrived at 8:45 p.m. (15 members present).

McCulloch moved and Among seconded that the Board support the concept of Tusitala Vista, an affordable elderly rental apartment.

Discussion followed: 1) Cook expressed concern regarding traffic increase on Tusitala Street and requested that access be at Ala Wai Boulevard. Kurahashi indicated that he has worked on many elderly housing developments and that in other facilities of this type most parking stalls are unused. He also stated that it might be possible to widen the area fronting Tusitala Street. 2) The project will be within the allowable height requirement. 3) Because the project is partially federal funded, its use, as an affordable elderly housing facility cannot be changed for 65 years. 4) Rent will range from

$600-700. 5) Property owners within 300 feet of the proposed project were notified and will also be notified of the construction start date. 6) A resident spoke in opposition to the concept of government funded projects such as these and stated that it removes accountability. It was also mentioned that subsidized housing would not aid tourism. 7) Apaka spoke in support of the project and stated that there is a need for affordable elderly housing and the construction would create jobs.

The motion carried unanimously, 15-0-0.

PROPOSED REZONING AT 2121 KUHIO AVENUE – Kurahashi had artist renderings available and reported the following: The applicant, Belrad Group LLC, requests the rezoning of three parcels of land from Resort Commercial Precinct to Resort Mixed Use Precinct which is consistent with the existing Primary Urban Center Development Plan Land Use Map Resort Mixed Use designation for the parcels. The proposed rezoning is also consistent with the proposed Primary Urban Center Development Plan Land Use Map Resort designation, which is under review by the City Council. The project site is bounded by Kalakaua Avenue, Kalaimoku Street, and Kuhio Avenue. The construction duration is one year.

The lot has an existing commercial retail development, 2100 Kalakaua, consisting of a four story, 110,000 square foot structure located along Kalakaua Avenue. The applicant plans to develop the vacant portion of the lot with an apartment, condominium or timeshare development and a low-rise restaurant complex depending on the market at time of sale.

The apartment/condominium development would have 27 levels of apartments over two levels of underground parking, with a total height of 300 feet. The timeshare development would have two levels of underground parking and 31 levels of timeshare units.

The site was formerly known as the Old Waikiki Market and before that the Kuhio District. Two of the better-known establishments in the Old Waikiki Market were the Canlis Restaurant and Hula's Bar and Grill.

One benefit of the proposed rezoning will be a requirement for greater open space depending on the amount of proposed floor area. Under the existing Resort Commercial Precinct, the only required open space is the 20-foot yard on Kuhio Avenue and 15-foot yard on Kalaimoku Street. Under the proposed Resort Mixed Use Precinct, the open space requirement with our proposed development will be 50 percent.

Discussion followed: 1) Property owners within 300 feet of the proposed project were notified and will also be notified of the construction start date. 2) A resident expressed concern regarding noise and vibration from construction affecting surrounding residents. Kurahashi stated that they are looking into ways of minimizing impacts. 3) A business owner requested that the applicant relocate him for the duration of the project. 4) It was noted that construction would be more difficult with the ongoing construction of the Kuhio Avenue Improvement Project. 5) Flood spoke in support of the project but noted that timeshare properties do not benefit the community. Egged noted that timeshare properties are economical because it brings outside money into the community and the market does not fluctuate like hotel rentals. Discussion ensued regarding other timeshare properties in the area. 6) There will be 325 parking stalls. 7) There are a total of three entrances. The residence entrance to the parking area is below the Porte Chere on Kuhio Avenue and it will be gated. The Kalaimoku Street entrance to the parking area is open to the public for visitors on the on site restaurant. 8) Apaka expressed concern regarding vehicles driving through the project to access the DFS Galleria. 9) Kurahashi will look into the possibility of having an entrance at Launiu Street and Kuhio Avenue. He will also look into concerns regarding curbing, etc. 10) Each one or two bedroom units will range from 800-1,500 square feet.

Chair Finley deferred a vote on the 2121 Kuhio project until more inputs could be made.

COMMITTEE REPORTS: Deferred.

ADJOURNMENT: The meeting was adjourned at 9:50 p.m.

Submitted by: Mahealani Hanohano, Neighborhood Assistant

APPENDIX III

TRAFFIC IMPACT ASSESSMENT REPORT

Julian Ng, Incorporated
Transportation Engineering Consultant

P. O. Box 816
Kaneohe, Hawaii 96744-0816

phone: (808) 236-4325
fax: (808) 235-8869
email: jnghi@hawaii.rr.com

February 25, 2004

Mr. Gary S. Furuta, Project Manager
Tusitala Vista L. P.
725 Kapiolani Boulevard, Suite C-103
Honolulu, Hawaii 96813

Subject: Traffic Assessment
Tusitala Vista (TMK: 1-2-6-24: 70 & 71)

Dear Gary:

Summary: The proposed Tusitala Vista development will have minimal impact to traffic conditions on streets in the surrounding area. The estimated total daily impact is less than 400 vehicle trips (total of entering and exiting) on a typical weekday. The highest hourly volume in one direction (approaching or leaving the site) is estimated to be 20 vehicles per hour, compared with the guideline suggested by the Institute of Transportation Engineers that "a traffic access/impact study be conducted whenever a proposed development will generate 100 or more *added* (new) peak direction trips to or from the site during the adjacent roadways' peak hours or the development's peak hour."

Introduction: The remainder of this letter details the findings of a traffic assessment of the development. Tusitala Vista will be in a mid-rise building with 106 rental apartments for senior citizens and one apartment for a resident manager. The building will be located near Tusitala Street; adjacent to the building, 29 parking stalls and one loading zone will be provided with vehicular access through a single driveway to Tusitala Street. The *mauka* (northeast) portion of the property would be left vacant and may be developed by others as a parking lot; preliminary plans show 36 stalls with two driveways to Ala Wai Boulevard.

Existing Traffic Conditions: The development site is located between Ala Wai Boulevard and Tusitala Street in Waikiki. The site's *mauka* (northeast) frontage along Ala Wai Boulevard is approximately 143 feet long and its *makai* (southwest) frontage along Tusitala Street is approximately 146 feet long. The site is roughly trapezoidal is shape, with a depth varying between 240 and 254 feet between the streets. Existing uses adjacent to the site are mid-rise and high-rise apartment buildings.

Ala Wai Boulevard is a four-lane minor arterial carrying three lanes of traffic one-way in the northwestbound (*ewa*bound) direction. The fourth lane away from the site is used for

on-street parking. The project site is located to the left of Ala Wai Boulevard, between the signalized intersection with Liliuokalani Avenue and the unsignalized intersection with Kaiulani Avenue. Another signalized intersection at Ala Wai Boulevard and Kanekapolei Street is located about 250 feet beyond Kaiulani Avenue. The posted speed limit on Ala Wai Boulevard is 35 miles per hour.

Tusitala Street is a two-lane local street carrying one-way traffic in the southeasterly (*diamondhead*) direction. On-street parking is permitted along the left curb in front of the project site, leaving a single lane for traffic. Tusitala Street, together with Cleghorn Street and a portion of Kaiulani Avenue, forms a clockwise loop that provides access to various parcels fronting these streets. Kaiulani Avenue, a one-lane one-way street carrying maukabound traffic, provides the primary access to the loop; secondary access is along a narrow segment of Cleghorn Street that connects to Liliuokalani Avenue.

Concrete sidewalks exist on Ala Wai Boulevard, Tusitala Street, and Kaiulani Avenue. The nearest bus stops are located on Kuhio Avenue approximately 800 feet from the Tusitala Street side of the site. A traffic signal at the intersection of Kaiulani Avenue and Kuhio Avenue provides for a safe crossing of Kuhio Avenue.

On Ala Wai Boulevard at its approach to Kanekapolei Street, a daily volume of 23,520 vehicles was recorded in June, 2002. The highest hourly volumes at this location were 1,819 vehicles per hour in the morning peak hour between 7:15 AM and 8:15 AM and 1,742 vehicles per hour in the afternoon peak hour, between 3:30 PM and 4:30 PM. The traffic volume on Ala Wai Boulevard fronting the project site is slightly less, as cars on Kaiulani Avenue that had turned on Ala Wai Boulevard are included in that count.

Traffic counts taken in 1993 on Kaiulani Avenue at Ala Wai Boulevard were 2,042 vehicles per day with peak hour volumes of approximately 110 vehicles per hour (count data from City and County of Honolulu, Department of Transportation Services).

While no traffic counts were found for Tusitala Street, volumes on that street are estimated to be about half of the volumes counted on Kaiulani Avenue, or approximately 1,000 vehicles per day with peak hour volumes of about 55 vehicles per hour.

Development Impact to Traffic: Traffic generated by the proposed development was computed with factors from the widely used *Trip Generation* report published by the Institute of Transportation Engineers. The factors and the traffic estimates for the proposed development are shown in Table 1.

Table 1 – Project Traffic Estimates

	from *Trip Generation*		Driveway volume	
	factor	% enter	Enter	Exit
Average Weekday Traffic				
elderly housing-attached, 106 units	3.48	50%	185	185
apartment, 1 unit	6.63	50%	3	3
Total for Average Weekday	-	-	188	188
AM Peak Hour				
elderly housing-attached, 106 units	0.07	63%	5	3
apartment, 1 unit	0.51	16%	0	1
Total for AM Peak Hour	-	-	5	4
PM Peak Hour				
elderly housing-attached, 106 units	0.10	59%	6	4
apartment, 1 unit	0.62	67%	0	1
Total for PM Peak Hour-	-	-	6	5

The site peak hour volume (highest volume in one hour) is estimated to be about 9% of the daily volume, or 34 vehicles per hour, total arriving and departing. Of this volume, about 60% would be in the peak direction, or 20 vehicles per hour. This volume is about one-fifth of the volume usually associated with the increase needed in one lane to change an intersection's level of service by one level. This maximum impact of 20 vehicles per hour in one direction is substantially less than the "100 or more *added* (new) peak direction trips to or from the site during the adjacent roadways' peak hours or the development's peak hour" that is recommended by the Institute of Transportation Engineers for conducting a traffic study (from *Traffic Access and Impact Studies for Site Development, A Recommended Practice,* 1991).

Project traffic would use Kaiulani Avenue and Tusitala Street to the site, and Tusitala Street and other similar local streets to leave the site. The project can be expected to increase daily traffic on the surrounding local streets by 20%. Hourly volumes are estimated to increase by 10% during peak traffic hours and as much as 100% during off-peak hours. Highest hourly volumes are expected to be less than 120 vehicles per hour on Kaiulani Avenue (an average of two vehicles each minute) and less than 60 vehicles per hour on the other local streets (an average of one vehicle each minute).

The driveway to Tusitala Street will result in parking prohibition along approximately 50 feet of the mauka curb of Tusitala Street, space that three cars currently can park. The

addition of 36 off-street parking spaces on the mauka side of the lot will compensate for this loss, resulting in a net gain of public parking in the area.

On-Site Parking Provision: The proposed Tusitala Vista will provide off-street parking at an approximate rate of 0.27 parking spaces per apartment. On-site parking ratios for other similar developments in urban Honolulu are shown in Table 2.

Table 2- On-Site Parking at Various Honolulu Elderly Housing developments

Development & Location	Total Units	Parking Provided	Ratio (spaces/unit)
Kalunihuia, Aala Park	151	42	0.28
Makamae, Nuuanu	124	27	0.22
Paoakalani, Kalakaua	150	28	0.19
Midrise, Kalakaua	123	40	0.33
Kapunai, Liliha	162	57	0.35
Manoa Gardens, Manoa	80	40	0.50
Kalakaua Vista, Pawaa	81	37	0.46
Wisteria Vista, Makiki	91	42	0.46
Artesian Vista, McCully	54	17	0.31

The property management company (Prudential Locations) for the Kalakaua Vista and the Wisteria Vista sites reports that each site has seven vacant parking stalls that are unused by tenants, indicating that the demand at those sites are in the range of 0.37 or 0.38 per apartment. Parking demand in Waikiki is expected to be less than in other parts of Honolulu due to the many activities within walking distance and the availability of taxi and public transit services. The parking provided at Tusitala Vista should be adequate for the proposed use (rental apartments for the elderly).

Conclusion: The proposed development would have minimal impact to traffic and adequate access and parking can be provided. Should you have any questions, please contact me.

Sincerely,

JULIAN NG, INCORPORATED

Julian Ng, P.E., P.T.O.E.
President

TUSITALAVISTAF.DOC

APPENDIX IV

AGENCY COMMENTS

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET * HONOLULU, HAWAII 96813
Phone: (808) 527-5827 * Fax: (808) 547-7316

SEWER CONNECTION APPLICATION

APPLICATION NO.: **2004/SCA-0598** STATUS: **Approved with conditions**

DATE RECEIVED: **09/14/2004** IWDP APP. NO.:

PROJECT NAME: **Tusitala Vista / Dwelling Unit**

$256,647.30
Wastewater System Facility Charge

LOCATION:

Zone	Section	Plat	Parcel		
2	6	024	070	2429 - ALA WAI BLVD	23,644 Sq. Ft.
2	6	024	071	2423 - ALA WAI BLVD	12,117 Sq. Ft.

SPECIFIC LOCATION: **2423 & 2429 Ala Wai Blvd**

APPLICANT: **Alcon and Associates, Inc., Wes Toyota**
716 Umi Street Suite 250
Honolulu, Hawaii 96819

DEVELOPMENT TYPE: **Dwelling, Multi-family** SEWER CONNECTION WORK DESIRED: **New**

OTHER USES:

NON-RESIDENTIAL AREA: s.f. APPROXIMATE DATE OF CONNECTION: **12/22/2006**

PROPOSED UNITS	EXISTING UNITS	UNITS TO BE DEMOLISHED
No. of New Units: **108**	No. of Existing Units: **0**	No. of Units to be Demolished: **0**
Studios:	Studios:	Studios:
1-Bedroom: **108**	1-Bedroom:	1-Bedroom:
2-Bedroom:	2-Bedroom:	2-Bedroom:
3-Bedroom:	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS **Approval is conditioned based on a letter from ENV WAS 03-175 dated December 8, 2003 regarding the use of a sewage holding tank facility (HTF) for this project. We have attached the HTF agreement for your use. As discussed, 81 units of the proposed 108 one bedroom units shall be connected directly to the City sewer system and the remaining 26 units shall be connected to the City sewer system via a sewage HTF. Other matters relating to the HTF will be discussed during the review process.**

APPROVAL DATE: **09/22/2004**

Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.

EXPIRATION DATE: **09/22/2006**

REVIEWED BY: ***Arturo Saavedra Jr.***

A. Saavedra, Jr.
Site Development Division, Wastewater Branch

Post-it® Fax Note 7671	Date 11/5/04	# of pages ▶ 6
To Arne Kusao	From Mel for Wes Toyota	
Co./Dept.	Co. Alcon & Assoc.	
Phone #	Phone # 845-0300	
Fax # 988-1145	Fax #	

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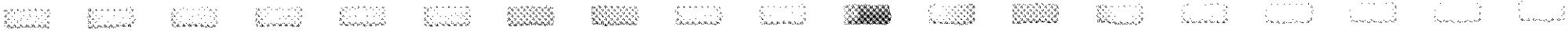
Initial Print Date: Wednesday September 22, 2004 3:



LAND COURT SYSTEM) REGULAR SYSTEM

AFTER RECORDATION, RETURN BY MAIL ( ) PICK UP (X)

Mr./Mrs.
Address

DECLARATION FOR HOLDING TANK FACILITY

THIS INDENTURE (hereinafter referred to as this Declaration"), made this _____ day of _____, _____, by _____, whose address is _____, hereinafter referred to as the "Declarant,"

WITNESSETH:

WHEREAS, the Declarant is the owner in fee simple of that certain parcel of land situated at _____

_____,

Oahu, City and County of Honolulu, State of Hawaii, described as Tax Map Key: _____, more particularly described in Exhibit "A," attached hereto and made a part hereof (the

"Property"), and depicted as the shaded areas on the Portion of Zoning Map No. ____ attached hereto as Exhibit "B" and made a part hereof, and desires to make the Property subject to this Declaration; and

WHEREAS, the Declarant plans to temporarily utilize a sewage holding tank facility (hereinafter "HTF") on the Property as a temporary measure to provide sewer service to Declarant's Property; and

WHEREAS, the Department of Planning and Permitting (hereinafter "DPP") has approved the utilization of said HTF subject to the Declarant's acceptance of certain conditions;

NOW, THEREFORE, the Declarant hereby covenants and declares as follows:

1. The use of the HTF is a temporary measure to provide sewer service to Declarant's Property.

2. The design and construction plans for the HTF shall be submitted to DPP for review and approval prior to installation of the HTF.

3. The HTF shall be built in a location on the Property that is approved by DPP to ensure easy accessibility for the purpose of inspecting the HTF. DPP inspection personnel shall have the right to inspect the HTF at all reasonable times.

4. The wastes from the HTF may be pumped or discharged by gravity directly to the City sewer system, provided that as to discharges from the HTF to the City's sewer system the Declarant shall strictly control and allow these discharges only during the hours of 1 a.m. to 4 a.m. each day. A recorder shall be

installed by the Declarant to daily chart the release of wastes into the City sewer system.

a. **During the Initial Year of Operation** - A licensed consulting engineer retained by Declarant at Declarant's sole expense, shall submit the daily charts to the DPP within 10 days after the end of each calendar year quarter. The Declarant shall obtain training from the consulting engineer on how to service and operate the recorder. It is the Declarant's responsibility to obtain proper and appropriate training for this purpose.

b. **After the Initial Year** - The Declarant shall submit the daily charts to DPP within the aforementioned time limits.

5. Operation and Maintenance of the HTF.

a. **During the Initial Year of Operation** - The Declarant, at Declarant's sole expense, shall retain the services of a licensed consulting engineer who shall operate and maintain the HTF. The Declarant shall be responsible for obtaining a consulting engineer to assist in formulating and adopting measures and/or procedures to guarantee proper operation and maintenance of the HTF.

b. **After Initial Year** - Notwithstanding the operation and maintenance of the HTF by the Declarant or the consulting engineer, the Declarant shall be responsible for the proper operation and maintenance of the HTF. In the event of improper operation and maintenance by either the Declarant or the consulting engineer, the City reserves the right to

terminate the connection to the City sewer system.

6. An overflow/bypass line shall not be allowed. A sewage level alarm is recommended to alert of possible overflow.

7. The Declarant, when notified in writing by DPP as to system adequacy, shall eliminate the HTF as expeditiously as possible, and connect directly to the City sewer system. The Declarant shall obtain a building permit prior to dismantling the HTF.

8. Failure to comply with any of the terms of this Declaration, or in the event the Property is not physically occupied during any period of time, shall subject the Property to severance of connection to the City sewer system or other appropriate action until the applicable conditions are met. However, the director may continue service based upon extenuating conditions.

9. The Declarant shall: a) have this Declaration recorded along with his or her deed at the Bureau of Conveyances, b) shall provide a copy of this Declaration to any succeeding owners or lessees (hereinafter "successors"), and c) obtain a written acknowledgment and acceptance by said successors that they have received a copy of the Declaration. The Declarant shall forward DPP a copy of the written acknowledgment and acceptance.

AND IT IS EXPRESSLY UNDERSTOOD AND AGREED that the conditions imposed in this Declaration shall run with the land and shall bind and constitute notice to all the parties hereto and subsequent lessees, grantees, assignees, mortgagees,

lienors, successors, and any other persons who have or claim to have an interest in the Property, and the City and County of Honolulu shall have the right to enforce this Declaration by appropriate action at law or suit in equity against all such persons.

_____
PRINT DECLARANT'S NAME

_____
DECLARANT'S SIGNATURE

STATE OF HAWAII)
) SS.
CITY AND COUNTY OF HONOLULU)

On this ____ day of _____, _____, before me personally appeared _____, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

_____
Notary Public, State of Hawaii

My commission expires

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

February 19, 2004

Mr. Kazutoshi Yato
Kazu Yato, AIA & Associates
2033 Round Top Terrace
Honolulu, Hawaii 96822

Dear Mr. Yato:

Subject: Your Letter Requesting Water Availability for Rental Units for Low Income Seniors, TMK: 2-4-012: 26 and 2-6-024: 70 and 71

Thank you for your letter regarding water service for the proposed rental units for low income seniors.

The existing water system is presently adequate to accommodate the proposed development.

The development plan may require approval by the Department of Planning and Permitting before the Board of Water Supply processes the building permit on the proposed development. The availability of water will be confirmed when the building permit is approved. When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

If you have any questions, please contact Joseph Kaakua at 748-5442.

Very truly yours,

K. Shida

for CLIFFORD S. JAMILE
Manager and Chief Engineer

CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HI 96707
TELEPHONE: (808) 692-5159 FAX: (808) 692-5113 WEBSITE: http://www.co.honolulu.hi.us

MY HARRIS
ıyor

FRANK J. DOYLE, P.E.
Director

TIMOTHY A. HOUGHTON
Deputy Director

WAS 03-175

December 8, 2003

Dean Alcon & Associates
716 Umi Street, Suite 250
Honolulu, Hawaii 96819

Re: Tusitala Vista

Dear Mr. Alcon:

Thank you for meeting with us on November 4, 2003, to discuss the Hawaii Housing Development Corporation Tusitala Vista project.

We have considered the proposal to build a 107 unit low-income rental housing project on the property at TMK: 2-6-24: 70 & 71. As we discussed the sewer serving this area is at capacity and will not be upgraded until approximately 2008 and thus only capacity for replacement of the current 81 unit capacity is available. We discussed the type of occupancy expected for the project and the request to accommodate the remaining 26 units flow through the use of a holding tank with discharge occurring at off peak hours.

After review and consultation with our engineering staff, we will approve use of a temporary sewage holding facility for the Tusitala Vista project. Specifics of the sewage holding facility must be coordinated with the Department of Planning and Permitting, Wastewater Branch, and the project must be fully connected to the city wastewater system and the temporary sewage holding facility removed once we complete upgrade of the currently inadequate line.

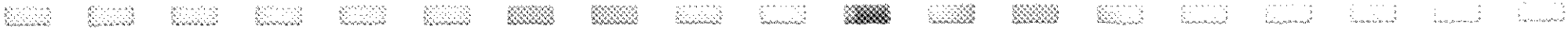
By copy of the letter, we are advising the Department of Planning and Permitting, Wastewater Branch, of this determination.

If you have questions, please feel free to contact me at 692-5206.

Sincerely,

TIMOTHY A. HOUGHTON
Deputy Director

cc: Department of Planning & Permitting, Wastewater Branch



APPENDIX V

PHOTOGRAPHS OF SITE

APPENDIX VII

MARKET STUDY

Affordable Housing Market Study

"TUSITALA VISTA"

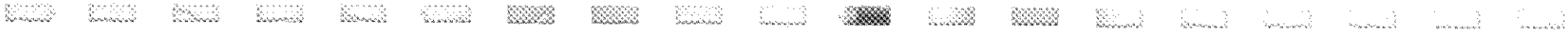
PREPARED BY

DATA@WORK INC.
RESEARCH & CONSULTING

FOR

HAWAII HOUSING DEVELOPMENT CORPORATION

MARCH 1, 2004



EXECUTIVE SUMMARY

The overall and specific real estate and rental market was analyzed for affordable units suitable for Oahu households whose incomes were at or below 30% to 50% of the median income for the area. Strong indications of a market imbalance -- with the demand for one and two bedroom units affordable rentals outweighing the supply -- were found, not only for the present, but also especially for the future.

ECONOMY: The economic trends appear quite robust, and their existence over the last three years has created such a momentum that it is hard to expect any dramatic lessening of activity in the near term. Given that, we expect the economy will continue to generate sufficient numbers of jobs and higher incomes, which will, in turn, act to increase the level of housing demand in the near and mid-term future. This then should affect rental market conditions -- in particular, putting upward pressure on rental rates.

REAL ESTATE MARKET: The overall residential real estate market was described as being a sellers market. On the resale market side, current good market conditions lead us to expect an increase in residential closings and median prices in the near future. This allowed us to conclude that this would lead the rental market to experience tightness, with falling available units and rising rents.

RENTAL MARKET: We examined the historical rental market on Oahu and found a number of recent trends indicating we are entering a period of tighter rental market conditions: There is a fall in the number advertisements in the classified section of the papers for apartment rentals. There is a rise in rental rates being charged in most of the markets on Oahu.

In light of these trends, the conditions in the current open-market rental market were examined and many signs of a tightening market were noted: firstly, a fall off in the supply of one and two bedroom units both for the island-wide and the community area sub-market, and, secondly, a trend in rising rents, island and area wide.

AFFORDABLE RENTAL MARKET: In terms of the specific market, we found conditions indicating strong demand for affordable rental units, not the least of which was a very low vacancy rate amongst the rental projects presently supplying such units. There was also the long wait lists, both at the projects and with the responsible state agencies, for such units. Anecdotally, this demand has ratcheted upwards over the last nine months, as manifested by longer wait lists and shorter vacancy periods. And, there was the dearth of comparable units on the open market, as well as a number of indicators showing that the rental market is tightening.

Finally, we examined the demand for these units, identifying a number of different sources of demand. The first was just the general aging of the population, and that showed a level of demand (26,068 households in 2003, potential demand) that is above and beyond the supply (4,509 rental units serving elderly renters at affordable rent levels). Second, we noted the growth of population due to better employment conditions (and better quality of life) in Hawaii, and concluded that Oahu could experience in-migration from both the neighbor islands and the Pacific Basis. This in-migration could place an additional burden on the supply of affordable senior rentals.

SUMMARY & PROJECTIONS: In sum, the combination of the new and existing rental demand was estimated as being well over the quantity needed to achieve full occupancy for the project. Given that, we predicted that the project should be able to achieve similar rental rates of other affordable rental projects and be able to reach final occupancy within a six to twelve month period after the project has been completed.

THE TABLE OF CONTENTS

I. INTRODUCTION & IDENTIFICATION OF STUDY AND RESEARCHER

The Data@Work, a market research firm that specializes in analyzing residential real estate markets for developers, has been retained by the Hawaii Housing Development Corporation, General Partner of Tusitala Vista L.P., to perform a study analyzing the market for affordable housing rentals in Honolulu. This study focuses on the historical, current, and projected rental market conditions and trends to help forecast the absorption for the proposed project, named "Tusitala Vista."

The study entailed collecting, comparing and analyzing information that has a bearing on the numerous aspects of market demand for the proposed project, including but not limited to publicly available real property, economic and commercial data. Rental information was collected from rental agencies, condominium resident managers, and the classified ads in the Sunday *Honolulu Advertiser*. Income and demographic information was obtained from the State of Hawaii, City and County of Honolulu, Bureau of the Census, Applied Geographic Systems and National Decision Systems.

The data and statements herein are based on independent research by Data@Work and are in no way contingent upon outside findings or recommendations. By way of background, Data@Work focuses exclusively on residential market research in the state of Hawaii. It services the developer, lending and landowning community with regular reports on the housing markets. In addition, it conducts numerous feasibility studies, including Hokua Tower, The Windsor and Ko'olani, three of the largest condominium high-rise projects on the market today. It also has done six studies on the affordable housing market – four on Oahu, and one on Maui and Kauai -- since 1999 for three different developers.

II. IDENTIFICATION OF THE PROJECT

The subject property is located in the Waikiki section of Honolulu, an approximately 35,761 square foot flat parcel, sitting between Ala Wai Boulevard and Tusitala Street. It is approximately rectangular in shape, 145 by 240 feet. It is surrounded on three sides by medium density apartment buildings, and fronts the Ala Wai Canal (with a golf course beyond).

The address is 2423/2439 Ala Wai Boulevard. Nearby are medium density apartments, a public school, a public library and a host of other retail and service outlets. It is for multi-level attached residential housing development.

The project concept is to build an nine-story concrete block mid-rise building. There will be a total of 106 one- and two-bedroom rental units, and one two-bedroom resident manager's unit. The ground floor will have seven one-bedroom units; the second through fifth floors each will have 13 one-bedroom units; and, the sixth through 9th floors each will have 12 units (ten one-bedroom and two two-bedroom).

The parking will consist of 30 at-grade parking stalls. A resident manager's two-bedroom unit, as well as a case manager's office, is planned for the second floor. The ground/first floor common areas and amenities will include:

The ground and first floor common areas and amenities will include:

- An entry lobby,
- Elevator,
- Mail room,
- Multi-purpose room with kitchen,
- Public bathroom,
- Laundry room
- Private park, and
- Victory garden.

The project consists of 106 affordable rental units, plus one manager's unit.

There will be:

- Ninety nine units, designed as one bedroom, one bathroom units, having approximately 420 sq. ft. Up to eleven of these units are intended for families earning 30% of the AMI ($369) or lower. Up to ninety-nine of these units are intended for families earning 50% and 60% of the AMI ($616-$739). And depending on rentup, these units could be rented to senior households earning 60% of the AMI or lower.
- Seven units, designed as two bedroom, one bathroom units, with approximately 600 square feet, are intended for families earning 50% and 60% of the AMI ($738-$886) or lower.

Summary table:

Unit Count	Unit Count	Unit Type & AMI	Note
11	$369	1 Bed, @ 30%	11 total: targeted only on 30%
44	$616	1 Bed, @ 50%	98 total: targeted both 50% & 60%
44	$739	1 Bed, @ 60%	98 total: targeted both 50% & 60%
3.5	$738	2 Bed, @ 50%	11 total: targeted both 50% & 60%
3.5	$886	2 Bed, @ 60%	11 total: targeted both 50% & 60%

Target Market: In order to qualify, the rental candidates will have to demonstrate that they are over the age of 61 and that their annual incomes fall within the limits established by the affordable housing policy guidelines. The cost of personal electrical power usage will be included in the gross rent.

III. GEOGRAPHIC DEFINITION AND ANALYSIS OF THE MARKET AREA

We define the market area geographically as being island-wide. We are comfortable with this definition as being neither overly liberal or overly conservative.

On the liberal side, some may say that the target market for condominium rental units should be located in a closer proximity to the actual site. This may be so, but only for very few households.

The facts that support this definition of market area are:

- That the entire island's population is within a 30-mile radius (and over 90% is within a 15 mile one).
- That the location of the proposed project itself is arguably the most desirable of all the affordable senior rental projects on the island (the closest project to this one, has the longest waiting list of all such projects, Makua Alii).

Thus, we posit that the need for a well-located unit at a very advantageous rental price is so great as to overwhelm the objections of moving 25 miles (maximum) for 99% of the qualifying households.

On the conservative side, we ignore those households outside the island or the state who could readily move to Oahu in order to rent such a unit. Indeed, there are significant housing shortages on Maui and Kauai, and a senior household there could well decide to move to Oahu, where the cost of living is 10%-20% lower and the medical (and other) facilities are more extensive and available.

IV. ANALYSIS OF HOUSEHOLD SIZES AND TYPES IN THE MARKET

The study guidelines call for an analysis of household sizes and types in the market. The following tables describe the housing stock and their various characteristics in Honolulu.

Zone	Single Family	Condos	Percent of Condo. Owner Occ.	Percent of Single Fam. Owner Occ.	Single Fam. Average Age	Condo. Average Age	Condo. Average Int. Area
1	14,414	8,774	45%	71%	38	19	812
2	11,640	42,816	29%	67%	44	22	714
3	28,054	5,626	44%	73%	35	23	1,192
4	25,851	5,701	49%	70%	31	18	1,125
5	4,178	974	17%	45%	30	23	845
6	2,809	534	19%	50%	38	21	824
7	4,760	622	30%	62%	38	23	782
8	8,489	2,507	15%	43%	29	24	654
9	44,883	24,949	50%	74%	22	13	878
Total	145,078	92,503	38%	69%	31	19	823

The table above describes the housing stock, single family and condominiums, for all of Oahu, as well as for each of the nine Tax Map Key zones. The relevant zone for this project is zone 2, as highlighted in yellow.

The table below describes the condominium housing stock on the island by number of bedrooms.

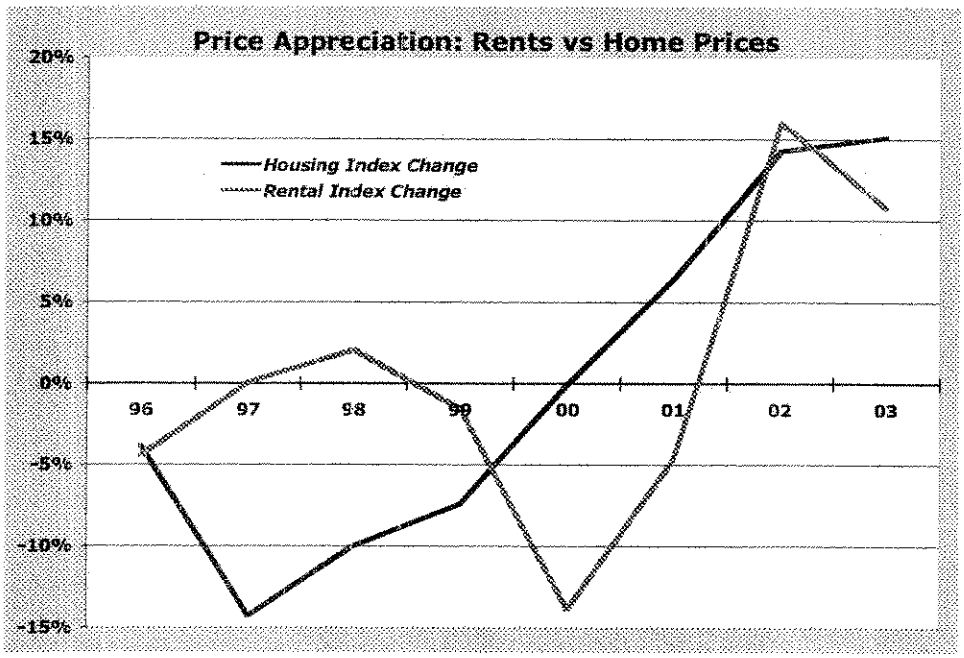
Zone	Studio	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom	>4 Bedroom	Total
1	436	1,476	5,257	1,470	48	87	8,774
2	7,383	17,451	15,388	2,393	138	63	42,816
3	149	777	2,664	1,712	288	36	5,626
4	14	341	2,393	2,627	287	39	5,701
5	173	462	80	207	41	11	974
6	0	223	247	55	8	1	534
7	20	123	352	113	10	4	622
8	441	1,008	819	223	16	0	2,507
9	873	2,818	14,318	6,092	744	40	24,885
Total	9,489	24,679	41,518	14,892	1580	281	92,439

The table below describes the condominium housing stock by average size, or square footage, by the bedroom count of the units.

Zone	Studio	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom	>4 Bedrm	Average
1	346	577	804	1,101	1,760	2,247	812
2	345	583	920	1,350	2,061	2,616	714
3	190	713	1,124	1,443	1,969	2,532	1,192
4	482	682	898	1,311	1,677	2,623	1,125
5	422	651	1,115	1,253	1,817	2,358	845
6	0	700	815	1,202	1,599	3,684	824
7	481	544	758	1,038	1,765	1,935	782
8	422	553	791	1,025	1,279		654
9	319	565	816	1,177	1,449	2,227	878
Ave.	136	619	893	1,211	1,708	2,528	870

V OAHU RENTAL MARKET OVERALL

The backdrop to this study is that Oahu's real estate market has been fueling Oahu's economy and vice versa. Given the prospect of global and US economic recovery over the next 2-3 years, Oahu's economy is poised to maintain it's current strong growth. This, in turn, will feed further demand for housing on Oahu. The effect of this has been to raise the price for both for-sale and rental housing, over the last 3-4 years for the for-sale market and over the past 2 years in the rental market.

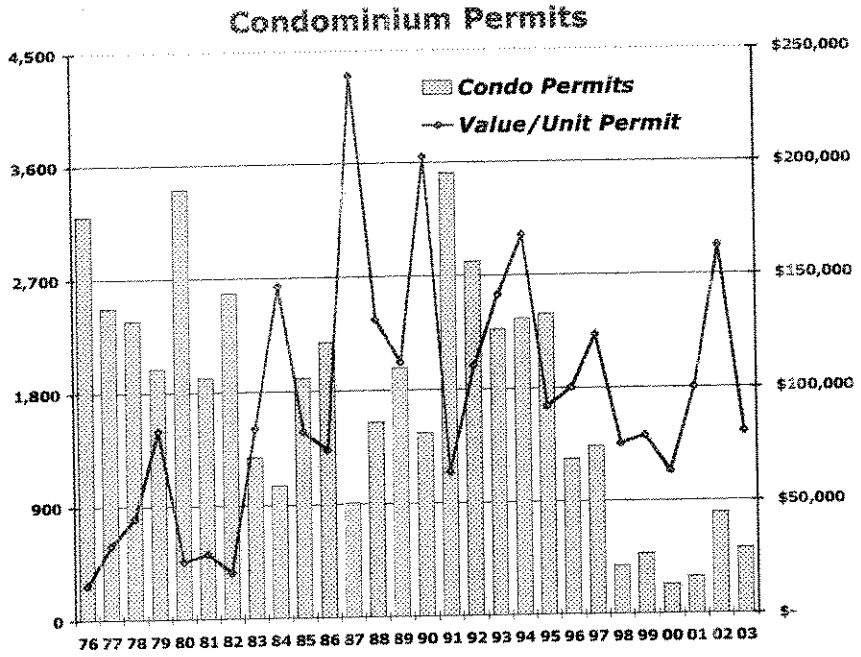


The present and future impact of this heating economy and strong housing market will be to drive rents up further, mainly due to:

1. The reduction of rental units on the market, as low interest rates allowed renters to become owners (lowering supply) and
2. The coming increase in interest rates, which will push the cost of housing up, and push the purchasing power of households down, thus making renting a more viable alternative, and
3. The increase in the population (hence, demand for housing), as the strong economy attracts individuals and households seeking jobs and higher incomes.

The strong housing demand will also stimulate the development of new homes, which to date has been confined to the higher ends of the price spectrum (and more profitable side of the market).

Interestingly, we have not seen a tremendous upsurge in permits taken out by condominium developers. The following table shows this lack of activity, which translates to a supply constrained market for the present and the near future.



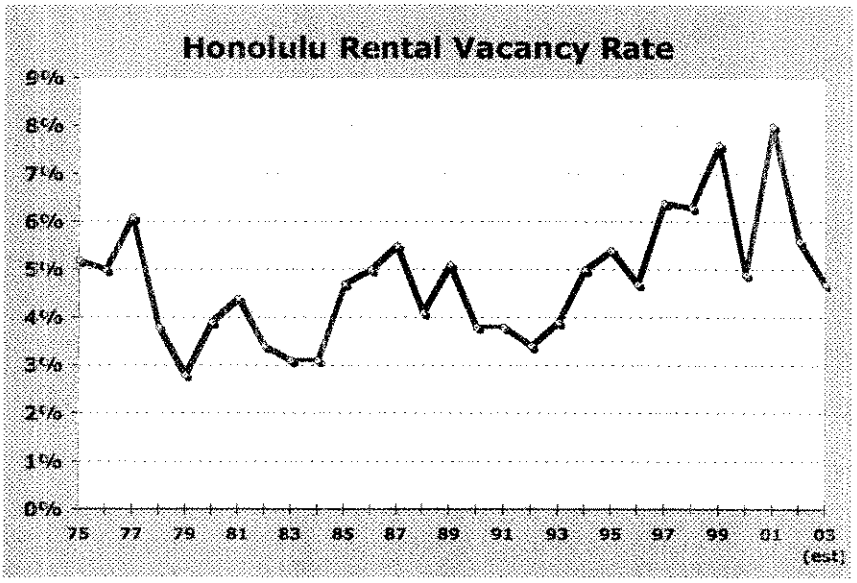
So, while economic and real estate market conditions are ripe for the production of new housing, not many have 'stuck their toes in the water.' Where there is future supply on the horizon, it will not arrive at least the next 2 years or so (ironically, the one project that targeted a low-to-middle income market has been stalled by the City administration, which is opposing it on aesthetic grounds).

RENTAL MARKET OVERVIEW: Apartment living has been an important part of Oahu's housing market since the late 1960's. With developable land both limited and expensive, multi-family units have been the most efficient way to provide affordable housing for a significant percentage of Honolulu residents. New renters and residents, such as those just moving out on their own, retired persons, and others who do not have the desire or the ability to purchase real estate rely on the supply of available rental units for their housing needs. This applies, even more so, to those who are living on a fixed income: apartment living offers security, convenience, community and (hopefully) affordability.

In reviewing conditions in the overall market for rental units on Oahu, one looks at a number of different indicators of supply and demand, including: Vacancies, Levels of Advertisements and Average Rental Rates.

A. VACANCY LEVELS

The chart below tracks the annual level of vacancies for the metropolitan area of Honolulu, thanks to data compiled each year by the U.S. Bureau of the Census.



Note that the 2003 figure is our estimate, as the US Census will not be publishing the 2003 number until later in the year.

We believe that the current vacancy rate (in the 5% area for 2002) is on the high side, given current conditions. In 2001, the trend was heading downward in a significant way, thanks to a very strong real estate market, a growing visitor industry, increasing federal outlays, etc., when the 9/11 incident intervened.

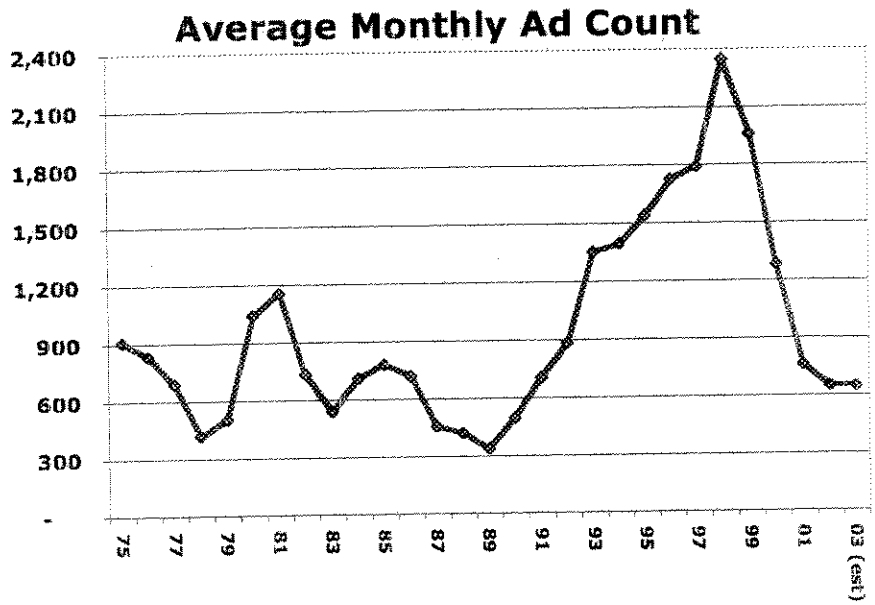
The subsequent slowdown in economic activity and the overall uncertainty wrecked havoc on the rental market, probably more than was merited by the event and the subsequent predictions of doom. In any event, renter's pulled back from renting and the vacancy rate headed back upwards as the local economy declined. By 2002, the clouds had begun to lift, and the economy improved significantly, which is why vacancies headed lower again.

Not only has this improvement continued through the present moment, it has picked up momentum. Therefore, it is for this reason that we estimate that there will be a lower vacancy rate in 2003 relative to 2002. We also believe that there will be an additional fall in the vacancy rate in 2004 (perhaps below 4%, and quite possibly another drop in 2005).

B. RENTAL ADVERTISING

An excellent indicator of rental market supply conditions is the number of apartments that are advertised for rent in the local newspaper. This will be called "Ad Counts" in the following tables and charts, and we use it here as an indicator of the supply of rental units available to the market.

In general, advertisement count is a counter-cyclical indicator: low numbers of advertisements are associated with strong (tight) rental market conditions while a high ad count number suggests there is excess supply relative to demand (a weak rental market: i.e., low rental prices).



Next, we looked at the two indicators together, but first taking just the apartment ads. The table below describes that:

THE VACANCY RATES RELATIVE TO RENTAL AD COUNTS

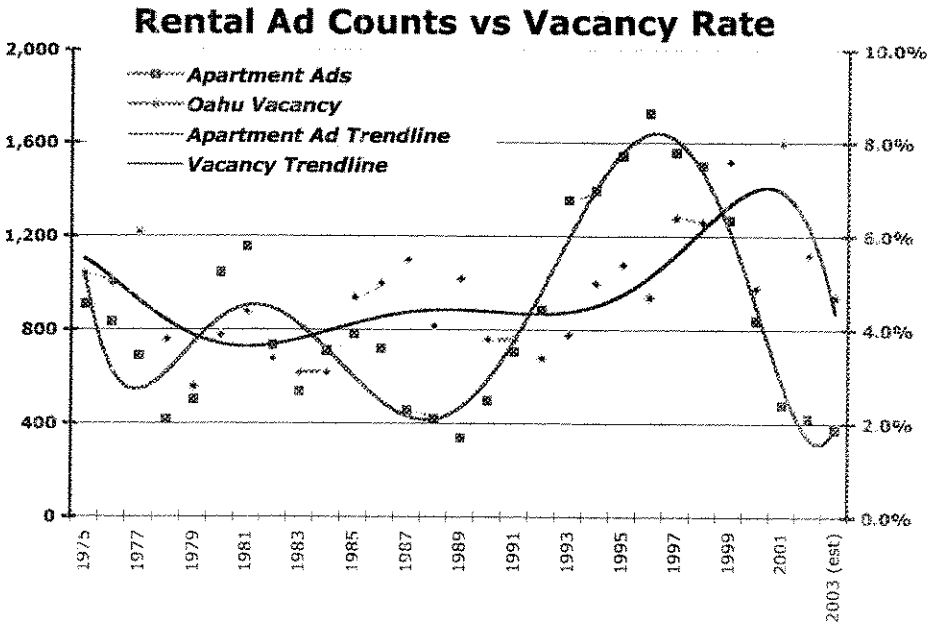
	Count of Apartment Ads	Oahu Vacancy Rate
1985	783	4.7%
1990	499	3.8%
1992	885	3.4%
1994	1,397	5.0%
1995	1,543	5.4%
1996	1,728	4.7%
1997	1,558	6.4%
1998	2,349	6.3%
1999	1,961	7.6%
2000	1,282	4.9%
2001	762	8.0%
2002	651	5.6%
2003	651	4.7%

It shows that changes in the number of ads foreshadow changes in the vacancy rates. When the ad counts begin to fall, then in short order following that the vacancy rates begin to fall. This lag time varies from one to three years, in the event of a peak in the market.

The counts of rental ads have been in a downward trend since the first half of 1998, lowering the supply of units onto the market. Given the strong economy, we believe this dwindling of supply trend will continue, at least for another two years. That said, it was interesting to see that 2003 had the same number of ads as 2002. At the same time, rental rates went higher, so the rising price trend probably neutralized the shrinking supply trend.

In general, the number of rental ads in the newspapers (ad counts) trend leads the vacancy rate. The trends show that ads started falling a couple years ago, and that then seems to affect negatively the percentage of vacancies.

Going forward, it looks like there will be at least two years of falling vacancies, which will be advantageous for all rental projects, including the subject property.



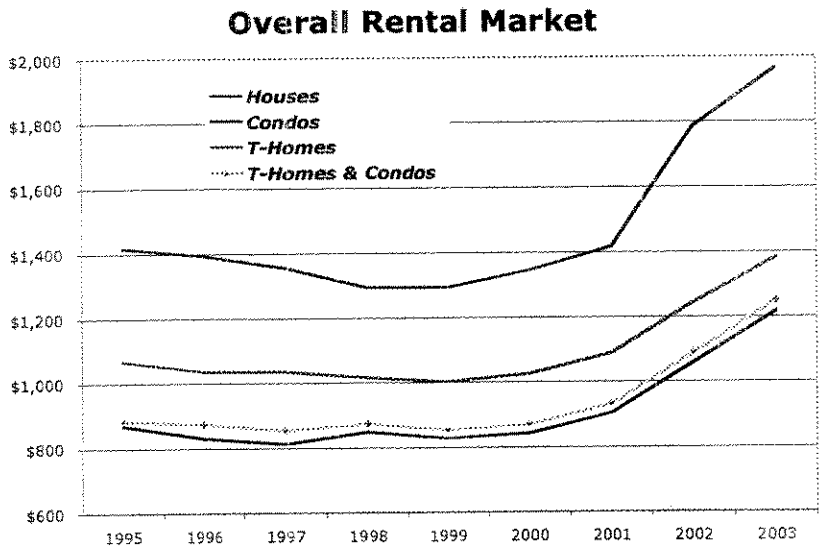
C. RENTAL RATES:

Another important relationship that helps to describe and forecast the rental market is trend in rates charged for rental units. The trend lately has been higher for each of the market segments, single family houses, condominium apartments and townhome apartments.

The biggest increase has been for single family rents, as those units are the most sensitive to an upswing in both the economy in general, and the rental market in particular. Condominium unit rents usually lag behind. For this reason, we think that this

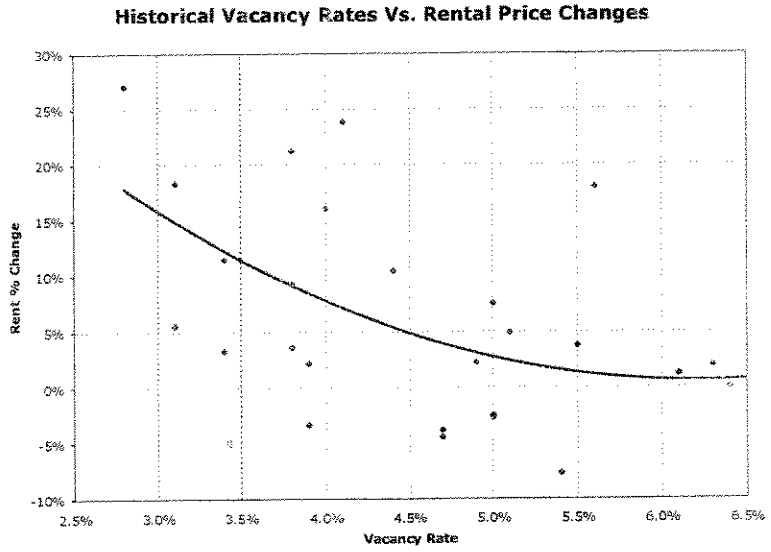
upward trend should still have 2-3 years left to run (and then begin to flatten and/or stabilize).

The chart below describes the trend over the last 8 years.



Going forward, we have said that the strong economy and rental demand will push down the vacancy rates. Our estimate for the 2003 rate is around 4.5%. The effect of this on rental rates will be to force them upwards.

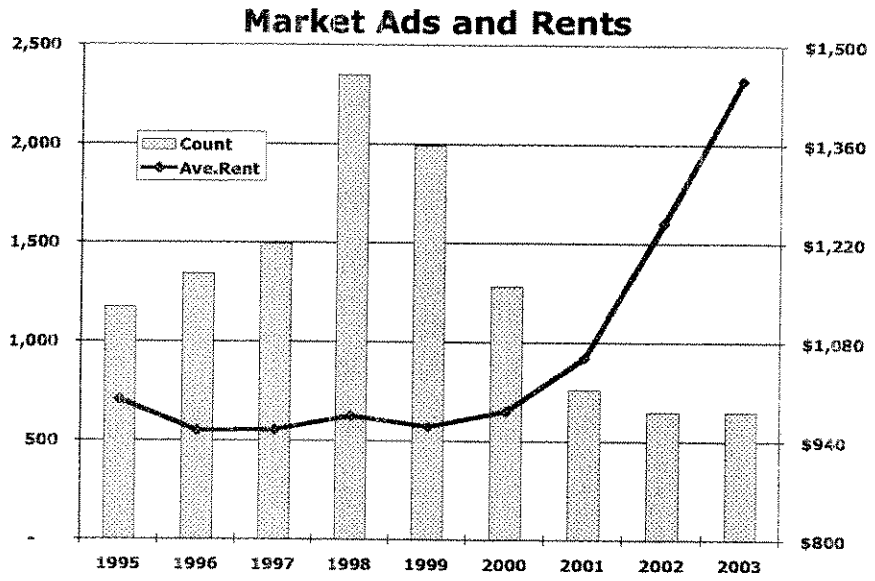
How much further up? Historically, a vacancy rate of 4.5% has equated to a 5% increase in rental rates, so we expect at least that. Depending on the strength of demand for rental housing, this might even go up more.



Finally, we looked at the relationship between the numbers of rental ads to the level of rents charged. This is seen in the chart below, which depicts the historical relationship between annual advertising counts and average rents for Metropolitan Honolulu.

In general, the two lines seem to be inversely related: a falling number of ads appears to be a precursor to a rise in rents. This seems to be the case when ad counts started to fall off, starting in 1999. The next year, 2000, rental levels started creeping upward.

Again, we think that this rise in rental rates will be moving upwards over the coming 2-3 years, and then possibly moderating after that. We say this because the concurrent fall in the inventory is nearing levels that, in the 1980s, precipitated double-digit increases in rental levels.



RENTAL MARKET, BY LOCATION AND BEDROOM TYPE

Next, we looked at the overall market for each of the bedroom types in the proposed project: studios, one-bedroom units and two-bedroom units.

This first table describes the market by the number of ads (Count) and by the average rents asked for one-bedroom units. It does it for Oahu, Honolulu and Waikiki, going from the largest to the smallest market segment.

ONE-BEDROOM UNITS

Oahu	Count	Ave.Rent	Honolulu	Ads	Ave.Rent	Waikiki	Ads	Ave.Rent
1995	348	$767	1995	262	$782	1995	34	$811
1996	385	$738	1996	296	$753	1996	36	$802
1997	417	$727	1997	340	$744	1997	51	$784
1998	610	$763	1998	515	$781	1998	139	$881
1999	515	$752	1999	427	$770	1999	101	$845
2000	335	$766	2000	277	$786	2000	64	$897
2001	200	$804	2001	167	$823	2001	35	$923
2002	164	$930	2002	138	$964	2002	39	$1,098
2003	136	$1,031	2003	115	$1,072	2003	37	$1,219

The last table describes the market for two bedroom units.

TWO-BEDROOM UNITS

Oahu	Count	Ave.Rent	Honolulu	Ads	Ave.Rent	Waikiki	Ads	Ave.Rent
1995	405	$986	1995	251	$1,069	1995	21	$1,187
1996	415	$944	1996	266	$1,031	1996	24	$1,216
1997	420	$929	1997	301	$999	1997	35	$1,259
1998	557	$989	1998	441	$1,052	1998	73	$1,247
1999	491	$967	1999	370	$1,028	1999	51	$1,212
2000	280	$1,032	2000	208	$1,122	2000	29	$1,338
2001	162	$1,120	2001	121	$1,215	2001	15	$1,408
2002	141	$1,363	2002	112	$1,486	2002	23	$1,746
2003	142	$1,547	2003	115	$1,673	2003	28	$1,867

VI. TARGET RENTAL MARKET

MARKET OVERVIEW: In an article 12/9/03 about affordable rentals for the elderly by Andrew Gomes of the Honolulu Advertiser, he quoted Darlene Hein, executive director of the Affordable Housing and Homeless Alliance, as saying the need for low-cost housing is dire. The following is from that article: Before the home market took off, about 80 percent of government-assisted Section 8 renters could find an apartment within 90 days, she said. Today, the figure is only 50 percent to 60 percent. "We are in a rental crunch," she said.

PERTAINING TO THE ELDERLY: In a publication from the Long Term Care Policy Summit Proceedings, convened by Hawaii Institute on Public Affairs and sponsored by Department of Health, Executive Office on Aging held in Honolulu I9/5/03, they wrote: Hawaii will experience a rapid aging of its population. Hawaii enjoys the longest life expectancy in the US at 78.9 years and the 60+ population in Hawaii is growing two-and-a-half times faster than the national average. By 2020, Hawaii will have an estimated 400,000 residents over age 60, with this age group comprising 25% of the state's population.

PERTAINING TO AGING-IN-PLACE: In a publication from the Long Term Care Policy Summit Proceedings, convened by Hawaii Institute on Public Affairs and sponsored by Department of Health, Executive Office on Aging held in Honolulu I9/5/03, they wrote: Hawaii has roughly half the number of nursing home beds per 1000 residents over 65 than the national average.

VII. DEMOGRAPHIC ANALYSIS OF TARGET MARKET

The market area we define as the Island of Oahu, otherwise known as the City & County of Honolulu. We do this because, in general, people living on a small island identify themselves with the whole island. This is even more true when the island is very remote from all other major land areas.

Furthermore, we consider the whole island (within a 30 mile radius from the site) to be the target market because the particular product and/or service is both scarce and vital, from the point of view of this market: it is an affordable living situation that is tailored to their particular needs (that being aging in place).

According to CLARITAS, a demographic analysis firm of national stature, there are approximately 187,875 individuals over the age of 62 years living in the market area. This number has grown by 3% a year, since the 2000 census, which is the source data for these projections. Furthermore, this number is forecast to grow to 227,780 by 2008, or by 7% a year.

This is a very significant growth rate. In contrast, the forecasted annual growth rate for the entire island over the next five years is slightly under 1% (0.93%).

We used the CLARITAS data to estimate the number of households on Oahu aged 62 years or older who are living below the poverty level ($10,200 annual income for one person, $13,740 for two persons). The table below describes this:

Aged 62+	Totals 2003	2004	2005
Income Below Poverty Level	9,908	10,205	10,511
Married-Couple Families	3,032	3,123	3,217
In other Families	1,624	1,673	1,723
Male householder, no wife present	531	547	564
Female householder, no husband present	1,093	1,125	1,159
Unrelated individuals	5,252	5,409	5,572

To now proceed into the specifics of the target market, the table below defines the income levels for householders according to the number of people in the household:

Median Income	30% of AMI	50%of AMI	60% of AMI
1 Person	$13,800	$23,000	$27,600
2 Person	$15,750	$26,300	$31,560

For the purposes of this study, it appears that the minimum annual income level that a one-person household would have to have in order to qualify for a rental unit in the proposed project is $13,700.

The table below describes the two unit types (One Bedroom and two Bedroom) and the three target market demographics (30%, 50% and 60% of AMI). As seen, this results in four different product type/target market segments: One bedrooms for 30%, One bedrooms for 50%, One bedrooms for 60%, and Two bedrooms for 50% and 60%.

Approximate Unit Count	Unit Type & Target Market's Income, As % of AMI	Qualifying Income
11	1 Bed, @ 30% AMI	> $13,800
99	1 Bed, @ 50%	> $23,000
99	1 Bed, @ 60%	> $27,600
7	2 Bed, @ 50%	> $26,300
7	2 Bed, @ 60%	> $31,560

Note that the 99 one bedrooms and the 7 two bedrooms can be rented by a household earning either 50% or 60% of the AMI.

By differentiating between each of the units, we can then begin to formulate a potential target market for each of the product segments. We do this by extracting the number of qualified households there are in each of the AMI segments. We start by equating their qualifying income to the number of elderly households there are in the different income brackets or segments.

Units Supplied	Unit Type & Target Market by Income	Qualifying Income	Target Market's Income Bracket
11	1 Bed, @ 30%	> $13,800	Income less than $15,000
99	1 Bed, @ 50%	> $23,000	Income $15,000 - $24,999
99	1 Bed, @ 60%	> $27,600	Income $25,000 - $34,999
7	2 Bed, @ 50%	> $26,300	Income $25,000 - $34,999
7	2 Bed, @ 60%	> $31,560	Income $25,000 - $34,999

Accordingly, the source data is shown in the following table, which describes the size of the target market for the proposed project:

Household Income by Age	***2000 Census***	***2003 Estimate***	***2008 Projection***
Householder Age 62 - 64			
Income less than $15,000	1,036	1,131	1,327
Income $15,000 - $24,999	797	844	955
Income $25,000 - $34,999	1,027	1,069	1,187
Householder Age 65 - 74			
Income less than $15,000	4,392	4,248	4,336
Income $15,000 - $24,999	3,648	3,468	3,505
Income $25,000 - $34,999	3,659	3,559	3,724
Householder Age 75 and over			
Income less than $15,000	5,977	6,087	6,381
Income $15,000 - $24,999	4,362	4,634	5,086
Income $25,000 - $34,999	3,828	4,075	4,546
TOTAL Households Age 62 +			
Income less than $15,000	11,405	11,466	12,044
Income $15,000 - $24,999	8,807	8,946	9,546
Income $25,000 - $34,999	8,514	8,703	9,457
CUMULATIVE Households Age 62 +			
Income less than $15,000	11,405	11,466	12,044
Income less than $24,999	20,212	20,411	21,590
Income less than $34,999	28,727	29,114	31,048

Note the overlap between the price ranges described above (up to $35,000) and the minimum level of income (up to $31,320) necessary for a household to rent in the proposed affordable elderly project.

By taking all of the households by income group that could qualify, this exercise quantifies the total potential market for these units. For instance, in rough terms, there are some 29,114 households that have income less than $34,999 annually, and therefore could apply and qualify for these units. Actually, since the cut off point is $31,560 annual income, the number is slightly less than 29,114. As a result, we reduce the number in that income segment (which relates to the demand for the units targeting 60% of AMI).

The table below takes the total number described above and breaks them down into the number of potential renters that qualify by earning into the particular percentage of AMI. In this way, one can compare the size of the market for each of the 5 unit types.

Units Supplied	Unit Type & Target Market by Income	Qualifying Income	Target Market's Income Bracket	Total 2003 Market
11	1 Bed, @ 30%	> $13,800	Income less than $15,000	**10,548**
99	1 Bed, @ 50%	> $23,000	Income $0 - $24,999	**17,705**
99	1 Bed, @ 60%	> $27,600	Income $0 - $34,999	**22,674**
7	2 Bed, @ 50%	> $26,300	Income $0 - $34,999	**21,543**
7	2 Bed, @ 60%	> $31,560	Income $0 - $34,999	**26,068**

As can be seen, this exercise results in the potential demand for the particular units, given the income restrictions. This can be found in the Total Number 2003 column.

Note that this number 'cascades' in the sense that it increases when it goes to a higher income bracket by the number in the income bracket below. This is because the income restriction says, for instance, 50% and below. As such, the 50% number combines the 30% and under number, plus the number of potential households in the 30% to 50% income bracket (or segment). This is seen when the number goes from 10,548 to 17,705 households.

Next, we took the total for 2003 and increased it, in order to take into account the change in population when the proposed project would come to market, which is to say, 2005. This takes the 2003 number and increases it by two years. It is described in the table below:

Units Supplied	Qualifying Income	Unit Type & Target Market by Income	Total 2003 Market	Total 2005 Market
11	> $13,800	1 Bed, @ 30%	10,548	**10,761**
99	> $23,000	1 Bed, @ 50%	17,705	**17,918**
99	> $27,600	1 Bed, @ 60%	22,674	**23,224**
7	> $26,300	2 Bed, @ 50%	21,543	**22,053**
7	> $31,560	2 Bed, @ 60%	26,068	**26,759**

Next, it is necessary to assign a market capture rate.

Although it is somewhat arbitrary, we think a one in ten capture rate is sufficiently conservative and is appropriate for this analysis. It says that one out of ten households will decide to vacate their current residence to take a unit in the proposed project. We think this is justifiable, given the fact that the proposed project is well located for the recreational, social, spiritual, health and familial needs of senior citizens AND it is very advantageous in terms of providing housing at a very reasonable cost.

The following table describes the potential target market capturable at a 1 to 10 ratio, (or 10% share of market).

Units Supplied	Qualifying Income	Unit Type & Target Market by Income	Captured Market 2003	Captured Market 2005
11	> $13,800	1 Bed, @ 30%	1,055	1,076
99	> $23,000	1 Bed, @ 50%	1,770	1,792
99	> $27,600	1 Bed, @ 60%	2,267	2,322
7	> $26,300	2 Bed, @ 50%	2,154	2,205
7	> $31,560	2 Bed, @ 60%	2,607	2,676

Another small, but integral, step to make in this analysis is to consider to recognize that the number in the captured market will be reduced by the number of units supplied by the project.

This means that as 11 units gets absorbed by the 1,076 households seeking an affordable elderly rental, this 1,076 becomes 1,065 (to be carried forward). In other words, this is cascading, but in going forwards.

The following table accounts for this in the 'Captured Minus Rented':

Units Supplied	Qualifying Income	Unit Type & Target Market by Income	Captured Market 2005	**Captured Minus Rented**
11	> $13,800	1 Bed, @ 30%	1,076	**1,065**
99	> $23,000	1 Bed, @ 50%	1,792	**1,742**
99	> $27,600	1 Bed, @ 60%	2,322	**2,212**
7	> $26,300	2 Bed, @ 50%	2,205	**2,088**
7	> $31,560	2 Bed, @ 60%	2,676	**2,559**

Finally, we want to get a sense of just how significant the change is to the total capturable market, given level, or magnitude, of the new supply of the proposed project. In other words, will the new supply have a great impact on the current and future demand from the capturable market. For this, we created a column called 'Supply as a Percentage of Demand' in the following table:

Units Supplied	Qualifying Income	Unit Type & Target Market by Income	Captured Minus Rented	Supply as % of Demand
11	> $13,800	1 Bed, @ 30%	1,065	**1.02%**
99	> $23,000	1 Bed, @ 50%	1,742	**2.76%**
99	> $27,600	1 Bed, @ 60%	2,212	**2.13%**
7	> $26,300	2 Bed, @ 50%	2,088	**0.32%**
7	> $31,560	2 Bed, @ 60%	2,559	**0.26%**

In the final analysis, that column shows that the proposed supply changes the level of demand in the capturable market precious little.

SUMMARY: given the number of households in the market area that are both age and income qualified for this project, we see ample demand for the proposed project. And, as seen in the subsequent section, supply conditions are such that only about 17% of the total demographic demand (26,068 household) is being serviced via affordable elderly rental projects (4,509 total units).

VIII. DESCRIPTION OF COMPARABLE UNITS IN THE MARKET AREA

Here, we turn from the demand side of the market in order to review the supply situation for units similar to those being contemplated by the proposed development.

INVENTORY: There are approximately 43 rental projects containing about 4,509 rental units on Oahu available to qualified senior households. Of those, 2,885 are one-bedroom units, and 117 are two-bedroom units.

The average minimum wait list time until a one-bedroom unit becomes available is 13 months, and the maximum is 29 months for all units, including studios, in the market area. (Note: this is an estimation made by the Catholic Charities Elderly Services housing assistance program).

The wait list time for just one-bedrooms is 13 months minimum and 30 months maximum. The wait list time for just the two-bedroom units is 10 months minimum and 27 months maximum.

If the market area is limited by location to just Honolulu (Kalihi to Hawaii Kai), there are 25 rental projects containing 2,913 total units, with 1,785 being one-bedrooms and 115 being two-bedrooms.

The wait list time for just one-bedrooms is 18 months minimum and 38 months maximum. The wait list time for just the two-bedroom units is 11 months minimum and 29 months maximum.

The long waiting list times indicates the market is very tight for these units.

The list below describes some of the more recently built projects in Honolulu.

HONOLULU AFFORDABLE ELDERLY RENTAL PROJECTS BUILT SINCE 1990

Project	Year Built	Units
Kulaokahua	1992	24
Pohulani	1992	263
Manoa Gardens	1992	80
Na Lei Hulu Kupuna	1992	76
Philip Street	1993	34
Honuakaha	1995	150
Kualana Hale	1997	175
Royal Kinau	1998	61
Artesian Vista	2000	53
Wisteria Vista	2000	91
Kalakaua Vista	2001	80
Kulana Hale, Phase II	2002	81
Kaulanui	2003	31
Totals		1,199

IX. ANALYSIS OF PRACTICALLY AVAILABLE RENTS, VACANCY RATES, OPERATING EXPENSES AND TURNOVER RATES OF COMPARABLE PROPERTIES IN THE AREA.

The following tables give a description of the comparable properties in the area.

COMPARABLE SENIOR AFFORDABLE PROJECTS WITH ONE BEDROOM UNITS

Projects	Units	Living Area	Rent Range	Vacancies	V Rate	Turnover/Yr
Chinatown Gateway	200	555	600-850	4	2.0%	24
Honuakaha	9	450	425	0	0.0%	0.5
Kamakee Vista	89	570	520-750	1	1.1%	4
Kauhale Kakaako	114	588	550-745	3	2.6%	6
Manoa Gardens	39	565	714-760	0	0.0%	2
Pohulani	134	550	466-716	3	2.2%	4
Kulana Hale	43	534	726	0	0.0%	8
Artesian Vista	53	420	313-551	0	0.0%	4
Royal Kinau	57	481	510	0	0.0%	9
Kalakaua Vista	80	435	556	0	0.0%	8
Wisteria Vista	91	384	503	1	2.2%	12
Makua Alii	200	400	369	5	2.5%	0
Tusitala Vista	99	420	396-739	proposed		

As seen, the proposed project is not the low-price, nor the high-price, competitor in the marketplace, but right in the middle. It is somewhat on the small side, but the larger units are in much older buildings. This could be a relatively easy trade-off for a renting household to make. Given the attractive location, this should allow it to match or overcome the other alternatives that are offered to senior households.

COMPARABLE SENIOR AFFORDABLE PROJECTS WITH TWO BEDROOM UNITS

Projects	Units	Living Area	Rent Range	Vacancies	V Rate	Turnover/Yr
Kamakee Vista	136	720	735-930	2	1.5%	6
Kauhale Kakaako	150	755	790-985	4	3.3%	10
Kulana Hale	11	720	886	0	0.0%	2
Punchbowl Homes	58	713	443	0	0.0%	6
Royal Kinau	21	722	725	1	4.8%	6
Tusitala Vista	7	600	738-886	proposed		

The analysis done above in the one-bedroom marketplace holds true for the Tusitala units in the two-bedroom marketplace:

- Smaller, but in a newer building;
- Neither too cheap, nor too expensive, but 'just right', given its excellent location.

X. ANALYSIS OF PRACTICALLY AVAILABLE RENTS, VACANCY RATES, OPERATING EXPENSES AND TURNOVER RATES OF MARKET RATE PEROPERTIES IN THE MARKET AREA.

The marketplace within which 'market rate properties' compete is comprised of very few large unit rental properties and a great many small unit properties. Relative to other US urban center, this is unique and has to do with a number of things, including the visitor industry and the nature of the urbanization (or the lack thereof) on Oahu.

As short a while ago as 40 years, Oahu was primarily an agrarian economy, at least in terms of the dispersion of population near the plantation areas. As such, there was no real urban core around which people lived. Thus, there is no real core area with lots of large condominiums. The main area for that was in Waikiki, and that targeted short-term visitors. The rest of condominium development was small-scale, due to this dispersion, due to the rugged topography of the valleys and ridges on Oahu, due to the lack of capital for building large projects, and due to the lack of land for development (leasehold system).

As such, the rental marketplace for market rate properties is highly fragmented, and contains a great many 10-20 unit two-story 'walk-ups' (no elevator necessary, due to the limitation to two stories).

The import of this, relative to this study, is that there are no easily found comparable projects to examine. There are no large operators to call and survey for their rents, vacancy rates, operating expenses and turnover rates. Indeed, all those who were surveyed would not divulge anything more than the asking rent (most were agents, and a few were owners fearful I was a competitor).

As such, the analysis of this market segment is based on very thin information. It is our impression that there are very few comparables to what the proposed project is building. As such, we believe there will be little or no interference from the market-rate (non-subsidized) sector of the rental marketplace.

As a matter of interest, we did do an analysis of the rental market using advertised listings in the classified section of the major newspaper, The Honolulu Advertiser. This analysis follows.

The table below describes the number of ads for one-bedroom apartments on Oahu for the last nine years. It is split into three price brackets, $500, $600 and $700, each color coded (blue, pink and green).

MARKET-RATE LISTED ONE BEDROOM RENTALS ON OAHU, BY PRICE RANGE

	Count	Ave.Rent	Count	Ave.Rent	Count	Ave.Rent	
1995	23	$558	104	$648	87	$739	**1995**
1996	47	$558	120	$641	86	$742	**1996**
1997	73	$556	121	$639	78	$741	**1997**
1998	103	$552	140	$639	114	$740	**1998**
1999	98	$548	123	$639	100	$737	**1999**
2000	70	$553	80	$637	54	$741	**2000**
2001	27	$556	44	$636	41	$739	**2001**
2002	10	$552	29	$636	31	$758	**2002**
2003	3	$576	9	$672	20	$773	**2003**

As seen, in 2003, there were no ads in the $300 and $400 rental price brackets. There were only 3 ads a month for the $500 bracket and 9 a month for the $600 bracket.

Of those 9, their average was well above the $611 asked for in the proposed project.

A closer examination of those particular listings showed that many were located outside of Honolulu, most were in low-income neighborhoods, and many were in walk-up buildings. As such, the comparison is between these and the proposed project: a well-located property, in a project specifically meeting the needs of senior citizens, and in a building under good management and with good security.

Finally, we looked at the listing data just for Waikiki, and found no rentals in the $500 rent bracket, and fewer in the next two brackets higher.

MARKET-RATE LISTED ONE BEDROOM RENTALS IN WAIKIKI, BY PRICE RANGE

	Count	Ave.Rent	Count	Ave.Rent	
1995	9	$655	8	$745	**1995**
1996	9	$653	8	$739	**1996**
1997	12	$657	10	$739	**1997**
1998	16	$644	24	$744	**1998**
1999	13	$643	17	$744	**1999**
2000	10	$645	9	$750	**2000**
2001	6	$642	6	$750	**2001**
2002	3	$653	4	$765	**2002**
2003	2	$671	4	$773	**2003**

We did this also for the two-bedroom market, and our findings are described in the tables below.

MARKET-RATE LISTED TWO BEDROOM RENTALS ON OAHU, BY PRICE RANGE

	Count	Ave.Rent	Count	Ave.Rent
1995	28	$760	57	$838
1996	51	$750	57	$838
1997	68	$743	60	$835
1998	90	$740	58	$833
1999	79	$740	54	$833
2000	46	$738	35	$834
2001	24	$742	21	$827
2002	11	$750	10	$832
2003	5	$751	9	$850

As seen in the tables, there are very few rentals available on a monthly basis that overlap with the units in the proposed project. These two-bedroom market rate comparables can be characterized identically as their one-bedroom brethren above: poor neighborhood, security and safety concerns, old buildings without elevators, located away from Honolulu, etc.

MARKET-RATE LISTED TWO BEDROOM RENTALS IN WAIKIKI, BY PRICE RANGE

	Count	Ave.Rent	Count	Ave.Rent	
1995	0	$775	1	$825	**1995**
1996	0	$750	1	$825	**1996**
1997	2	$754	1	$840	**1997**
1998	2	$758	5	$843	**1998**
1999	2	$747	4	$842	**1999**
2000	1	$725	1	$847	**2000**
2001	1	$763	1	$858	**2001**
2002					**2002**
2003			0.25	$895	**2003**

Finally, when looking for comparables in Waikiki, there are none.

XI. IDENTIFICATION & COMMENTARY OF PROPOSED PROJECTS IN THE MARKET AREAS

PROJECTED NEW INVENTORY: There are two new projects that are complete and in the process of being rented up. One is in Hawaii Kai, Kaulanui, and it has less than 4 units remaining out of the original 31 units offered. It is targeting half of its units for those in the 30% AMI range ($363) and the other half in the 60% AMI range ($726). The other is Wilder Vista, which was shown in the tables above. The third is Kinau Vista, currently under construction and adjacent to the earlier mentioned Piikoi Vista (being developer by the same general partner, HHDC, of the proposed project).

Within the Metropolitan Honolulu market area, currently there are two new affordable rental projects planned to be built. As shown in the table below, there are approximately 229 units planned.

PROJECTED METROPOLITAN HONOLULU AFFORDABLE RENTAL PROJECTS

New Projects	Units
Piikoi Vista (2005)	47
Kinau Vista (2004)	62
Kulana Hale, Phase II (2005)	120
Totals	***229***

The first is the Piikoi Vista, which is applying for credits this year and is treated in a subsequent section. It consists of 47 additional units targeted on the 50% or less of AMI.

In order to analyze the impact on the potential demand for this market, we combined the number of units to be supplied by both projects and compared that total number with total potential demand (using the same format as in the earlier section).

The table below describes this:

Units Supplied	Qualifying Income	Unit Type & Target Market by Income	Captured Minus Rented	Supply as % of Captured Demand	**Captured Minus Rented**
11	> $13,800	1 Bed, @ 30%	1,065	**1.02%**	**1,065**
146	> $23,000	1 Bed, @ 50%	1,742	**4.07%**	**1,719**
146	> $27,600	1 Bed, @ 60%	2,212	**3.14%**	**2,165**
7	> $26,300	2 Bed, @ 50%	2,088	**0.32%**	**2,041**
7	> $31,560	2 Bed, @ 60%	2,559	**0.26%**	**2,512**

As seen, the impact on the total potential demand is minimal. Total potential demand (Captured Minus Rented) falls to 2,046 from 2,093 in this key segment of the market, the 50% and under of AMI.

The second is Kulana Hale, Phase II, which is an assisted living project comprised of one and two bedroom units. This project has been "on the books" for some length of time... and, therefore, it is questionable whether it will keep to a deadline.

On the market rate side, there are several proposed market rate senior 'age-in-place' projects underway, the least expensive of which (and therefore, most comparable) is Luana Koa, out in Kapolei (where the developer's land cost is low, and therefore the price is low). Their basic package is for a monthly rental, plus a one time entrance fee.

Rough prices for the one-bedroom to three-bedroom units and services range from $1,300 to $2,300 a month for independent living. There is also a one-time entrance fee of $195,000 to $475,000, which is 100 percent refundable should a resident move out or die.

There may be other projects in the works that are not mentioned here – it is said there are a number of local and offshore investment entities researching the opportunities in the affordable rental market, both in terms of building new and in converting already constructed apartment buildings. That said, the process of applying and being accorded tax credits takes about 12 months, and is a competitive process. Add to that the 18-24 month period for build-out, and you have about a three -year timeline before occupancy.

SUMMARY: In sum, we do not foresee any interference to an expeditious rent-out of the project coming from a comparable project. However, more in-depth description of the project is provided in the Appendix.

XII. MARKET ACCEPTANCE COMMENTARY & ABSORBTION FORECAST

Given the magnitude of the potential demand, we foresee that this project will receive a sufficient number of rental applications to be able to achieve 100% occupancy within the first six months of availability. We support this forecast with further evidence that the demand side of the market is strong and will continue strong for the next 1-2 years (baring any external shocks to the market, and/or the economy). The global economy is poised to grow at a much higher rate in the next 1-2 years than it has over the last 1-2 years. Furthermore, those economies that are the key to Hawaii's economy (Hawaii's major markets for recreational, national security and other goods and services) are also looking to experience strong growth (Japan and the US).

On the supply side, we see continued tightening in the market rate rental market. We also see no new construction targeting this market segment, the affordable rental market for senior citizens looking for a residence suitable for aging-in-place. Finally, we point to the zero vacancies and the long waiting lists at the existing comparable projects that subsidize the rents for low-income elderly households.

Thus, we see a level of current demand (26,068 households in 2003, potential demand) that is above and beyond the supply (4,509 rental units serving elderly renters at affordable rent levels). If there is a growth in the population due to better elderly services and lifestyle on Oahu, that in-migration from both the neighbor islands and the Pacific Basis could place an additional burden on the supply of affordable senior rentals.

SUMMARY & PROJECTIONS: In sum, the combination of the new and existing rental demand was estimated as being well over the quantity needed to achieve full occupancy for the project. Given that, we predicted that the project should be able to achieve similar rental rates of other affordable rental projects and be able to reach final occupancy within a six to twelve month period after the project has been completed.

APPENDIX VIII

MAJOR EXEMPTIONS BEING REQUESTED THROUGH THE 201G APPLICATION

TUSITALA VISTA MAJOR EXEMPTIONS REQUESTED THROUGH THE 201G APPLICATION

A. Exemption from Chapter 21, Article 3, Section 21-3.90-1 (b), Land Use Ordinance, Ordinance No. 99-12, as amended, Table 21-3.3, relating to maximum density, to allow about 60,795 square feet of floor area, which exceeds the maximum allowable floor area by about 10,116 square feet. (Note: the maximum floor area ratio (FAR) is 1.1718; whereas the FAR for the project will be about 1.7).

B. Exemption from Chapter 21, Article 6, Section 21-6.20, Land Use Ordinance, Table 21-6.1, Ordinance No. 99-12, as amended, relating to off-street parking and loading to allow the provision of 29 parking stalls instead of the required 107 parking stalls for the proposed 107-unit apartment development. (No guest parking required in Waikiki Special District.)

C. Exemption from Chapter 21, Article 6, Section 21-6.120(b), Land Use Ordinance, Ordinance No. 99-12, as amended, relating to dimensions of loading space to allow the loading space to have a horizontal dimension of 19'- 0" x 8'- 5", rather than the required 35'- 0" x 12'- 0". The one loading space will meet the required vertical clearance of at least 14 feet.

D. Exemption from Chapter 21, Article 4, Section 21-4.30(d), Land Use Ordinance, Ordinance No. 99-12, as amended, relating to required yard and off-street parking to allow:

   a) Parking spaces No. 1 and No. 29 to encroach into the required Tusitala Street 15-foot front yard by about 5 feet. Public parking spaces #11, No. 12, No. 26 and No. 27 to encroach into the Ala Wai Boulevard 15-foot front yard by about 8 feet. Wheel stops will be installed, where appropriate.

E. Exemption from the Park Dedication requirements, Chapter 22, Article 7, ROH, including exemption from the Park Dedication permit process, to allow the provision of about 4,188 square feet for park dedication, portion of which encroach into the required side yard and rear yard for park dedication. The break-down is as follows, 2,600 square feet for a private park, 760 square feet for victory garden, and 828 square feet for

the multi-purpose room that will provide space for socialization and recreational activities in addition to other uses. Park dedication requirements for the project would normally amount to 5,068 square feet. (Note: 10% of 50,679 floor area = 5,068 square feet **or** 107 units x 110 square feet = 11,770 square feet, which ever is less).

F. Exemption from Chapter 21, Article 9, Special District Regulations, Section 21-9.80-4©)(2), Table 21-9.6(B), Land Use Ordinance, Ordinance 99-12, as amended relating to open space, to allow 27% of zoning lot as open space rather than required 50% of zoning lot as open space in the Waikiki Special District.

G. Exemption from Chapter 21, Article 4, Section 21-4.30(a), Land Use Ordinance, Ordinance 99-12, as amended, relating to yards to allow picnic furniture (tables and chairs) to be placed within required side yard in private park area.

H. Exemption from Chapter 21, Article 3, Section 21-3.80©)(1), Land Use Ordinance, Ordinance 99-12, as amended, relating to height setback, to allow a 3' encroachment into the transitional height setback for two side of building above 40 feet.

I. Exemption from Chapter 18, Article 6, Section 18-6.2, ROH, Building Permit Fees, as amended, to allow exemption of the fees for building permits in the amount of $53,595.00 approximately.

J. Exemption to reduce the Sewer Connection fee for the project from $347,610.00 to $85,835.00.

K. Exemption for deferral of payment of Sewer Connection and Board of Water Supply connection fees until funding of Rental Housing Trust Fund Project Award loan is available. The sewer connection fee for the project is estimated to be $85,835.00 and the BWS connection fee is estimated to be approximately $144,125.00.

****

APPENDIX IX

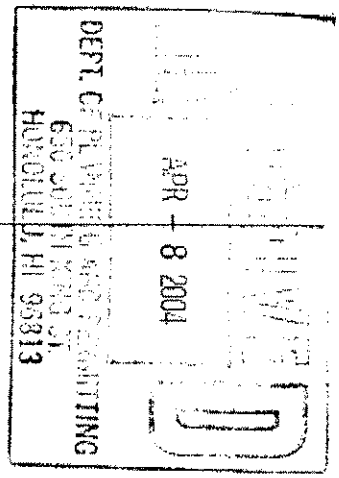
SHADOW STUDY

2004/elog-740 730

Skybird Properties, Inc.

2442 Tusitala Street
Honolulu, Hawaii 96815
Tel (808) 922-0040 Fax (808) 922-0048

Property Management and Commercial Real Estate Services



April 7, 2004

Patrick Seguirant
Department of Planning & Permitting
City & County of Honolulu

Re: Concerns with the location of the proposed 9-story Tusitala Vista structure

Dear Mr. Seguirant,

Director Eric Crispin asked me to forward this information for your review and evaluation.

After a presentation of the project at the March 9th Waikiki Neighborhood Board meeting by Keith Kurahashi, I questioned the reason for locating the building in the southeast quadrant of the property. He replied that in an earlier plan the developer had sited the building in the southwest quadrant but moved it east in response to Director Crispin's suggestion that the bulk effect would be reduced. While that subjective opinion may be correct, other more significant factors, unknown to the director at that time, should now also be considered.

Constructing the building in the southeast quadrant would cause the Dynasty to be blocked on both sides by overwhelming 21 and 9-story structures which would completely block all views and significantly reduce breezes which now very effectively cool the apartments. Of greater significance, however, is the effect of the new building's shadow and the consequent loss of at least an hour of mid-afternoon sunshine.

We are in the final stages of completing a $450,000 rooftop system which utilizes sunshine to replace both HECO generated electricity and natural gas and which provides both electric power and hot water to the building and its tenants. All excess generated electric power feeds into the HECO grid.

Mechanical Enterprises, Inc. did a shadow analysis, however because they didn't visit the building, they incorrectly assumed that the photovoltaic panels would be located only in a small area in the northwest corner of the roof. In fact in this phase of the project, the entire mauka half of the roof will be covered with these panels as well as the hot water solar collectors which will also be in this area. If there is sufficient area remaining for additional photovoltaic panels, the makai half of the roof will be utilized to provide electrical power to the individual living units.

I have invited both Mechanical Enterprises and Kazu Yato to visit the roof and take measurements to assure an accurate analysis and evaluation, however, neither has responded.

The obvious no-cost-to-anyone solution to the shading problem is to locate the Tusitala Visa building in the southwest quadrant of their property.

Very truly yours,
SKYBIRD PROPERTIES, INC.

Leroy Syrop, RPA, (S)
President

cc: Keith Kurahashi via fax 988-1140
H:\WORDDOCS\DYNASTY\Seguirant.doc - April 7, 2004

Post-it® Fax Note 7671	Date 5/21/04	# of pages ▶ 1
To ANN KUSAO	From TONY CHING	
~~Co.~~ + KURAHASHI	Co. DPP/UDB	
Phone # 988-2231	Phone # 527-5833	
Fax # 988-1140	Fax # 527-6743	

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

Kathy Sokugawa
Acting Deputy Director

April 20, 2004

2004/ELOG-730(TC)

Mr. Leroy Syrop
Skybird Properties, Inc.
2442 Tusitala Street
Honolulu, Hawaii 96815

Dear Mr. Syrop:

Proposed Tusitala Vista - Waikiki
Tax Map Key 2-6-024: 070 & 071

This is in response to your letter (date-stamped April 8, 2004) regarding your concerns about the location of the proposed building and its potential shadow impact on your property. When we receive the Environmental Assessment (EA) for this project, we will investigate your concerns. By copy of this letter, we will request that the applicant include you as a consulted party to the EA.

Should you have any questions, please contact Anthony Ching of our Urban Design Branch at 527-5833.

Sincerely yours,

for ERIC G. CRISPIN, AIA
Director of Planning
and Permitting

EGC:cs

cc: Keith Kurahashi

doc293410rev1

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.rr.com

March 29, 2004

MEMORANDUM

To: Mr. Eric Crispin, AIA, Director
Department of Planning and Permitting

From: Anne Kusao

Subject: Proposed Tusitala Vista Affordable Elderly Rental Apartments

The attached Shadow Study prepared by Mechanical Enterprises, Inc. for the proposed Tusitala Vista Apartments is for your review and comments. Should you have questions regarding this project and the Shadow Study, please do not hesitate to call our office at 988-2231.

cc: Mr. Leroy Syrup

MECHANICAL ENTERPRISES, INC.
CONSULTING MECHANICAL ENGINEERS
1314 S. KING STREET SUITE 411 HONOLULU, HAWAII 96814 PHONE (808) 591-9038 FAX (808) 596-7356

FACSIMILE TRANSMITTAL

TO:	KAZU YATO, AIA & ASSOCIATES	JOB NO:	2004.033
ATTN:	Kazu	DATE:	21-Mar-04
PROJECT:	Tusitala Vista	TIME:	5:21 PM
FROM:	Ross Okuda, P.E.	FAX NO:	955-0052
COMMENTS:	Shadow Study		

Kazu,

Attached is the shadow study as requested. If you need a hard copy, stop by our office.
I'll leave a copy in front with Stella

TO: GARY
Kazu

Sincerely,

Ross S. Okuda, P.E.
President

COPY TO:

HARD COPY TO FOLLOW: NO

TOTAL NUMBER OF PAGES INCLUDING THIS COVER SHEET: 17

IF YOU DID NOT RECEIVE ALL OF THE PAGES, PLEASE CALL US AT (808) 591-9038 AS SOON AS POSSIBLE

Shadow Study of new Tusitala Vista:

1) General:

This study evaluates the effects that the proposed 9 story Tusitala Vista will have on existing solar panels located on the roof of the apartment building at 2442 Tusitala St.

2) Buildings:

a) Waikiki Townhouse:
   i) Waikiki townhouse is an approximately 25 story townhouse located approximately 150 feet due west of the solar panels.
      (1) The height of the Waikiki Townhouse is roughly 225 feet.

b) 2442 Tusitala St.:
   i) 2442 Tusitala St. is a 4 story residential building located next door to the new proposed Tusitala Vista. 2442 Tusitala St. has two solar panels installed on the northern corner of its roof.
      (1) The height of 2442 Tusitala St. is 36 feet.

c) Tusitala Vista:
   i) The proposed Tusitala Vista is an 9 story residential high rise, and will be located approximately 40 feet north-west of the solar panels.
      (1) The height of the Tusitala Vista will be 77 feet.

3) Calculations:

a) Since exact measurements were not available, the solar panels were approximated as a 33' by 18' square set back from the northern corner of the roof by 5 feet. (See Appendixes C & D for Diagrams)
   i) The solar panels were considered shaded if any portion of a building's shadow covered any portion of the assumed solar panel location. Where critical, partial shading was taken into consideration.

b) Sun data was obtained from the attached sun chart. (See appendix E) The sun chart is specific to Honolulu's location at 21° N latitude and 157° W longitude.

c) Times prior to 8AM and after 6PM were not considered for this analysis because the likelihood of sun shading by distant buildings and geographic features is high, and the amount of solar production possible is minimal in comparison to normal daytime hours.

d) Since the proposed Tusitala Vista only shaded the solar panels in the evening, the distance from the panels due west to the corner of the building (65 feet) was taken as the critical distance (see Appendix D for Shadow Analysis Diagram)

e) See Appendixes A & B for all data and calculations.

f) See Appendix D for Analysis Diagrams.

4) Results:

a) Analysis of the Waikiki townhouse shows that it shades the solar panels (fully or partially) during the following times and dates:

From 5:00 PM to sunset in February and October.
From 4:00 PM to sunset in March and September.
From 4:00 PM to 6:00 PM in April and August.
From 4:00 PM to 5:00 PM in May and July.

b) Excluding times when the solar panels are already shaded by the Waikiki Townhouse, the proposed Tusitala Vista will shade the solar panels (fully or partially) during the following times and dates:

From 5:30 PM to sunset in April and August.
From 4:30 PM to sunset in May, June, and July.

c) Analysis of the times and dates when the Solar Panels are shaded by both the Waikiki Townhouse and the proposed Tusitala Vista reveals that the Tusitala Vista will contribute to additional shading during the following times and dates:

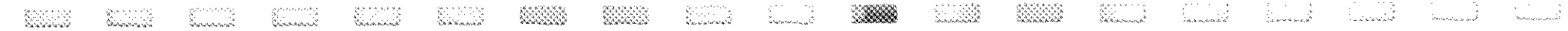
From 4:30 PM to 5:30 PM in April and August.

d) See Appendix C for shadow diagrams of all critical times and dates.

5) Conclusions:

The proposed Tusitala Vista will only project a shadow on the existing solar panels in the summer evenings (April through August from 4:30 to sunset). These times are far from peak solar collection times. The Solar Irradiance during this time period is roughly 75 (Btu/h-ft^2) when acting on a horizontal surface, compared to 270 (Btu/h-ft^2) at noon, and 200 (Btu/h-ft^2) in mid morning and mid afternoon (9:00 AM and 3:00 PM). The overall affect of the proposed construction on the existing solar panels should be minor in comparison to other adjacent buildings.

Appendix A
Shadow Analysis/Calculations
(New Tusitala Vista)



Shadow Analysis (New Tusitala Vista):

PROJECT: Tusitala Vista
JOB #
DESIGNED BY: RCS
DATE: 3/18/2004

Honolulu: **21 degrees N Latitude**
157 degrees W Longitude

Height (Tusitala Vista):	77 ft
Height (Solar Panels):	36 ft
Incident Angle (min):	74
Incident Angle (max):	202
Critical Distance:	65 ft

Angle Measure:
N = 0
E = 90
S = 180
W = 270

Assumptions/Clarifications:

Only hours between 8AM to 6PM were considered
See attached Diagrams
See attached Analysis of Existing Waikiki Townhouse

Our new building will shade the target for:

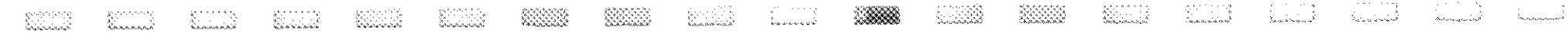
0	hours a day in January	
0	hours a day in February	
0	hours a day in March	
1	hours a day in April	(from 5:30 PM to Sunset)*
2	hours a day in May	(from 4:30 PM to sunset)
2	hours a day in June	(from 4:30 PM to sunset)
2	hours a day in July	(from 4:30 PM to sunset)
1	hours a day in August	(from 5:30 PM to Sunset)*
0	hours a day in September	
0	hours a day in October	
0	hours a day in November	
0	hours a day in December	

* Target is partially shaded by the Waikiki Townhouse, and partially shaded by the Tusitala Vista from 4:30 to 5:30.

Shadow Analysis (New Tusitala Vista):

Month	Time (24-hour)	Sun Elevation (degrees above horizon)	Angle (degrees) from North to Sun	Shadow Length (ft) From Bldg. to Solar Panel	Shadow Angle (degrees) From Bldg. to Solar Panel	Does Solar Panel Fall Within Shadow?
December	4:00					
	5:00		*Blank spaces indicate that the sun is below the horizon*			
	6:00		** Solar Panels Shaded by Existing Waikiki Townhouse			
	7:00					
	8:00	12	120	193	300	no
	9:00	22	130	101	310	no
	10:00	33	140	63	320	no
	11:00	41	155	47	335	no
	12:00	45	170	41	350	no
	13:00	45	190	41	10	no
	14:00	41	210	47	30	no
	15:00	33	220	63	40	no
	16:00	22	230	101	50	no
	17:00	12	240	193	60	no
	18:00	1	245	2349	65	no
	19:00					
January/ November	4:00					
	5:00					
	6:00					
	7:00					
	8:00	9	115	259	295	no
	9:00	22	125	101	305	no
	10:00	33	135	63	315	no
	11:00	41	145	47	325	no
	12:00	47	160	38	340	no
	13:00	48	185	37	5	no
	14:00	44	205	42	25	no
	15:00	36	220	56	40	no
	16:00	26	230	84	50	no
	17:00	14	240	164	60	no
	18:00	2	245	1174	65	no
	19:00					
February/ October	4:00					
	5:00					
	6:00					
	7:00					
	8:00	12	110	193	290	no
	9:00	25	118	88	298	no
	10:00	37	130	54	310	no
	11:00	48	140	37	320	no
	12:00	54	162	30	342	no
	13:00	56	187	28	7	no
	14:00	52	210	32	30	no
	15:00	42	230	46	50	no
	16:00	32	240	66	60	no
	17:00	18	250	126	70	**
	18:00	7	255	334	75	**
	19:00					
March/ September	4:00					
	5:00					
	6:00					
	7:00					
	8:00	18	100	126	280	no
	9:00	32	105	66	285	no
	10:00	45	115	41	295	no
	11:00	57	130	27	310	no
	12:00	66	155	18	335	no
	13:00	68	190	17	10	no
	14:00	61	225	23	45	no
	15:00	49	242	36	62	no
	16:00	36	255	56	75	**
	17:00	23	260	97	80	**
	18:00	9	265	259	85	**
	19:00					
April/ August	4:00					
	5:00					
	6:00					
	7:00					
	8:00	24	88	92	268	no
	9:00	38	94	52	274	no
	10:00	52	100	32	280	no
	11:00	65	115	19	295	no
	12:00	76	145	10	325	no
	13:00	77	215	9	35	no
	14:00	66	245	18	65	no
	15:00	53	260	31	80	no
	16:00	38	265	52	85	**
	17:00	25	273	88	93	**
	18:00	11	277	211	97	yes
	19:00					
May/ July	4:00					
	5:00					
	6:00					
	7:00					
	8:00	28	79	77	259	no
	9:00	42	82	46	262	no
	10:00	55	87	29	267	no
	11:00	69	92	16	272	no
	12:00	83	108	5	288	no
	13:00	82	255	6	75	no
	14:00	68	268	17	88	no
	15:00	55	274	29	94	no
	16:00	41	278	47	96	**
	17:00	26	280	84	100	yes
	18:00	13	285	178	105	yes
	19:00					

Appendix B
Shadow Analysis/Calculations
(Existing Waikiki Townhouse)



Shadow Analysis (Existing Waikiki Townhouse):

PROJECT: Tusitala Vista
JOB #
DESIGNED BY: RCS
DATE: 3/18/2004

Honolulu: **21 degrees N Latitude**
157 degrees W Longitude

Height (Waikiki Townhouse):	225 ft
Height (Solar Panels):	36 ft
Incident Angle (min):	67
Incident Angle (max):	96
Critical Distance:	150 ft

Angle Measure:
N = 0
E = 90
S = 180
W = 270

Assumptions/Clarifications:

Only hours between 8AM to 6PM were considered
See attached Diagrams

Existing building shades the solar panels for:

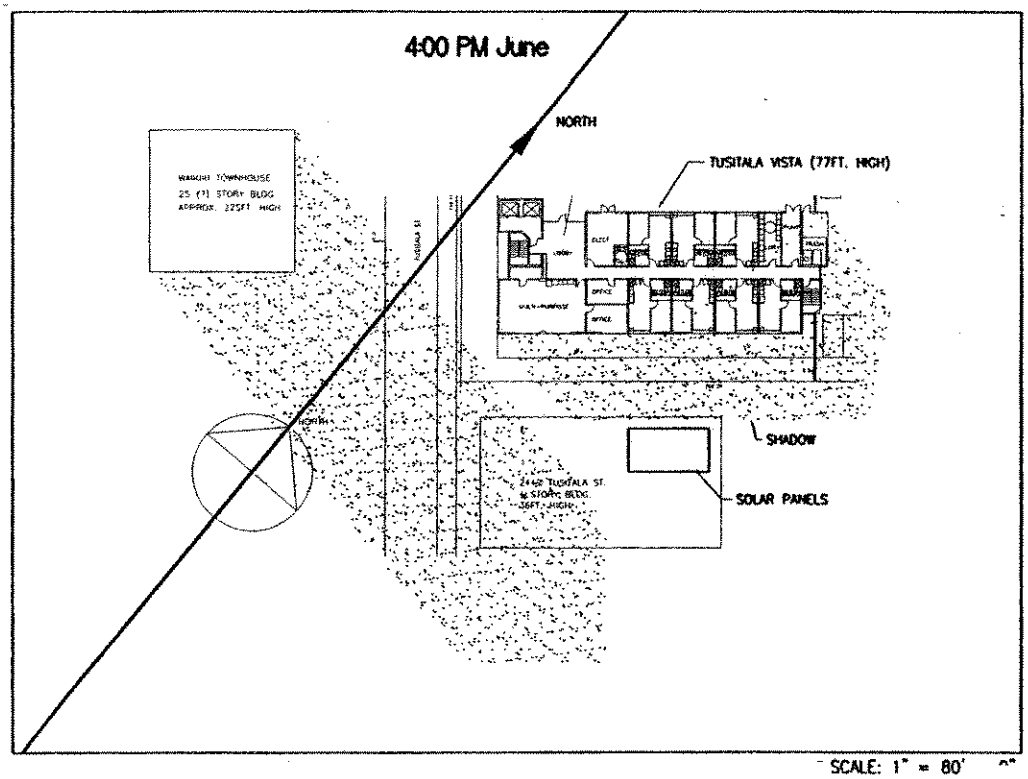
0 hours a day in January
2 hours a day in February
3 hours a day in March
2 hours a day in April
1 hours a day in May
0 hours a day in June
1 hours a day in July
2 hours a day in August
3 hours a day in September
2 hours a day in October
0 hours a day in November
0 hours a day in December

Shadow Analysis (Existing Waikiki Townhouse):

Month	Time (24-hour)	Sun Elevation (degrees above horizon)	Angle (degrees) from North to Sun	Shadow Length (ft) From Bldg. to Solar Panel	Shadow Angle (degrees) From Bldg. to Solar Panel	Does Solar Panel Fall Within Shadow?
December	4:00		*Blank spaces indicate that the sun is below the horizon*			
	5:00					
	6:00					
	7:00					
	8:00	12	120	889	300	no
	9:00	22	130	468	310	no
	10:00	33	140	291	320	no
	11:00	41	155	217	335	no
	12:00	45	170	189	350	no
	13:00	45	190	189	10	no
	14:00	41	210	217	30	no
	15:00	33	220	291	40	no
	16:00	22	230	468	50	no
	17:00	12	240	889	60	no
	18:00	1	245	10828	65	no
	19:00					
January/ November	4:00					
	5:00					
	6:00					
	7:00					
	8:00	9	115	1193	295	no
	9:00	22	125	468	305	no
	10:00	33	135	291	315	no
	11:00	41	145	217	325	no
	12:00	47	160	176	340	no
	13:00	48	185	170	5	no
	14:00	44	205	196	25	no
	15:00	36	220	260	40	no
	16:00	26	230	388	50	no
	17:00	14	240	758	60	no
	18:00	2	245	5412	65	no
	19:00					
February/ October	4:00					
	5:00					
	6:00					
	7:00					
	8:00	12	110	889	290	no
	9:00	25	118	405	298	no
	10:00	37	130	251	310	no
	11:00	48	140	170	320	no
	12:00	54	162	137	342	no
	13:00	56	187	127	7	no
	14:00	52	210	148	30	no
	15:00	42	230	210	50	no
	16:00	32	240	302	60	no
	17:00	18	250	582	70	yes
	18:00	7	255	1539	75	yes
	19:00					
March/ September	4:00					
	5:00					
	6:00					
	7:00					
	8:00	18	100	582	280	no
	9:00	32	105	302	285	no
	10:00	45	115	189	295	no
	11:00	57	130	123	310	no
	12:00	66	155	84	335	no
	13:00	68	190	76	10	no
	14:00	61	225	105	45	no
	15:00	49	242	164	62	no
	16:00	36	255	260	75	yes
	17:00	23	260	445	80	yes
	18:00	9	265	1193	85	yes
	19:00					
April/ August	4:00					
	5:00					
	6:00					
	7:00					
	8:00	24	88	425	268	no
	9:00	38	94	242	274	no
	10:00	52	100	148	280	no
	11:00	65	115	88	295	no
	12:00	76	145	47	325	no
	13:00	77	215	44	35	no
	14:00	66	245	84	65	no
	15:00	53	260	142	80	no
	16:00	38	265	242	85	yes
	17:00	25	273	405	93	yes
	18:00	11	277	972	97	no
	19:00					
May/ July	4:00					
	5:00					
	6:00					
	7:00					
	8:00	28	79	355	259	no
	9:00	42	82	210	262	no
	10:00	56	87	132	267	no
	11:00	69	92	73	272	no
	12:00	83	108	23	288	no
	13:00	82	255	27	75	no
	14:00	68	268	76	88	no
	15:00	55	274	132	94	no
	16:00	41	276	217	96	yes
	17:00	26	280	388	100	no
	18:00	13	285	819	105	no
	19:00					

Appendix C
Shadow Diagrams
(Critical Times/Dates)

SHADOW DIAGRAMS (JUNE)



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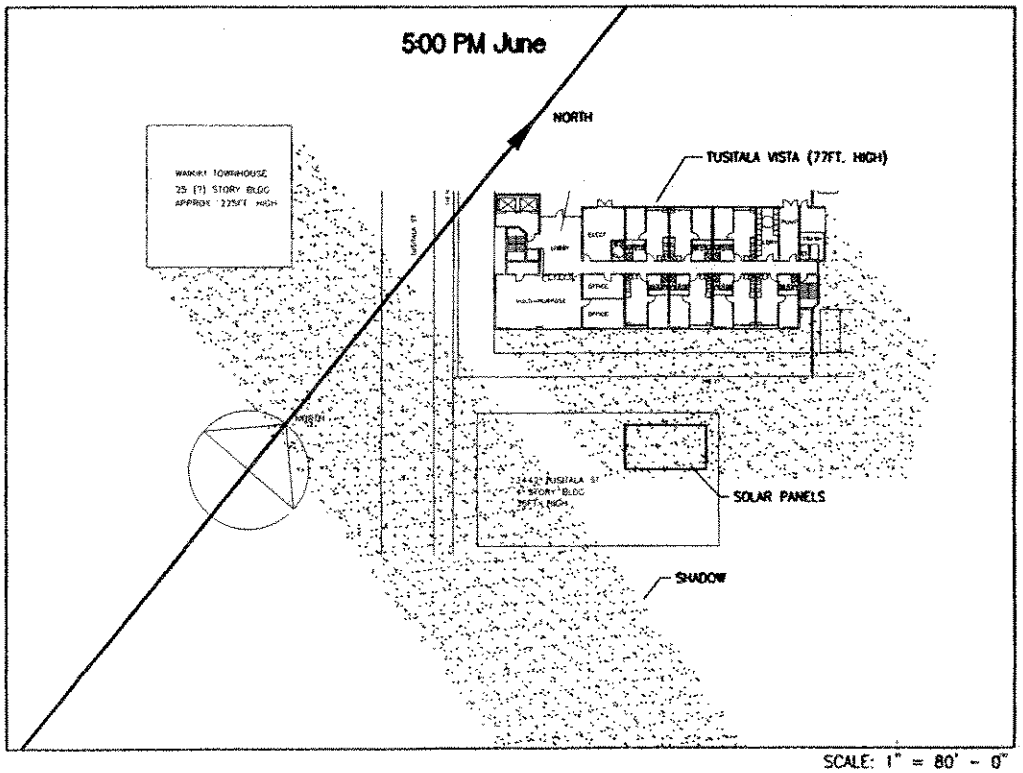
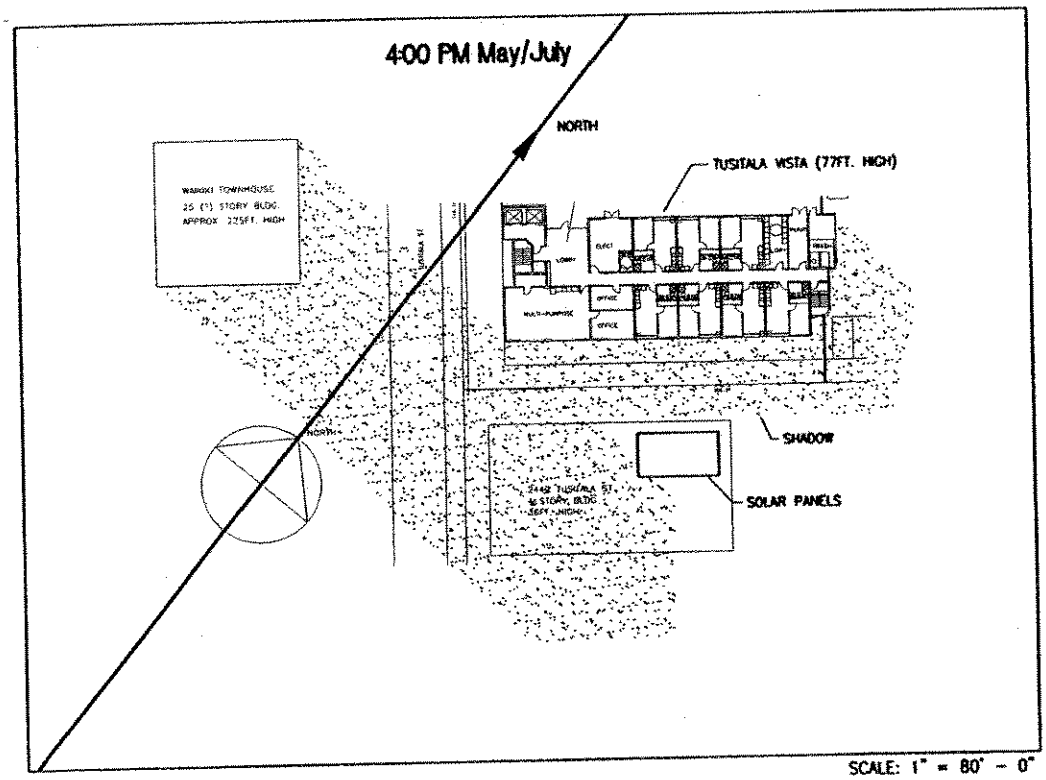
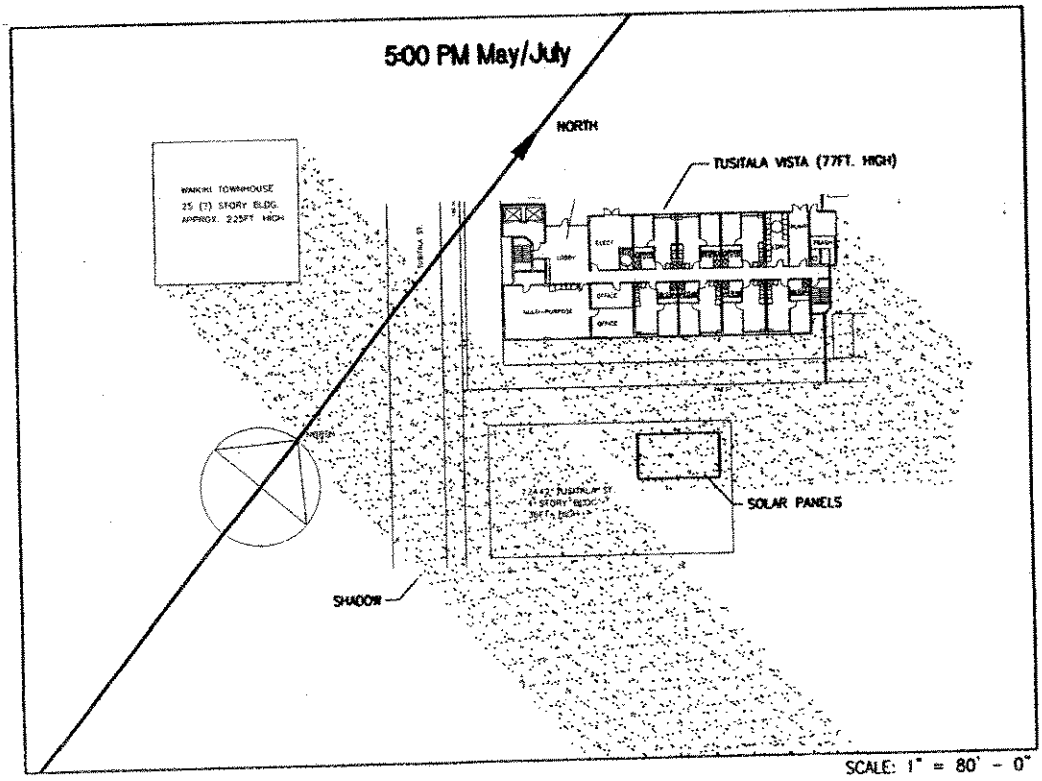


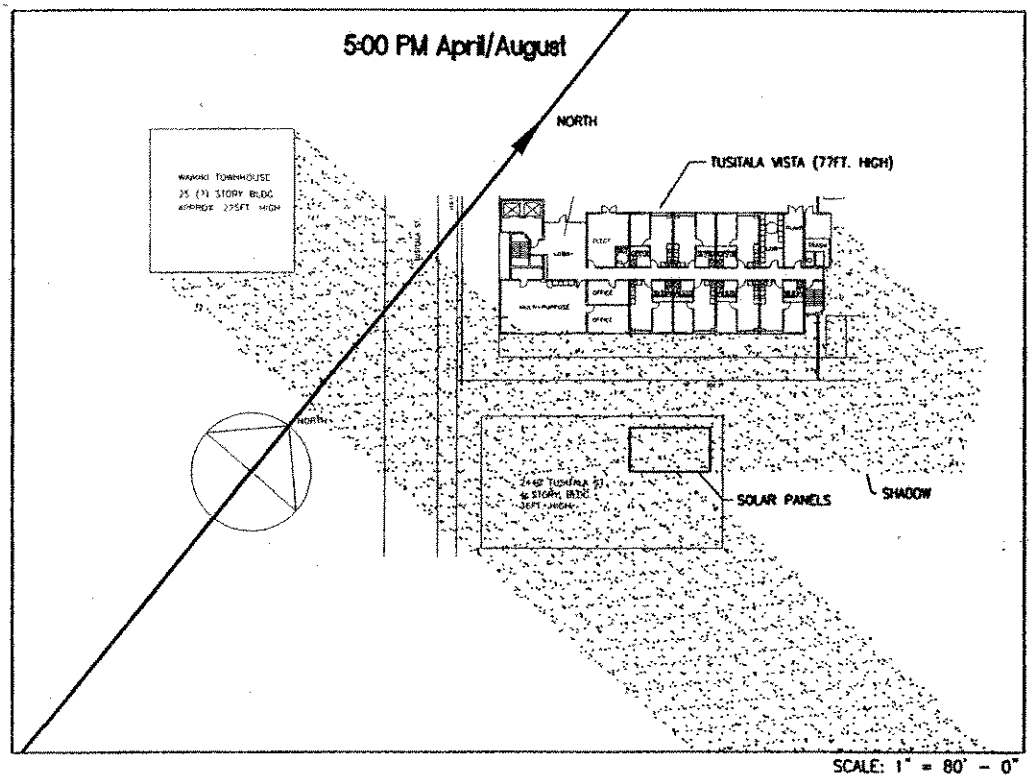
SCALE: 1" = 80' - 0"

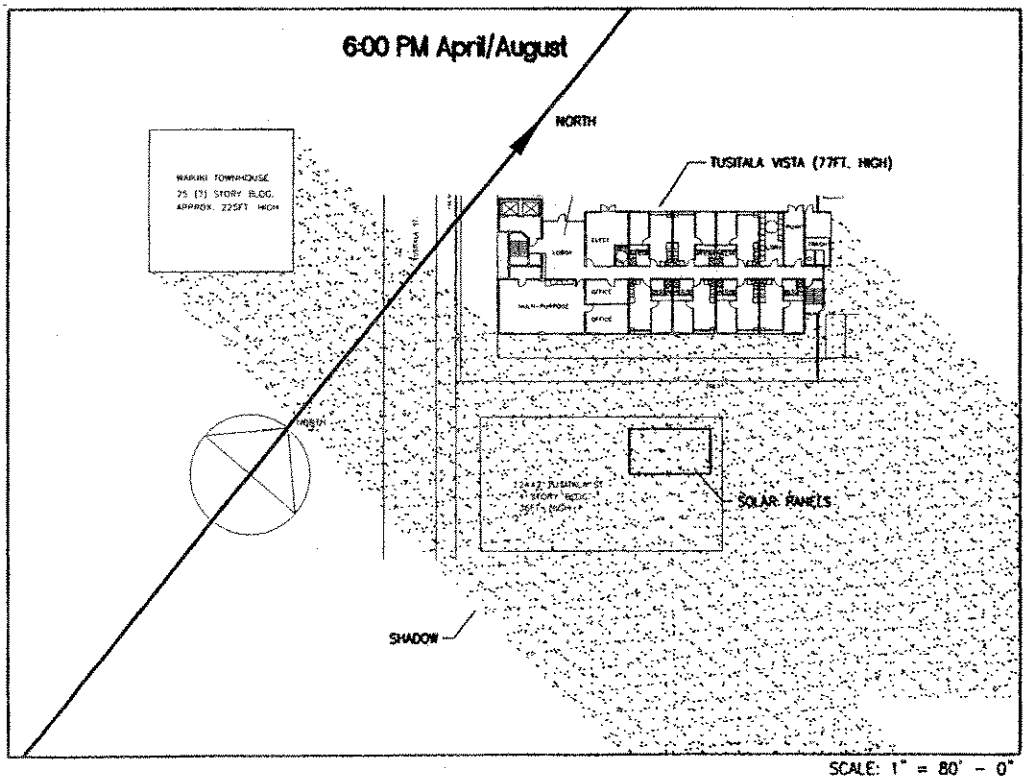
SHADOW DIAGRAMS (MAY/JULY)

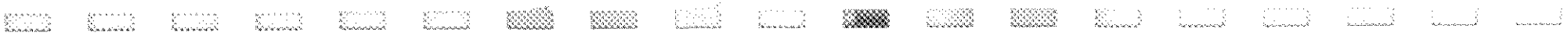




SHADOW DIAGRAMS (APRIL/AUGUST)



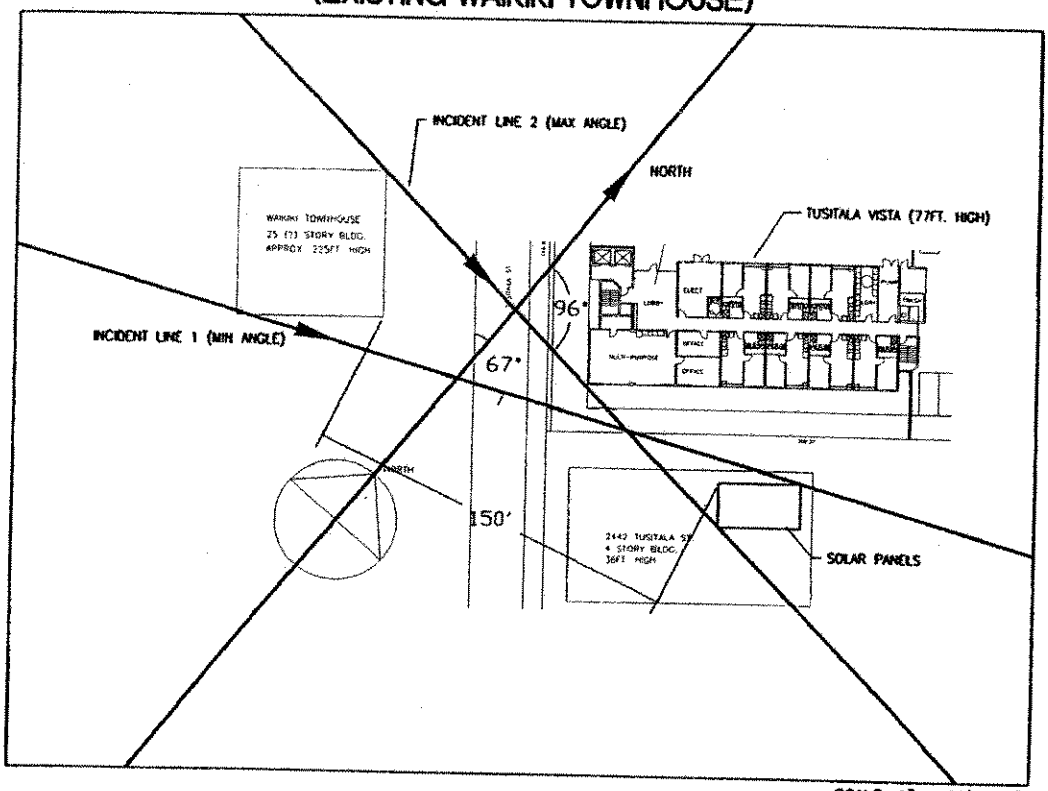




Appendix D
Shadow Analysis Diagrams
(New Tusitala Vista &
Existing Waikiki Townhouse)

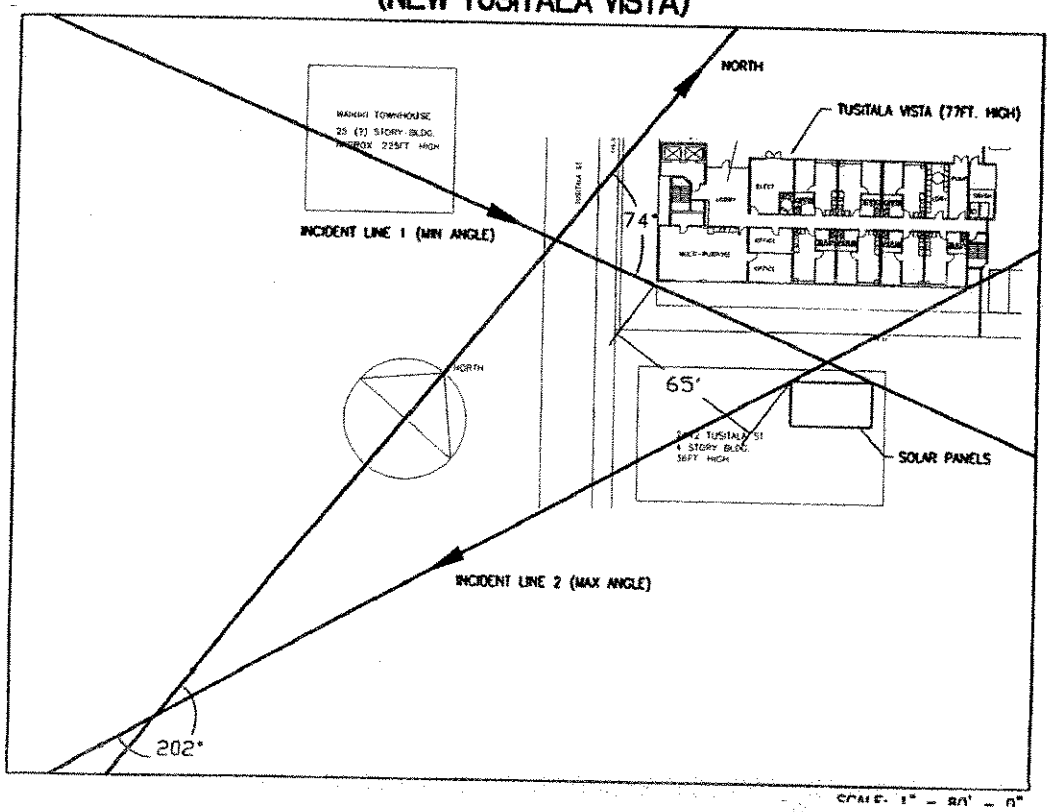
SHADOW ANALYSIS DIAGRAMS

(EXISTING WAIKIKI TOWNHOUSE)

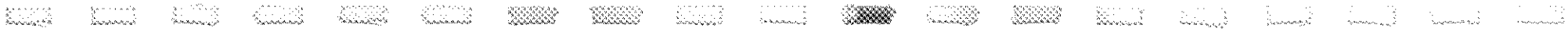


SCALE: 1" = 80' - 0"

(NEW TUSITALA VISTA)



Appendix E
Sun Chart
(Honolulu, Hawaii)



APPENDIX X

FUNDING SOURCES

TUSITALA VISTA

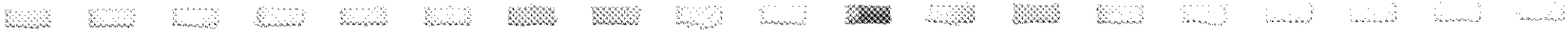
FINANCING PRO FORMA

USES

Category	Amount
Land Acquisition (Fee Simple)	$ 3,208,500
Building Construction	13,076,481
Financing	1,309,180
Reserves and Contingency	2,222,980
Other	1,725,400
Total	$ 21,542,541

SOURCES

Type of Funding	Interim	Permanent
Equity	100,000	100,000
DURF Award	5,000,000	5,000,000
Interim Construction Loan	15,413,157	-
Tax Credit Equity *	1,029,384	11,657,582
Takeout Loan	-	4,784,959
Total	$21,542,541	$21,542,541



CITYBANK

201 MERCHANT STREET
HONOLULU, HAWAII 96813-2992

TELEPHONE: (808) 535-2500
FAX: (808) 535-2555

P.O. BOX 3709
HONOLULU, HAWAII 96811

February 27, 2004

Tusitala Vista L.P.
c/o Gary Furuta
725 Kapiolani Boulevard, Suite C-103
Honolulu, Hawaii 96813

Re: Loan for $13,884,000.00

Gentlemen:

City Bank (the "Bank") is pleased to inform you that it has approved your request for a loan (the "Loan") to finance the construction of a 106-unit affordable senior rental housing project to be known as Tusitala Vista Apartments on property located at 2423 and 2429 Ala Wai Boulevard Street, Honolulu, Hawaii.

The Loan will be made to Tusitala Vista L.P., a Hawaii Limited Partnership whose general partner is Hawaii Housing Development Corporation, (the "Borrower"), subject to the following terms and conditions:

TERMS

1) Loan Amount: $13,884,000.00

2) Interest: City Bank's Base Rate (currently at 4.00%) + 0.75%, floating.

3) Required Payments: Interest only monthly on amounts of principal disbursed until the Maturity Date. Proceeds from the initial loan disbursement will be used to payoff the balance of City Bank's unsecured commercial loan for Tusitala Vista L.P. of $600,000.00.

4) Maturity Date: Two (2) years from the Closing Date.

5) Loan Fee: Payable at Closing 1.50% ($ 208,260.00)

The aggregate loan fee of $58,500.00 collected in conjunction with the unsecured commercial loan for Tusitala Vista L.P. and the interim land loan for Hawaii Housing Development Corporation will be credited towards payment of this Loan Fee.

6) Name of Project: Tusitala Vista Apartments

7) Property: Approximately 35,761 sq. ft. of Apartment Precinct zoned property located at 2423 and 2429 Ala Wai Boulevard, Honolulu, Hawaii TMK: (1) 2-6-24-70 and 71.

8) Proposed Improvements: The proposed project will consist of a 9-story masonry mid-rise apartment structure containing 106 apartment units (99 1-bedroom/1-bath units and 7 2-bedroom/1 bath units). The first floor will have a lobby, mail area, manager's office, loading area, 66 at-grade parking stalls (36 set aside for the City and County of Honolulu) and 5 1-bedroom/1-bath units. Floors two through six will have 13 1-bedroom/1-bath units each; the seventh and eighth floors will have 10 1-bedroom/1-bath units and 2 2-bedroom/1-bath units. The ninth floor will have 9 1-bedroom/1-bath units and 1 2-bedroom/1-bath unit. Amenities for each unit include a range, disposal, refrigerator, and drapes.

9) Borrower's Estate: Leasehold (fee position and/or lease payments to be subordinated to this leasehold position)

10) Commitment Acceptance Date: March 12, 2004

11) Closing Date: December 30, 2004, or sooner

CONDITIONS

1) Closing Date. Time is of the essence in the Borrower's performance of this commitment. The borrower must accept this commitment by the Commitment Acceptance Date and all conditions must be satisfied on or before the Closing Date. If the conditions of this commitment are not satisfied on or before the Closing Date, the Bank may either extend the Closing Date or terminate this commitment without further obligation.

2) Security. The Loan shall be secured by:

a) A mortgage (the "Mortgage"), constituting (i) a first lien upon the Borrower's Estate in the Property and all buildings, fixtures, equipment and appurtenant improvements comprising the Improvements, (ii) a first security interest in all fixtures, furniture, furnishings, equipment, appliances and any other personal property now owned or hereafter acquired by the Borrower and situated on the Property and (iii) a first security interest in rentals;

b) A security agreement (the "Security Agreement"), granting to the Bank a first security interest in certain collateral (the "Collateral"), including, but not limited to, all assignments of interests, contracts, permits and authorizations, respecting the design, construction, management, and operation of the Improvements, all furniture, furnishings, equipment, appliances, and other personal property incorporated in the Improvements or located on the Property; and

c) A financing statement (the "Financing Statement"), to perfect the first security interest of the Bank in certain of the mortgaged property and in the Collateral.

3) Additional Closing Requirements. The Borrower shall furnish to the Bank on or before the Closing Date the following:

a) Loan Agreement. The loan agreement (the "Loan Agreement"), containing warranties by the Borrower, conditions of the Bank's obligation, covenants relating to construction procedures and the method of Loan disbursements, requirements for payment of project costs in excess of Loan proceeds, requirements for attorneys' opinions, prohibition against secondary liens and security interests, rights of inspection, rights to employ an independent architect or engineer at the Borrower's expense, requirements for foundation and completion surveys, remedies on default and such other covenants and provisions as the Bank may require or as are customarily incorporated in similar agreements by prudent lenders.

b) Partnership Documents. (Tusitala Vista L.P.)

i) An executed copy of the joint venture agreement or partnership agreement for Borrower.

ii) A copy of the registration statement or partnership certificate certified by the state of organization for Borrower.

iii) A certificate of good standing from the State of Hawaii and the state of organization with respect to Borrower.

c) Corporate Documents. (Hawaii Housing Development Corporation)

i) A certificate of the secretary certifying (A) a copy of the Bylaws of the corporation; (B) resolutions of the Board of Directors of the corporation duly authorizing the execution and delivery of the documents required to be executed by the corporation and the consummation of the transactions contemplated thereby; (C) verification of the names and signatures of the officers authorized to execute such documents; (D) a resolution of the stockholders of the corporation, if required, authorizing the transaction, and (E) such other matters as the Bank may require.

ii) A copy of the Articles of Incorporation of the corporation certified by the state of incorporation.

iii) A certificate of good standing from the State of Hawaii, and the state of incorporation.

d) Title Insurance; Chattel Lien Report.

i) A policy of title insurance together with such endorsements as the Bank may require, issued by any financially responsible and substantial title company authorized to do business in the State of Hawaii, in the amount of the Loan, insuring that the Mortgage is a valid first lien on the mortgaged property, free and clear of all defects, liens, encumbrances and exceptions to title whatsoever, except such as the Bank may approve in writing. Without limiting the foregoing, the title policy shall effect full coverage against losses arising out of encroachments against boundary or setback lines, against losses from existing or subsequent mechanics or materialmen's liens which may gain priority over the Mortgage, losses arising out of zoning ordinances and regulations and such other losses with respect to which the Bank may request coverage.

ii) A chattel lien report by a financially responsible and substantial searcher of titles, verifying that a search of the public records has not disclosed any security interest, liens or encumbrances against any personal property owned by the Borrower, except the Financing Statement.

e) Lease; Estoppel Certificate.

i) An executed copy of the Lease by which Borrower holds its interest in the Property and any amendments thereto.

ii) An estoppel certificate of the fee owner of the Property, certifying that the Lease is in full force and effect and unmodified (or listing modifications), and that the Borrower is not in default under the Lease and has complied with all conditions under the Lease for construction of the Improvements and such other matters as the Bank may require.

f) Survey; Certification.

i) A perimeter survey map, prepared and certified as correct by a registered surveyor, disclosing (a) the location of the perimeter of the Property; (b) all easements and rights-of-way, (c) the lines of the street abutting the Property and the width thereof, and (d) encroachments, if any.

ii) A certification by an architect or an engineer showing (a) that the proposed Improvements are located wholly within the perimeter of the Property, without encroachments or violation of any zoning ordinances, building codes or regulations or setback requirements, any (b) the relation of the proposed Improvements by distance to the perimeter of the Property, the established building lines and street lines.

g) Appraisal Report. A report, by a recognized real estate appraiser, acceptable to the Bank, appraising the fair market value of the mortgaged property and its proposed improvements and related tax credit value. The loan to appraised value shall not exceed 75%.

h) Insurance. Fire and extended coverage insurance for the full insurable value of the Improvements, fixtures and equipment, with satisfactory co-insurance, together with flood insurance (if the Improvements are required to be so insured by the Bank's Federal Regulators), and such other insurance customarily required by prudent lenders or required by the Bank.

i) Project Budget. A detailed budget and cash flow projection of the total project costs.

j) Plans and Specification. Final working plans and specifications (the "Plans and Specifications").

k) Construction Contract; Performance and Payment Bond.

i) A construction contract executed by the Borrower and a construction company licensed to engage in the construction business in the State of Hawaii and acceptable to the Bank.

ii) A 100% Performance and Payment Bond, with dual obligee rider, in amount and with surety acceptable to the Bank.

iii) A letter from the general contractor for the Improvements, consenting to the assignment of the construction contract to the Bank and agreeing to continue performance of the construction contract for the benefit of the Bank in the event of any default by the Borrower.

l) Architect's Agreement. An architect's agreement executed by the Borrower and an Architect licensed in the State of Hawaii and acceptable to the Bank, for the preparation of the Plans and Specifications and the supervision of the construction of the Improvements.

i) A letter from the Architect, consenting to the assignment of the architect's agreement to the Bank and agreeing to continue performance of the architect's agreement for the benefit of the Bank in the event of default by the Borrower.

m) Financial Statements. Current financial statements on the Borrower. On an annual basis and until the loan is paid in full, Borrower shall provide its financial statement and rent roll on the Tusitala Vista Apartments to the Bank. These statements shall be due within 90 days from the annual closing of the borrowers books.

n) Governmental Authorizations. Verification (including the opinion of Borrower's counsel and certificate of Borrower's Architect) that all permits, approvals, or authorizations of any governmental or regulatory authority necessary for the construction and use of Improvements, including, but not limited to, grading and building permits, have been obtained, and that the construction and the proposed use of Improvements fully comply with all federal, state, and county statutes, laws, ordinances, and regulations relating to land use classification, zoning, coastal zone management, set back, environmental, ecological, and pollution control, waste product and sewage disposal (or, if such compliance is not necessary, verification that such compliance is not necessary).

o) Tax Clearance Certificate. Tax clearance certificate issued by the Department of Taxation, State of Hawaii on the Borrower and its general partner.

p) Environmental Examination and Covenants. Prior to closing of the loan, the Bank will require an environmental examination or audit to be made of the Property, by an environmental engineer designated by the Bank, and may reevaluate the loan if such examination reveals the existence or prospect of environmentally hazardous materials in amounts or of a nature unacceptable to the Bank. Borrower will provide an indemnification to Bank against liability or expenses incurred by Bank relating to hazardous materials or substances.

5) Completion Certificate. Upon completion of construction, the Borrower shall provide the following:

a) A certification by the architect verifying that the Improvements have been completed in accordance with the Plans and Specifications; that direct connection has been made to abutting water, sewer, electrical and other necessary utility facilities, and that the Improvements are ready for occupancy;

b) A certified copy of the affidavit of publication of notice of completion filed in the Circuit Court of the State of Hawaii; and

c) Certificates or other evidence, satisfactory to the Bank, that the Borrower has obtained, all such consents, permits, licenses, approvals and franchises of any and all federal, state, county and municipal authorities as shall be required for the use of the Improvements as contemplated by the commitment and as completed, including certificates of occupancy, permits and licenses with respect to health regulations, environmental and pollution regulations, and waste product and sewage disposal regulations, and that the Borrower shall be in compliance with all such regulations and the laws which they implement.

6) Loan Closing Expenses. Whether or not the Loan is closed, the Borrower shall pay all expenses incurred in satisfying the conditions of this Loan commitment, including, but not limited to, premiums for the title report and title insurance, survey costs, recording fees, taxes, appraisal fees, attorneys' fees for preparation of the Loan documents, legal research or any other matters with respect to which the Bank seeks advice or legal services in connection with the matters provided for in this commitment.

7) Accuracy of Information, Etc. This commitment is subject to the accuracy as of the date hereof, of all information, data, representations, exhibits, and other material submitted in connection with the Borrower's application.

8) Approval of Bank and its Counsel. All documents, agreements, contracts, instruments, certificates, survey maps, appraisals, reports and opinions required by this commitment must be in form and substance satisfactory to the Bank and its counsel. Any insurance or title insurance policy must be in form and amount satisfactory to the Bank. The Bank reserves the right to review after the acceptance of this commitment all information and documents, previously furnished by the Borrower and this commitment is not an indication or agreement that such items have been approved by the Bank or its counsel.

9) Commencement of Construction. Except as may be otherwise first approved in writing by the Bank, construction of the Improvements shall not commence nor shall there be any "visible commencement of operations" as defined in Section 507-41, Hawaii Revised Statutes, as amended, prior to the Closing Date or the date of recordation of the Mortgage. If the Bank shall approve such commencement, or if such commencement has taken place prior to this commitment, Borrower shall provide to the title insurer such indemnities and subordination as the title insurer may require in order to issue the endorsement against mechanics' and materialmen's liens required by the Bank.

11) Amendment. Any amendment of this commitment letter must be in writing and acceptable by both the Borrower and the Bank.

12) Collective Project Loan Commitments. This loan commitment is issued in conjunction with a $600,000 loan commitment to Tusitala Vista L.P. and a $3.3 million loan commitment to Hawaii Housing Development Corporation of even date. Because all three of these loan commitments supplement the aggregate funding requirements to complete the proposed Tusitala Vista Apartments project, these commitments are issued collectively and, therefore, must be accepted collectively.

13) Other Conditions for Closing. The Bank's obligation to close the Loan is expressly subject to receipt of the following:

a) HOME CHDO project award for $1,900,000.00; and DURF award for $1,800,000.00; and HFDC's LIHTC award for $723,000.00; and RHTF award for $1,444,000.0; and Syndication Commitment Letter to purchase tax credits for $12,059,000.00; and HCRC or other permanent takeout loan commitment letter for $2,805,000.00; or documentation evidencing that a sufficient combination of project awards, grants, tax credits, commitments to purchase tax credits and takeout loan commitments have been committed to the project to ensure proper completion.

b) Subordination of Hawaii Housing Development Corporation's fee simple interest in the property to the Lease by signing as an accommodation mortgagor, or by executing an agreement to subordinate the Lease payments to the Mortgage.

c) Subordination of existing liens encumbering the fee simple interest in the property to the Mortgage.

d) Consent of the mortgagors of the fee simple interest in the property to subordinate their lien positions and repayment to the Mortgage.

e) Payoff of the existing construction loans to Artesian Vista L.P. and Punahou Vista L.P.

f) A loan participation agreement, in form and substance satisfactory to the Bank, with other lenders acceptable to it, providing for the participation of such other lenders in the Loan for the required participation of $5,000,000.00.

If the above terms and conditions are acceptable, please execute the form of acceptance on the enclosed copy of this letter and return the same to us by the Commitment Acceptance Date.

Sincerely,
CITY BANK

By _____
Its Vice President

Enclosure

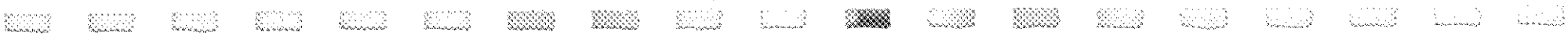
ACCEPTED:
TUSITALA VISTA L.P.
a Hawaii Limited Partnership

By HAWAII HOUSING DEVELOPMENT CORPORATION, a Hawaii non-profit corporation, Its General Partner

By _____
Its Secretary

Date 2-27-04

City Bank – Land Loan



CITYBANK

201 MERCHANT STREET
HONOLULU, HAWAII 96813-2992

TELEPHONE: (808) 535-2500
FAX: (808) 535-2555

P.O. BOX 3709
HONOLULU, HAWAII 96811

February 27, 2004

Hawaii Housing Development Corporation
c/o Gary Furuta
725 Kapiolani Boulevard, Suite C-103
Honolulu, Hawaii 96813

Re: Loan for $3,300,000.00

Gentlemen:

City Bank (the "Bank") is pleased to inform you that it has approved your request for an interim loan (the "Loan") to finance the acquisition of real property located at 2423 and 2429 Ala Wai Boulevard plus closing costs associated with the purchase transaction.

The Loan will be made to Hawaii Housing Development Corporation, a Hawaii non-profit corporation, (the "Borrower"), subject to the following terms and conditions:

TERMS

1) Loan Amount: $3,300,000.00

2) Interest: City Bank's Base Rate (currently at 4.00%) + 0.75%, floating.

3) Required Payments: Interest only monthly on amounts of principal disbursed until the Maturity Date. Proceeds from the initial loan disbursement will be used to payoff the balance of City Bank's unsecured loan to Tusitala Vista L.P. of $600,000.

4) Maturity Date: Twelve months from the Closing Date.

5) Loan Fee: Payable at Closing 1.50% ($ 49,500.00)

6) Name of Project: Tusitala Vista Apartments

7) Property: Approximately 35,761 sq. ft. of Apartment Precinct zoned property located at 2423 and 2429 Ala Wai Boulevard, Honolulu, Hawaii TMK: (1) 2-6-24-70 and 71.

8) Borrower's Estate: Fee Simple

9) Commitment Acceptance Date: March 12, 2004

10) Closing Date: July 30, 2004, or sooner

CONDITIONS

1) Closing Date. Time is of the essence in the Borrower's performance of this commitment. The borrower must accept this commitment by the Commitment Acceptance Date and all conditions must be satisfied on or before the Closing Date. If the conditions of this commitment are not satisfied on or before the Closing Date, the Bank may either extend the Closing Date or terminate this commitment without further obligation.

2) Security. The Loan shall be secured by:

   a) A mortgage (the "Mortgage"), constituting (i) a first lien upon the Borrower's Estate in the Property and all buildings, fixtures, equipment and appurtenant improvements comprising the Improvements, (ii) a first security interest in all fixtures, furniture, furnishings, equipment, appliances and any other personal property now owned or hereafter acquired by the Borrower and situated on the Property and (iii) a first security interest in rentals; and

   c) A financing statement (the "Financing Statement"), to perfect the first security interest of the Bank in certain of the mortgaged property and in the Collateral.

3) Additional Closing Requirements. The Borrower shall furnish to the Bank on or before the Closing Date the following:

   a) Corporate Documents. (Hawaii Housing Development Corporation)

      i) A certificate of the secretary certifying (A) a copy of the Bylaws of the corporation; (B) resolutions of the Board of Directors of the corporation duly authorizing the execution and delivery of the documents required to be executed by the corporation and the consummation of the transactions contemplated thereby; (C) verification of the names and signatures of the officers authorized to execute such documents; (D) a resolution of the stockholders of the corporation, if required, authorizing the transaction; and (E) such other matters as the Bank may require.

      ii) A copy of the Articles of Incorporation of the corporation certified by the state of incorporation.

      iii) A certificate of good standing from the State of Hawaii, and the state of incorporation.

b) Title Insurance; Chattel Lien Report.

i) A policy of title insurance together with such endorsements as the Bank may require, issued by any financially responsible and substantial title company authorized to do business in the State of Hawaii, in the amount of the Loan, insuring that the Mortgage is a valid first lien on the mortgaged property, free and clear of all defects, liens, encumbrances and exceptions to title whatsoever, except such as the Bank may approve in writing. Without limiting the foregoing, the title policy shall effect full coverage against losses arising out of encroachments against boundary or setback lines, against losses from existing or subsequent mechanics or materialmen's liens which may gain priority over the Mortgage, losses arising out of zoning ordinances and regulations and such other losses with respect to which the Bank may request coverage.

ii) A chattel lien report by a financially responsible and substantial searcher of titles, verifying that a search of the public records has not disclosed any security interest, liens or encumbrances against any personal property owned by the Borrower, except the Financing Statement.

c) Survey; Certification.

i) A perimeter survey map, prepared and certified as correct by a registered surveyor, disclosing (a) the location of the perimeter of the Property; (b) all easements and rights-of-way, (c) the lines of the street abutting the Property and the width thereof, and (d) encroachments, if any.

d) Appraisal Report. A report, by a recognized real estate appraiser, acceptable to the Bank, appraising the fair market value of the mortgaged property.

e) Insurance. Proof of public liability insurance coverage and such other insurance customarily required by prudent lenders or required by the Bank.

f) Financial Statements. Current financial statements on the Borrower.

g) Escrow Agent. Provide the Bank with the name of the escrow agent who will be handling the consummation of the purchase of the property and advise escrow to provide Bank at the expense of the Borrower, with copies of the title search to the property and proposed conveyance document and any other documents deemed necessary.

h) Tax Clearance Certificate. Tax clearance certificate issued by the Department of Taxation, State of Hawaii on the Borrower.

i) Environmental Examination and Covenants. Prior to closing of the loan, the Bank will require a Phase I Environmental Site Assessment to be made of the Property, by an environmental engineer designated by the Bank, and may reevaluate the loan if such examination reveals the existence or prospect of environmentally hazardous materials in amounts or of a nature unacceptable to the Bank. Borrower will provide an indemnification to Bank against liability or expenses incurred by Bank relating to hazardous materials or substances.

4) Loan Closing Expenses. Whether or not the Loan is closed, the Borrower shall pay all expenses incurred in satisfying the conditions of this Loan commitment, including, but not limited to, premiums for the title report and title insurance, survey costs, recording fees, taxes, appraisal fees, attorneys' fees for preparation of the Loan documents, legal research or any other matters with respect to which the Bank seeks advice or legal services in connection with the matter provided for in this commitment.

5) Accuracy of Information, Etc. This commitment is subject to the accuracy as of the date hereof, of all information, data, representations, exhibits, and other material submitted in connection with the Borrower's application.

6) Approval of Bank and its Counsel. All documents, agreements, contracts, instruments, certificates, survey maps, appraisals, reports and opinions required by this commitment must be in form and substance satisfactory to the Bank and its counsel. Any insurance or title insurance policy must be in form and amount satisfactory to the Bank. The Bank reserves the right to review after the acceptance of this commitment all information and documents, previously furnished by the Borrower and this commitment is not an indication or agreement that such items have been approved by the Bank or its counsel.

7) Amendment. Any amendment of this commitment letter must be in writing and acceptable by both the Borrower and the Bank.

8) Collective Project Loan Commitments. This loan commitment is issued in conjunction with a $600,000 loan commitment and a $14.884 million loan commitment to Tusitala Vista L.P. of even date. Because all three of these loan commitments supplement the aggregate funding requirements to complete the proposed Tusitala Vista Apartments project, these commitments are issued collectively and, therefore, must be accepted collectively.

8) Other Conditions for Closing. Loan funding will also be subject to the receipt and satisfactory review of the following:

a) HOME CHDO project award for $600,000.00; and DURF award for $1,500,000.00; and HFDC's LIHTC award for $723,000.00; and Syndication Commitment Letter to purchase tax credits for $5,661,000.00; and HCRC takeout loan commitment letter for $695,000.00; or documentation evidencing that a sufficient combination of project awards, grants, tax credits, commitments to purchase tax credits and takeout loan commitments have been committed to the project to ensure proper completion.

If the above terms and conditions are acceptable, please execute the form of acceptance on the enclosed copy of this letter and return the same to us by the Commitment Acceptance Date.

Sincerely,
CITY BANK

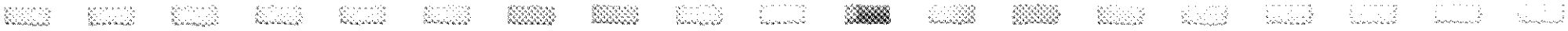
By _____
Its Vice President

Enclosure

ACCEPTED:
HAWAII HOUSING DEVELOPMENT CORPORATION
a Hawaii non-profit corporation

By _____
Its Secretary

Date 2.27.04



TERM SHEET

For

TUSITALA VISTA
w/ Only DURF Financing

THIS TERM SHEET OUTLINES THE GENERAL TERMS OF THE INVESTMENT BY THE PARTIES IN THIS TRANSACTION. UPON ACCEPTANCE OF THIS TERM SHEET, A LIMITED PARTNERSHIP AGREEMENT WILL BE CREATED TO FORMALIZE THE TERMS OF THE INVESTMENT AND AGREEMENT. IN CREATING THE LIMITED PARTNERSHIP AGREEMENT, CERTAIN MODIFICATIONS TO THIS TERM SHEET MAY BE REQUIRED. IN ANY EVENT, THE EXECUTED LIMITED PARTNERSHIP AGREEMENT WILL BE THE GOVERNING DOCUMENT REGARDING THE TRANSACTION.

THE TERMS AND CONDITIONS DESCRIBED HEREIN ARE CONFIDENTIAL. NO INFORMATION REGARDING ANY OF THE TERMS AND CONDITIONS MAY BE RELEASED WITHOUT THE EXPRESS WRITTEN CONSENT OF THE PARTNERS LISTED IN ITEM 2.

1. **Project description**
The name of the Project is Tusitala Vista located in Waikiki, Honolulu, City & County of Honolulu. The Project consists of 106 affordable rental units of which 100% will qualify for the low-income housing tax credit (the "Credit") as provided for by Section 42 of the Internal Revenue Code of 1986, as amended (the "Code"). It has been represented that the 40/60 set-aside election will be made, and a minimum of 100% of the units will be rented to people earning 60% and below the median income level per the elections made to the Housing Community Development Corporation of Hawaii.

2. **Project participants**

Operating General Partner - Hawaii Housing Development Corporation	(0.1%)
Limited Partner - Hawaii Equity Fund IV, LLC	(99.9%)

3. **Length of partnership** 15 years

4. **Tax Credits ("Credits")**

Federal Amount	$ 1,188,136	
State Amount	$ 356,441	
Total Amount	$ 1,544,576	
10-Year Total	$ 15,445,764	

5. **Capital Contribution**

Operating General Partner	$ 100,000	
Limited Partner	$ 12,189,951	(99.9% of Credit x Rate)
Rate:	$ 0.79	(cents per tax credit dollar)

6. Timing of LP Capital Contribution

Inaugural Payment will be made upon the closing of the Rental Housing Trust Fund Loan and the receipt of the documents listed in attachment under 'Documents Required for Inaugural Closing'. Chief among these will be the executed Partnership Agreement, executed Guaranty Agreement, and the Carryover Allocation to the Partnership from the state allocating agency. Inaugural Payment will be in the amount of $1,000. The objective of the Inaugural Payment is for the Limited Partner to be admitted into the partnership no later than the first month tenants move into the building, in order to ensure all tax credits generated on the project from the first day will flow to the Limited Partner.

Payment 1 will be made upon the receipt of all documents indicated in attachment under 'Documents Required for First Closing'. These documents include the permanent Certificate of Occupancy issued by the City & County of Honolulu, an opinion of counsel relating to the real estate and partnership ownership aspects, current estoppel certificates, a title insurance policy, an acceptable appraisal, an ALTA survey, if available at this time, and a copy of the project's property and CGL insurance policy. The first payment will be in the amount of $ 609,498 .

Payment 2 of an additional 45% of the LP Capital Contribution ($5,485,478) for a total equity contribution at this stage of 50%
To be made at 50% (53 units) Qualified Occupancy level (Qualified Occupancy defined as at least 27 occupied units and up to 26 pre-leased units as represented by executed leases. Pre-leased units to be defined as executed leases with a qualified Section 42 tenant with a move in date no later than 90 days from date of tenant certification. Fifty percent (50%) of the security deposit is due from tenant at time of lease execution, with the remaining 50% due at move-in). Payment will be made upon receipt of all closing documents indicated in attachment under 'Documents Required for Second Closing'. Key among these documents are proof of the expiration of the mechanic's lien for the project, and the ALTA survey.

Payment 3 of an additional 40% of the LP Capital Contribution ($4,875,981 divided into 4 equal increments of $1,218,995 each)
To be made proportionately in increments (at 60% occupancy, fund 10% of total equity; at 70% occupancy, fund 10% of total equity; at 80% occupancy, fund 10% of total equity, and at 90% of occupancy, fund 10% of total equity). All thresholds must consist of occupied units. Payment will be made upon receipt of all closing documents indicated in attachment under 'Documents Required at Third Closing'.

Payment 4 of remaining LP Capital Contribution ($1,217,994)
To be made upon later of achieving Qualified Occupancy (100% of units occupied by qualifying tenants under Section 42 of the Internal Revenue Code), or receipt of IRS Form 8609. See attachment for 'Documents Required at Fourth Closing'.

The operating, debt service and lease-up reserves will be funded from the last equity

contribution.

The Capital Contribution is subject to reduction in certain circumstances, including without limitation, if the Credits allocated to the Operating Partnership are less than the Projected Credits.

7. Guaranties

a. Construction completion guaranty

Operating General Partner/Guarantor fully guarantees construction completion.

b. Operating Deficit Guaranty

1) The Operating General Partner/Guarantor will agree to provide funds required to pay any operating deficits of the Operating Partnership during the Compliance Period. The operating deficit will include all reasonable costs to owning and operating the Project, including, without limitation, debt service payments, taxes, insurance premiums, management fees, maintenance expenses, and required escrow and reserves.
2) Guarantor: Hawaii Housing Development Corporation
3) For a period of 15 years.
4) Secured by working capital of Operating General Partner/Guarantor in the amount of $ 35,000
5) See Operating Cash Flow for repayment

c. Credit Reduction Guaranty

1) In effect, if in any year Actual Credits are less than Projected Credits, then the Fund shall be owed an amount necessary to preserve the Fund's anticipated return based on the Projected Credit (the "Credit Reduction Amount"). The Credit Reduction Amount may be paid, pursuant to the terms of the Operating Partnership Agreement, by means of an offset against remaining scheduled Fund Capital Contributions (if any), from the Guarantor pursuant to a guaranty agreement, or from priority distributions of Project Cash Flow.
2) Guarantor: Hawaii Housing Development Corporation
3) For a period of 15 years
4) Secured by working capital of Operating General Partner/Guarantor in the amount of $ 35,000
5) See Operating Cash Flow for repayment

8. Partner Rights/Obligations

Limited Partner: The Fund, as Limited Partner in the Operating Partnership, will have numerous rights in the Operating Partnership as set forth in the Operating Partnership Agreement. These rights include the right to remove the Operating General Partner for

cause (including failure to provide the Projected Credit and certain events of Default) and to approve any transaction outside the ordinary course of Operating Partnership business.

Operating General Partner: The Operating General Partner shall, as general partner of the Operating Partnership, be responsible for the day-to-day management of the Operating Partnership in such a manner that the Project is eligible to claim Credits with respect to 100% of the Units in the Project. The Operating General Partner will also be responsible for providing financial data to the Fund and the Limited Partner, or its designee, on a monthly, quarterly and annual basis. The Operating General Partner will be required to maintain a working capital balance of $ 35,000 for the life of the partnership.

9. Operating Partnership Reserves

a. Operating Reserve Account

1) Operating Reserve Amount: $ 467,640
2) Term of account: 15 years
3) Use of account: To fund operating deficits of Project
4) Funding order to make an operating deficit payment:
   1. Operating Reserve
   2. Operating Deficit Guaranty
5) Funding of account:
   1. Full Operating Reserve Amount funded at Fourth Closing. Should Operating Reserve Account drop below the Operating Reserve Amount during life of partnership, then funds will flow into the Operating Reserve Account as follows:
      1. Residual (if any) from Lease-Up Reserve plus,
      2. Cash flow (see Section 10(a)(3) below), until Account holds the specified Operating Reserve Amount.
6) Maintained by: Limited Partner or its designee (documents shall include language regarding length of time to respond to any requests and should clearly state under what parameters monies will be paid out from this Reserve, to eliminate any concerns OGP has about disallowed expenditures).

b. Lease Up Reserve Account

1) Lease Up Reserve Amount: up to $ 259,460
2) Term of account: 12 months after placed in service date. Upon expiration of the 12 months, if any residual remains in this account, balance will be used to pay down first mortgage.
3) Use of account: To fund operating deficits during lease-up of Project.
4) Funding order to make operating deficit payments while Lease Up Reserve Account is active:
   1. Lease Up Reserve
   2. Operating Reserve

3. Operating Deficit Guaranty

5) Funding of account: Funded at Fourth Closing

6) Maintained by: Limited Partner or its designee (documents shall include language regarding length of time to respond to any requests and should clearly state under what parameters monies will be paid out from this Reserve, to eliminate any concerns about disallowed expenditures).

c. Replacement Reserve Account

1) Replacement Reserve Amount: $ *TO BE DETERMINED* *(initial projections show a $ 54,000 per year reserve amount, and final figure based on schedule provided by OGP, which shows each capital repair item, life of item and estimated cost at replacement)*

2) Term of account: 15 years

3) Use of account: To fund capital items for Project

4) Funding order of capital expenditure items:
   1. Replacement Reserves
   2. Operating Deficit Guaranty

5) Funding of account:
   1. Monthly, from gross cash flow prior to distribution schedule
   2. The amount of funding will be reviewed every 1-2 years to ensure the appropriate level of Reserve is being set-aside. This review will be conducted by the OGP in the same manner that the initial review was conducted, and will be subject to approval by the Limited Partner or its designee.

6) Maintained by: Limited Partner or its designee (documents shall include language regarding length of time to respond to any requests and should clearly state under what parameters monies will be paid out from this Reserve, to eliminate any concerns about disallowed expenditures).

d. Debt Service Reserve Account

1) Debt Service Reserve Amount: $ 289,701

2) Term of account: 15 years

3) Use of account: To fund debt service deficit payments

4) Funding order of capital expenditure items:
   1. Debt Service Reserve
   2. Operating Deficit Guaranty

5) Funding of account:
   1. Funded at Fourth Closing.

6) Maintained by: Limited Partner or its designee (documents shall include language regarding length of time to respond to any requests and should clearly state under what parameters monies will be paid out from this Reserve, to eliminate any concerns about disallowed expenditures).

10. Operating Cash Flow Distribution

a. Cash Flow means Gross Revenues (defined as all cash receipts of the Partnership during any period, except for Capital Contributions, Net Cash from Sales and Refinancings, or the proceeds of any loan to the Partnership) less:

1) All debt payments (except for debt payments on a Secondary Loan which is defined as a loan from the OGP to make any guaranties whole), including debt payments for the Rental Housing Trust Fund ("RHTF") loan
2) All operating expenditures, including expenses unpaid but properly accrued
3) Funding of Replacement Reserves Account and other additional Reserve
4) accounts established by the Partners, including the Operating Reserve Account
4) Asset Management Fee payments
5) Operating General Partner Fee payments (Incentive Management Fee)

b. Distribution of Cash Flow (in order):

1) to Limited Partner for Credit Reduction Payments
2) to repay any Secondary Loan
3) to repay the Operating General Partner for loans made toward covering Operating Deficit Guaranty
4) to repay any amounts treated as loans under the Guaranty Agreement and not yet repaid (i.e. if Guarantor made any loans toward the Credit Reduction or Operating Deficit guaranties)
5) The Rental Housing Trust Fund / Dwelling Unit Revolving Fund formula, as appropriate
6) To Partners in accordance with percentages shown

Operating General Partner	75.0%
Limited Partner	25.0%
	100.0%

11. Project Fees

Developer Fee. The OGP will be paid a developer fee of $ $650,000 .

Asset Management Fee. The Partnership will pay a non-cumulative, monthly fee to the Limited Partner's designee in an amount equal to 1.5% of Gross Revenues. This amount will be determined and paid monthly but shall be subject to a final month adjustment.

The Limited Partner or its designee will review its ability to cap the Asset Management Fee at a specified amount from the time Rental Housing Trust Fund loan payments begin. The amount of the fee will be subject to mutual agreement by all parties and, if allowable and approved, will be incorporated into the Partnership Agreement. The Limited Partner's

share of Distributable of Cash Flow, as described above in section 10.b, may be included as part of the Asset Management Fee to the extent allowed by law. If deemed allowable by Limited Partner's counsel, then language to that effect will be incorporated into the Limited Partnership Agreement.

The standard Asset Management Fee is 2.5%, however due to the status as a preferred client, the fee has been reduced to 1.5%. In the event the OGP is no longer deemed to be a preferred client, the fee may be increased to 2.5%.

Operating General Partner Fee Payments (Incentive Management Fee). The Partnership will pay an Incentive Management Fee to the Operating General Partner in an amount equal to 60% of then available Net Cash Flow in accordance with the provisions listed above, as compensation for the operational and financial management of the Project. This amount will be determined and paid monthly but shall be subject to a final month adjustment.

Accounting Fees. Reasonable annual accounting fees shall be paid to the Accountants by the Operating Partnership. The Accountants shall be responsible for creating audited financial statements for the Operating Partnership, along with preparing all tax returns, Form 1065 K-1, and other related documents within deadlines as prescribed in the Limited Partnership Agreement. For auditing and tax purposes, Accountant shall mean a certified public accountant as is selected by the Limited Partner or its designee.

Legal Fees. The Operating General Partner/Operating Partnership shall pay, the Fund's legal and accounting review fees in an amount currently projected at $ 30,000 , which shall include, but not be limited to the preparation and implementation of the Operating Partnership Agreement and Investment Agreement, review and due diligence of all documentation (including review of proforma analysis), and submittal of a tax opinion to the Fund's investors. The Fund will endeavor to get a firm estimate from its Counsel, however, to the extent that unanticipated additional reviews are required by the Fund Counsel, the Operating General Partner/Operating Partnership will also be required to fund the excess charges over the estimate. The fees will be invoiced by the Fund to the Partnership on a periodic basis, and will be paid by the Partnership within 30 days of receipt of invoice, or upon receipt of proceeds from the next loan draw request after the Operating General Partner's receipt of said invoice.

All costs incurred by the Fund for the review of this project will be paid by the Operating General Partner, regardless of whether the Project is finally acquired by the Fund.

The Operating General Partner/Operating Partnership shall pay the Operating General Partner's legal fees in an amount not to exceed $40,000, which shall include review of the Operating Partnership Agreement and Investment Agreement, and review and due

diligence of other related documents. This fee shall include the opinion of the Operating General Partner's counsel required at Closing.

Transaction Expenses. The Operating General Partner is generally responsible for other costs of the transaction, including, but not limited to (i) costs of providing financial statements of the OGP as requested by the Fund, (ii) other required documents related to acquisition, such as, but not limited to, a certificate of good standing.

12. Other conditions. In addition to the conditions contained in this Term Sheet, HHDC's participation in this agreement and the Fund's acquisition of the Project are contingent upon, at a minimum, the following:

a. The specified tax credit allocation, as represented by the OGP, from HCDCH in the name of the Partnership, and satisfactory assurances that the allocation can be transferred to the Partnership;

b. The receipt of satisfactory evidence that costs and eligible basis incurred by the developer are able to be utilized by the Partnership;

c. The final and formal approval by HIAHI and the Limited Partner to the terms and conditions of the Limited Partnership and Investment Agreement and this Term Sheet;

d. The review and approval of all the documents required for Closing;

e. The approval by the HHDC's Board of Directors; and

f. The formation of Hawaii Equity Fund IV, LLC, and or its designee or assignee.

AGREED & ACCEPTED:
Operating General Partner
Hawaii Housing Development Corporation

Wallace [signature] its <secretary>
for Randolph G. Moore
Chairman
Date: 2.26.04

By executing this Term Sheet, the Operating General Partner hereby agrees not to solicit or accept any proposals from any entity pursing an ownership interest in the Project/Partnership, and grants Hawaii Equity Fund IV, LLC the exclusive right to acquire the interests in the Project/Partnership. Please sign and return.

Limited Partner
Hawaii Equity Fund IV, LLC
by its Manager: Hawaii Investors
for Affordable Housing, Inc.

Stacy L. Sur
President
Date: 2/26/04

APPENDIX XI

HUD ENVIRONMENTAL ASSESSMENT

Environmental Assessment

for HUD-funded Proposals

Recommended format per 24 CFR 58.36, revised February 2004
[Previously recommended EA formats are obsolete].

Project Identification:	Tusitala Vista Apartments
Preparer:	Kusao & Kurahashi, Inc. Planning & Zoning Consultants
Responsible Entity:	Department of Planning & Permitting City and County of Honolulu
Month/Year:	December, 2004

Environmental Assessment

Responsible Entity: City and County of Honolulu

[24 CFR 58.2(a)(7)]
Certifying Officer: Jeremy Harris, Mayor

[24 CFR 58.2(a)(2)]
Project Name: Tusitala Visa Apartments

Project Location: 2423 and 2429 Ala Wai Boulevard, Honolulu, Hawaii 96815

Estimated total project cost: $21,542,541.00

Grant Recipient: Hawaii Housing Development Corporation

[24 CFR 58.2(a)(5)]
Recipient Address: 725 Kapiolani Blvd., Suite C-103, Honolulu, Hawaii 96813
Project Representative: Mr. Gary Furuta, Project Manager

Telephone Number: 808-429-7815

Conditions for Approval: (List all mitigation measures adopted by the responsible entity to eliminate or minimize adverse environmental impacts. These conditions must be included in project contracts and other relevant documents as requirements). [24 CFR 58.40(d), 40 CFR 1505.2(c)]

FINDING: [58.40(g)]

___ **Finding of No Significant Impact**
(The project will not result in a significant impact on the quality of the human environment)

___ **Finding of Significant Impact**
(The project may significantly affect the quality of the human environment)

Preparer Signature: Keith Kurahashi **Date:** 12/23/2004

Name/Title/Agency: **Keith Kurahashi, President**
Kusao & Kurahashi, Inc.

RE Approving Official Signature:

_____ **Date:**_____

Name/Title/
Agency:_____

Statement of Purpose and Need for the Proposal: [40 CFR 1508.9(b)]
See Pages 10 thru 12 – Statement of Purpose and Need of the Final EA.

Description of the Proposal: Include all contemplated actions which logically are either geographically or functionally a composite part of the project, regardless of the source of funding. [24 CFR 58.32, 40 CFR 1508.25]
See Pages 13 thru 21 – Proposed Development of the Final EA.

Existing Conditions and Trends: Describe the existing conditions of the project area and its surroundings, and trends likely to continue in the absence of the project. [24 CFR 58.40(a)]
See Pages 21 thru 22 Existing Conditions and Trends of the Final EA.

Statutory Checklist

[24CFR §58.5]

Record the determinations made regarding each listed statute, executive order or regulation. Provide appropriate source documentation. [Note reviews or consultations completed as well as any applicable permits or approvals obtained or required. Note dates of contact or page references]. Provide compliance or consistency documentation. Attach additional material as appropriate. Note conditions, attenuation or mitigation measures required.

Factors Documentation	Determination and Compliance
Historic Preservation [36 CFR 800]	See Page 47 – Environmental Impacts, Subsection 1. Historical and Archaeological Resources of Final EA.
Floodplain Management [24 CFR 55, Executive Order 11988]	See Page 42 – Drainage, Subsection 4 and page 54 Environmental Impact, Subsection 2 (b) of Final EA.
Wetlands Protection [Executive Order 11990]	See Page 54 – Environmental Impact, Subsection 2 (c) of Final EA.
Coastal Zone Management Act [Sections 307(c),(d)]	See Page 55 – Environmental Impact, Subsection 2 (d) of the Final EA.
Sole Source Aquifers [40 CFR 149]	See Page 55 – Environmental Impact, Subsection 2 (f) of the Final EA.
Endangered Species Act [50 CFR 402]	See Page 55 – Environmental Impact, Subsection 2 (g) of the Final EA.
Wild and Scenic Rivers Act [Sections 7 (b), (c)]	See Page 56 – Environmental Impact , Subsection 2 (h) of the Final EA.
Air Quality [Clean Air Act, Sections 176 (c) and (d), and 40 CFR 6, 51, 93]	See Page 60 – Air Quality of the Final EA.

Farmland Protection Policy Act [7 CFR 658]	See Page 56 – Environmental Impact, Subsection 2 (i) of the Final EA.
Environmental Justice [Executive Order 12898]	See Page 56 – Environmental Impact, Subsection 2 (j) of the Final EA.

HUD Environmental Standards Determination and Compliance Documentation

Noise Abatement and Control [24 CFR 51 B]	See Page 58 – Noise of the Final EA. and Appendix XIII
Toxic/Hazardous/Radioactive Materials, Contamination, Chemicals or Gases [24 CFR 58.5(i)(2)]	See Page 61 – Hazards of the Final EA.
Siting of HUD-Assisted Projects near Hazardous Operations [24 CFR 51 C]	No hazardous operations nearby.
Airport Clear Zones and Accident Potential Zones [24 CFR 51 D]	Not situated near an airport and not subject to airport clear zones and accident potential zones.

Environmental Assessment Checklist

[Environmental Review Guide HUD CPD 782, 24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27]

Evaluate the significance of the effects of the proposal on the character, features and resources of the project area. Enter relevant base data and verifiable source documentation to support the finding. Then enter the appropriate impact code from the following list to make a determination of impact. **Impact Codes**: **(1)** - No impact anticipated; **(2)** - Potentially beneficial; **(3)** - Potentially adverse; **(4)** - Requires mitigation; **(5)** - Requires project modification. Note names, dates of contact, telephone numbers and page references. Attach additional material as appropriate. Note conditions or mitigation measures required.

Land Development	**Code**	**Source or Documentation**
Conformance with Comprehensive Plans and Zoning	2	Final EA – Consistent with Development Plan and State Plan.
Compatibility and Urban Impact	2	Final EA
Slope	1	Final EA
Erosion	1	Final EA
Soil Suitability	1	Final EA
Hazards and Nuisances including Site Safety	1	Final EA
Energy Consumption	1	Final EA

Noise - Contribution to Community Noise Levels	1	Refer to Page 58 of Final EA and Appendix XIII of Final EA
Air Quality Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels	1	Final EA.
Environmental Design Visual Quality - Coherence, Diversity, Compatible Use and Scale	2	Final EA

Socioeconomic	**Code**	**Source or Documentation**
Demographic Character Changes	2	Final EA
Displacement	1	Final EA
Employment and Income Patterns	1	Final EA

Community Facilities and Services	**Code**	**Source or Documentation**
Educational Facilities	1	Final EA
Commercial Facilities	1	Final EA
Health Care	2	Final EA
Social Services	2	Final EA

Solid Waste	1	Final EA
Waste Water	1	Final EA
Storm Water	1	Final EA
Water Supply	1	Final EA
Public Safety - Police	1	Final EA
- Fire	1	Final EA
- Emergency Medical	1	Final EA
Open Space and Recreation - Open Space	2	Final EA
- Recreation	2	Final EA
- Cultural Facilities	1	Final EA
Transportation	1	Final EA

Natural Features		**Source or Documentation**
Water Resources	1	Final EA
Surface Water	1	Final EA
Unique Natural Features and Agricultural Lands	1	Final EA
Vegetation and Wildlife	1	Final EA

Other Factors		Source or Documentation
Flood Disaster Protection Act [Flood Insurance] [§58.6(a)]	1	Final EA
Coastal Barrier Resources Act/ Coastal Barrier Improvement Act [§58.6(c)]	1	Final EA
Airport Runway Clear Zone or Clear Zone Disclosure [§58.6(d)]	1	Final EA
Other Factors		

Summary of Findings and Conclusions
See Page 65, Chapter VIII Significance Criteria of the Final EA.

ALTERNATIVES TO THE PROPOSED ACTION

Alternatives and Project Modifications Considered [24 CFR 58.40(e), Ref. 40 CFR 1508.9]
(Identify other reasonable courses of action that were considered and not selected, such as other sites, design modifications, or other uses of the subject site. Describe the benefits and adverse impacts to the human environment of each alternative and the reasons for rejecting it.)
See Page 62, Major Impacts and Alternatives Considered of the Final EA.

No Action Alternative [24 CFR 58.40(e)]
(Discuss the benefits and adverse impacts to the human environment of not implementing the preferred alternative).
See Page 62, Major Impacts and Alternatives Considered, (A. No. Action).

Mitigation Measures Recommended [24 CFR 58.40(d), 40 CFR 1508.20]
(Recommend feasible ways in which the proposal or its external factors should be modified in order to minimize adverse environmental impacts and restore or enhance environmental quality.)
See Page 62, Mitigation Measures of the Final EA.

Additional Studies Performed
(Attach studies or summaries)
Please refer to List of Appendices in the Final EA for Studies Performed.

List of Sources, Agencies and Persons Consulted [40 CFR 1508.9(b)]
See Page 6 for list of sources, agencies and persons consulted during the pre-Draft EA, and comments/responses on the Draft EA.

APPENDIX XII

ARCHAEOLOGICAL INVENTORY SURVEY AND

CULTURAL IMPACT EVALUATION

Hirata & Associates
Geotechnical Engineering
Ernest K. Hirata & Associates, Inc.
99-1433 Koaha Pl
Aiea, HI 96701
tel 808.486.0787
fax 808.486.0870

November 9, 2004
W.O. 03-3862

Mr. Gary Furuta
Imperial Plaza, C-103
725 Kapiolani Blvd
Honolulu, HI 96813

Dear Mr. Furuta:

Re: Source of Fill Material
Tusitala Vista
Honolulu, Hawaii

As requested, we reviewed the End of Fieldwork letter report prepared by Cultural Surveys Hawaii Inc., dated October 29, 2004, as well as our draft boring logs for the subject project.

The surface soils encountered in our borings drilled closest to CSH Trench #9 were classified as fill consisting primarily of grayish brown sandy silt and clayey silt, mixed with coralline sand and gravel. The fill extended to depths of about 3 feet, where a stratum of grayish brown and tan silty sand with coral fragments was encountered.

Based on our experience, the fill material is similar to that encountered throughout the Waikiki area, as well as in other areas of Honolulu. Based on our observations, we are unable to determine the vicinity from where the fill material may have originated.

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

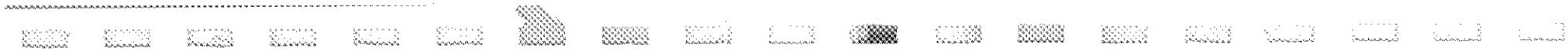
Sincerely,

ERNEST K. HIRATA & ASSOCIATES, INC.

Paul S. Morimoto

Paul S. Morimoto, P.E.

\3862.M01.wpd



Archaeological Inventory Survey
for the Tusitala Vista Elderly Apartments in
Waikīkī Ahupua'a, Kona District, O'ahu Island

TMK: 2-6-24: 70, 71

by

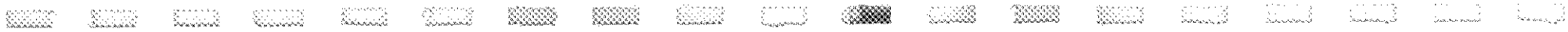
Rodney Chiogioji, B.A.,
Uta Rainalter, B.S.,
Sallee D.M. Freeman, M.A.,
and
Hallett H. Hammatt, PhD

Prepared for

Kusao & Kurahashi, Inc.

by

Cultural Surveys Hawai'i, Inc.
December 2004



MANAGEMENT SUMMARY

Title	Archaeological Inventory for the Tusitala Vista Elderly Apartments in Waikīkī, Ahupua'a, Waikīkī, O'ahu
Date	December 2004 (Draft)
Project Number	Cultural Surveys Hawai'i Inc. (CSH) Job No. WAIK 62
Agency	State of Hawai'i Department of Land and Natural Resources / State Historic Preservation Division (DLNR / SHPD)
Permit Number	Fieldwork was performed under CSH's annual archaeological research permit, No. 0404, issued by DLNR / SHPD
Location	The project area comprises TMK 2-6-024:70, 71, bounded by Ala Wai Boulevard to the northeast, Tusitala Street to the southwest, "Ala Wai Townhouse" (at 2421 Ala Wai Blvd.) to the northwest and the "Waikīkī Bellevue Apartments" (at 2427 Ala Wai Blvd.) to the southeast, in the *ahupua'a* of Waikīkī, District of Kona, Island of O'ahu. This area is depicted on the 1998 Honolulu 7.5-minute USGS topographic quadrangle.
Land Jurisdiction	Private, Hawai'i Housing Development Corporation is presently in the process of purchasing the project area land from Starts International Hawai'i, Inc.
Project Acreage	Approximately 1.03 acres
Project Description	The proposed project involves developing the southwest or *makai* half of the currently vacant property into a single 8-story residential apartment complex and the northwest or *mauka* half into a surface parking lot. There will be associated utility installation and landscaping. Most, if not all, of the project area will have subsurface ground disturbance.
Area of Potential Effect (APE) and Inventory Survey Acreage	For this inventory survey investigation, the project's APE is defined as the entire approximately 1-acre footprint of the proposed apartment complex development. The project area's surrounding built environment is urban (paved streets and low rise and high rise buildings) and the proposed apartment construction poses no *additional* auditory or visual impact to any surrounding potential historic properties (for example historic buildings or structures) Accordingly, for the current inventory survey investigation the survey area and the project APE are one and the same.
Document Purpose	At the request of Kusao and Kurahashi, Inc., CSH undertook this archaeological inventory survey. In consultation with SHPD, the inventory survey investigation was designed to fulfill the state requirements for archaeological inventory survey [Hawai'i Administrative Rules (HAR) Chapter 13-276]. This document was prepared to support the proposed project's historic preservation review under HRS Chapter 6E-42 and HAR Chapter 13-284, as well as the project's environmental review under HRS Chapter 343.

Dates, Personnel, and Number of Person-days Required for Field Effort	Jessie York, BA, Jennifer Olson, BA, Daniel Terry BA, Anthony Bush, BA, and Uta Rainalter, BS, assisted project director William Folk, BA, with the field effort, which required 16 person-days to complete. Fieldwork took place 4-8 October 2004 under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).
Number of historic properties identified	Four
Historic Properties Recommended Eligible to the Hawai'i Register of Historic Places (Hawai'i Register)	Site -6682, buried A Horizon; 'Āinahau (Cleghorn Estate), habitation, criteria "B" Site -6705, human skeletal fragments in disturbed sediment, criteria "D" and "E" Site -6706, stream bed, believed to be a segment of 'Āpuakēhau Stream, criteria "D" Site -6707, stone retaining wall, criteria "A, B, C, D, E"
Historic Properties Recommended Ineligible for the Hawai'i Register	None
Results of Archaeological Inventory Survey	Prior to the project's fieldwork, an extensive archaeological and historical literature review was conducted to inform on the project area's cultural setting. Fieldwork consisted of the excavation and documentation of 14 backhoe trenches. The historic properties documented within the project area are part of an extensive archaeological landscape, including *'auwai* (irrigation ditches), *lo'i* (pond fields), part of 'Āinahau (the Cleghorn Estate), and other remnants of pre-contact and historic land use. This archaeological landscape has been documented throughout much of Waikīkī. Information regarding the four historic properties currently documented includes historical and archival data, stratigraphic information, geographic locations and areal extents, and the results of radiocarbon dating analysis of selected samples. The findings of this inventory survey were in keeping with the predictive model based on background research. These findings indicate that the project area was the site of extensive traditional Hawaiian land use, both in pre-contact and historic times. Within the current project area traditional land use effectively ended with the dredging and construction of the Ala Wai Canal in the 1920s.
Effect Recommendation	CSH's project specific effect recommendation is "effect with mitigation commitments." The proposed condominium development will adversely affect significant historic properties (SIHP sites -6682, -6705, -6706, and -6707) located with the project's APE. Of the four sites recorded in the project area, SIHP site -6707 is recommended for data recovery, SIHP site -6705 for further monitoring, and SIHP sites -6682 and -6706 for no further work. Because these significant historic properties are subsurface and will be affected by the ground disturbance that is proposed throughout all, or most, of the project area, the recommended mitigation measures will reduce the project's effect to these historic properties.

Mitigation Recommendation	To alleviate the proposed project's adverse effect on significant historic property -6705 (human skeletal fragments), CSH recommends that an SHPD-approved archaeological monitoring package be implemented during the ground disturbing phases of the project. The monitoring methods should be developed in coordination with SHPD and should include appropriate sampling and analytic methods to document additional information from exposed archaeological and/or paleoenvironmental deposits and to facilitate the identification and treatment of any additional burials discovered within the project area. To alleviate the proposed project's adverse effect on significant historic property -6707 (likely a *lo'i* field retaining wall), CSH recommends that an SHPD-approved data recovery plan be implemented. Tentative research goals for a data recovery plan include additional backhoe trenches to better delineate the horizontal extent of SIHP site -6707, likely a *lo'i* field retaining wall.

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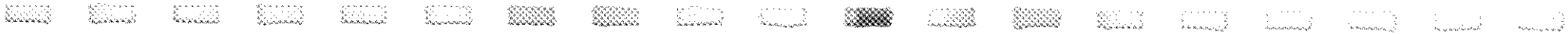

I. INTRODUCTION

A. Project Background

At the request of Kusao & Kurahashi, Inc., Cultural Surveys Hawai'i Inc. (CSH) has completed an archaeological inventory survey with subsurface testing of approximately 1.03 acres in Waikīkī Ahupua'a, Kona District, Island of O'ahu. In consultation with the State of Hawai'i Department of Land and Natural Resources State Historic Preservation Division (DLNR / SHPD), the inventory survey investigation was designed to fulfill the state requirements for archaeological inventory survey [Hawai'i Administrative Rules (HAR) Chapter 13-276]. This document was prepared to support the proposed project's historic preservation review under HRS Chapter 6E-42 and HAR Chapter 13-284, as well as the project's environmental review under HRS Chapter 343.

The project area comprises TMK 2-6-024:070 and 071, which are bounded by bounded by Ala Wai Boulevard to the northeast, Tusitala Street to the southwest, "Ala Wai Townhouse" Apartments to the northwest and the "Waikīkī Bellevue Apartments" to the southeast. This area is depicted on the 1998 Honolulu 7.5-minute USGS topographic quadrangle and TMK 2-6-024 (Figures 1, 2). Housing Development Corporation is presently in the process of purchasing the project area land from Starts International Hawai'i, Inc.

For this inventory survey investigation, the project's APE is defined as the entire approximately 1-acre footprint of the proposed apartment complex development. The proposed project involves developing the currently vacant property into a single eight-storied apartment complex and a surface parking lot. There will be associated utility installation and landscaping. Most, if not all, of the project area will have subsurface ground disturbance. The project area's surrounding built environment is urban (paved streets and low rise and high rise buildings) and the proposed condominium construction poses no *additional* auditory or visual impact to any surrounding potential historic properties (for example historic buildings or structures). Accordingly, for the current inventory survey investigation the survey area and the project APE are one and the same.

Jessie York, BA, Jennifer Olson, BA, Daniel Terry, BA, Anthony Bush, BA, and Uta Rainalter, BS assisted project director William Folk, BA, with the field effort, which required 16 person-days to complete. Fieldwork took place between 5 and 8 October 2004 under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).

Fieldwork was performed under CSH's annual archaeological research permit, No. 0404, issued by the DLNR / SHPD.

B. Scope of Work

The following archaeological inventory survey scope of work was completed to satisfy the State and County requirements per the State Historic Preservation Division (SHPD) Hawaii Administrative Rules Title 13, Sub-Title 13, Chapter 276 - Rules Governing Standards for Archaeological Inventory Surveys and Reports. The scope of work includes:

1. A complete ground survey of the entire project area for the purpose of site inventory. All sites were located, described, and mapped with evaluation of function, interrelationships, and significance. Documentation included photographs and scale drawings of selected sites and complexes. All sites were assigned SIHP site numbers.

2. Subsurface testing with a backhoe to determine if subsurface deposits are located in the project area, and, evaluation of their significance. When appropriate samples from these excavations were found, they were analyzed for chronological and paleoenvironmental information.
3. Research on historic and archaeological background, including search of historic maps, written records, and Land Commission Award documents. This research focused on the specific area with general background on the *ahupua'a* and district and emphasized settlement patterns.
4. Preparation of a survey report which included the following:
    a. A topographic map, if available, of the survey area showing all archaeological sites and site areas;
    b. Description of all archaeological sites with selected photographs, scale drawings, and discussions of function;
    c. Historical and archaeological background sections summarizing pre-contact and historic land use as they relate to the archaeological features;
    d. A summary of site categories and their significance in an archaeological and historic context;
    e. Recommendations based on all information generated specified what steps should be taken to mitigate impact of development on archaeological resources - such as data recovery (excavation) and preservation of specific areas. These recommendations were developed in consultation with the client and the State agencies.

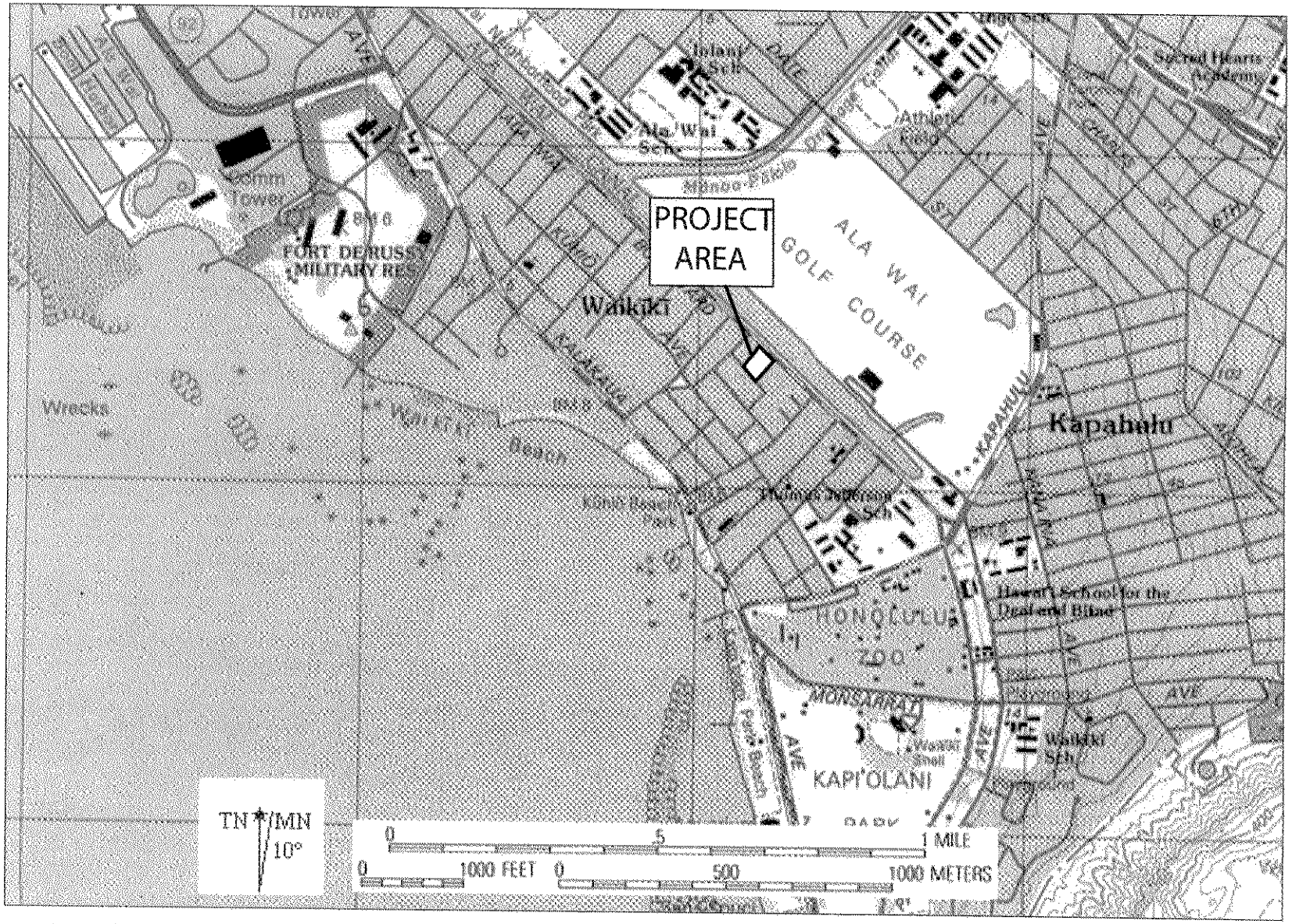

Figure 1. Portion of the 1998 Honolulu USGS 7.5-minute topographic quadrangle showing project area

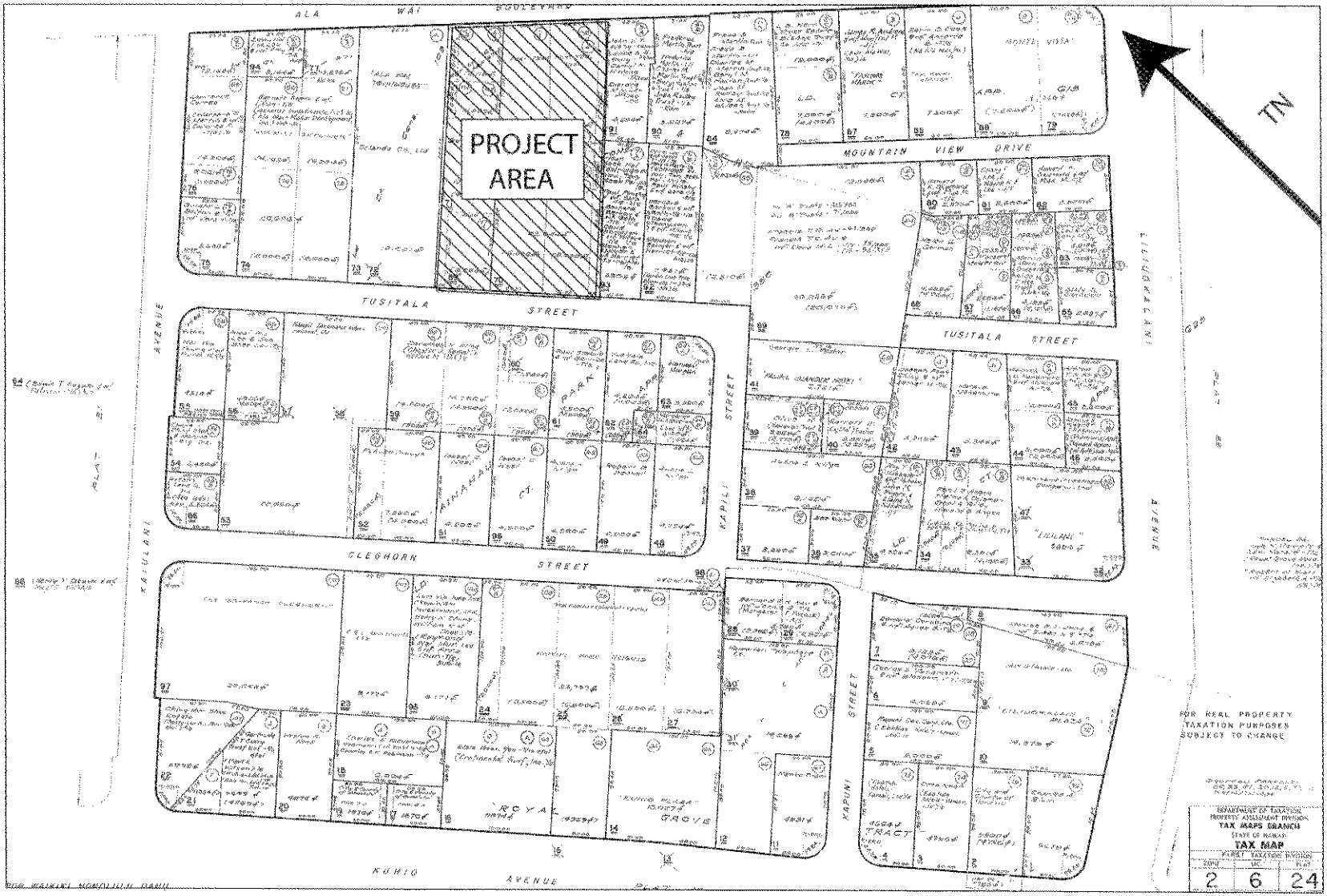

Figure 2. TMK 2-6-24 map showing location of the present project area

This scope of work also includes full coordination with the State Historic Preservation Division (SHPD), and county relating to archaeological matters. This coordination takes place after consent of the landowner or representatives.

C. Methods

1. Fieldwork

The inventory survey field inspection and subsurface testing of the project area took place from October 5th to October 8th, 2004, with four Cultural Surveys Hawai'i archaeologists working under the direction of William Folk, B.A. and Hallett H. Hammatt, Ph.D. Subsurface testing consisted of the excavation of 14 backhoe trenches to document the subsurface nature of the project area. Trenches were placed to test specific questions identified in the background research, as well as to provide adequate coverage of all portions of the project parcel.

In all trenches, the base of excavation was the water table, which was approximately 150 cm below the current land surface. Trenches were generally one bucket width (1-1.4 m) wide and of variable depths (depending on ground water, tide, and the different elevation above sea level of ground surfaces within the project area).

Four archaeologists were on site at all times to monitor the excavation, to document the exposed sections, and to collect sediment samples. One archaeologist was positioned to watch the bucket and the exposed section on one side of the trench. Another was positioned to watch the bucket and the other exposed section. A third archaeologist was positioned to watch the bucket as the excavated material was dumped from the bucket. Trench location, dimensions, and orientation were recorded.

Exposed trench sections were documented with scale section profiles, photographs, sediment descriptions, and, where useful, sediment samples. Sediment descriptions included Munsell color designations, sediment size, inclusions, compactness, and cultural material present. Representative samples of cultural material were collected from sediment sifted through 1/8th inch mesh screens.

Samples and cultural materials were inventoried, catalogued, and in some cases sent for radiocarbon dating.

2. Laboratory work

During the course of backhoe trenching, cultural materials, primarily charcoal samples were collected both *in situ* and through screening. Cultural materials were collected for species analysis and analysis of any indication of pre-contact and/or historic occupation of the lands and if so, the chronological development of the site(s).

A total of 4 samples were submitted for carbon dating from both shallow deposits (less than 30 cm below surface) as well as deeper deposits up to 190 cm below surface. All four of these samples had sufficient mass for radiocarbon dating.

All collected materials and data will be temporarily stored at CSH offices until further notification from the landowner and SHPD of an agreed upon final repository.

3. Background research

Background research included a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources, a review of record at the Bishop Museum archives, and a review of documents and maps at the Cultural Surveys Hawai'i library.

Individuals knowledgeable about the project area's history are being consulted in conjunction with a companion Cultural Impact Assessment document entitled *Cultural Impact Evaluation for the Tusitala Vista Elderly Apartments Waikīkī, Kona District, O'ahu Island (TMK: 2-6-24: 70, 71)*, covering the same project area.

4. Bishop Museum archival research

The OIBC requested that a Cultural Surveys Hawai'i, Inc. (CSH) archaeologist meet with DeSoto Brown, collections manager of the Bishop Museum archives, to examine Dillingham Corporation records to determine if these documents provide information about the origin of the fill material in which the human skeletal fragments were found. One CSH archaeologist researched the Bishop Museum archives on two separate occasions, November 23 and 30, 2004. No conclusive information regarding the fill material was obtained.

The Dillingham Corporation files are located in the Business Archives section of the library. The scope of the files includes the records of the Dillingham Corporation, its predecessors, and related companies (e.g., Lewers & Cooke, O'ahu Railway & Land Company, Hawaiian Dredging Company, Inter-island Steam Navigation Company, and numerous small companies). The Dillingham family personal and business papers present in the records include the papers of Benjamin F. Dillingham (1844-1918), his wife, Emma Lowell (Smith) Dillingham (1844-1920), Walter F. Dillingham (1875-1963), Benjamin F. Dillingham II, and scattered materials of other family members and of the Smith family.

The types of information present in the records include ledgers (payments received and paid, subcontractors), financial journals (purchasing and distribution), invoices, vouchers, financial statements, auditor's reports, taxes information, contracts, agreements, job accounts ledgers, an example of the corporate seal, maps and sketches of project areas, general correspondence, photos, stockholders documents, day books, miscellaneous volumes (sundry ledgers, journals, vessel accounts, cash books), secretary's minutes, title abstracts, and miscellaneous data for the company and related individuals.

D. Natural Setting

1. Modern Geology, Climate, and Vegetation

The plain of Waikīkī is flat and, generally, less than 4.5 m (15 feet) above sea level (Davis 1989:5). Soils in the area are composed solely of Jaucus Sand with 0-15% slopes (JaC) (Foote et al.1972: Map 63). Rainfall averages less than 30 inches of rain per year (Armstrong 1983:62); however, the area receives additional water from the Kālia and Pālolo Streams, as well as rain showers that drift into the area from the mountains and inland valleys (Cleghorn 1996:3). Northeasterly tradewinds prevail throughout the year, although their frequency varies from more than 90% during the summer months to 50% in January. The average annual wind velocity is approximately 10 miles per hour (Okamoto 1998:2-1). Currently, vegetation in the project area is

primarily comprised of a variety of grasses with a few Plumeria and Papaya trees planted along the northern and southern fence lines.

2. Geomorphology

Modern Hawaiian shoreline configuration, including Waikīkī Beach is primarily the result of: 1) rising sea level following the end of the Pleistocene (see Stearns 1978 and McDonald et al. 1983); 2) the mid to late Holocene c. 1.5-2.0 meter high-stand of the sea (see summary in Dye and Athens 2000:18-19); and, 3) pre-contact and historic human landscape modification. At the end of the Pleistocene, between approximately 20,000 and 5-6,000 years ago, water previously locked in glacial ice returned to the world's oceans and sea-level rose over 100 meters to approximately its current level. Rising sea levels flooded the previously dry, earlier Pleistocene reef deposits, which had formed hundreds of thousands of years previously when sea level was comparable to modern levels. In the late Pleistocene/early Holocene, the Waikīkī area was characterized by an expansive delta drainage system which flowed from the Koʻolau Mountains to the sea (Ferrall 1976: plate II).

Land formation was directly related to changes in the sea level, terrigenous sediment load of streams, and reef and marine sediment formation. Lowering sea levels and increased marine sediment load (from reef erosion due to wave action) combined to create a sand accretion barrier along the coast as marine sediments were deposited on the resulting shallower reefs. This created a lagoon environment between the island shoreline and the sand accretion barrier. Terrigenous sediments were carried into this lagoon environment by Mānoa and Pālolo streams. When sea level reached approximately modern levels, the now coastal regions became depositional environments, where for tens of thousands of years previously, during the lower sea levels, they had been erosional environments. This resulted in the deposition of both terrigenous and marine sediments in low-energy estuarine or lagoonal environments, leading to the accumulation of thick deposits of soft/loose sediments along the current coastlines in areas that had formerly been valleys and drainage ways (Geolabs Hawaiʻi Inc. 1993:9). By the time humans occupied the coastal area of Waikīkī, the lagoon had become a wetland (which was used for cultivation) behind the sand accretion barrier (which was used for habitation) (Ferrall 1976: B-2). It is likely that only since the major construction projects of the beachfront hotels has the overall accretion trend of Waikīkī beach been stopped or reversed. The current landform at Waikīkī is largely the result of the historical drainage excavation of the Ala Wai Canal and associated fill deposits.

II. HISTORICAL BACKGROUND

A. Pre-Contact to Early 1800s

By the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, Waikīkī had long been a center of population and political power on O'ahu. According to Martha Beckwith (1940), by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of Oahu." The preeminence of Waikīkī continued into the eighteenth century and is betokened by Kamehameha's decision to reside there upon wresting control of O'ahu by defeating the island's chief, Kalanikūpule. The nineteenth century Hawaiian historian John Papa 'Ī'ī (1959:17), himself a member of the *ali'i* (chiefly class), described the king's Waikīkī residence:

> Kamehameha's houses were at Puaaliilii, makai of the old road, and extended as far as the west side of the sands of 'Āpuakēhau. Within it was Helumoa where Ka'ahumanu mā went to while away the time. The king built a stone house there, enclosed by a fence . . . ('Ī'ī 1959:17).

'Ī'ī further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili" ('Ī'ī 1959:17).

Chiefly residences, however, were only one element of a complex of features that characterized Waikīkī up to pre-contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. The pioneering nineteenth-century scholar Samuel Mānaiakalani Kamamau recounts Kalamakua's significance for the Hawaiian people:

> Kalamakua-a-Kaipūhōlua was a good chief. He was noted for cultivating, it was he who constructed the large pond fields Ke'okea, Kūalulua, Kalāmanamana, and the other lo'i in Waikīkī. He traveled about his chiefdom with his chiefs and household companions to cultivate the land and gave the produce to the commoners, the maka'āinana. They loved him. Kelea-nui-noho-'ana-'api'api became his wife when he was a mature man. (Kamakau 1991: 45)

Captain George Vancouver (1798:161-164), arriving at "Whyteete" in 1792, captured something of the profusion of taro *lo'i* across Waikīkī in his journals:

> On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.
>
> [Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.
>
> This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and

> figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or taro root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the taro plantations.
>
> [We] found the plain in a high state of cultivation, mostly under immediate crops of taro; and abounding with a variety of wild fowl, chiefly of the duck kind . . . The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence.

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikīkī are given by Archibald Menzies (1920:23-24), a naturalist accompanying Vancouver's expedition:

> The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of Draecena without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews.

The work of chief Kalamakua in Waikīkī will be further detailed in the discussion of the present project area in Section H below.

The traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O'ahu was soon to change – disrupted by the same Euro-American contact that produced the first documentation (including the records cited above) of that traditional life. The *ahupua'a* of Honolulu - with the only sheltered harbor on O'ahu - became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. Kamehameha himself moved his residence from Waikīkī to the coast near Honolulu harbor, likely in order to maintain his control of the lucrative trade in sandalwood

that had developed. By 1828, the missionary Levi Chamberlain (1957:26), describing a journey into Waikīkī, would note:

> Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population. (Chamberlain 1957:26)

Tragically, the depopulation of Waikīkī was not simply a result of the attractions of Honolulu (where, by the 1820s, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populace.

B. Mid-Nineteenth Century and the Māhele

The depopulation of Waikīkī, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-nineteenth century. The Organic Acts of 1845 and 1846 initiated the process of the Māhele (the division of Hawaiian lands) that introduced private property into Hawaiian society. In 1848, the crown (Hawaiian government) and the *ali'i* (royalty) received their land titles. Subsequently in the Māhele, Land Commission Awards (LCAs) for *kuleana* parcels were awarded to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

A discussion of Land Commission Awards related to the present project area is presented in Section H below.

C. Mid to Late 1800s

As the nineteenth century progressed, Waikīkī was becoming a popular site among foreigners – mostly American – who had settled on O'ahu. An 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the *ali'i* – the Hawaiian royalty – and several notables had residences there. A visitor to O'ahu in 1873 described Waikīkī as "a hamlet of plain cottages, whither the people of Honolulu go to revel in bathing clothes, mosquitoes, and solitude, at odd times of the year" (Bliss 1873).

Other developments during the second half of the nineteenth century a prelude of changes that would dramatically alter the landscape of Waikīkī during the twentieth century – include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Ave.), the building of a tram line between the two areas, and the opening of Kapi'olani Park on June 11, 1877. Traditional land-uses in Waikīkī were abandoned or modified. By the end of the 19th century most of the fishponds that had previously proliferated had been neglected and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States.

As the sugar industry throughout the Hawaiian kingdom expanded in the second half of the nineteenth century, the need for increased numbers of field laborers prompted passage of contract labor laws. In 1852, the first Chinese contract laborers arrived in the islands. Contracts were for five years, and pay was $3 a month plus room and board. Upon completion of their contracts, a number of the immigrants remained in the islands, many becoming merchants or rice farmers. As was happening in other locales, in the 1880s, groups of Chinese began leasing and buying (from the Hawaiians of Waikīkī) former taro lands for conversion to rice farming. The taro lands' availability throughout the islands in the late 1800s reflected the declining demand for taro as the native Hawaiian population diminished.

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-nineteenth century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

> The primary market for both husked rice and paddy raised in all parts of the Hawaiian Islands was in Honolulu. The number of Chinese in the islands created a large home demand.
>
> In 1880 the home market was made more secure by an increase in the duty on rice imported into Hawai'i to 1½ cents on paddy and 2½ cents on hulled rice. It resulted in further checking the importation of foreign rice and giving an immense impetus to the home product. (Coulter and Chun, 1937: 13)

By 1892, Waikīkī had 542 acres planted in rice, representing almost 12% of the total 4,659 acres planted in rice on O'ahu. Most of the former taro *lo'i* converted to rice fields were located *mauka* of the present Ala Wai Boulevard.

D. 1900 to 1920

During the first decade of the twentieth century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Fort DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

> On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...
>
> Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O'ahu. At DeRussy other activities also had to be attended to - especially the filling of a portion of the fishponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of an hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground. (Hibbard and Franzen 1986:79)

All the fishponds were filled by 1928.

E. 1920s to 1930s

During the 1920s, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī. The canal was one element of a plan to urbanize Waikīkī and the surrounding districts:

> The [Honolulu city] planning commission began by submitting street layout plans for a Waikīkī reclamation district. In January 1922 a Waikīkī improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Mō'ili'ili, and McCully districts, as well as lower Makiki and Mānoa...
>
> The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block [Johnson 1991:311]

During the course of the Ala Wai Canal's construction, the banana patches and ponds between the canal and the *mauka* side of Kalākaua Avenue were filled and the present grid of streets was laid out. These newly created land tracts spurred a rush to development in the 1930s. An article in the Honolulu Star-Bulletin in 1938 extolled the area's progress:

> The expansion of apartment and private residence construction is no secret. Examination of building permits will show that more projects have been completed during the past year, and more are now underway in this area, than in any other section of the territory.
>
> These developments are being made by island residents who have recognized the fact that Waikīkī presents the unparalleled possibility for safe investment with excellent return. (Newton 1938: 10)

The writer speculated that the "future of Waikīkī is assured."

F. 1940s

The entrance of the United States into World War II following the Japanese bombing of Pearl Harbor on December 7, 1941 put on hold plans for the development of Waikīkī as a tourist destination. Until the war's end in 1945, the tourist trade was non-existent "...since the Navy controlled travel to and from Hawai'i and did not allow pleasure trips" (Brown 1989: 141). For the duration of the war, Waikīkī was transformed into a recreation area for military personnel.

> It was not the same Waikīkī as before the war, though; barbed wire barricades now lined its sands, and there were other changes too. Fort DeRussy became a huge recreation center, with a dance hall called Maluhia that attracted thousands of men at a time. The Moana Hotel continued to function, but many other establishments and private homes in the area were taken over by the military. [Brown 1989:141]

Nearing the war's end, concerns began arising over the future of Waikīkī. An article in the Honolulu Advertiser of July 16, 1945 decried "honky-tonks" that had sprung up in Waikīkī during the course of the war, and asked: "Can anyone look at present-day Kalākaua Ave. – lined

with makeshift curio shops, noisy 'recreation' centers, eyesores that pass under the name of lunchrooms and miscellany of 'joints' – and hope that Waikīkī can stage a comeback [as a tourist destination]?"

G. 1950s

By the mid-1950s there were more than fifty hotels and apartments from the Kālia area to the Diamond Head end of Kapi'olani Park. The Waikīkī population, by the mid-1950s, was not limited to transient tourists but included 11,000 permanent residents living in 4,000 single dwellings and apartments in stucco or frame buildings.

H. Historical Documentation of the Project Area

Beginning at the mid-nineteenth century, the historical record of Waikīkī including the present project area and adjacent lands was established in increasingly detailed documentation including photographs, maps, newspaper articles, and government records. These documents also give insight into pre-contact Waikīkī. During subsequent decades of the twentieth century, abundant documentation of Waikīkī allows a more precise focus on the changes within the project area itself up to the 1950s.

1. 1881 survey map by S.E. Bishop

An 1881 Hawaiian Government survey map by Serrano E. Bishop with locations of LCA parcels provides a detailed record of the physical landscape of Waikīkī before the transformations of the twentieth century. Figure 3 presents a portion of the 1881 map with the location of the current project area indicated. As shown on the map, coursing through the middle of the project area is 'Āpuakēhau Stream which once descended from Mānoa Valley, entering the ocean "near the present Moana Hotel" and which was "probably named for a rain" (Pukui et al. 1974: 13).

The map also shows the project area straddling two Waikīkī *'ili* which appears to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in Auaukai.

As was noted above, according to Samuel Kamakau, Kalāmanamana was one of the areas where the chief Kalamakua constructed the "large pond fields" of taro that once covered the Waikīkī plain. Some of the Kalāmanamana *lo'i* are shown in Figure 3. The complete 1881 map shows a network of *lo'i* (which by the 1880s were being converted to rice fields) extending across present-day McCully and Mō'ili'ili to the foot of Mānoa Valley, suggesting the impressive scale of the field system engineered by Kalamakua.

Also indicated on the map are the *'auwai* created to channel water of streams descending from Pālolo, Mānoa, and Makiki Valleys. The almost 90-degree bend of 'Āpuakēhau Stream into the present project area, as shown on the 1881 map, suggests that the stream was diverted sometime early in the creation of the Waikīkī fields either to direct water to *lo'i* constructed elsewhere or to create a broader expanse of dryland in the *'ili* identified on the map as Auaukai, Kaluaokau, Kapuni and Uluniu. These *'ili* would, in time, come to be identified with *'ali'i* (the Hawaiian royalty) who resided in Waikīkī.

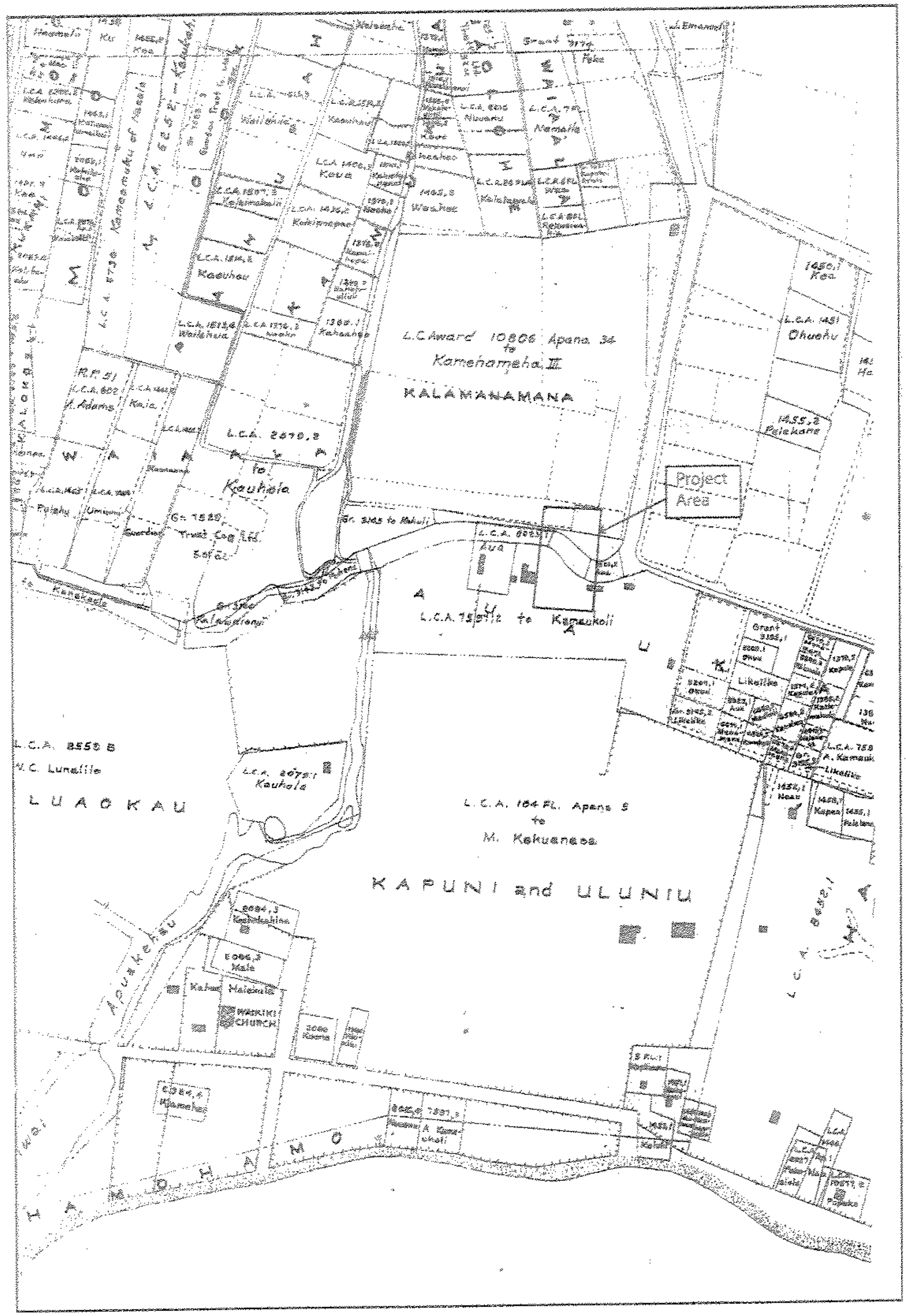

Figure 3. Portion of an 1881 Serrano E. Bishop map showing location of Land Commission Awards with the approximate location of project area indicated

2. Land Commission Award Records

The 1881 map (Figure 3) identifies locations of Land Commission Awards within Waikīkī. Documentation about Māhele awards provides specific details of life within and adjacent to the present project area during the nineteenth century and earlier. Based on the 1881 map, four awards appear to be most relevant to the project area:

LCA 10806, Apana (parcel) 34 awarded to Kauikeaouli, Kamehameha III;

LCA 104 FL (Fort Lands), Apana 5 awarded to Mataio Kekūanaō'a;

LCA 7597, Apana 2 awarded to Kamaukoli; and

LCA 8023, Apana 1 & 2 awarded to Aua.

Information provided in LCA records for these four awards is presented below.

The records for LCA 10806 identify Parcel 34 as Kalamanamana, one of the king's "farms at Waikiki" (Native Register vol. 3, pg. 387-390). Testimonies given in support of the award identify taro *lo'i* (irrigated fields) at Kalāmanamana and the king's other Waikīkī farm lands:

> M. Kekuanaoa, sworn, I had known that these lois: Hohe, Kalamanamana and Keokea are for the King, the kole lois throughout the island of Oahu are also for the King. Some koele patches were given to the konohiki during the land Māhele. They are in the ilis of Hamohamo and Kalia and they have been for the King since the time of Kaahumanu until the time of the land distribution. There are some government portions in here, but these lois are for the King which is complicating to me at this time. It is for the King probably, for the government, perhaps, for whom is it? Kamehameha I had built these farms, Kamehameha III has them now.
>
> Piikoi, sworn, I have seen these places for which the King is demanding. These patches were planted with taro at the time Kinau was governor of Oahu and Kamanawa did the harvesting and S. Kuluwailehua was the tax assessor at the time. It was probably before 1839 and since that time to the Māhele, the King has sent Kaihe to show me the King's interest that I might work in it. It has been that way to the present and I have heard these places are for the King and the claim has been filed. I have also heard that these places have been for the King from the time of Kamehameha I and had been in the care of Kinau and Kaahumanu. (Native Testimony vol. 10, pg.448)

LCA 104 FL was granted to Mataio Kekūanaō'a. Kekūanaō'a, born in Hilo on Hawai'i Island in the 1790s, was governor of O'ahu at the time of the Māhele. He was the father of Alexander Liholiho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Princess Victoria Kamāmalu, Princess Ruth Ke'elikolani, and Moses Kekuaiwa. Following his death in November 1868 his lands were inherited by his daughter, Princess Ruth.

The records for LCA 104 FL (Fort Lands) suggest that Apana 4, as indicated on the 1881 map, comprised land associated with Kekūanaō'a's "house site in Kapuni, Waikīkī, Kona, Oahu" (Native Testimony vol. 10, pg. 390). Based on descriptions in the LCA records, the house site itself was located at the coast. The records do not indicate any specific land features or agricultural activity within Apana 4. Records for LCA 7597, Apana 2 awarded to Anederea

Kamaukoli provide detailed information on the parcel and reveal that Kamaukoli was *konohiki* (headman of an *ahupua'a* land division under the chief of the area). Kamaukoli himself testified:

> ...I...hereby state my claim for land, Auaukai, an 'Ili, was given me by Kaahumanu I in the year in which Poki sailed to Nanapua [*i.e.* about 1829] and disappeared. That was when I acquired this 'Ili and from that time I have occupied this land as konohiki. The tenants are living under me, and going to my work days and are ruled by the laws of this time. My own lo'is in Auaukai, an 'ili in the Ahupua'a of Waikiki, are three taro lo'i, one weed-grown kula for planting sweet potatoes and gourd. (Native Register vol. 5, pg. 413-415)

Other records identify the taro in Apana 2 as *puepue* or dryland.

Kamaukoli is identified in Māhele documents as the father-in-law of Aua, the awardee of LCA 8023. Aua testified that he received the land in the "'ili of Auaukai" from Kamaukoli "in the time of [the regency] of Kaahumanu" (Foreign Testimony vol. 14, pg. 475). It appears that the two parcels of LCA 8023 shown on the 1881 map comprise "one pauku [land section] of taro...in the water course and...another pauku of stream" (Native Register vol. 5, pg. 478).

In summary, the Māhele documents indicate that within the present project area at the mid-nineteenth century: the *mauka* section comprised a portion of taro *lo'i* belong to the king; the central section comprised a portion of Apuahekau Stream in which taro was also growing; and the *makai* portion comprised *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. It is likely that these agricultural activities recorded in the documents reflect the continuation into the nineteenth century of the primary traditional Hawaiian land use and cultural activity within the project area and vicinity.

3. 'Āinahau

Historic maps identify the present project area as a portion of 'Āinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Princess Miriam Likelike (1851-1887), and their daughter Princess Ka'iulani (1875-1899) – all significant personages in the history of Hawai'i.

> Cleghorn not only beautified Waikīkī through his work at Kapi'olani Park [he had been instrumental in the park's creation and design], but also at his estate, 'Āinahau, which he had purchased in 1872 for $300. Inheriting a love of horticulture from his father, Cleghorn lavishly landscaped this parcel, making it "the most beautiful private estate in the Hawaiian Islands" (Hibbard and Franzen 1986: 12)

A 1917 government survey map – on which the present project area is indicated – shows the boundaries of the 'Āinahau estate and other land owned by Cleghorn immediately *mauka* of 'Āinahau, beyond the *mauka* bank of 'Āpuakēhau Stream (Figure 4). When the 1917 map is studied in tandem with the 1881 map discussed above (Figure 3), it appears that the 'Āinahau estate comprised the entire LCA 7597 Apana 2 and an adjacent portion of LCA 104 FL Apana 5. The portion of LCA 104 FL is probably the land that Princess Ruth Keelikolani gave to Princess Kaiualani as a christening gift.

The structures indicated within LCA 7597 Apana 2 on the 1881 map would appear to be buildings constructed by Cleghorn on the 'Āinahau grounds. Among these buildings, the large structure indicated just outside the present project area is likely the bungalow which was the

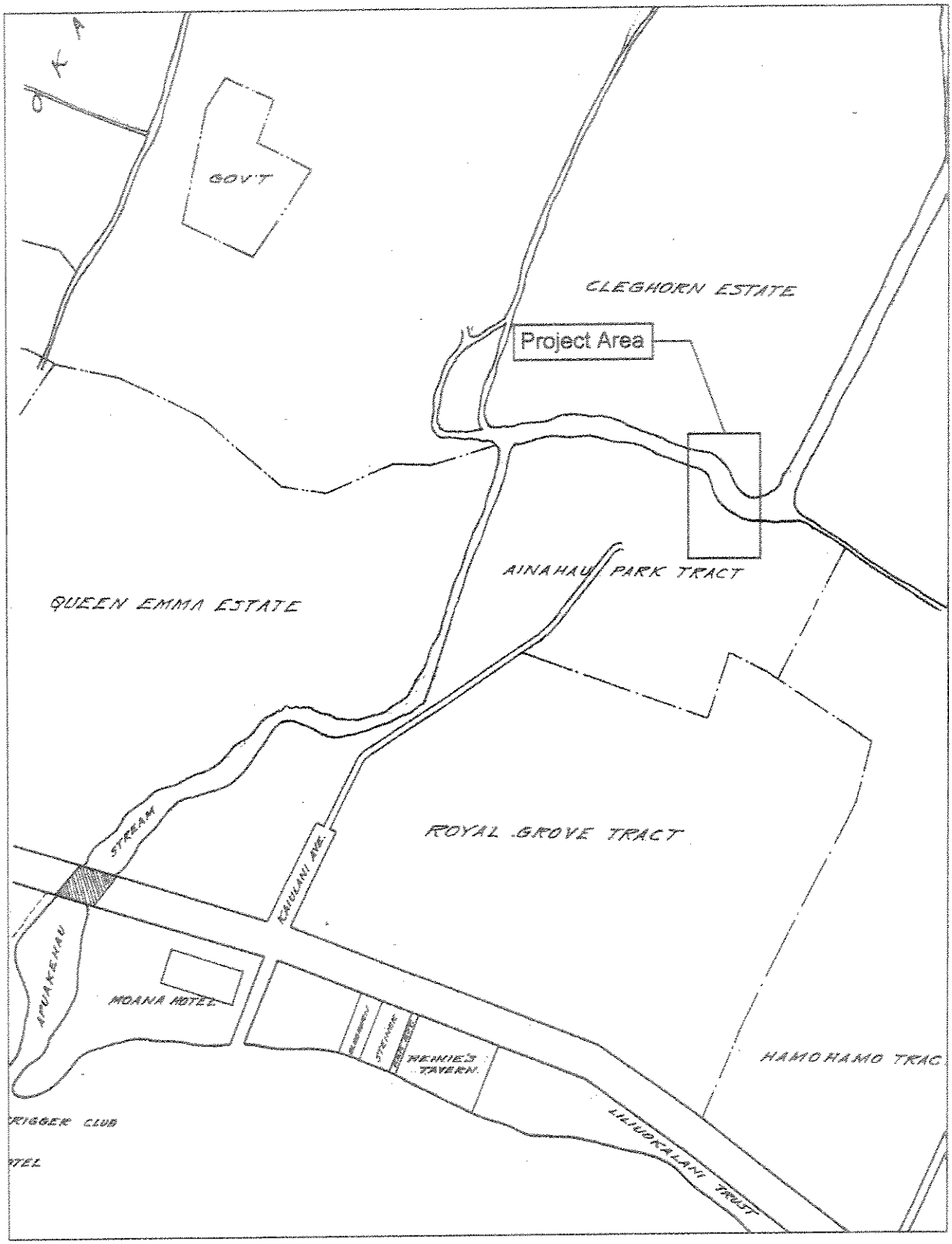

Figure 4. Portion of a 1917 government survey map (Bishop Museum) shows boundaries of the Cleghorn Estate and approximate location of the present project area

Cleghorn family's first residence on the estate. Subsequently, in the 1890s, Cleghorn constructed, immediately adjacent to the bungalow, a large Victorian-style house. A visitor in the 1890s noted:

> The new house was a white frame structure, of two stories, with wings at either end – the favourite form of Honolulu architecture – with a wide verandah extending across the front. The shrubbery had been cut away for several yards in every direction to allow the free circulation of the air, and just beyond the main entrance stood the one incomparable banyan tree, which the owner presently informed me was the handsomest thing he had. (in Stassen-McLaughlin 1986: 127)

Historic photographs indicate that this house was located within the *makai* portion of the present project area.

Two members of the Cleghorn family would not live to see the twentieth century:

> Not only a site of pleasant pastimes, these lands ['Āinahau] also were associated with grief and tragedy. Here, Princess Likelike died on 2 February 1887, at the age of thirty-six, and twelve years later, in 1899, Cleghorn's daughter Ka'iulani, passed away here in the springtime of her life, at the age of twenty-four. (Hibbard and Franzen 1989: 13)

Cleghorn himself would continue to reside at 'Āinahau until his death in 1910. The house would burn down on August 2, 1921 in a fire caused by a gas heater.

4. The Project Area in the Twentieth Century

Seven years following Cleghorn's death, the 'Āinahau estate was put up for sale.

> In 1917 James W. Pratt bought the estate, then sold most of it in 1919 to William Chauncey Wilder. Wilder, along with developer Percy M. Pond, had great plans. The property was offered to the public for subdivision. [Stassen-McLaughlin 1986: 128]

An advertisement appearing in the Pacific Commercial Advertiser on May 5, 1919 shows the residential subdivision developed by Pond (Figure 5). The streets shown on the map, which were constructed for the subdivision, correspond to the present-day Ka'iulani Avenue, Cleghorn Street, Kapili Street, and Tusitala Street.

The map also indicates that 'Āpuakēhau Stream continued to flow in the first decades of the twentieth century and delineated the *mauka* and 'Ewa boundaries of the 'Āinahau subdivision tract. The map suggests that, in 1919, only the *makai* portion of the present project area was developed as a portion of the tract. 'Āpuakēhau Stream and remnants of the pond fields of Waikīkī continued extant in the *mauka* portion of the project area. Additionally, as was noted above, the 'Āinahau residence was still standing in 1919, likely within the present project area, until it burned down in 1921. The 'Āinahau tract subdivision may have excluded the residence and its immediate surroundings from development.

As was also noted above, the construction of the Ala Wai Drainage Canal between1921 and 1928 resulted in the draining and filling in of the Waikīkī fishponds and irrigated fields, and their replacement with the gridwork of streets of present-day Waikīkī. A 1927 fire insurance map shows the Ala Wai Canal and Ala Wai Boulevard immediately *mauka* of the present project area

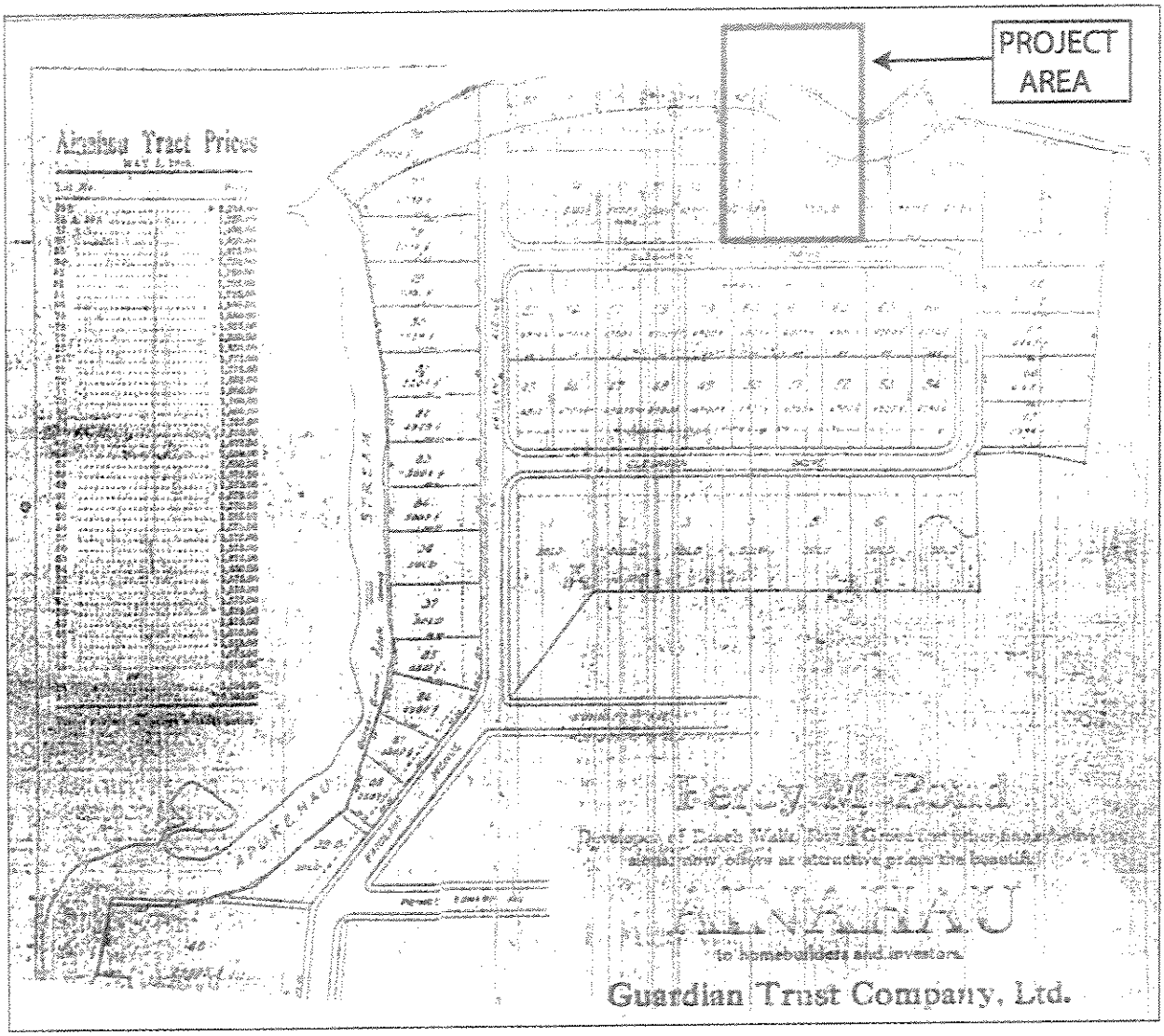

Figure 5. Advertisement in Pacific Commercial Advertiser on May 5, 1919 showing division of ʻĀinahau residential subdivision by Percy Pond with approximate location of present project area indicated

which is now a fully-formed urban block (Figure 6). The map indicates that the project area parcel, like other parcels in the neighborhood, is filled with single-story wooden cottages. These cottages characterized much of Waikīkī during the first half of the twentieth century.

An insight into Waikīkī life in the 1920s and 1930s is provided by Betty Dyer Sorensen whose family lived at the corner of Kalākaua Avenue and Beach Walk. Her parents, John and Mabel Dyer, had bought a 7055-square-foot lot at 290 Beach Walk for $1500 in 1918. Mrs. Sorensen describes the house her parents built there, in which she lived following her birth in 1922 until her marriage in 1946:

> The front porch was on the mauka (mountain) side, and it caught the mountain breezes. It was painted buff with white trim and was in the Twenties bungalow style. (Sorensen 1995: 30-31)

In the 1920s, Waikīkī was a small neighborhood:

> . . . with little cottages, inexpensive apartments and a few nice houses. People liked to live there because it was so close to the ocean and to transportation. The streetcars went down Kalakaua Avenue, Waikiki's main thoroughfare, all the way from Diamond head to the business section of downtown Honolulu, three miles away. The few tourists who visited either stayed with friends for at least a month or they rented a cottage. (Sorensen 1995.:1)

Since the area was documented on the 1927 map, a 1950 fire insurance map (Figure 7) reveals few changes to the cityscape of the present project area and its surrounding neighborhood. This lack of major transformation is in sharp contrast to the rapid urban development of the hotel, retail and residential properties in Waikīkī at this time, in the areas in closer proximity to the shoreline. In the present project area and its neighborhood, single storied wooden houses still predominate, though several of these have either been added on to or divided into duplexes or triplexes. In addition, a handful of new dwellings have been built. The map also shows that the name of the street to the southwest of the project area, Cleghorn Drive, was changed to its current name, Tusitala Street.

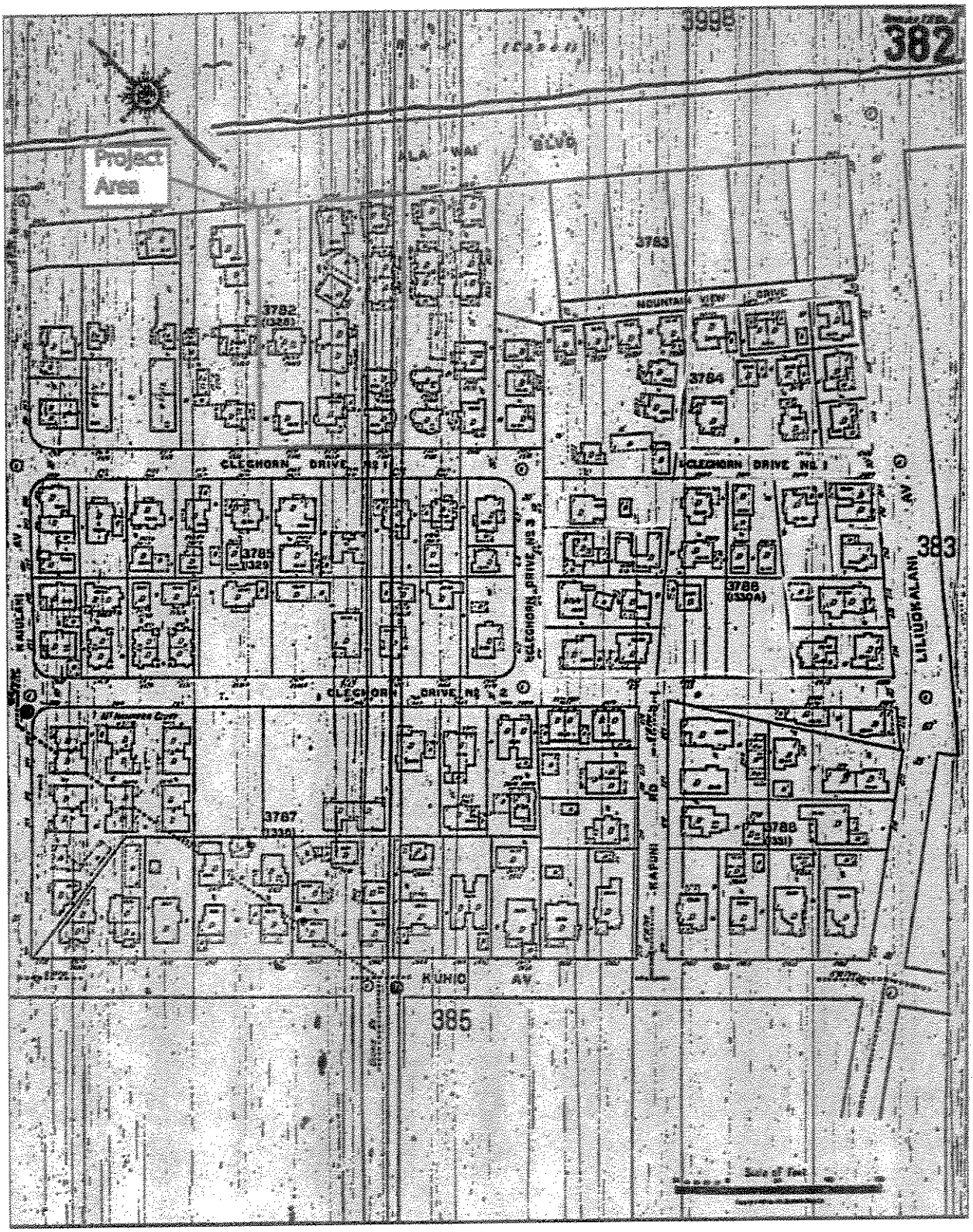

Figure 6. Portion of 1927 fire insurance map (Sanborn) with approximate location of the present project area indicated

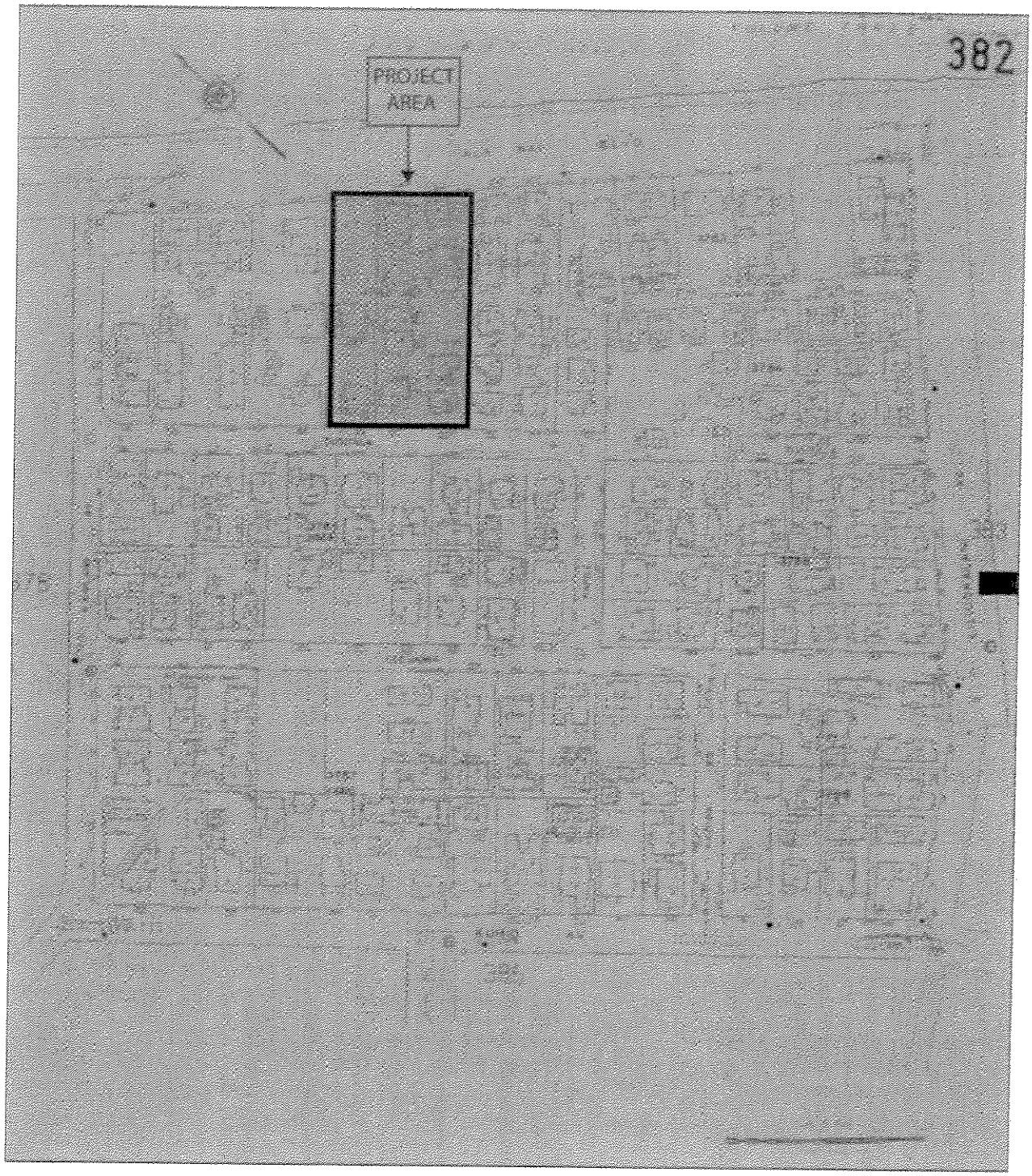

Figure 7. Portion of 1950 fire insurance map (Sanborn) with approximate location of the present project area indicated

III. PREVIOUS ARCHAEOLOGICAL RESEARCH

The *ahupua'a* of Waikīkī, in the centuries before the arrival of Europeans, was an intensely utilized area, with abundant natural and cultivated resources, that supported a large population. In the nineteenth and early twentieth centuries, after a period of depopulation, Waikīkī was reanimated by Hawaiians and foreigners residing there, and by farmers continuing to work the irrigated field system, which had been converted from taro to rice. Farming continued up to the first decades of this century until the Ala Wai Canal drained the remaining ponds and irrigated fields. Remnants of the pre-contact and historical occupation of Waikīkī have been discovered and recorded in archaeological reports, usually in connection with construction activities related to urban development, or infrastructural improvements. These discoveries, which have occurred throughout Waikīkī, have included many human burials, traditional Hawaiian and historic, as well as pre-contact Hawaiian and historic cultural deposits. Location of previously identified sites is shown in Figure 8 and a list of projects conducted in the Waikīkī area is listed in Table 1. A discussion of projects focusing on burials follows.

A. Previous Archaeology in Waikīkī, Focusing on Burials

N.B. Emerson reported on the uncovering of human burials during the summer of 1901 on the property of James B. Castle - site of the present Elks Club - in Waikīkī during excavations for the laying of sewer pipes (Emerson 1902:18-20). Emerson noted:

> The soil was white coral sand mixed with coarse coral debris and sea-shells together with a slight admixture of red earth and perhaps an occasional trace of charcoal. The ground had been trenched to a depth of five or six feet, at about which level a large number of human bones were met with, mostly placed in separate groups apart from each other, as if each group formed the bones of a single skeleton. Many of the skulls and larger bones had been removed by the workmen before my arrival, especially the more perfect ones. [Emerson 1902:18]

Emerson's report on the find describes the remains of at least four individuals, all presumed to be Hawaiian. Associated burial goods were also exposed during excavation; these included "a number of conical beads of whale-teeth such as the Hawaiians formerly made" and "a number of round glass beads of large size". The glass beads "can be assigned with certainty to some date subsequent to the arrival of the white man" (Emerson 1902:19). Also located with the beads was "a small sized *niho-palaoa*, such as was generally appropriated to the use of the chiefs" which had been "carved from the tooth of the sperm-whale" and which was "evidently of great age" (Emerson 1902:19).

In the 1920s and 30s the first systematic archaeological survey of O'ahu was conducted by J. C. McAllister (1933). He recorded four *heiau* (temples), three of which were located at the *mauka* reaches of Waikīkī Ahupua'a in lower Mānoa Valley. The fourth *heiau* – Papa'ena'ena - was located at the foot of Diamond Head crater near the present site of the La Pietra Estates condominium development (2933 Poni Moi Road). Other sources that place the *heiau* at La Pietra, the former mansion of Walter F. Dillingham, now the Hawai'i School for Girls (La Pietra Circle) are incorrect (Weyneth 1991:48). Papa'ena'ena Heiau is traditionally associated with Kamehameha I, who was said to have visited the *heiau* before setting off to battle for Ni'ihau and Kaua'i in 1804. Five years later, according to John Papa 'Ī'ī, Kamehameha placed at

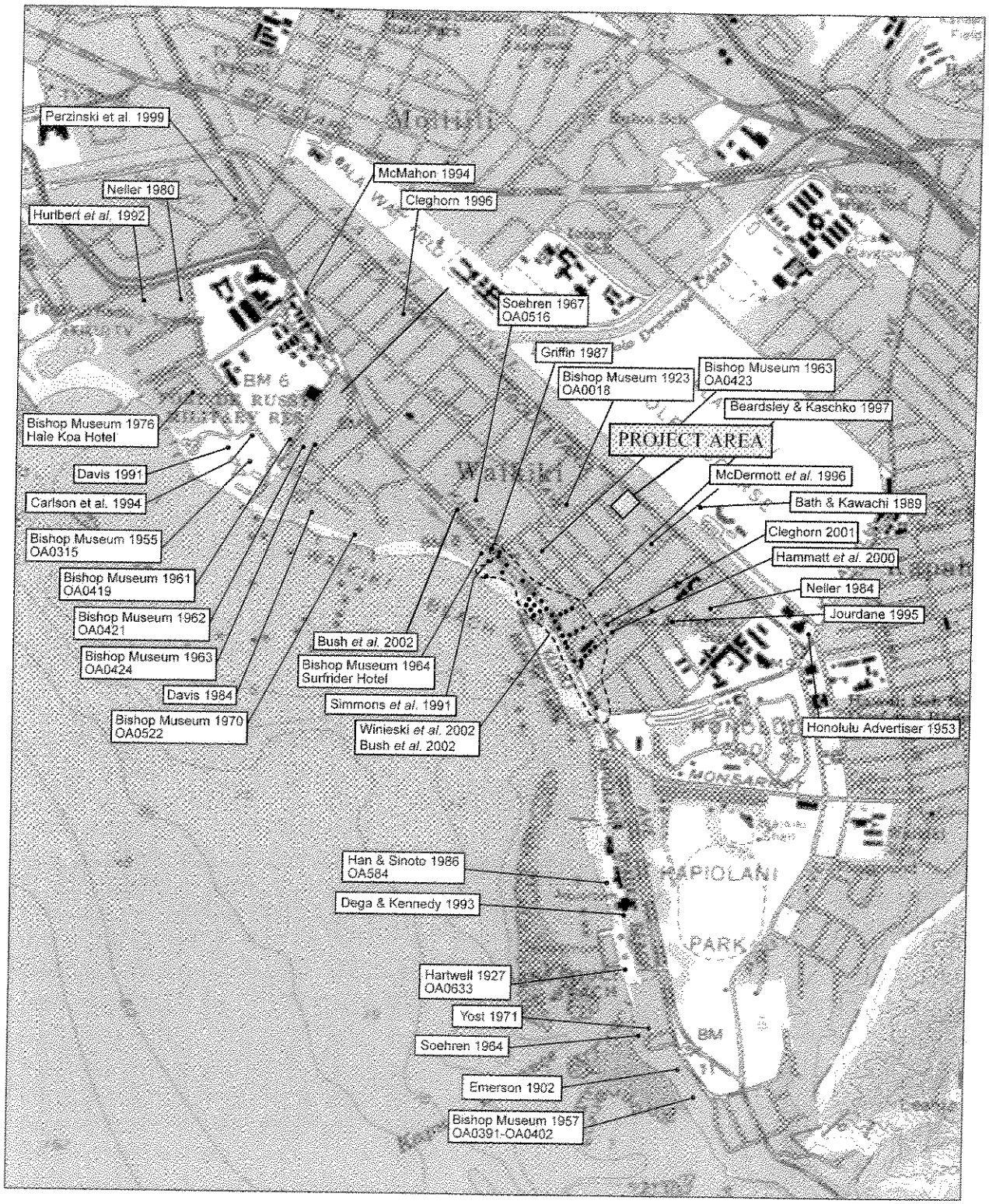

Figure 8. Previous archaeological work in Waikīkī including location of burials and the present project area

Table 1. Previous Archaeological Investigations in Waikīkī Ahupua'a

Reference	Type of Investigation	General Location	Findings
McAllister 1933	Island-wide survey	All of O'ahu	Waikīkī listed as Site 60.
Neller 1980	Monitoring Report	Hilton Hawaiian Village	Kālia Burial Site: Partial recovery of 3 historic Hawaiian burials, trash pit from 1890's
Bishop Museum 1981	Testing, & Monitoring Report	Halekulani Hotel	Intact cultural deposits found.
Neller 1981	Reconnaissance Survey	Halekulani Hotel	Limited background research on area
Davis 1984	Archaeological Investigation	Halekulani Hotel	48 historic and pre-contact features excavated.
Bishop Museum 1984	Burial Remains List	Waikīkī Ahupua'a	Listing of burial remains found in Waikīkī at the Bishop Museum
Neller 1984	Narrative Report	Paoakalani Street	Recovery of human skeletons at construction site
Griffin 1987	Inadvertent Burial Discovery	Kalākaua Ave. near corner of Kai'ulani St.	Bones removed and bagged by construction crew, burial found in *makai* wall of gas pipe excavation.
SHPD 1987	Burial, PA Report	Kalākaua Ave.	From excavation adjacent to Moana Hotel-9901).
Davis 1989	Reconnaissance Survey and Historical Research	Fort DeRussy	Fishponds & other buried features. Sites 4573 thru - 4577 are fishponds, 4570 is a remnant cultural deposit.
Rosendahl 1989	Inventory Survey, Preliminary Report	Fort DeRussy	Historic artifacts, no human remains
Riford 1989	Background Literature Search	TMK: 2-6-014:039	List of literature pertaining to Waikīkī area.
Athens 1990	Letter to SHPD	TMK: 2-6-023:025	List of human remains at IARII lab from Pacific Beach Hotel & Barbers Point Generating Station.
Hurst 1990	Historical Literature	Waikiikian Hotel	Background & planning document. No fieldwork.

Reference	Type of Investigation	General Location	Findings
Chigioji 1991	Assessment	2 parcels, TMK 2-6-24:65-68 and 80-83; 2-6-24:34-40 & 42-45	Formerly part of the ʻĀinahau estate; remainder of parcels, former *ʻauwai*, *kalo*, and rice fields; excavations & sampling strategy recommended.
Davis 1991	Monitoring Report	Fort DeRussy	See also Davis 1989. No groundwater contamination found; subsurface features and material remains date to 1780/1790s through the mid-19th century.
Kennedy 1991b	Monitoring Report	TMK: 2-6-022:014 IMAX theatre location	Pollen and bulk-sediment ^{14}C samples from ponded sediments recovered. 3 ^{14}C dates and the pollen sequence were inverted.
Simons et al. 1991	Monitoring and Data Recovery	Moana Hotel Area	8 pre-contact burials & pre- and post-contact artifacts recovered
Hurlbett 1992	Monitoring Report	TMK: 2-6-008:001	Site -2870 (3 burials) found by Neller in 1980. This report is on testing & monitoring in same area.
Pietrusewsky 1992d	PA Report	Moana Hotel	Right half of human mandible found by hotel guest.
Pietrusewsky 1992e	PA Report	Hamohamo	Human Remains from Hamohamo, Waikīkī, Oʻahu
Rosendahl 1992	Monitoring Report	Hilton Hawaiian Village	12 historic refuse pits, 3 historic to modern trenches; no further work
Streck 1992	Memorandum for Record	Fort DeRussy	Human burial (probably late pre-contact Hawaiian) found during data recovery excavations
Cleghorn 1993	Inadvertent Burial Discovery	Waikīkī Aquarium	Remains of 1 human individual, mandible identified.
Dagher 1993d	Inadvertent Burial Discovery	Waikīkī Aquarium	Remains of at least 1 burial found, excavation recommended.
Dega and Kennedy 1993	Inadvertent Burial Discovery	Waikīkī Aquarium	Discovery of unidentified bones, remains given to SHPD.

Reference	Type of Investigation	General Location	Findings
Hammatt and Chiogioji 1993	Archaeological Assessment	16-Acre Portion of the Ala Wai Golf Course	Pre-contact and early historic occupation layers associated with *lo'i* system intact below modern fill. Burial testing recommended.
Maly et al. 1994	Arch.& Historical Assessment Study	Convention Center Project Area	Recommend subsurface testing to determine presence or absence of cultural deposits and features.
McMahon 1994	Inadvertent Burial Discovery	Kalākaua & Kuamo'o Street	Miscellaneous bones uncovered in back dirt pile during construction.
Hammatt & Shideler 1995	Sub-surface Inventory Surface	1777 Kalākaua Ave.	No further work recommended at Hawai'i Convention Center site.
Jourdane 1995	Inadvertent Burial Discovery	Paoakalani Avenue	Remains discovered in planted strip between street and sidewalk fronting hotel.
Simons et al. 1995	Data Recovery Excavations	Fort DeRussy	Historic & pre-contact artifacts, artifact debris, & midden from 7 occupation layers. 6 pre-contact cultural features; *'auwai* bunds and channels, fishpond walls & sediments, possible *lo'i*, hearths.
Cleghorn 1996	Inventory Survey	TMK: 2-6-016:23, 25, 26, 28, 61, 69	7 backhoe trenches excavated, no sites located.
Grant 1996b	Historical Reference	Waikīkī	Historical information about Waikīkī prior to 1900.
Hammatt and Shideler 1996	Data Recovery	Hawai'i Convention Center	No clear evidence of Kuwili Pond sediments in project area; no further work recommended.
McDermott et al. 1996	Inventory Survey	'Āinahau Estate	Buried remnants of *'auwai* and *lo'i* and human burial found on 'Āinahau Estate, ^{14}C dates
Denham et al. 1997	Data Recovery Report	Fort DeRussy	Excavations conducted at fishponds, ^{14}C dates mid-Seventeenth century
Denham and Pantaleo 1997	Monitoring and Excavations Report	Fort DeRussy	10 subsurface features and 9 burials found. ^{14}C dates; no SHPD recommendations

Reference	Type of Investigation	General Location	Findings
Beardsley and Kaschko 1997	Monitoring & Data Recovery Report	Pacific Beach Hotel Office Annex	Traditional Hawaiian cultural deposits and 2 human burials. 3 ^{14}C dates
Hammatt and Chiogioji 1998b	Assessment	King Kalākaua Plaza Phase II	No surface sites, documented human burials, presence of subsurface pre-contact & historic cultural deposits
Hammatt and McDermott 1999	Burial Disinterment Plan and Report	Kalākaua Avenue	Two human burials found
Perzinski et al. 1999	Monitoring Report	Ala Wai Blvd., Kalākaua Ave., & 'Ena Rd.	2 burials found (1 before monitoring); pockets of undisturbed layers exist
Rosendahl 1999	Interim Report: Inventory Survey	Fort DeRussy	This area is part of the old shoreline.
Hammatt and Chiogioji 2000	Archaeological Assessment	Honolulu Zoo Parcel	Monitoring recommended for SW portion of zoo parcel, which may have significant cultural deposits.
LeSuer et al. 2000	Inventory Survey	King Kalākaua Plaza Phase II	Site -5796 has been adversely affected by land alteration Site -4970 adequately documented.
Perzinski et al. 2000a	Burial Findings	Kalākaua Ave. between Kai'ulani & Monsarrat Ave.	44 sets of human remains; 37 disinterred, 7 left in place; believed to be Native Hawaiian, pre-1820.
Cleghorn 2001a,b	Mitigation	Burger King Site	3 incidents of uncovered human remains while locating a buried sewer-line for the ABC's store.
Corbin 2001	Inventory Survey	Hilton Waikīkīan	No arch. sites were found during excavations
Elmore and Kennedy 2001	Inadvertent Burial Discovery	Royal Hawaiian Hotel	Human remains found during trench excavations for conduit. In situ remains left in place, remains disturbed reentered with others.
McGuire and	Cultural Assessment	Lewers St., Beach Walk, Kālia Rd. &	Waikīkī Beach Walk project; Iinadvertent burial discovery. Monitoring recommended for all

Reference	Type of Investigation	General Location	Findings
Hammatt 2001		Saratoga Rd.	subsurface work
Perzinski and Hammatt 2002	Monitoring Report	Kapi'olani Bandstand	A charcoal layer .most on the SW side of the bandstand, observed; recovered a basalt lamp with a handle from SE end.
Perzinski and Hammatt 2001b	Monitoring Report	Kalākaua Ave., Natatorium to Poni Mo'i Road	No cultural layer, artifacts, midden, or human burials were encountered
Rosendahl 2001	Assessment Study	Outrigger Beach Walk	Assessment of previous archaeological & historical literature.
Winieski and Hammatt 2000	Monitoring Report	TMK: 1-2-6-025:000	Possibility that Hawaiian or historic materials and burials may still be present
Borthwick et al. 2002	Inventory Survey	71,000 sq. ft. parcel, TMK: 2-6-016:002	No burials found; absence of dry Jaucus sands indicate that burial finds are unlikely in project area.
Bush and Hammatt 2002	Monitoring Report	Kalākaua Ave., between Ala Moana Blvd. and Kapahulu Ave.	Found 4 human burials, probably pre-contact; several historic trash pits; entire pig within an *imu* pit (c. A.D. 1641-1671); gleyed muck associated with former ponds.
Calis 2002	Monitoring Report	Lemon Road	No historic deposits, major previous disturbance
Elmore and Kennedy 2002	Monitoring Report	Fort DeRussy	No findings.
Mann and Hammatt 2002	Monitoring Report	Lili'uokalani & Uluniu Avenues	5 burial finds of 6 individuals; two historic trash pits.
Putzi and Cleghorn 2002	Monitoring Report	Hilton Hawaiian Village	No findings during monitoring of trench sewer excavations
Winieski et al. 2002a	Monitoring Report	Kalākaua Ave. between Ka'iulani and	44 human burials encountered, 37 disinterred; buried habitation layer identified, with traditional artifacts, midden, hearths, & charcoal; remnant of Honolulu

Reference	Type of Investigation	General Location	Findings
		Monsarrat Avenues.	Transit trolley system (light rail gauge) found; low-energy alluvial sediments associated with the now channelized *muliwai* Kukaunahi
Winieski et al. 2002b	Monitoring Report	Kūhiō Beach	Skeletal remains of 10 individuals, 6 disinterred, only 2 in situ. 4 indigenous artifacts, none in situ. Cultural layer, historic seawall.
Bush et al. 2003	Monitoring Report	International Marketplace	Historic trash found.
Tome & Dega 2003	Monitoring Report	Waikīkī Marriot	No in situ remains, recommends monitoring if more work is done, 1 isolated not in situ possible human bone fragment.
Tulchin and Hammatt 2003	Arch. & Cultural Impact Assessment	2284 Kalākaua Ave.	Possibility of burials in project area; recommends inventory survey & subsurface testing.

Papa'ena'ena the remains of an adulterer - "all prepared in the customary manner of that time" ('Ī'ī 1959:50-51).

In 1963, two human skulls and other human remains were discovered in a construction trench at 2431 Prince Edward St. (Bishop Museum site Oa-A4-23, cited in Neller 1984). Multiple burials were encountered in 1963 during excavation for the construction of the present Outrigger Canoe Club at the Diamond Head end of Kalākaua Avenue. As reported in a newspaper article on Jan. 24, 1963:

> The Outrigger Canoe Club yesterday dedicated its new site [on land adjacent to and leased from the Elks Club], an ancient Hawaiian burial ground in Waikīkī. . . .
>
> Robert Bowen of the Bishop Museum has been working closely with Ernest Souza, Hawaiian Dredging superintendent, on the removal of skeletons unearthed on the site, between the Colony Surf and the Elks Club. . . .
>
> Most of the bodies were buried in the traditional ho'olewa position, with the legs bound tightly against the chest.
>
> One of the skeletons, Bowen said, shows evidence of a successful amputation of the lower forearm, indicating that the Hawaiians knew this kind of operation before the arrival of Europeans.
>
> The ages of the skeletons ranged from children to 40-year-old men and women. The average life span of the Hawaiians at the time was about 32 years [*Honolulu Star-Bulletin*; Jan. 24, 1963: 1A].

A total of 27 burials were encountered (Yost 1971:28). Apparently, no formal archaeological report on the burials was produced.

In 1964, sand dune burials, a traditional Hawaiian mortuary practice, were revealed as beach sand eroded fronting the Surf Rider Hotel (Bishop Museum Site Files).

In 1976, during construction of the Hale Koa Hotel, adjacent to the Hilton Hawaiian Village Hotel, six burials were unearthed, five of apparent pre-contact or early historic age, and one of more recent date (Bishop Museum Site Files).

In 1980, three burials were exposed at the Hilton Hawaiian Village during construction of the hotel's Tapa Tower. Earl Neller of the (then named) State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspection of the project area. Neller's (1980) report noted:

> The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, one a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of 1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Mō'ili'ili, adjacent to where the shoreline would have been 1000 years ago. [Neller 1980:5]

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain table wares imported from China, Japan, the United States, and Europe" (Neller 1980:5). He further notes:

> It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikīkī, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikīkī over the last 200 years [Neller 1980:5].

Between December 1981 and February 1982, archaeologists from the Bishop Museum led by Bertell Davis conducted a program of excavations and monitoring during construction of the new Halekūlani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from pre-contact Hawaiian firepits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (Davis 1984:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date . . . settlement in Waikīkī to no later than the mid-1600s" (Neller 1980:5). Just as significant to Davis was the collection of historic era material at the Halekūlani site; he states:

> [The] Halekūlani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikīkī, Honolulu, or in any of the other urbanized areas of Hawai'i [Neller 1980:5].

In 1983, at the Lili'uokalani Gardens condominium construction site, seven traditional Hawaiian burials were recovered (Neller 1984). This had been the site of a bungalow owned by Queen Lili'uokalani at the end of the nineteenth century. In addition to the burials, the site contained plentiful historic artifacts, and a pre-historic cultural layer pre-dating the burials.

In 1985, International Archaeological Research Institute, Inc. performed archaeological monitoring and data recovery at the Pacific Beach Hotel Office Annex (Beardsley and Kaschko 1997). Two traditional Hawaiian burials were discovered and removed. Intact buried traditional Hawaiian cultural deposits, including a late pre-contact habitation layer, contained pits, firepits, post molds, artifacts, and food debris. The artifacts included basalt and volcanic glass flakes and cores, a basalt adze and adze fragments, worked pearl shells, a coral file and abraders, and a pearl shell fishhook fragment. Additionally, a late nineteenth century trash pit was discovered, which contained a variety of ceramics, bottles, and other materials.

During 1985 and 1986, archaeologists from Paul H. Rosendahl, Ph.D. Inc. conducted archaeological monitoring at the site of the Mechanical Loop Project at the Hilton Hawaiian Village, Waikīkī. Much of this project area was disturbed by historic and modern construction and modification. Fifteen subsurface features were uncovered during the monitoring, all of which were determined to be historic trash pits or trenches. The dating of these features was based on dating the artifactual material they contained. All 15 features are thought to post-date 1881 based on this artifact analysis. The three partial burials reported by Neller (1980) were found within that project area. No further burials were encountered during the PHRI field work (Hurlbett et. al. 1992).

In 1987, a human burial was discovered and removed at the intersection of Kalākaua Avenue and Ka'iulani Street during excavations for a gas pipe fronting the Moana Hotel (Griffin 1987).

In1988, the Moana Hotel Historical Rehabilitation Project (Simons et. al. 1991) encountered human remains that amounted to at least 17 individuals. Based on stratigraphic association these burials were interred over time as the land form at the site changed. The sediment surrounding these burials yielded traditional midden and artifact assemblages. The burials and human remains were found in the Banyan Court and beneath the hotel itself.

Davis' (1989, 1991) excavation and monitoring work at Fort DeRussy documented substantial subsurface archaeological deposits, pre-contact, historic, and modern. These deposits included buried fishpond sediments, *'auwai* [irrigation ditch] sediments, midden, and artifact enriched sediments, structural remains such as post holes and fire pits, historic trash pits, and a human burial. Davis' (1991) report documents human activity in the Fort DeRussy beach front area from the sixteenth century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work (Simons et al. 1995). BioSystems research documents the development and expansion of the fishpond and *'auwai* system in this area. The *'auwai* system was entered on the State Inventory of Historic Places (SIHP) as State Site 50-80-14-4970. As indicated on the 1881 map by S. E. Bishop discussed above, this *'auwai* enters the Fort DeRussy grounds through the present project area). Remains of the fishpond and *'auwai* deposits, as well as habitation deposits, were documented below modern fill deposits. This research, along with that of Davis (1991), clearly demonstrates that historical document research can be an effective guide to locating late pre-contact/early historic subsurface deposits, even amidst the development of Waikīkī.

In 1992, Hurlbett et al. (1992) conducted additional monitoring and testing in this same area as Neller (1980). The state site -2870 was given to the three burials first found by Neller. Additional subsurface features, postdating 1881, were found during trenching operations.

The realignment of Kālia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson et. al. 1994). The monitoring and excavations associated with this realignment uncovered a cultural enriched layer which contained post holes.

In 1993, during construction activities at the Waikīkī Aquarium, fragmentary human remains were discovered scattered in a back dirt pile, although no burial pit was identified (Dega and Kennedy 1993).

On April 28, 1994, an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalākaua Avenue and Kuamo'o Street (just *mauka* of Fort. DeRussy). These remains represented a single individual (McMahon 1994).

In 1995, the remains of one individual were discovered in situ during construction activities on Paoakalani Street, fronting the Waikīkī Sunset Hotel (Jourdane 1995).

In 1996, Pacific Legacy, Inc. conducted an archaeological inventory survey of the block bounded by Kalākaua Avenue, Kūhiō Avenue, 'Ōlohana Street, and Kālaimoku Street (Cleghorn 1996). The survey included excavation of seven backhoe trenches. The subsurface testing indicated that:

> . . . this area was extremely wet and probably marshy. This type of environment was not conducive for traditional economic practices. . . . The current project area appears to have been unused because it was too wet and marshy. Several peat deposits, containing the preserved remains of organic plant materials were discovered and sampled. These deposits have the potential to add to our knowledge of the paleoenvironment of the area [Cleghorn 1996:15].

The report concluded that no further archaeological investigations of the parcel were warranted since "no potentially significant traditional sites or deposits were found", but cautioned of the "possibility, however remote in this instance, that human burials may be encountered during large scale excavations" (Cleghorn 1996:15).

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street southeast of the current project area (McDermott et al. 1996). Cultural Surveys Hawaii's research suggested that a portion of the study lots -specifically TMK 2-6-24:36-40 - was formerly a corner of the 'Āinahau Estate. A total of 2 indigenous and 15 historic artifacts were collected from the former 'Āinahau Estate portion of the project area. Cultural Surveys Hawaii's research further suggested that the remainder of the present study lots comprise a former 'auwai and taro and rice fields.

In 1997, during archaeological monitoring by CSH for the Waikīkī Force Main Replacement project, scattered human bones were encountered on 'Ōhua Street (Winieski and Hammatt 2000). These included the proximal end and mid-shaft of a human tibia, a patella, and the distal end and mid-shaft of a femur. These remains occurred within a coralline sand matrix which had been heavily disturbed by previous construction, and by the on-going construction project. No precise location for the original burial site was identified.

In April 1999, two human burials were inadvertently encountered near the intersection of Ena Road and Kalākaua Avenue during excavation activities for the first phase of the Waikīkī Anti-Crime Lighting Improvements Project (Perzinski et al. 1999).

From July 1999 to October 2000, four sets of human remains were inadvertently encountered during excavation activities relating to the Waikīkī Anti-Crime Street Lighting Improvement project along portions of Kalākaua Avenue (Bush and Hammatt 2002). The first burial was encountered on Kalākaua Avenue, just before Dukes Lane and assigned State Site 50-80-14-5864. The burial was left in place however, and the light post was repositioned. The second burial was encountered at the intersection of Kalākaua Avenue and Ka'iulani Avenue. Earlier, during archaeological monitoring for the water mains project, two burials were encountered in the immediate area of the second burial find and assigned state site 50-80-14-5856 features A and B. Due to the close proximity to the previously encountered burials, the second burial was assigned the same State Site 50-80-14-5856, and designated feature C. Burials 3 and 4 were recovered at the intersection of Kalākaua and Ke'alohilani Avenues, near an area of concentrated burials assigned State Site 50-80-14-5860 during monitoring for the water mains project. Consequently, burials 3 and 4 were also assigned State Site 50-80-14-5860, features U and V. In addition to human remains, pre-contact deposits, historic and modern rubbish concentrations, and pond sediments were also encountered.

From November, 1999, to May, 2000, 44 human burials, with associated cultural deposits, were encountered during excavation for a waterline project on Kalākaua Avenue between the Ka'iulani and 'Ōhua Avenues (Winieski et al. 2002a). Except for previously disturbed partial

burials in fill, the bulk of the burials were encountered within a coralline sand matrix. Additionally, a major cultural layer was found and documented.

From January, 2000, to October 2000, 10 human burials were encountered during archaeological monitoring of the Kūhiō Beach Extension/Kalākaua Promenade project (Winieski et al. 2002b). Six of these were located within a coralline sand matrix. The four others were partial and previously disturbed within fill. Additionally, a major cultural layer was found and documented, apparently part of the same major cultural layer associated with the waterline project between Ka'iulani and 'Ōhua Avenues.

In April 2001 human remains were inadvertently disturbed during excavations associated with the construction of a spa at the Royal Hawaiian Hotel (Elmore et al. 2001). Archaeological Consultants of the Pacific, Inc was responsible for the documentation of the remainder of the burial and carrying out the instruction of DLNR/ SHPD. The burial and place it was encountered was assigned State Site # 50-80-14-5937. The burial was encountered on the North side of the hotel in the spa garden. The burial was partially disturbed through the thoracic region and anatomical left side. The disturbed remains were wrapped in muslin cloth and placed with the in-situ remains and reburied. The burial was recorded as a post contact burial based on artifacts associated with it. The associated artifacts included one shell button found *in-situ* and three more shell buttons found in the disturbed material. A single drilled dog tooth was found also during excavation but could not be positively associated with the site.

On May 2nd and June 14th, 2001, two in situ and two previously disturbed human burials were encountered at the site of a new Burger King (Cleghorn 2001a) and an adjoining ABC Store (Cleghorn 2001b). The finds were located at the intersection of 'Ōhua Street and Kalākaua Avenue (Cleghorn 2001a and 2001b). Because of their proximity to five burials encountered during the Kalākaua 16" Water Main Installation (Winieski et al. 2002a), they were included in the previously assigned State Site 50-80-14-5861. Three of these burials were recovered, and one was left in place. Volcanic glass fragments were found in association with one of the burials. A cultural layer was also observed which contained moderate to heavy concentrations of charcoal and fragments of volcanic glass. Historic era artifacts, including a bottle fragment, plastic and glass buttons, a ceramic fragment, and metal fragments were also encountered within fill materials.

In 2001 and 2002, CSH (Mann and Hammatt 2002) performed archaeological monitoring for the installation of 8- and 12-inch water mains on Uluniu Avenue and Lili'uokalani Avenue During the course of monitoring, five burials finds, consisting of six individuals, were recorded within the project area. Four burial finds were recorded on Uluniu Avenue; three of these inadvertent finds were found in fill sediment. Due to the nature of the three burial finds in fill, it was concluded that no State Site number(s) be assigned to these three previously disturbed burials. The only primary in situ burial encountered on Uluniu Avenue was assigned State Site #50-80-14-6369. The fifth burial, consisting of two individuals in fill material, was recorded from Lili'uokalani Avenue. Since three burials had been found in the immediate vicinity during a previous project (Winieski et al. 2002b) and had been assigned to Site #50-80-14-5859, the two new individuals were recorded as Feature H of this previously recorded site.

In summary, past archaeological research, from the beginning of the twentieth century to the present has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials, do exist throughout the breadth of the Waikīkī area.

IV. PREDICTIVE MODEL

The *ahupua'a* of Waikīkī in the centuries before the arrival of Europeans was a well-used locale with abundant natural and cultivated resources – including an expansive system of irrigated taro fields and numerous fishponds – supporting a large population that included the highest-ranking *ali'i* (Hawaiian royalty). In the second half of the nineteenth century, after a period of depopulation and desuetude, Waikīkī was reanimated by the Hawaiian *ali'i* and the foreigners residing there, and by farmers continuing to work the irrigated field system that had been converted from taro to rice. This farming continued up to the first decades of the twentieth century when the newly-constructed Ala Wai Canal drained the remaining ponds and irrigated fields of Waikīkī.

Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī as far *mauka* as the Ala Wai Golf Course. Several archaeological studies have recorded the presence within Waikīkī of subsurface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the entire Waikīkī area. It is possible that intact pre-contact and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project parcel. Other possible deposits may be associated with nineteenth century Hawaiian royalty.

Based on Māhele documents and information available from nineteenth century maps, the following geography and land use within the present project area at the mid-nineteenth century is indicated: the *mauka* or northeast portion comprised a portion of taro *lo'i* belonging to the king ; the central section comprised a portion of 'Āpuakēhau Stream in which taro was also growing; and the *makai* or southwest half comprised habitation area as well as *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. The map also shows the project area straddling two Waikīkī *'ili* which appear to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in Auaukai. Kalāmanamana was one of the areas where the chief Kalamakua constructed the "large pond fields" of taro that once covered the Waikīkī plain. Some of the Kalāmanamana *lo'i* are shown in Figure 3. It is believed that agricultural land use within the northeast section of the project area, perhaps with former taro fields planted in rice, continued until the construction of the Ala Wai Drainage Canal between1921 and 1928. This portion of the study area could yield datable material associated with the development of irrigated agriculture in the *ahupua'a* of Waikīkī.

Cultural Surveys Hawaii's research also suggests that the *makai* half of the present project area was formerly the site of at least a portion of the main houses of the 'Āinahau estate house, associated with important personages in Hawaiian history. In the final quarter of the nineteenth century the portion of the project area *makai* or southwest of 'Āpuakēhau Stream was purchased by Archibald Cleghorn (1835-1910) and transformed into his estate. It is believed that a portion of the Victorian-style house he built in the 1890s was located in the present project area. Archaeological testing in this area could also uncover significant trash and refuse pits.

V. RESULTS OF FIELDWORK

A. Summary of Trenches

The archaeological inventory survey fieldwork consisted of excavation of 14 backhoe trenches throughout the project area (Figure 9) and documentation of the sediment profiles and archaeological features found. The sediments and features exposed confirmed the presence of historical features recorded in historical texts and on early survey maps. Four general stratigraphic layers were identified within the project area. Each of these primary layers contains sub-layers that are time or activity specific and are described below in the context of associated events.

The uppermost layer (Stratum I) is comprised of various introduced sediments and fill layers that originated off the property being introduced on one hand to raise the level of the property and from another view to dispose of waste material from other locations.

One prominent fill layer is a specific time marker derived from the dredging of the Ala Wai canal that began in 1921 and was completed in 1928. This layer is present in the eastern or *mauka* end of the project area especially filling in the low lying channel of ʻĀpuakēhau Stream (in Trenches 4, 8 and 11 which bisect the stream in "Area II" of Figure 9), and covering the old taro ponds adjacent to the *mauka* side of ʻĀpuakēhau Stream (especially in Trenches 13 and 14 in "Area III" of Figure 9), but not to any significant degree to the *makai* side of the stream. This sediment consists primarily of horizontal microstratigraphic bands of very fine coralline silt with coral pebble inclusions and lenses of coral gravel resulting from hydraulic dredging and pumping episodes.

Additional fill layers comprising at least the upper 0.6 meters of sediment are present across the entire parcel. This fill is of unknown origin. At the west end of the property the fill material is a sandy clay loam (Trenches 1-3 and 5-6) while in the central-west area (Trenches 9 and 10) the fill is a fine loamy sediment full of small boulders of fine grain basalt, cement pieces and some granite. In Trench 10 this fill layer lies upon a concrete slab at about 0.75 m below the present surface. The slab is probably a foundation of the structures shown on the 1927 and 1950 fire insurance maps (refer to Figure 6 and Figure 7). In Trench 9 this same bouldery fill layer extends in a pit to the depth of the ground water at about 1.5 m below the surface and within the upper 0.20 m of the pit fill fragments of human skeletal material was found. These bone fragments, the distal end of an ulna and mid-section of a femur, appear to have been introduced to the project property as part of the bouldery fill in these two trenches. SHPD was notified of this find and the appropriate processes have been initiated following Hawai'i Revised Statutes Chapter 6E-43 and HAR Section 13-300.

The surface of Stratum II has a time line of about 1872 to 1950. A charcoal lens in Trench 4 caps the Stratum II and may be related to disposal of the remains of Cleghorn's homes here that burned down in 1921. The concrete slab from 1927 in Trench 10 lies upon the surface of Stratum II. In Trench 1 the Stratum II layer is overlain by 10 cm of fine wind blown coralline sand, a hiatus of activity marking time very early in the twentieth century at ʻĀinahau.

The Stratum II layer at the western side of the project property is an A horizon approximately 0.50 m to 1.0 m thick developed in a C horizon deposit (Stratum III) of coral sand extending to the underlying coral reef 0.50 m below ground water. A radiocarbon date from charcoal near the bottom of Stratum II in Trench 1 (refer to Figure 10) shows that this cultural layer dates from AD

1290 to 1530 at its inception and continues to the early 20th century as noted above. Although a cultural layer with charcoal flecking and dark staining throughout and a few pit features of possible postholes and small fireplaces the layer is in general lacking in midden and artifacts as might be found in high use areas.

The Stratum II and Stratum III sediments at the east end of the project property (exemplified in Trenches 7 and 12) are very different from the west end. They are comprised of rich, loamy, sediments with iron staining from decomposing basaltic pebbles and cobbles indicative of waterlogged agricultural soils typical of taro cultivation in ponded fields (refer to Figure 16 and Figure 21). Stratum II extends from less than 0.50 m below the present surface to over 1.25 m deep. Stratum III is of similar composition to Stratum II only with more clay and extending below the ground water level to the coarse gley colored coralline sand on the surface of the reef formation (Stratum IV).

Stratum II and III are deltaic sediments derived from the Manoa, Palolo and Makiki Streams and captured by stoneworks of the taro lo'i system put in place between the mountains and Waikīkī probably in the 6th century AD. One of these stoneworks, a 3 to 5 course high wall constructed of small, water rounded, basalt boulders, was found at the base of Trench 4 and 7. The wall, built upon the basal coral reef formation, was part of the original development of these agricultural works. The nineteenth century expression of this stone wall is simply a soil embankment well above the buried wall, but it still serves the same purpose separating the *lo'i* on its *mauka* side from 'Āpuakēhau stream on its *makai* side. The embankment is recorded on the 1881 Bishop map (refer to Figure 3)

'Āpuakēhau Stream is identified easily in Trenches 4, 8, and 11 which bisect portions of the former stream (refer to Figure 9). The stratigraphic profile of the streambed clearly shows a trough-shaped cross section with clayey sediments at a slightly lower elevation than the surface of the agricultural fields to *mauka*. The streambed was filled with fine coralline sediments from the dredging the 1920s of the Ala Wai Canal, which was subsequently covered with other fill of terrestrial origin imported to the project parcel from unknown locations.

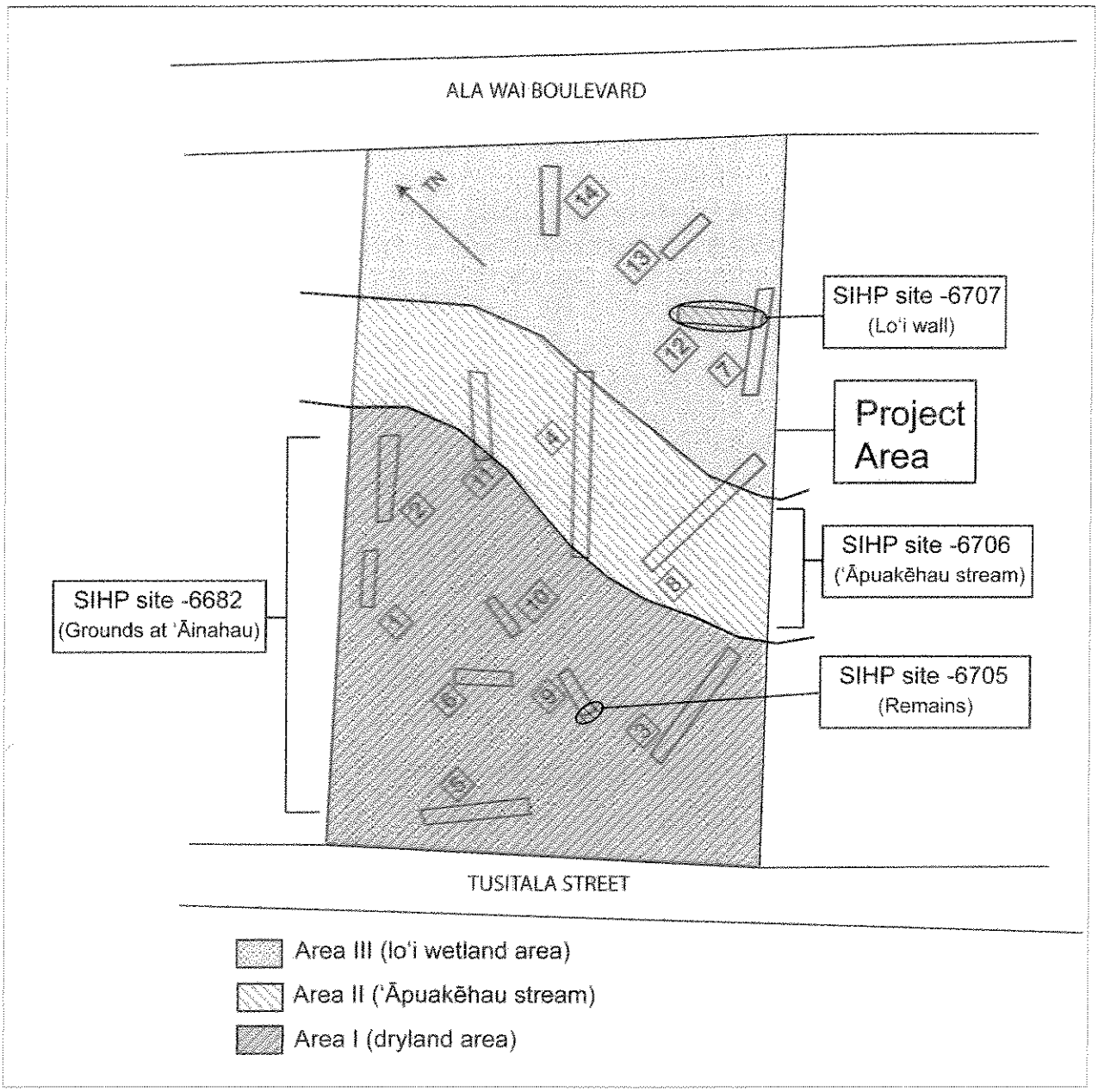

Figure 9. Map of project area showing the locations of the three distinct stratigraphic areas, Trenches 1-14, and SIHP Sites

B. Trench Descriptions

The following is a description of each backhoe trench excavated during the inventory survey. A sidewall profile and an in depth stratigraphic description has been included for each trench. Photographs of the project area (Figure 24) and each trench (Figures 25-39) are included in Section IX, entitled "Photo Appendix."

Trench 1

Trench 1 was excavated in the southwestern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 2, 3, 5, 6, 9, and 10, are in the vicinity of the former Cleghorn estate, ʻĀinahau. Trench 1 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 1 measured 4.6 m (15.1 feet), had a maximum depth of 160 cm (5.2 feet), a maximum width of 1 m (3.3 ft), and was oriented north-south (37° magnetic north). Three strata were noted and described in the excavation (Figure 10). Stratum I was identified as imported fill. The surface associated with ʻĀinahau was documented as the Buried A Horizon, Stratum IIA/IIB. The trench was excavated to the water table.

Two charred wood samples were collected from the Buried A Horizon (Stratum IIA/IIB). Sample #1 was collected at a depth of 110-120 cmbs, weighing 4.6 g. Sample #2, sent for radio carbon dating, was collected at a depth of 90-100 cmbs, weighing 9.5 g. A photograph of Trench 1 (Figure 25) is included in the Photo Appendix.

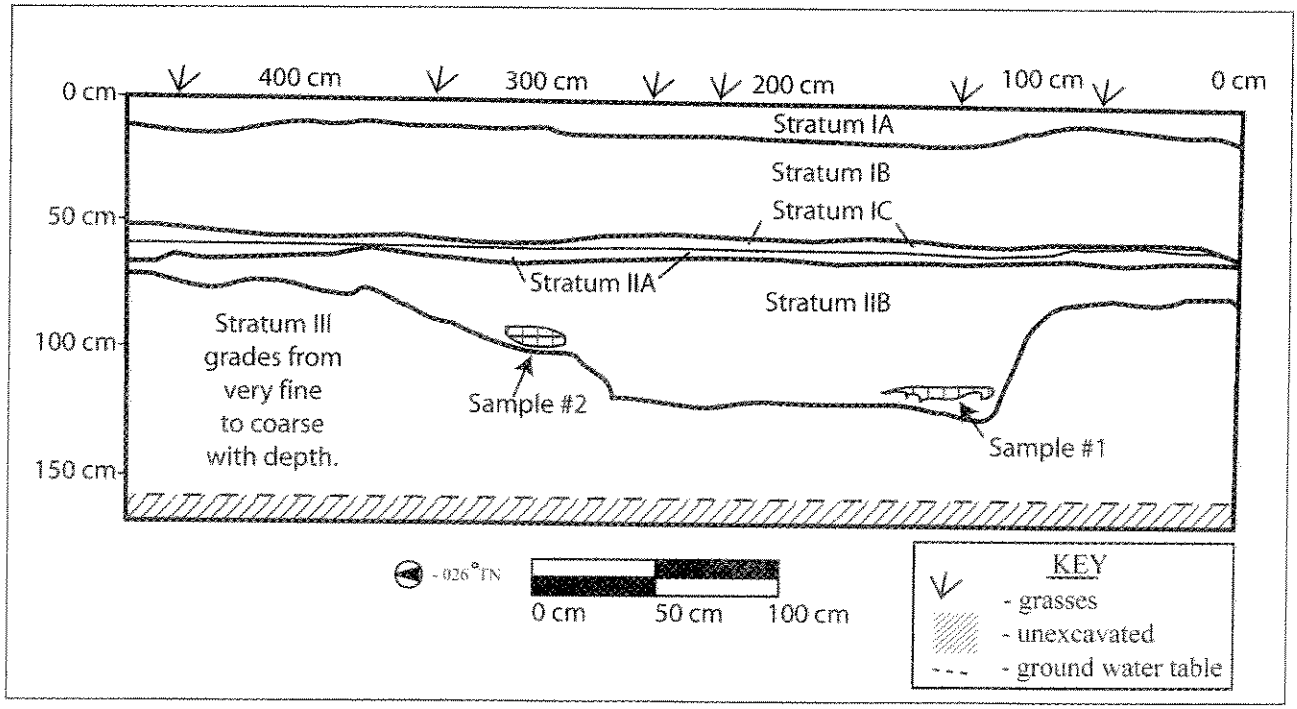

Figure 10. Profile of east wall of Trench 1

Stratum IA: 0-10 cmbs; Modern A Horizon in fill; 10 YR 3/4, dark yellowish brown; silt loam; moderate, fine to medium, subangular blocky structure; weakly coherent dry consistency; slightly sticky wet consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments; many rootlets

Stratum IB: 10-55 cmbs; Fill; 10 YR 3/3, dark brown; silty clay loam; strong, fine/medium/coarse, subangular blocky structure; hard dry consistency; slightly sticky wet consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous of sediments; few rootlets

Stratum IC: 55-60 cmbs; Eolian sand; 10 YR 6/4, light yellowish brown; fine, structureless, fine, single grain structure; loose dry consistency; non-sticky wet consistency; non-plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments

Stratum IIA: 60-62 cmbs; Buried A Horizon; 10 YR 3/3, very dark grayish brown; sandy clay; weak, medium, blocky structure; loose dry consistency; sticky wet consistency; plastic; weak cementation; abrupt smooth lower boundary; mixed marine and terrigenous sediments; surface associated with ʻAina Hau

Stratum IIB: 63-125 cmbs; Buried A Horizon; 10 YR 4/2, dark grayish brown to 10 YR 6/2, light brownish gray; loamy sand; medium, single grain structure; loose moist consistency; slightly plastic; very weak; clear wavy lower boundary; mixed marine and terrigenous sediments; basalt flakes common; few charcoal fragments, coral pebbles, very few basalt pebbles; microrootlets common; historic, pre-contact A horizon

Stratum III: 75-160 cmbs; C Horizon; 10 YR 8/3, very pale brown; very fine to coarse, coraline sand; structureless, loose dry consistency; non-plastic; no cementation; Unknown lower boundary; marine marine and terrigenous sediments; sand grades from very fine at the top of the layer to coarse at the ground water level

Trench 2

Adjacent to Trench 1, Trench 2 was also excavated in the southwestern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 1, 3, 5, 6, 9, and 10, are in the vicinity of the former Cleghorn estate. Trench 2 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 2 measured 5.0 m (16.4 feet). It had a maximum depth of 170 cm (5.6 feet) and a maximum width of 1 m (3.3 ft). The trench and was oriented north-south (35° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 11). Stratum I was identified as imported historic fill, with the exception of Stratum IC (55-60 cmbs), described as a fine sand "eolian non-conformity." The surface associated with ʻĀinahau was documented as the Buried A Horizon, Stratum IIA/IIB. A photograph of Trench 2 (Figure 26) is included in the Photo Appendix.

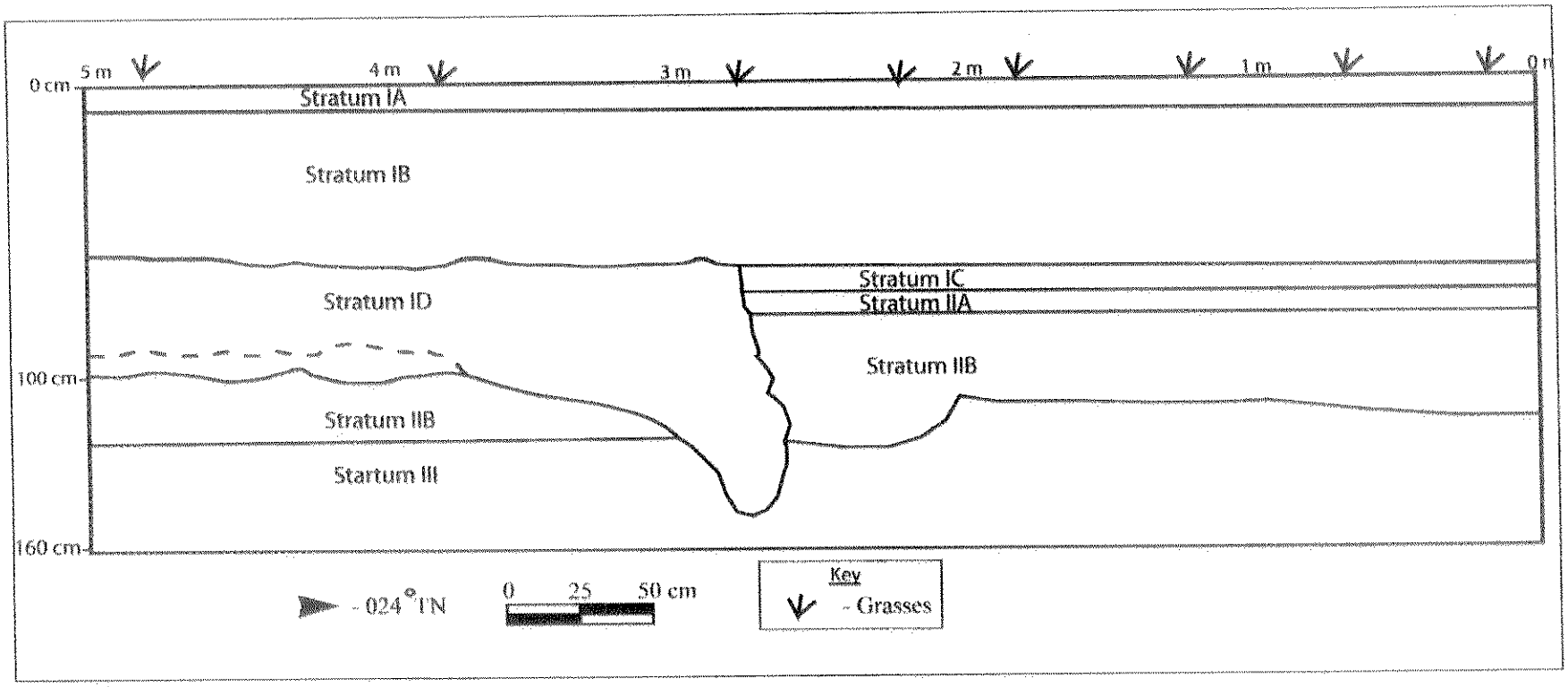

Figure 11. Profile of east wall of Trench 2

Stratum IA: 0-10 cmbs; Modern A Horizon in fill; 10 YR 3/4, dark yellowish brown; silt loam; moderate, fine to medium, subangular blocky structure; weakly coherent dry consistency; slightly sticky wet consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments

Stratum IB: 10-65 cmbs; Fill; 10 YR 3/3, dark brown; silty clay loam; strong, fine/medium/coarse, subangular blocky structure; hard dry consistency; slightly sticky wet consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments

Stratum IC: 65-75 cmbs; Fill; 10 YR 3/4, dark yellowish brown; sandy clay; weak, fine, subangular blocky structure; friable moist consistency; sticky wet consistency; slightly plastic; no cementation; abrupt smooth lower boundary; mixed marine and terrigenous sediments

Stratum IC: (Lense) 95-100 cmbs; Fill; 10 YR, 6/4, light yellowish brown; fine sand; no structure; dry loose consistency; wet non-sticky consistency; non plastic; no cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments; coral sand

Stratum ID: 60-95 cmbs; Fill; 10 YR, 3/3, dark brown, to 10 YR, 4/2, dark grayish brown, with large mottles of 10 YR, 3.1, very dark gray, clay; sandy loam; no structure; moist friable consistency; non plastic; weak cementation; abrupt irregular lower boundary; mixed marine and terrigenous sediments

Stratum IIA: 75-80 cmbs; Buried A Horizon; 10 YR, 2/2, very dark brown; sandy clay loam; weak coarse crumb structure; moist friable consistency; wet slightly sticky consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments; charcoal bits throughout, few basalt pebbles, few coral pebbles

Stratum IIB: 80-125 cmbs; Buried A Horizon; 10 YR, 4/2, dark grayish brown, to 10 YR, 6/2, light brownish gray; sandy clay loam; no structure; moist friable consistency; wet slightly sticky consistency; slightly plastic; weak cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments; charcoal particles, coral

Stratum III 117-170 cmbs; C Horizon; 10 YR 8/3, very pale brown; sand, fine-coarse; no structure; moist loose consistency; non plastic; no cementation; abrupt wavy lower boundary; marine marine and terrigenous sediments

Trench 3

Trench 3 was excavated in the southern corner of the project area (Figure 12). Historic maps and documentation indicate that this trench, as well as Trenches 1, 3, 5, 6, 9, and 10, are in the vicinity of the former Cleghorn estate. Trench 3 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 3 measured 9.1 m (29.9 feet), had a maximum depth of 150 cm (4.9 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented southwest-southeast (236° true north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 12). The stratigraphy was similar to that found in Trenches 1 and 2: Stratum I was identified as imported historic fill; Stratum II as the Buried A Horizon surface associated with 'Āinahau; and Stratum III as sterile coralline sand. A photograph of Trench 3 (Figure 27) is included in the Photo Appendix.

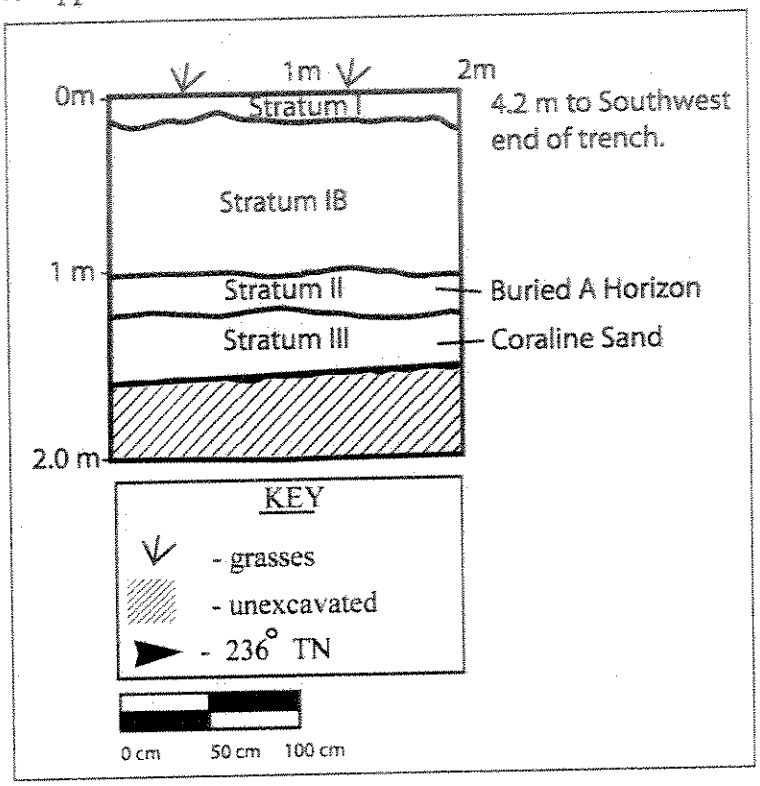

Figure 12. Profile of southeast wall of Trench 3

Stratum IA: 0-5/7 cmbs; Fill; 10 YR 3/2, very dark grayish brown; clay loam; weak, fine/medium, crumb structure; loose dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; imported top soil

Stratum IB: 5/7-100 cmbs; Fill; 10 YR 3/3, dark brown; sandy loam; structureless, weakly coherent dry consistency; slightly plastic; no cementation; clear smooth lower boundary; terrestrial marine and terrigenous sediments

Stratum II: 100-119/120 cmbs; Buried A Horizon; 10 YR 3/1, very dark gray; sandy loam; structureless, weakly coherent moist consistency; slightly plastic/plastic; no cementation; abrupt smooth lower boundary; mixed marine and terrigenous sediments; no artifacts observed; amount of C14 not worth sampling

Stratum III: 120-150/153 cmbs; 10 YR 8/3, fine to medium, sand; structureless, loose dry consistency; non-plastic; no cementation; N/A lower boundary; terrestrial marine and terrigenous sediments; unaltered marine shell; sterile coraline beach sand

Trench 4

Trench 4 was excavated in the center of the project area (Figure 9), in the area of the former ʻĀpuakēhau Stream (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 8 and 11 are in the vicinity of the former ʻĀpuakēhau Stream. Trench 4 was excavated to document the stratigraphy of the former ʻĀpuakēhau Stream.

Trench 4 measured 17 m (55.7 ft), had a maximum depth of 2.0 m (6.6 ft) and a maximum width of 1.0 m (3.3 ft). It was oriented NE/SW (48° true north) and was excavated to ground water. Six distinct strata were observed in the excavation (Figure 13). Stratum I, II, III, and IV were of historic imported fill, most likely dating to the construction of the Ala Wai canal and subsequent filling of the ʻĀpuakēhau Stream. Microstratigraphic layers were present, particularly in Stratum IV, and are most likely the result of hydraulic dredging episodes during the Ala Wai land reclamation projects. Stratum II contains weathered minerals of yellowish red color, indicative of fluctuating dry and wet conditions.

Three charred wood samples were collected from the elongate semi-horizontal charcoal lense found in Stratum III, one of which was sent for AMS radiocarbon dating. The first sample was collected at a depth of 80-90 cmbs and weighed 103.9 g; the second was collected at a depth of 137 cmbs and weighed 0.3 g; the third, which was sent for radiocarbon dating was collected at a depth of 150 cmbs and weighed 0.1 g. A photograph of Trench 4 (Figure 28) is included in the Photo Appendix.

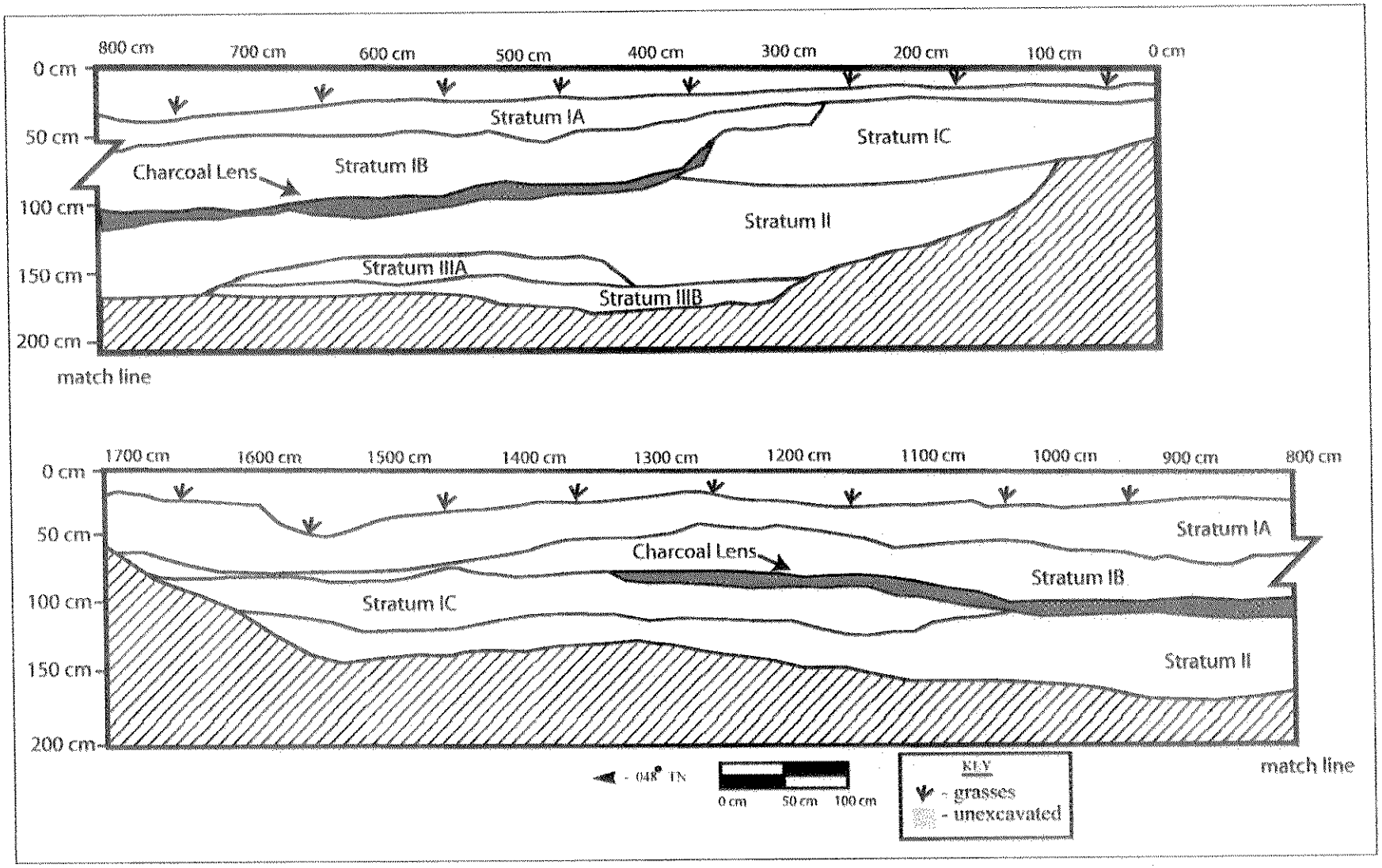

Figure 13. Profile of east wall of Trench 4

Stratum IA: 0-73 cmbs; Modern A Horizon in fill; 10 YR 3/3, dark brown; medium to coarse, sand; structureless, loose dry consistency; slightly plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; roots and rootlets

Stratum IB: 29-110 cmbs; Fill Horizon; 7.5 YR 6/4, light brown; fine, silt; structureless, loose dry consistency; slightly plastic; no cementation; abrupt irregular lower boundary; mixed marine and terrigenous sediments; <2mm sized marine shell; mainly horizontal microlayers

Stratum IC: 24-128 cmbs; Fill; 10 YR 2/2, very dark brown; medium to coarse, silt loam; structureless, loose dry consistency; non-plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; <1% marine shell by volume; contains weathered minerals of 5 YR 5/8 yellowish red color

Stratum II: 74-170 cmbs; Buried A Horizon; 10 YR 3/2, very dark grayish brown; clay loam; structureless, very firm moist consistency; slightly plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; contains elongate semi-horizontal charcoal lens and broken glass bottles

Stratum IIIA: 150-172 cmbs; C Horizon; 10 YR 3/6, dark yellowish brown; fine, sandy clay; structureless, very friable moist consistency; slightly plastic; no cementation; diffuse wavy lower boundary; mixed marine and terrigenous sediments; roots and rootlets

Stratum IIIB: 150-170 cmbs; C Horizon; 5 YR 5/6, yellowish red; fine, sand/sand coralline; structureless, loose moist consistency; non-plastic; no cementation; N/A N/A lower boundary; marine marine and terrigenous sediments; charcoal present in uppermost portion of stratum; roots

Trench 5

Trench 5 was excavated in the southwestern corner of the project area (Figure 9), bordering and approximately parallel to Tusitala Street. Historic maps and documentation indicate that this trench, as well as Trenches 1, 2, 3, 6, 9, and 10, are in the vicinity of the former Cleghorn estate, ʻĀinahau. Trench 5 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 5 measured 8.8 m (28.9 feet), had a maximum depth of 2 m (6.6 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented SW/NE (317° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 14). The stratigraphy was similar to that found in Trenches 1 and 2. Strata IA and IB were identified as imported historic fill; Stratum II was identified as the Buried A Horizon surface associated with ʻĀinahau; Stratum III was identified as sterile coralline sand.

A charred wood lense (Feature 3) was documented on top of the Buried A horizon of Stratum II and a charred wood sample was collected from this lense at a depth 60-65 cmbs with a weight of 140.1 g. In addition, two pit features (Feature 1 and Feature 2), probable post holes, extend from the bottom of Stratum II into the sterile corraline sand of Stratum III. The sediments of the two features are identical to the description of Stratum II. One charcoal sample was collected from each of these features.

The sample from Feature I, sent for radiocarbon dating, was collected at 85-119 cmbs and weighed 36.5 g; the sample taken from Feature 2 was collected at a depth of 85-128 cmbs and weighed 7.4 g. A photograph of Trench 5 (Figure 29) is included in the Photo Appendix.

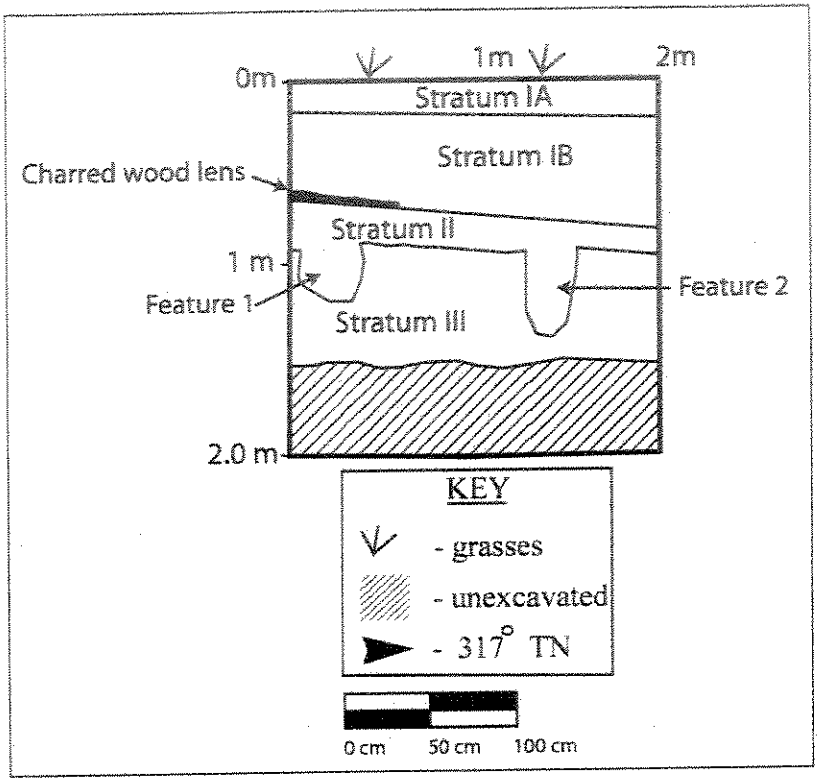

Figure 14. Profile of southwest wall of Trench 5

Stratum IA: 0-11/17 cmbs; Modern A Horizon in fill; 10 YR 3/2, very dark grayish brown; clay loam; weak, fine, crumb structure; loose dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; top soil

Stratum IB: 11/17-65/71 cmbs; Fill; 10 YR 3/3, dark brown; clay loam; weak, fine, crumb structure; loose dry consistency; slightly plastic; no cementation; smooth lower boundary; terrestrial marine and terrigenous sediments

Stratum II: 65/71-85 cmbs; Buried A Horizon; 10 YR 3/1, very dark gray; sandy loam; structureless, loose dry consistency; non-plastic; no cementation; abrupt smooth lower boundary; mixed marine and terrigenous sediments; charcoal

Stratum III: 85-145 cmbs; C Horizon; 10 YR 8/3, fine to medium, sand; loose dry consistency; non-plastic; no cementation; N/A N/A lower boundary; terrestrial marine and terrigenous sediments; naturally worn marine shell; sterile coraline sand

Trench 6

Trench 6 was excavated in the southwestern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 1, 2, 3, 5, 9, and 10, are in the vicinity of the former Cleghorn estate, ʻĀinahau. Trench 6 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 6 measured 4.6 m (15.1 feet). It had a maximum depth of 2 m (6.6 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented NW/SE (323° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 15). The stratigraphy was similar to that found in Trenches 1, 2, 3, and 5. Stratum I was identified as imported historic fill; Stratum II as the Buried A Horizon surface associated with ʻĀinahau; and Stratum III as sterile coralline sand.

A pit feature, Feature 1, was observed in Stratum II and III, and was a mottling of the two Strata (the clay loam of Stratum II and the sterile coral sand of Stratum III). A photograph of Trench 6 (Figure 30) is included in the Photo Appendix.

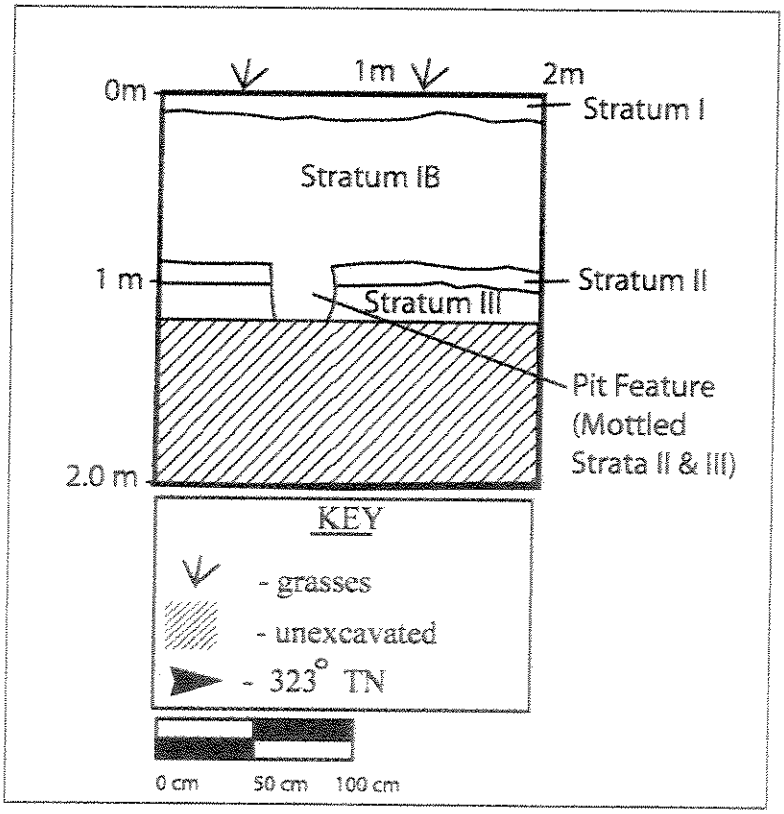

Figure 15. Profile of southwest wall of Trench 6

Stratum IA: 0-10 cmbs; Modern A Horizon in fill; 10 YR 3/2, very dark grayish brown; clay loam; weak, fine, crumb structure; loose dry consistency; very plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; top soil

Stratum IB: 10-90 cmbs; Fill; 10 YR 3/3, dark brown; clay loam; weak, fine, crumb structure; loose moist consistency; slightly plastic; no cementation; smooth lower boundary; terrestrial marine and terrigenous sediments slightly plastic; no cementation; coral inclusions; abrupt and smooth lower boundary

Stratum II: 90-100 cmbs; Buried A Horizon; 10 YR 4/2, dark grayish brown; clay loam; weak, fine/medium, crumb structure; loose dry consistency; slightly plastic; no cementation; abrupt wavy lower boundary; mixed marine and terrigenous sediments

Stratum III: 100-107 cmbs; C Horizon; 10 YR 8/3, fine, sand; structureless, loose dry consistency; non-plastic; no cementation; N/A lower boundary; unaltered marine shell; sterile coral sand

Trench 7

Trench 7 was excavated in the northeastern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench (as well as Trenches 12, 13, and 14), is located in what was a former *lo'i* field.

Trench 7 measured 4.4 m (14.4 feet). It had a maximum depth of 161 cm (5.3 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented NE/SW (53° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 16). Strata IA and IB were identified as imported fill. Stratum II was identified as dark gray clay, fine-grained terrigenous alluvial deposits related to *lo'i*. A photograph of Trench 7 (Figure 31) is included in the Photo Appendix.

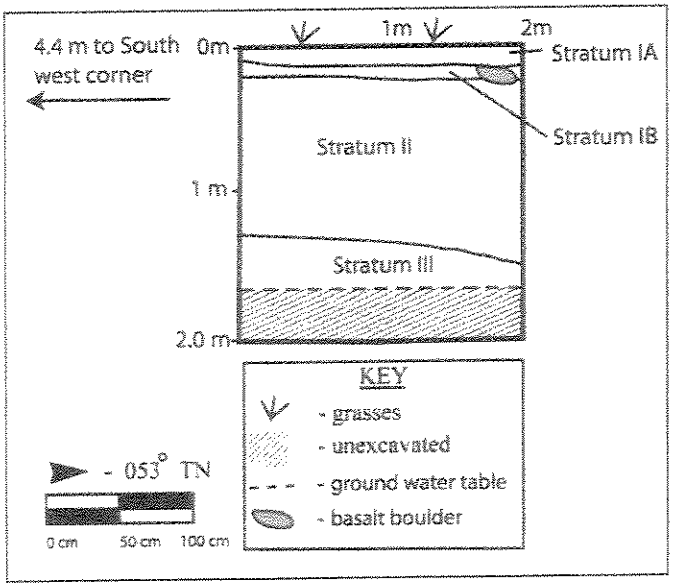

Figure 16. Profile of northwest wall of Trench 7

Stratum IA: 0-9 cmbs; Modern A Horizon infill; 10 YR 3/1, very dark gray clay loam; weak, fine crumb structure; loose dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; imported top soil

Stratum IB: 9-122 cmbs; Fill; 10 YR 3/3, dark brown; clay loam; weak, fine, crumb structure; loose dry consistency; slightly plastic; no cementation; mixed marine and terrigenous sediments

Stratum II: 122-147 cmbs; Buried A Horizon; 10 YR 4/1, dark gray; clay; structureless, very friable moist consistency; plastic; no cementation; abrupt wavy lower boundary; terrestrial marine and terrigenous sediments; iron staining, abundant roots; taro patch (*lo'i*) sediment

Stratum III: 147-161 cmbs; C Horizon; 10 YR 3/1, very dark gray; gleyed, sandy clay loam; structureless, sticky wet consistency; slightly plastic; no cementation; N/A lower boundary; mixed marine and terrigenous sediments.

Trench 8

Trench 8 was excavated in the center of the project area (Figure 9), in the area of the former ʻĀpuakēhau Stream (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 8 and 11 are in the vicinity of the former ʻĀpuakēhau Stream. Trench 8 was excavated to document the stratigraphy of the former ʻĀpuakēhau Stream.

Trench 8 measured 17 m (55.7 ft), had a maximum depth of 2.0 m (6.6 ft) and a maximum width of 1.0 m (3.3 ft). It was oriented NE/SW (48° true north) and was excavated to ground water. Six distinct strata were observed in the excavation (Figure 17). Stratum I, II, III, and IV were of historic imported fill, most likely dating to the construction of the Ala Wai canal and subsequent filling of the ʻĀpuakēhau Stream. Stratum II contains weathered minerals of yellowish red color, indicative of fluctuating dry and wet conditions. Micro-stratigraphic layers were present, particularly in Stratum IV, and are most likely the result of hydraulic dredging episodes during the Ala Wai land reclamation projects. A photograph of Trench 8 (Figure 32) is included in the Photo Appendix.

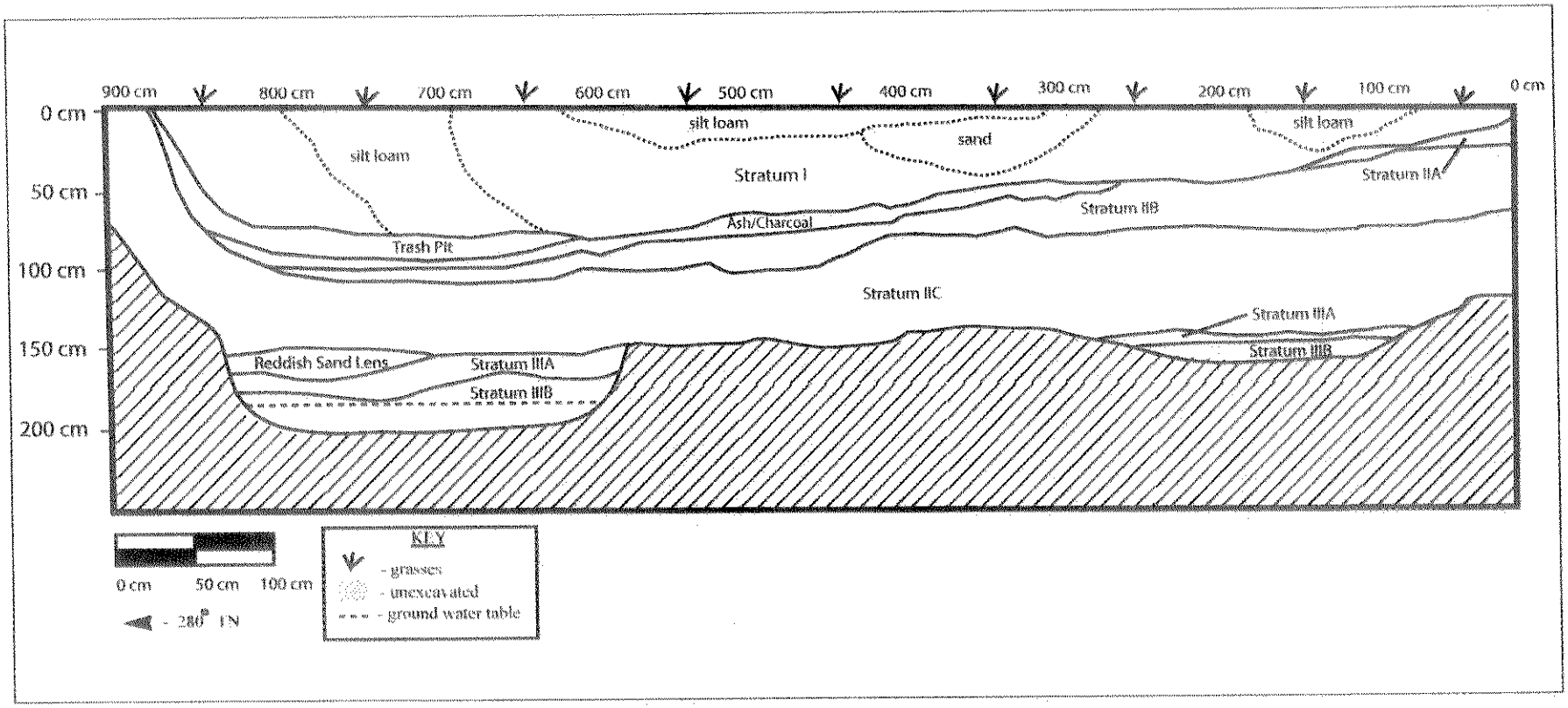

Figure 17. Profile of north wall of Trench 8

Stratum I: 0-80 cmbs; Multiple fill layers; 7.5 YR 6/4, light brown; silt; structureless; loose dry consistency; slightly plastic; no cementation; abrupt irregular boundary; mixed marine and terrigenous sediments; marine shell, microfine layers *'auwai* filled with dredging

10 YR 2/1, black; silt loam; weak, fine, blocky structure; loose dry consistency; non plastic; no cementation; abrupt irregular lower boundary; terrestrial marine and terrigenous sediments

10 YR 3/3, dark brown; silt loam; structureless, firm moist consistency; slightly plastic; weak cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; marine shell

7.5 YR 6/4, light brown; coarse sand; structureless; dry loose consistency; non plastic; no cementation; abrupt, wavy lower boundary; marine marine and terrigenous sediments; marine shell, "pothole" fill

Stratum IIA: 20-40 cmbs; 10 YR 2/2, very dark brown; fine clay; moderate, medium angular blocky structure; moist friable firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments; rich organic layer, roots and rootlets, high in peds

Stratum IIB 20-90 cmbs; 10 YR 2/2, very dark brown; fine clay; moderate, medium angular blocky structure; moist friable firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments; rich organic layer, roots and rootlets, medium to low peds

Stratum IIC 90-180 cmbs; 10 YR 2/2, very dark brown; fine clay; moderate, medium angular blocky structure; moist friable firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments; straight clay, no more peds

Stratum IIIA 140-190 cmbs; 10 YR 3/1, very dark gray; clay loam; moderate, fine-medium blocky structure; wet sticky consistency; slightly plastic; weak cementation; abrupt, smooth lower boundary; mixed marine and terrigenous sediments; marine shell, organic layer below *'auwai*

Stratum IIIB 150-200 cmbs; 10 YR 3/1, very dark gray; clay loam; moderate, fine-medium blocky structure; wet sticky consistency; slightly plastic; weak cementation; clear, abrupt, irregular boundary; mixed marine and terrigenous sediments; marine shell, continuation of organic layer with 20% sand

Trench 9

Trench 9 was excavated in the southern portion of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 1, 2, 3, 5, 6, and 10, are in the vicinity of the former Cleghorn estate, 'Āinahau. Trench 9 was excavated to document the stratigraphy of the former 'Āinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 9 measured 5.9 m (19.4 feet). It had a maximum depth of 2 m (6.6 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented north-south (180° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 18). The stratigraphy was similar to that found in Trenches 1, 2, 3, and 5 in that it does have Strata IA and IB, however, the stratigraphic sequence of Stratum I and II has been altered by the backfilled pit that contained 40% large basalt boulders (Feature I). The fill of the Pit Feature is believed to be historic fill postdating the demolition of the structure shown on Sanborn Fire Maps of 1927 and 1950 (Figures 6 and 7). Feature I contained charcoal, marine shell, pipe elbows, rusted metal fragments, nails, glass, and modern /historic trash.

Fragmentary human skeletal remains, consisting of a distal end ulna shaft and head, femur shaft and other unidentified human skeletal fragments were encountered on October 6, 2004 in the southeast end of Trench 9 at 10 cm below surface in Stratum IA top soil fill. No context or associated goods were found. No evidence of age, era, or provenience was observed. SHPD was promptly notified regarding this burial find and the appropriate notification processes have been implemented following Hawai'i Revised Statutes Chapter 6E-43. All sediment from the skeletal find area was screened through a 1/8-inch screen, and all bone fragments were collected. Except for the two larger fragments listed above, all other bone fragments measured less than 3 cm. Per the request of the SHPD, the layer in which the human skeletal remains were initially found (Stratum IA) was scraped by the backhoe to look for any further remains. None were found. All human remains were placed in a brown paper bag with stones and a pipe marker and reburied in the trench at approximately 50 cmbs. A photograph of Trench 9 (Figure 33) is included in the Photo Appendix.

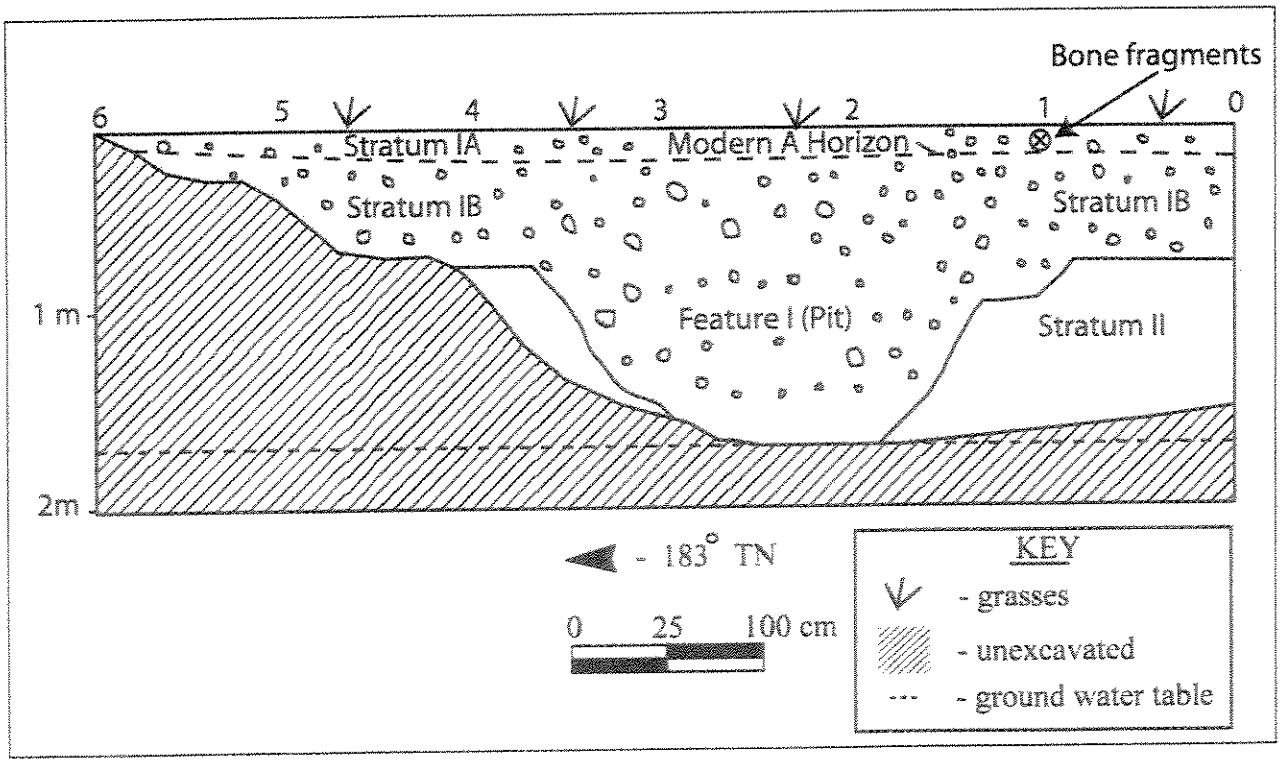

Figure 18. Profile of east wall of Trench 9

Stratum IA: 0-10/12 cmbs; Fill; 10 YR 3/2, very dark grayish brown; clay loam; moderate, fine/medium, platy structure; slightly hard dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; glass fragements and nails glass fragements and nails

Stratum IB: 10/12-70/81 cmbs; Fill; 2.5 YR 4/2, clay loam; weak, fine, subangular blocky structure; weakly coherent dry consistency; slightly plastic; no cementation; clear smooth lower boundary; mixed marine and terrigenous sediments; nails, cans nails, cans

Stratum II: 70/81-155 cmbs; 10 YR 5/1, gray; sandy loam; structureless, loose dry consistency; non-plastic; no cementation; clear wavy lower boundary; mixed marine and terrigenous sediments; charcoal, unaltered marine shell; cultural layer with mottles of IB and III charcoal, unaltered marine shell; cultural layer with mottles of IB and III

Stratum III: 145-149 cmbs; C Horizon; 10 YR 6/1, gray; medium, sand; structureless, non-sticky wet consistency; non-plastic; no cementation; N/A N/A lower boundary; terrestrial marine and terrigenous sediments

Trench 10

Trench 10 was excavated in the southwestern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 1, 2, 3, 5, 6, and 9, are in the vicinity of the former Cleghorn estate, ʻĀinahau. Trench 10 was excavated to document the stratigraphy of the former ʻĀinahau estate and to establish if intact early historic/pre-contact cultural strata and/or features existed.

Trench 10 measured 4.8 m (15.7 feet), had a maximum depth of 1 m (3.3 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented approximately north-south (185° magnetic north) and was excavated to the water table. One stratum with two substrata was noted and described in the excavation (Figure 19). The stratigraphy was similar to that found in Trenches 1, 2, 3, and 5. Stratum IA was identified as imported historic fill; Stratum IB was identified as the Buried A Horizon surface associated with ʻĀinahau. Modern to historic trash was observed in Stratum IB.

A concrete slab, a probable remnant of the structure shown on Sanborn Fire Maps of 1927 and 1950 (Figures 6 and 7) was observed below Stratum IB, at approximately 75-95 cmbs. A photograph of Trench 10 (Figure 34) is included in the Photo Appendix.

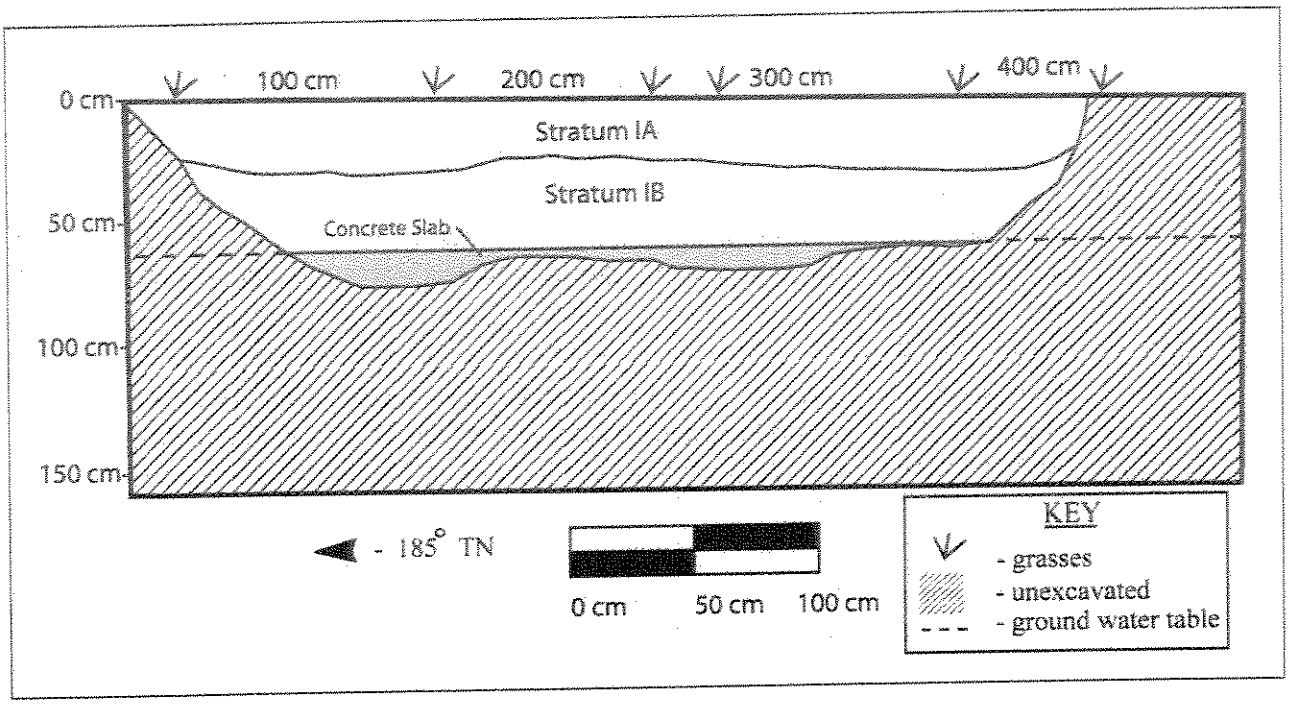

Figure 19. Profile of west wall of Trench 10

Stratum IA: 0-29/33 cmbs; Modern A Horizon in fill; 10 YR 3/2, very dark grayish brown; clay loam; moderate, medium/course, subangular blocky structure; slightly hard dry consistency; slightly plastic; no cementation; clear wavy lower boundary; mixed marine and terrigenous sediments

Stratum IB: 29/33-74/90 cmbs; Fill; 2.5 YR 4/2, loam; structureless, loose dry consistency; non-plastic; no cementation; mixed marine and terrigenous sediments; modern to historic trash

Trench 11

Trench 11 was excavated in the center of the project area (Figure 9). Historic maps and documentation indicate that this trench (as well as Trenches 4 and 8) is in the vicinity of the former ʻĀpuakēhau Stream. Trench 11 was excavated to document the stratigraphy of the former ʻĀpuakēhau Stream.

Trench 11 measured 9.6 m (31.5 ft), had a maximum depth of 167 cm (5.5 ft) and a maximum width of 1.0 m (3.3 ft). It was oriented NE/SW (51° true north) and was excavated to ground water. Four distinct strata were observed in the excavation (Figure 20). Stratum I, II, and IV were of historic imported fill, most likely dating to the construction of the Ala Wai canal and subsequent filling of the ʻĀpuakēhau Stream. Stratum II contains a semi-horizontal charcoal lense and weathered minerals of yellowish red color, indicative of fluctuating dry and wet conditions. Microstratigraphic layers were present, particularly in Stratum IV, and are most likely the result of hydraulic dredging episodes during the Ala Wai land reclamation projects. A photograph of Trench 11 (Figure 35) is included in the Photo Appendix.

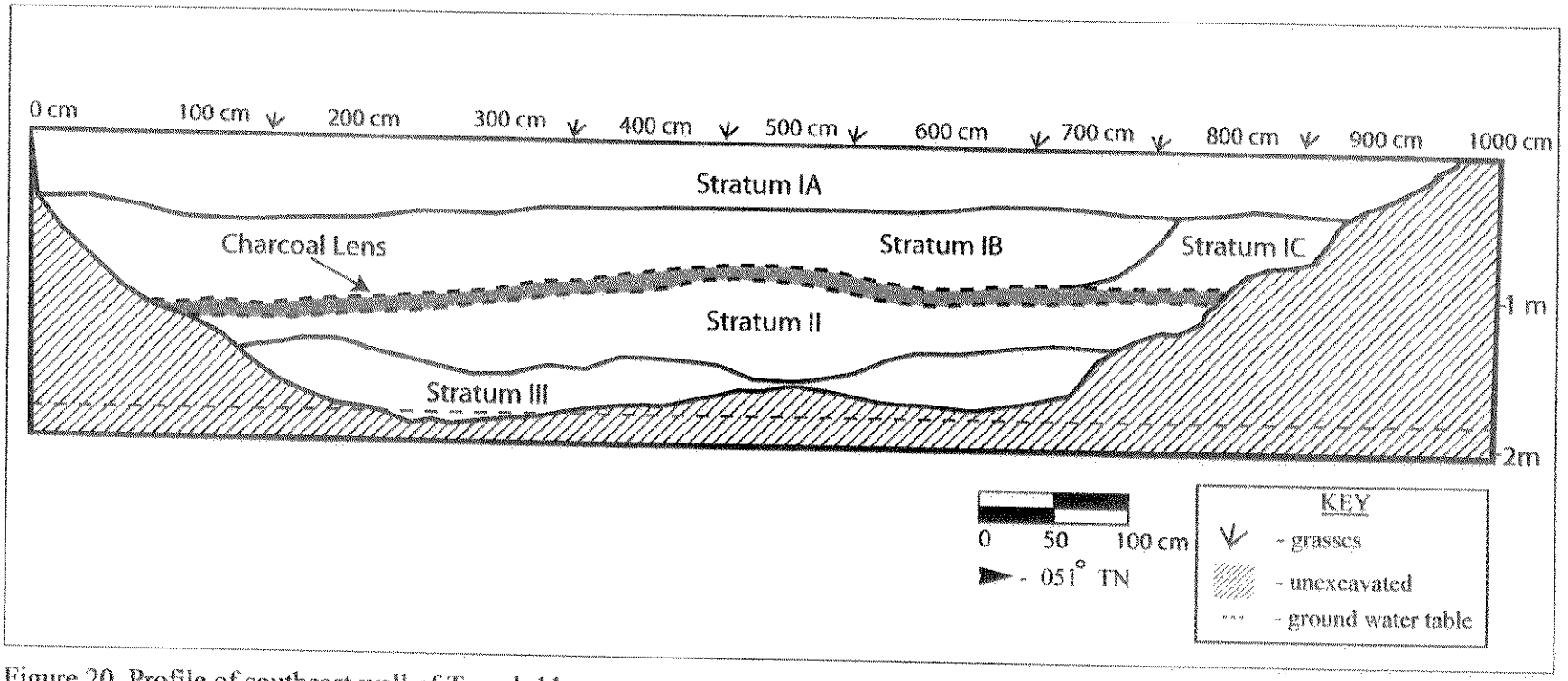

Figure 20. Profile of southeast wall of Trench 11

Stratum IA: 0-52 cmbs; Modern A Horizon in fill; 10 YR 3/3, dark brown; medium to coarse, sand; structureless, loose dry consistency; slightly plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; roots and rootlets

Stratum IB: 37-158 cmbs; Fill; 10 YR 2/2, very dark brown; medium to coarse, silt loam; structureless, loose dry consistency; non-plastic; no cementation; diffuse wavy lower boundary; terrestrial marine and terrigenous sediments; <1% marine shell by volume; contains weathered mineral grains of 5 YR 5/8 yellowish red color and semi horizontal charcoal lense

Stratum II: 80-167 cmbs; Buried A Horizon; 10 YR 3/2, very dark grayish brown; clay loam; structureless, very firm moist consistency; diffuse lower boundary; terrestrial marine and terrigenous sediments; charcoal flakes

Stratum III: 37-110 cmbs; Buried A Horizon; 7.5 YR, 6/4, light brown; fine silt; structureless; dry loose consistency; slight plastic; no cementation; abrupt, irregular lower boundary; mixed marine and terrigenous sediments; marine shell (less than 2 mm in size), semi-horizontal microlayers

Trench 12

Trench 12 was excavated in the northeastern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench, as well as Trenches 7, 13, and 14 (Figure 9), is located in what was a former *lo'i* field. These trenches clearly displayed fine-grained terrigenous alluvial deposits and structural features related to *lo'i* that were once extant.

In the mid-1920s, as part of the excavation of the Ala Wai Canal, dredge sediments were distributed widely between the Ala Wai Canal and Kalākaua Avenue. These historic dredge sediments were observed.

Trench 12 measured 4.4 m (14.4 feet). It had a maximum depth of 161 cm (5.3 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented NE/SW (53° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 21). Strata IA and IB were identified as imported fill. Stratum II was identified as dark gray clay taro patch (*lo'i*) sediment. Photographs of Trench 12 (Figures 36, 37) are included in the Photo Appendix.

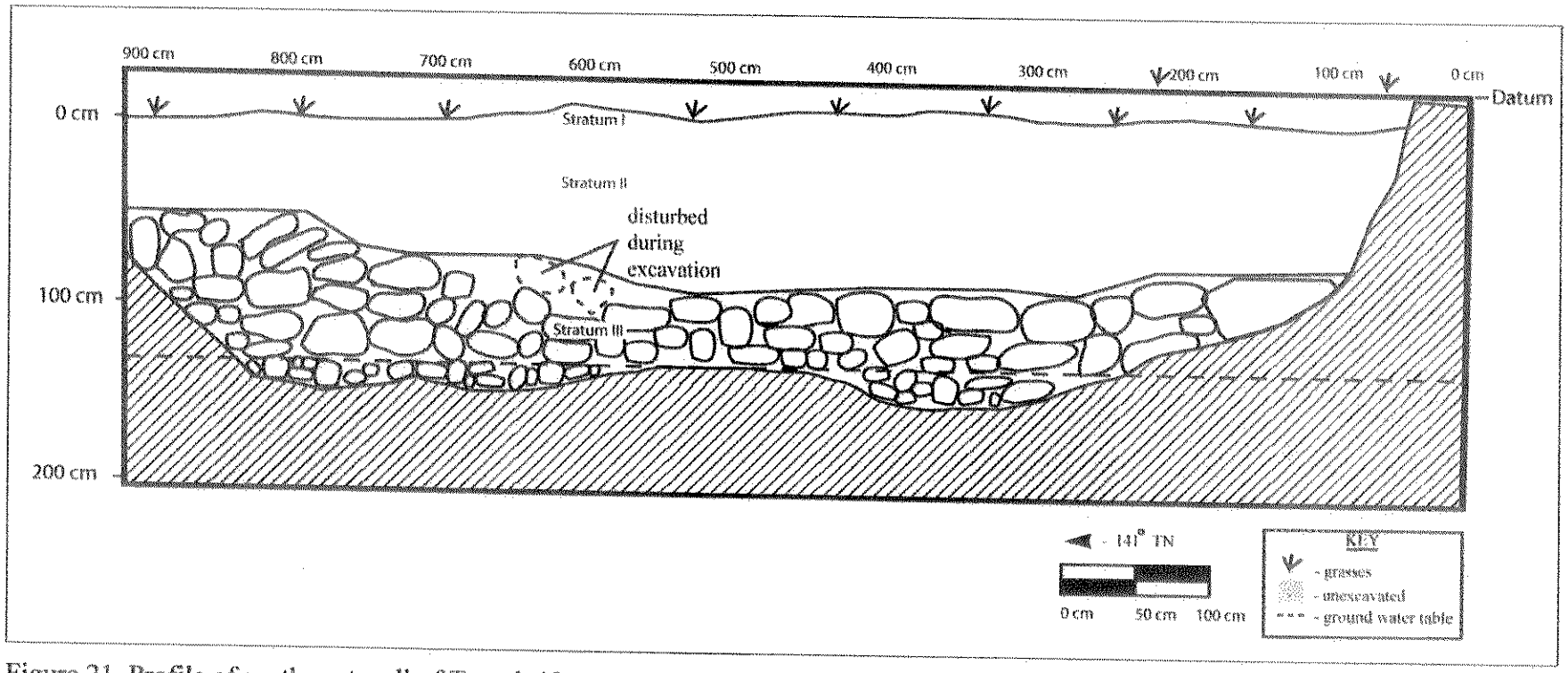

Figure 21. Profile of northwest wall of Trench 12

Stratum I: 0-10 cmbs; Modern A Horizon; 10 YR 4/3, brown; weak fine crumb structure; dry loose consistency; non-plastic; no cementation; clear smooth lower boundary; terrestrial marine and terrigenous sediments; roots and rootlets, topsoil

Stratum II: 10-110 cmbs; Buried A Horizon; 10 YR 3/3, dark brown; clay loam; moderate-strong, medium, blocky structure; moist very firm consistency; plastic; weak cementation; very abrupt, irregular lower boundary; terrestrial marine and terrigenous sediments; historic trash

Stratum III: 100-190 cmbs; Buried A Horizon; 10 YR 2/2, very dark brown; clay; moderate, medium, angular blocky structure; moist firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments

Stratum IV: 160-190 cmbs; C Horizon; Coarse gleyed clayey sand; no structure; wet very sticky consistency; non plastic; no cementation; marine and terrigenous sediments; unsorted

Trench 13

Trench 13 was excavated in the northeastern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench (as well as Trenches 7, 12, and 14), is located in what was a former *lo'i* field.

Trench 13 measured 4.4 m (14.4 feet) and had a maximum depth of 155 cm (5.1 feet) and a maximum width of 1 m (3.3 ft). It was oriented E/W (96° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 22). Strata IA and IB were identified as imported fill. Stratum II was identified as dark gray clay, fine-grained terrigenous alluvial deposits related to *lo'i*. A photograph of Trench 13 (Figure 38) is included in the Photo Appendix.

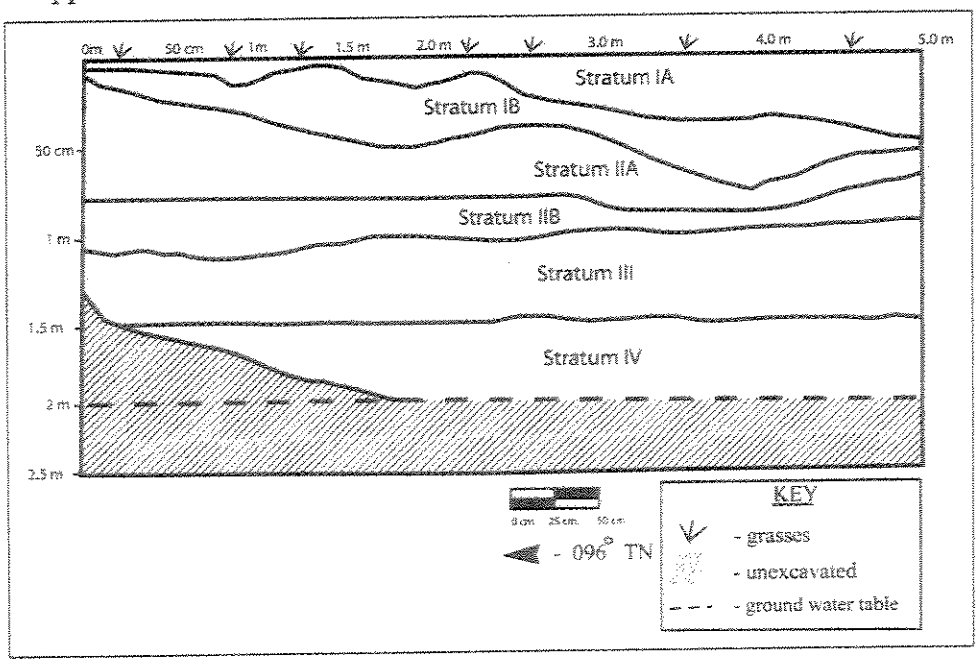

Figure 22. Profile of northwest wall of Trench 13

Stratum IA: 0-52 cmbs; O Horizon; 10 YR 3/3, dark brown; medium-coarse silt loam; structureless; dry loose consistency; slightly plastic; no cementation; clear, irregular lower boundary; terrestrial marine and terrigenous sediments; roots, rootlets

Stratum IB: 8-78 cmbs; Fill; 7.5 YR 6/4, light brown; fine silt; structureless; dry loose consistency; slightly plastic; no cementation; abrupt, irregular lower boundary; mixed marine and terrigenous sediments; abrupt, irregular lower boundary; marine shell (less than 2 mm in size); semi-horizontal micro layers

Stratum IIA: 13-95 cmbs; O Horizon; 10 YR, 2/2, very dark brown; silt loam; structureless; moist firm consistency; slightly plastic; weak cementation; diffuse, wavy lower boundary; terrestrial marine and terrigenous sediments; marine shell (less that 1% by volume), contains weathered minerals of 5 YR, 5/8, yellowish red color.

Stratum IIB: 72-125 cmbs; O Horizon; 10 YR 3/2, very dark grayish brown; clay loam; structureless; moist very firm consistency; slightly plastic; no cementation; diffuse, wavy lower boundary; terrestrial marine and terrigenous sediments; broken glass, bottles

Stratum III: 47-160 cmbs; Buried A Horizon; 10 YR 2/2, very dark brown; fine clay; moderate, medium, blocky angular structure; moist firm consistency; very plastic; no cementation; clear, smooth lower boundary; mixed marine and terrigenous sediments; organic-rich, root remnants, probable former agricultural layer

Stratum IV: 155-water line cmbs; C Horizon; 7.5 YR, 6/0, gray; very coarse sand; structureless; wet non-sticky consistency; non-plastic; no cementation; clear lower boundary; marine marine and terrigenous sediments; large coral fragments, some 7.5 cm, appearance is that of wet cement

Trench 14

Trench 14 was excavated in the northeastern corner of the project area (Figure 9). Historic maps and documentation indicate that this trench (as well as Trenches 7, 12, and 13), is located in what was a former *lo'i* field.

Trench 14 measured 4.6 m (15.1 feet). It had a maximum depth of 120 cm (3.9 feet) and a maximum width of 1 m (3.3 ft). The trench was oriented NE/SW (141° magnetic north) and was excavated to the water table. Three strata were noted and described in the excavation (Figure 23). Strata IA and IB were identified as imported fill. Stratum II was identified as dark gray clay, fine-grained terrigenous alluvial deposits related to *lo'i*. A photograph of Trench 14 (Figure 39) is included in the Photo Appendix.

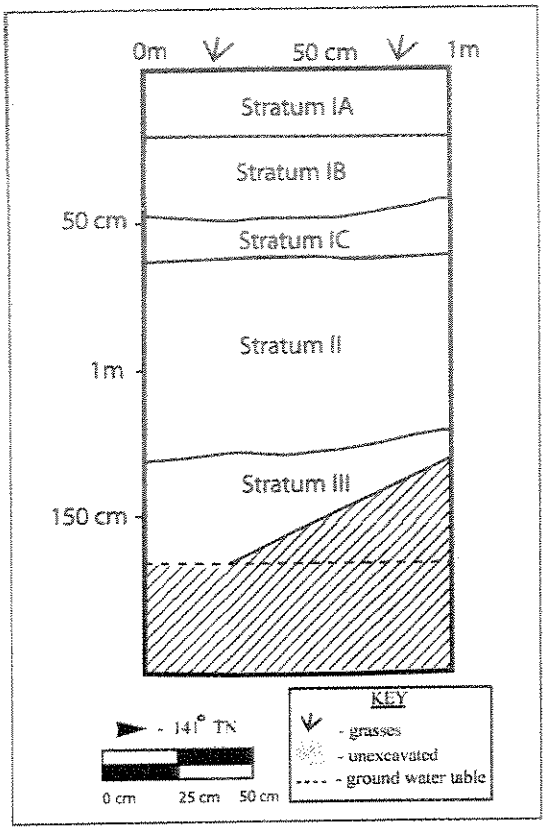

Figure 23. Profile of north wall of Trench 14

Stratum IA: 0-21 cmbs; Modern A Horizon in fill; 10 YR 3/3, dark brown; medium-coarse silt loam; structureless; dry loose consistency; slightly plastic; no cementation; diffuse, wavy lower boundary; terrestrial marine and terrigenous sediments; roots, rootlets, historic rubbish

Stratum IB: 21-49 cmbs; Fill; 7.5 YR 6/4, light brown; fine silt; structureless; dry loose consistency; slightly plastic; no cementation; abrupt, irregular lower boundary; mixed marine and terrigenous sediments; abrupt, irregular lower boundary; marine shell (broken pieces less than 2 mm in size); semi-horizontal micro layers

Stratum IC: 42-64 cmbs; Fill; 10 YR, 2/2, very dark brown; medium-coarse silt loam; structureless; dry loose consistency; non plastic; no cementation; diffuse, clear, wavy lower boundary; terrestrial marine and terrigenous sediments; marine shell and coral fragments (up to 5 cm in size)

Stratum II: 59-130 cmbs; Buried A Horizon; 10 YR 3/2, very dark grayish brown; fine clay loam; structureless; moist very firm consistency; slightly plastic; no cementation; clear, wavy lower boundary; terrestrial marine and terrigenous sediments; charcoal flakes

Stratum III: 120 cmbs -water level; Buried A Horizon; 10 YR 2/2, very dark brown; fine clay; moderate, medium, blocky subangular structure; moist firm consistency; very plastic; no cementation; mixed marine and terrigenous sediments; organic-rich, roots and rootlets, probable former agricultural layer

C. Site Descriptions

Four sites were identified within the project area (Figure 9). The sites included the buried A horizon representative of the nineteenth century ground surface of the structures of the ʻĀinahau estate (SIHP site 50-80-09-6682); human skeletal fragments (observed in Trench 9) in disturbed sediment (SIHP site 50-80-09-6705); 30-foot wide stream bed documented in Trenches 4,8, and 11(SIHP site 50-80-09-6706); and a traditional stone *loʻi* field retaining wall (SIHP site 50-80-09-6707).

Table 2. State Sites Identified Within the Project Area

State Site #	Form	Function	Recommendation
-6682	Buried A Horizon	Habitation	No Further Work
-6705	Human skeletal fragments	Interment	Future Monitoring
-6706	Stream bed	Agriculture	No Further Work
-6707	Stone wall	Agriculture	Data Recovery

*Note prefix for all SIHP sites is 50-80-09

SIHP Site #: 50-80-09-6682

Site Type: Buried A Horizon, ʻĀinahau (Cleghorn Estate)

Function: Habitation

Description: SIHP site -6682 consists of the buried A horizon in coralline sand documented in several trenches in "Area 1" (Figure 9), the historically dryland portion of the project area. This is the nineteenth century ground surface of ʻĀinahau, the Cleghorn Estate. Historic maps identify the present project area as a portion of ʻĀinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife, Princess Miriam Likelike (1851-1887), and their daughter Princess Kaʻiulani (1875-1899) – all significant personages in the history of Hawaiʻi.

SIHP Site #: 50-80-09-6705

Site Type: Burial (Human skeletal fragments in disturbed sediment)

Function: Interment (at least a secondary interment)

Description: SIHP site -6705 consisted of a distal end ulna shaft and head, femur shaft and other unidentified human skeletal fragments encountered on October 6, 2004 in Trench 9 at 10 cm below surface in Stratum IA top soil fill. No context or associated goods. No evidence of age, era, provenience, etc. SHPD was promptly notified regarding this burial find and the appropriate notification processes have been implemented following Hawaiʻi Revised Statutes Chapter 6E-43.

SIHP Site #: 50-80-09-6706

Site Type: Stream bed

Function: Agriculture (*'auwai* source)

Description: SIHP site -6706 consists of a thirty foot wide stream oriented north-northwest by south-southeast in the Ala Wai portion of the project parcel (Trenches 4, 8, and 11). From research of historical documentation and maps, it is believed that this is the remnant of a segment of 'Āpuakēhau Stream. This stream has an LCA claim in it and separates the dry ground of the 'Āinahau Estate from the taro fields southwest or *mauka* of the stream.

SIHP Site #: 50-80-09-6707

Site Type: Stone wall

Function: Agriculture

Description: SIHP site -6707 consists of a stone wall comprised of five courses of water rounded basalt boulders, believed to be a traditional *lo'i* field retaining wall. The base course of the wall is set on the coral reef deposits 20 cm below the ground water level. This wall is an excellent example of type and method of construction. It is a likely remnant of the extensive Waikīkī network of irrigated taro fields that were constructed beginning in the fifteenth century and traditionally attributed to the chief Kalamakua.

D. Summary of Samples Submitted for Radiocarbon Dates

In total, three charcoal samples and one soil sample were sent to Beta Analytic, Inc. for Radiocarbon (14C) Dating Analyses (Table 3). Samples were selected based on their stratigraphic context and association with presumed indigenous cultural layers.

Table 3. Samples Submitted for Radiocarbon Dating

Beta Analytic ID #	Sample Material	Provenience	Conventional Radiocarbon Age	C13/C12 Ratio	Oxcal Calibrated Calendar Age* (2 sigma)
Beta 197276	Charred material	Trench 1 Stratum IIB 30 cmbs SIHP site –6682	510 +/- 80 BP	-24.3 o/oo	(90.4%) 1290-1530 AD (5.0%) 1580-1630 AD
Beta 197277	Charred material	Trench 4 Stratum III 150 cmbs SIHP site -6706	490 +/- 40 BP	-25.7 o/oo	(90.9%) 1390-1480 AD (4.5%) 1320-1350 AD
Beta 197278	Charred material	Trench 5 Feature 1 (Pit) 85-119 cmbs	670 +/- 60 BP	-25.9 o/oo	(95.4%) 1250-1410 AD

Beta Analytic ID #	Sample Material	Provenience	Conventional Radiocarbon Age	C13/C12 Ratio	Oxcal Calibrated Calendar Age* (2 sigma)
Beta 197279	Organic sediment	Trench 12 Stratum IV 190 cmbs	520 +/- 60 BP	25.3 o/oo	(95.4%) 1300-1480 AD

The provenience of C14 Sample Beta –197276 was Trench 1, Stratum IIB, from approximately 90-100 cmbs (centimeters below surface). The resulting 2-Sigma calibrated results, ca. A.D. 1290 to 1500, provide a clearly pre-contact date related to Native Hawaiian occupation of this portion of Waikīkī.

The second sample, Beta 197277, was from Trench 4, Stratum III, from approximately 150 cmbs. The 2-Sigma calibrated results, ca. A.D. 1410 to 1460, again provide a clearly pre-contact date related to Native Hawaiian occupation of this portion of Waikīkī.

The third sample, Beta 197278, was taken from Trench 5, within the pit feature, from approximately 85-119 cmbs. The sample, 36.5 g, provided 2-Sigma calibrated results, ca. A.D. 1270 to 1420, again provides a clearly pre-contact date related to Native Hawaiian occupation of this portion of Waikīkī.

The fourth sample, Beta 197279, was taken from Trench 12, immediately below the *lo'i* retaining wall, Stratum IX, from approximately 190 cmbs. The resulting 2-Sigma calibrated results, ca. A.D. 1310 to 1370 and A.D. 1380 to 1470, again provides a clearly pre-contact date related to native Hawaiian occupation of this portion of Waikīkī. The *lo'i* retaining wall is presumed to be associated with the vast system of irrigated taro fields that was constructed beginning in the fifteenth century, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system is traditionally attributed to the chief Kalamakua. The dates appear to correspond to the development of this presumed agricultural feature.

The resulting calibrated age of samples Beta 197276, Beta 197277, Beta 197278, and Beta 197279 suggests that the Waikīkī wet land agricultural complex and associated construction and use activities (e.g. walls, *'auwai*, berms, fields, limited habitation, etc.) was at least partially developed and presumably expanding by the fifteenth century. Research at For DeRussy has "…*'auwai* and fishpond features…dated to the fifteenth century," though "…expansion of fishpond and 'auwai complex" was posited to be during the"…seventeenth – eighteenth century" (Simmons et al. 1995). The present data may be indicative of a more expansive and intensive Waikīkī plains agricultural complex by the fifteenth century than previously documented. The data does clearly indicate that active traditional Hawaiian use of the parcel from ca. A.D. 1400 – 1500.

VI. SUMMARY

Cultural Surveys Hawai'i completed an archaeological inventory survey with subsurface testing for a 1.03-acre parcel of land in Waikīkī Ahupua'a, Kona District, Island of O'ahu, TMK 2-6-24: 70,71 (Figures 1 & 2). Fieldwork was carried out between the 5th and the 8th of October 2004 under the direction of William Folk, B.A., and Hallett H. Hammatt, Ph.D.

Fieldwork consisted of excavation and documentation of 14 backhoe trenches. The backhoe trenches were placed throughout the project area (Figure 9). They adequately sampled the project area for subsurface cultural deposits and provided representative information regarding the project area's stratigraphy and sedimentary depositional history. Backhoe excavation results were generally consistent with predictions based on information compiled prior to the fieldwork from historic maps and documents as well as previous archaeological investigations in the project area's vicinity. Project area stratigraphy varied distinctly between the northeast and southwest halves of the project area. All findings, however, were consistent with expectations based on background research. In all trenches the base of excavation was the water table, which was generally 150 cm below the current land surface.

Based on Māhele documents and information available from nineteenth century maps, the following geography and land use within the present project area at the mid-nineteenth century is indicated: the *mauka* or northeast half comprised a portion of taro *lo'i* belonging to the king ; the central section comprised a portion of 'Āpuakēhau Stream in which taro was also growing; and the *makai* or southwest half comprised habitation area as well as *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. The map also shows the project area straddling two Waikīkī *'ili* which appear to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in Auaukai. Kalāmanamana was one of the areas where the chief Kalamakua constructed the "large pond fields" of taro that once covered the Waikīkī plain. Some of the Kalāmanamana *lo'i* are shown in Figure 3.

Cultural Surveys Hawaii's research also suggests that the *makai* half of the present project area was formerly the site of at least a portion of the main houses of the 'Āinahau estate house, associated with important personages in Hawaiian history. In the final quarter of the nineteenth century the portion of the project area *makai* or southwest of 'Āpuakēhau Stream was purchased by Archibald Cleghorn (1835-1910) and transformed into his estate. It is believed that a portion of the Victorian-style house he built in the 1890s was located in the present project area. A pronounced charcoal enriched layer observed in many of the project area's trenches is likely related to the fire that raised the 'Āinahau house in 1921.

The subsurface testing results are consistent with this nineteenth century historical reconstruction. Trenches 4, 8 and 11 bisected portions of 'Āpuakēhau Stream. Trenches 7, 12, 13, and 14 clearly displayed fine-grained terrigenous alluvial deposits and structural features related to *lo'i* that were once extant. Trenches 1, 3, and 5, 9, and 10, in the southwest portion of the project area, exposed drier, sandier beach sediments overlain by historic fill. In the mid-1920s, as part of the excavation of the Ala Wai Canal, dredge sediments were distributed widely between the Ala Wai Canal and Kalākaua Avenue. These historic dredge sediments were observed in many of the current project's northeastern or *makai* trenches.

Fragmentary human skeletal remains were observed in Trench 9. These skeletal remains were clearly previously disturbed (prior to the current inventory survey excavations) and were most likely brought into the current project area inadvertently as part of historic fill layers that were noted in this southwestern portion of the project area. SHPD was notified regarding this burial find and the appropriate burial notification procedures were undertaken per the requirements of HRS Chapter 6E-43 and HAR Section 13-300.

The burial was discussed at the October O'ahu Island Burial Council (OIBC) meeting, where the OIBC members made two requests. First, that a soil engineer be contacted to determine whether it is possible to identify the source origination of the fill material in which the human skeletal fragments were found. To fulfill this request, soil engineers at Hirata & Associates, a Geotechnical Engineering firm, were consulted. In a letter to Mr. Gary Furuta from Paul S. Morimoto, P.E. (Ernest K. Hirata & Associates, Inc.) dated November 9, 2004, Mr. Morimoto asserts that "Based on our experience, the fill material is similar to that encountered throughout the Waikīkī area as well as in other areas of Honolulu. Based on our observations, we are unable to determine the vicinity from where the fill material may have originated." Secondly, the OIBC requested that a Cultural Surveys Hawai'i, Inc. (CSH) archaeologist meet with DeSoto Brown, collections manager of the Bishop Museum archives, to examine Dillingham Construction Company records to determine if these documents provide information about the origin of the fill material in which the human skeletal fragments were found. A CSH archaeologist fulfilled this request on November 23 and 30, 2004. No conclusive information regarding the fill material was obtained.

From examination of historic maps as well as the results of stratigraphic profiling during fieldwork, it is believed that the fill material was imported in the years following the demolition of the residential houses shown in the present project area on the fire insurance maps of 1927 and 1950 (Figures 6, 7). Concrete slabs observed in Trench 10, believed to be associated with these residential houses were documented near the location of the burial at a depth of approximately three feet. The bouldery fill material that contained the human skeletal fragments is on top of that layer (at a depth of approximately 10 cm) and therefore, is likely to post date the occupation of these residences.

VII. SIGNIFICANCE AND RECOMMENDATIONS

A. Significance

A total of four historic properties of varied archaeological significance are present in the project area and assigned State Inventory of Historic Places (SIHP) numbers. One of these, the Cleghorn ʻĀinahau Estate has been previously identified and assigned the SIHP number 50-80-14-6682.. Individual significance of the four properties and recommended treatment are specified in Table 4. Sites were evaluated for significance according to the broad criteria established for the National and State Registers. The five criteria are:

A	Site reflects major trends or events in the history of the state or nation.
B	Site is associated with the lives of persons significant in our past.
C	Site is an excellent example of a site type.
D	Site may be likely to yield information important in prehistory or history.
E	Site has cultural significance; probable religious structures and/or burials present.

The initial significance assessments are based on functional interpretations of the sites and site types. All four sites within the project area are considered significant (Figure 9, Table 4).

SIHP Site 50-80-14-6682, assessed with Criteria B, consists of the buried A horizon documented in Trench 1 and other trenches at the west end of the project property. Historic maps identify the present project area as a portion of ʻĀinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Prince Miriam Likelike (1851-1887), and their daughter Princess Kaʻiulani (1875-1899) – all significant personages in the history of Hawaiʻi. This cultural horizon represents the nineteenth century ground surface of the yard or gardens surrounding the structures of ʻĀinahau, and is therefore associated with the lives of persons significant in our past. However, the excavations indicate there is little tangible evidence buried here that will provide additional information on this historic property.

SIHP site 50-80-14-6705, assessed with Criteria E, consists of limited human skeletal fragments collected from the disturbed sediments of imported fill material in Trench 9. SHPD was notified regarding this burial find and the appropriate notification processes have been implemented following Hawaiʻi Revised Statutes Chapter 6E-43 and HAR Section 13-300.

SIHP site 50-80-14-6706, assessed with Criteria D, consists of what is clearly the streambed remnant of a segment of ʻĀpuakēhau Stream. As evidenced by historic map documentation, ʻĀpuakēhau Stream was an important source of freshwater; an integral part of Kalamanamana and the other taro planting and irrigation field systems comprising the complex between the foothills of Koolau to Waikīkī.

SIHP site 50-80-14-6707, assessed with Criteria A, B, C, and D, consists of a stone wall comprised of one to five courses of water rounded basalt boulders. The base course of the wall is set on the coral reef deposits 20 cm below the ground water level. This wall is an excellent example of type and method of construction of a traditional *loʻi* field retaining wall. As a likely physical remnant of the extensive Waikīkī network of irrigated taro fields that were constructed beginning in the fifteenth century and traditionally attributed to the chief Kalamakua, it is associated with events and lives of persons important in our past. It is also likely to yield valuable information on the chronology of the system of irrigated fields in this area.

Table 4. Recommendations for SIHP Sites

State Site #	Form	Function	Significance	Recommendation
-6682	Buried A Horizon; grounds of ʻĀinahau (Cleghorn Estate)	Habitation	B	No Further Work
-6705	Human skeletal fragments in disturbed sediment	Burial	E	Future Monitoring
-6706	Stream bed, believed to be a segment of ʻĀpuakēhau Stream	Agriculture	D	No Further Work
-6707	Stone retaining wall	Agriculture	A, B, C, D, E	Data Recovery

*Note prefix for all SIHP sites is 50-80-09

B. Recommendations

Of the four sites recorded in the project area, SIHP site -6707 is recommended for data recovery, SIHP site -6705 for further monitoring, and SIHP sites -6682 and -6706 for no further work.

1. No Further Work

SIHP site -6682 and -6706 are recommended for no further work. The features were mapped, placed on a plan view map and the immediate vicinity was tested for subsurface deposits. Based on the findings of the subsurface testing in these sites and research of historical documentation, it is believed that the information contained in these historic properties within the project property has been acquired and that no further archaeological documentation is necessary.

2. Monitoring

Results from the archaeological inventory survey indicate that the majority of the project area is free of archaeological resources and constraints. However, the identification of human skeletal fragments in the disturbed sediment of imported fill within the inventory survey fieldwork (SIHP site -6705) indicates possibility that additional fragmented human skeletal remains may be present within the fill material in project area. Based on the findings, an archaeological monitoring program is recommended with on-site and on-call monitoring of initial subsurface impacts.

3. Data Recovery

Archaeological data recovery is recommended for SIHP site –6707. This is a *loʻi*, (or terraced, ponded, field) retaining wall. It is a remnant of the extensive Moiliili-Kapahulu-Waikīkī network of irrigated taro fields constructed beginning in the fifteenth or sixteenth century and

traditionally attributed to the chief Kalamakua, a significant personage in Hawaiian history. This field system, an impressive feat of engineering, took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*.

Tentative research goals for a Data Recovery Plan include additional backhoe trenches to better delineate the horizontal extent of the wall, and hand dug trenches to obtain additional samples for a detailed radiocarbon age sequence and paleoenvironmental reconstruction based on pollen analysis.

The results of this research should be integrated into available previous archaeological and paleoenvironmental research within Waikīkī to aid in constructing a comprehensive chronology of Hawaiian settlement and agricultural practices in this important *ahupua'a*.

Data recovery should be implemented through plans submitted to the Department of Land and Natural Resources, State Historic Preservation Division (DLNR/SHPD) for review and approval.

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IX. PHOTO APPENDIX

Figure 24. Photograph of project area taken from north corner, view to south

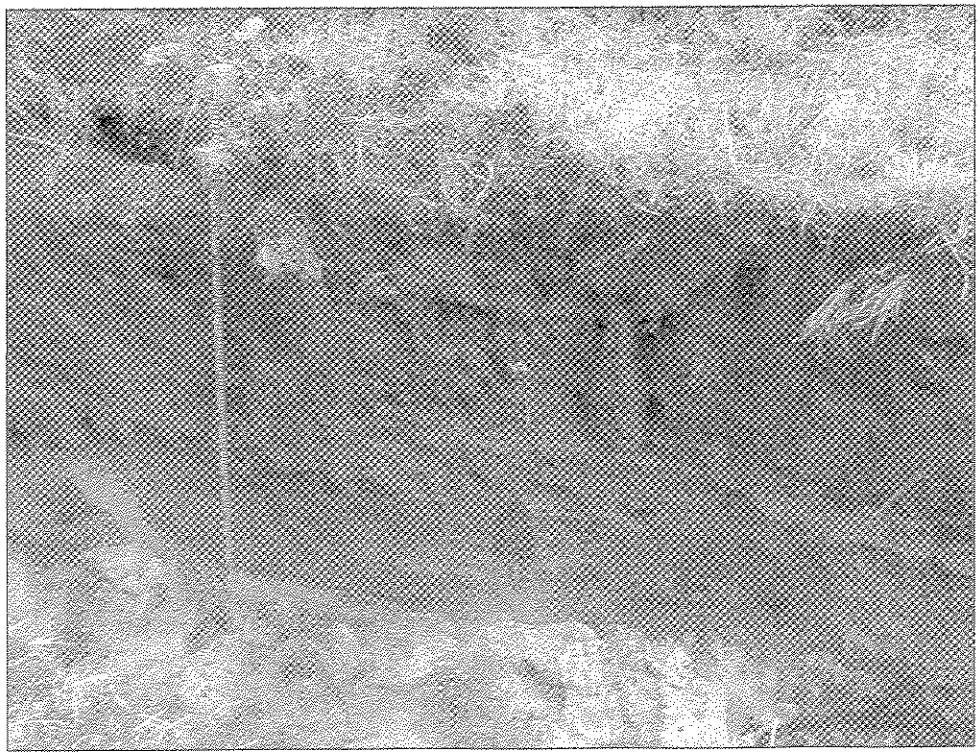


Figure 25. Photograph of Trench 1, east profile showing buried A horizon of 'Ainahau estate

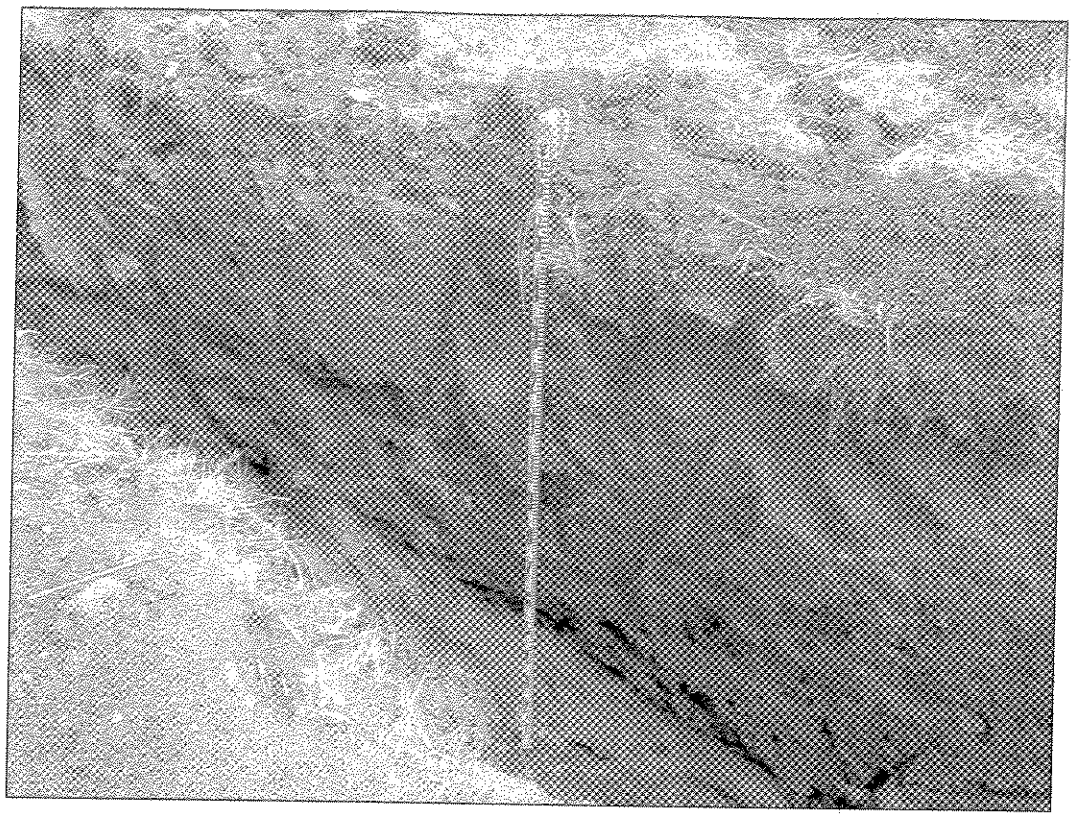


Figure 26. Photograph of Trench 2, east profile

Figure 27. Photograph of Trench 3, southeast profile

Figure 28. Photograph of Trench 4, southeast profile showing *makai* edge of streambed

Figure 29. Photograph of Trench 5, southwest profile showing pit features 1 and 2

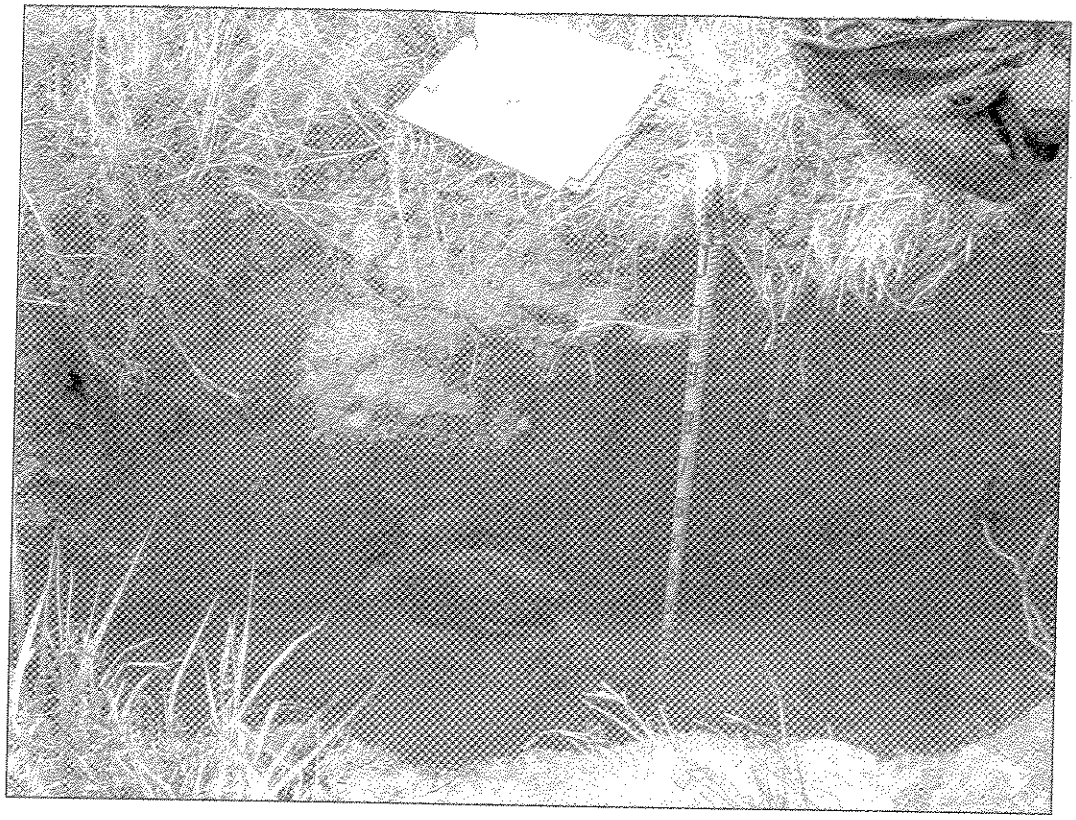


Figure 30. Photograph of Trench 6, southwest profile showing pit feature 1

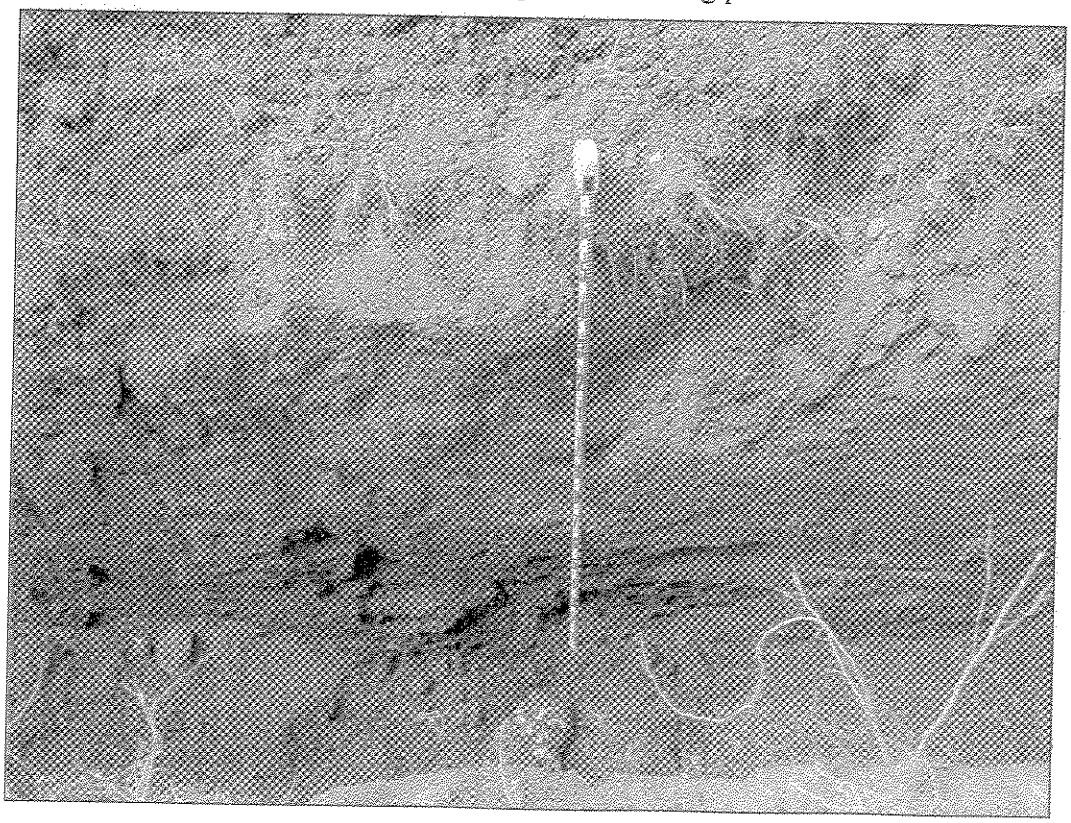


Figure 31. Photograph of Trench 7, northwest profile showing *lo'i* sediments

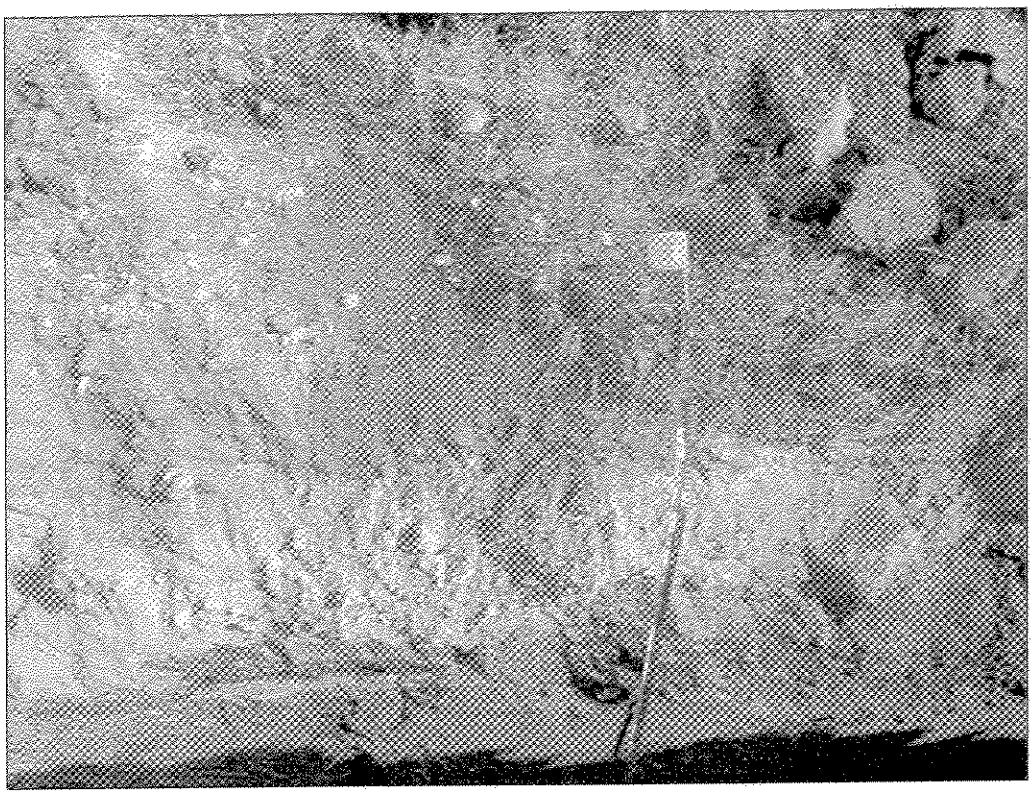


Figure 32. Photograph of Trench 8, north profile showing charcoal lense

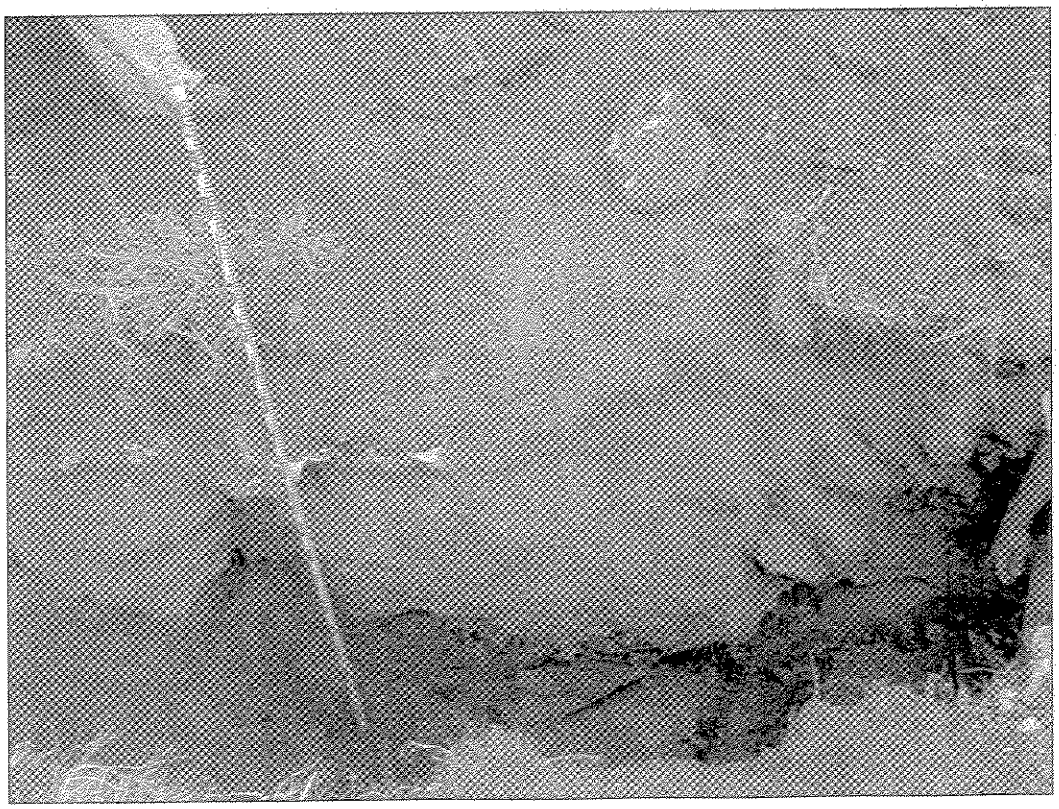


Figure 33. Photograph of Trench 9, east profile

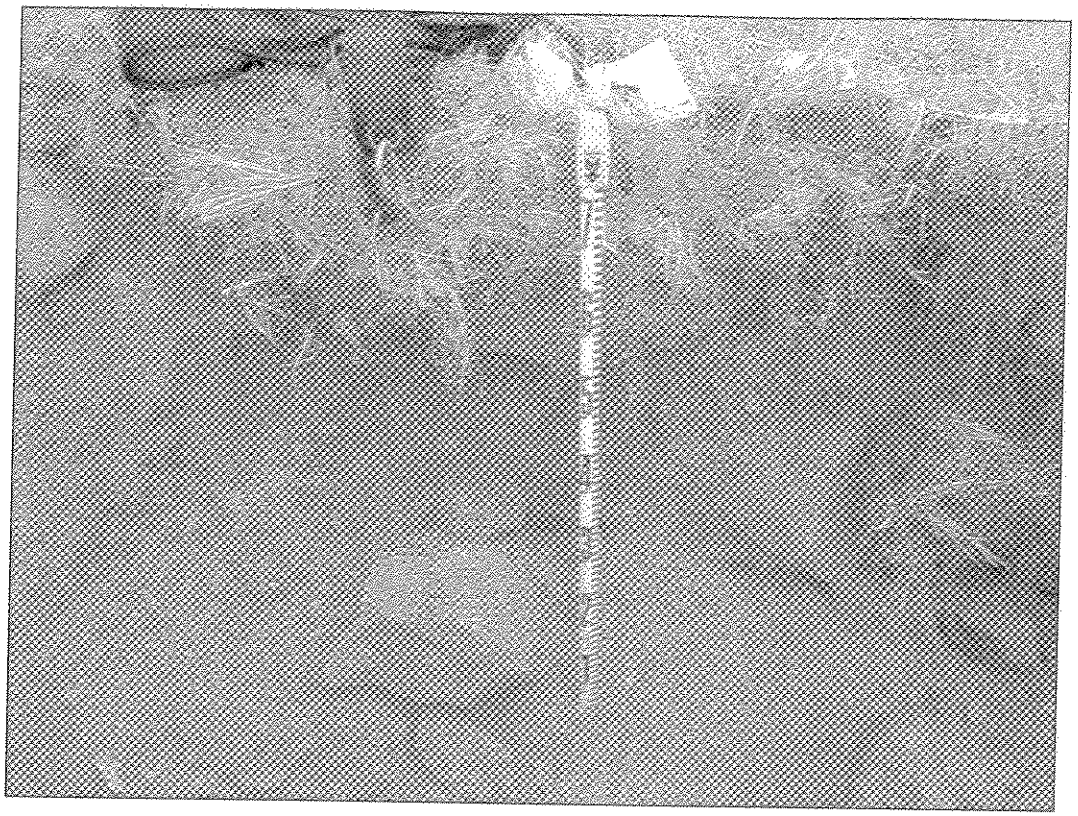


Figure 34. Photograph of Trench 10, west profile

Figure 35. Photograph of Trench 11, northwest profile

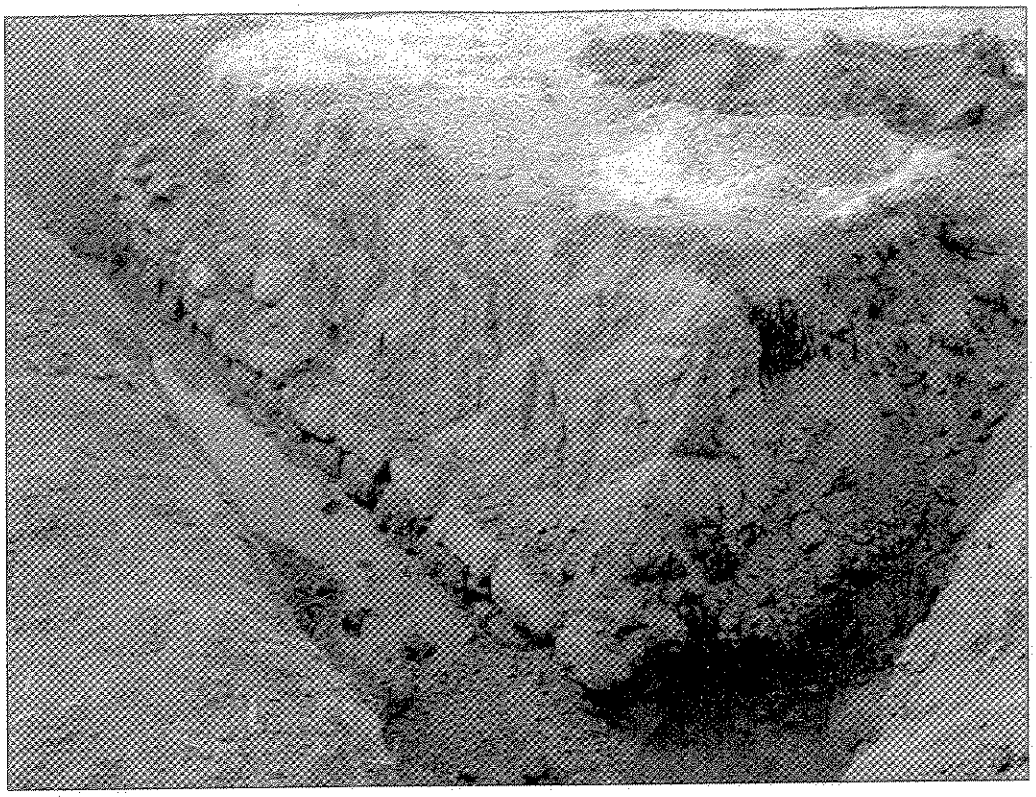


Figure 36. Photograph of Trench 12, northeast profile showing remnants of *lo'i* retaining wall

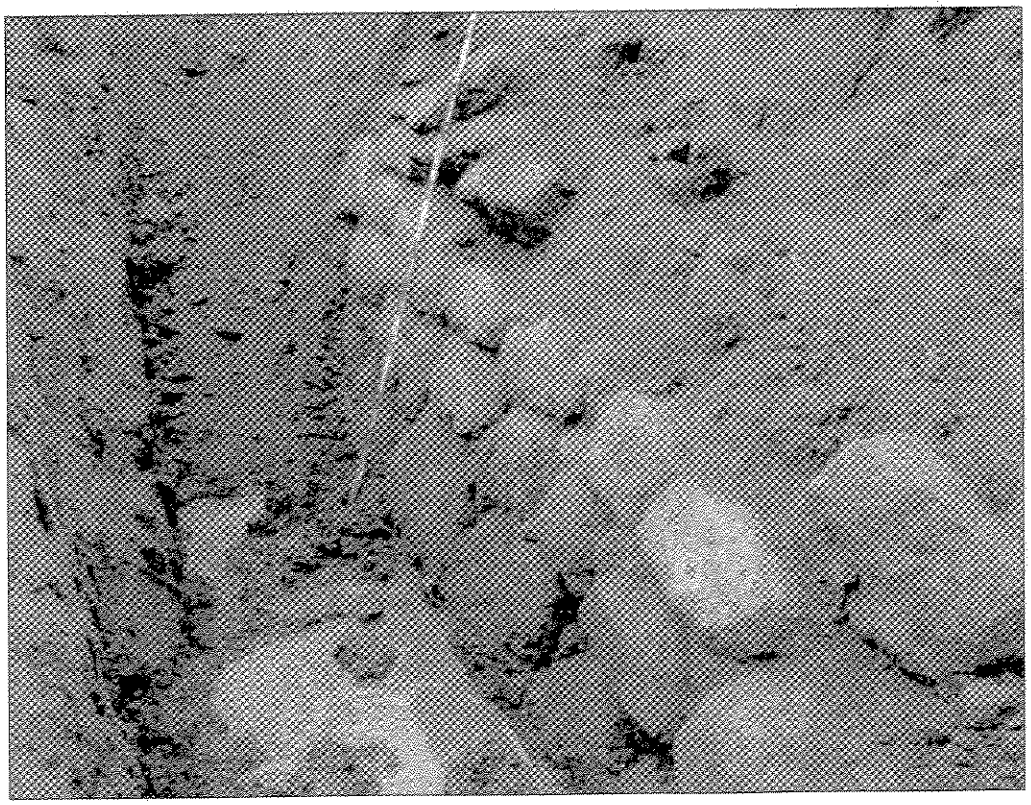


Figure 37. Photograph of Trench 12, close-up of northeast profile showing remnants of *lo'i* retaining wall

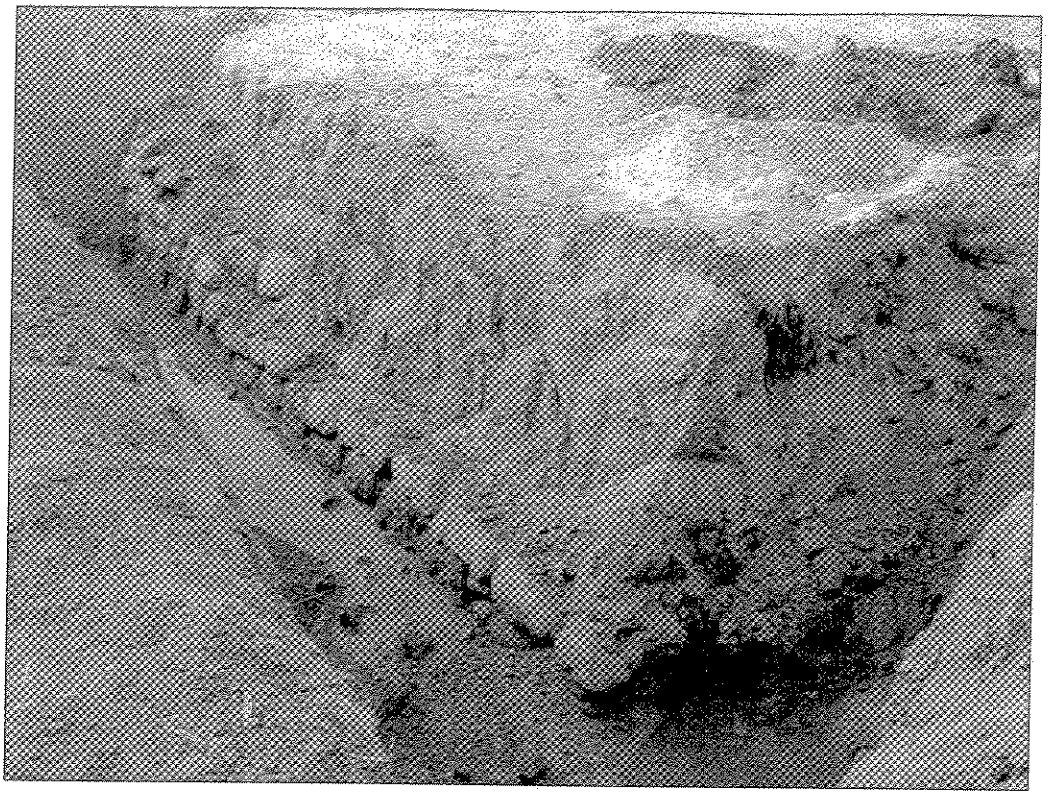


Figure 36. Photograph of Trench 12, northeast profile showing remnants of *lo'i* retaining wall

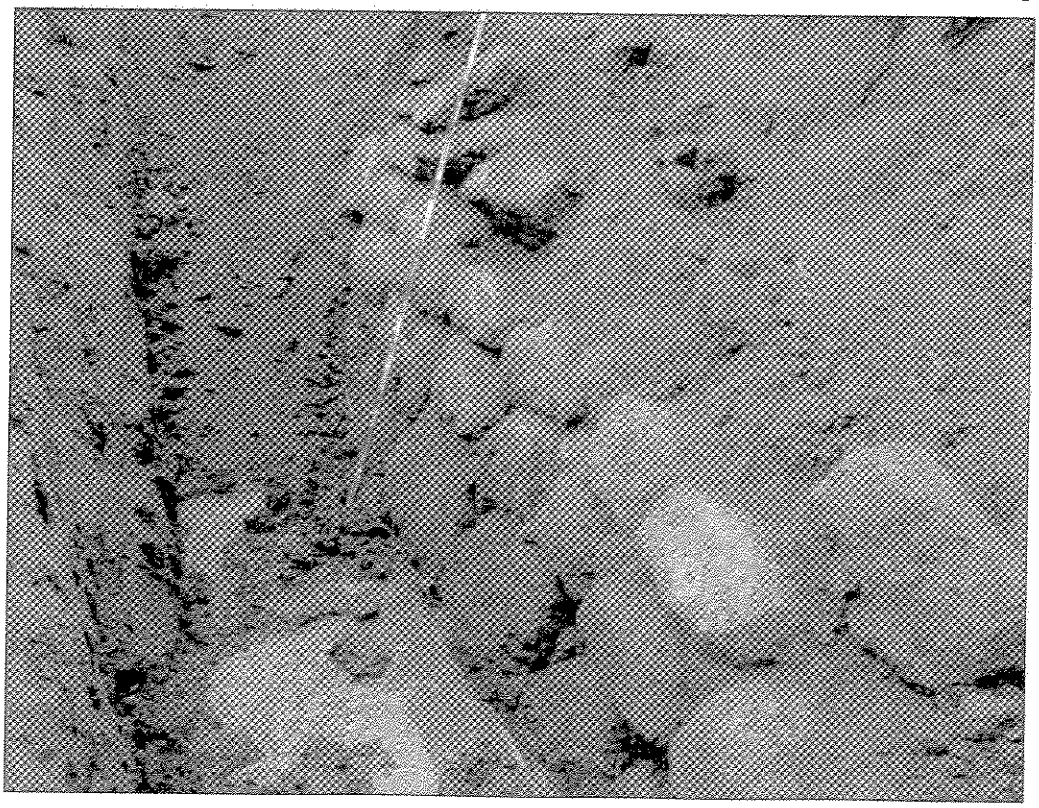


Figure 37. Photograph of Trench 12, close-up of northeast profile showing remnants of *lo'i* retaining wall

Cultural Impact Evaluation for the Tusitala Vista Elderly Apartments

Waikīkī, Kona District, O'ahu Island

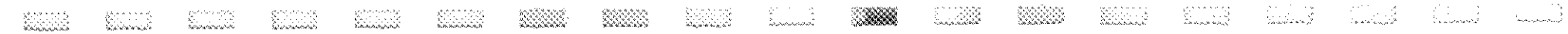
TMK: 2-6-24: 70, 71

by

Auli'i Mitchell, B.A.,
and
Hallett H. Hammatt, Ph.D.

Prepared for
Kusao & Kurahashi, Inc.

by
Cultural Surveys Hawai'i, Inc.
December 2004



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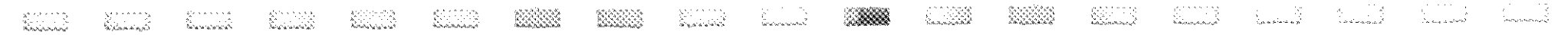

I. INTRODUCTION

A. Project Background

At the request of Kusao & Kurahashi, Inc., Cultural Surveys Hawai'i Inc. (CSH), has completed a cultural impact evaluation of 1.03 acres in Waikīkī Ahupua'a, Kona District, Island of O'ahu, TMK 2-6-24:70, 71. The project area is a rectangular shaped parcel bounded by Ala Wai Boulevard to the north, Tusitala Street to the south, Ka'iulani Avenue to the west and Lili'uokalani Avenue to the east (Figures 1, 2 and 3). Hawai'i Housing Development Corporation is presently in the process of purchasing the project area land from Starts International Hawai'i, Inc.

B. Scope of Work

The scope of work for the cultural impact evaluation is summarized as follows:

1) Examination of historical documents, Land Commission Awards, historic maps, and previously documented oral histories, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicted in the historic record.

2) A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.

3) Conduct consultations with persons and groups knowledgeable about the historic and traditional practices in the project area and region. CSH would focus particularly on previously recognized lineal and cultural descendents of families associated with Waikīkī, circa 1850.

4) Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will evaluate the impact of the proposed action on the cultural practices and features identified.

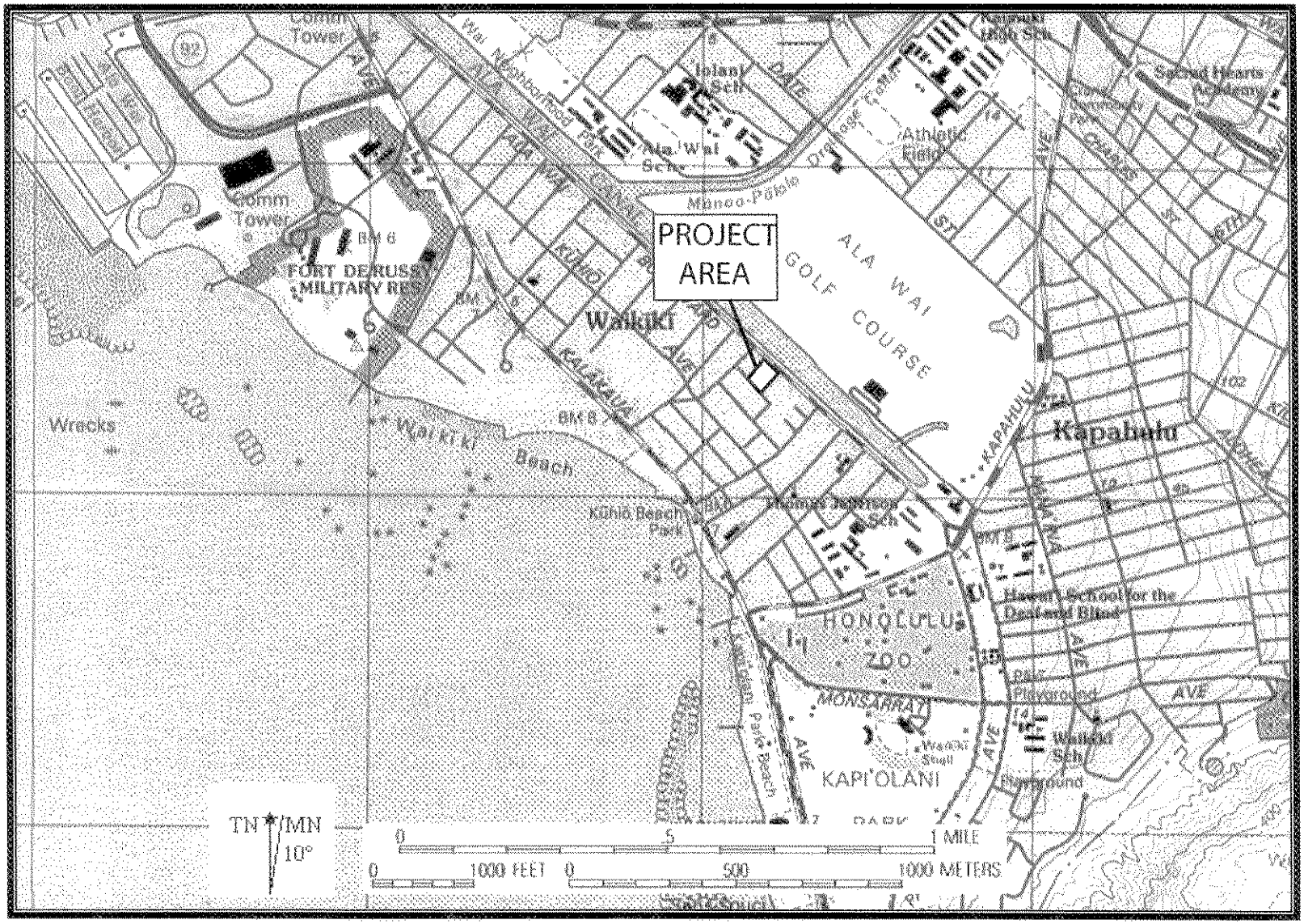

Figure 1 Portion of USGS Honolulu Quad (1998) map showing project area

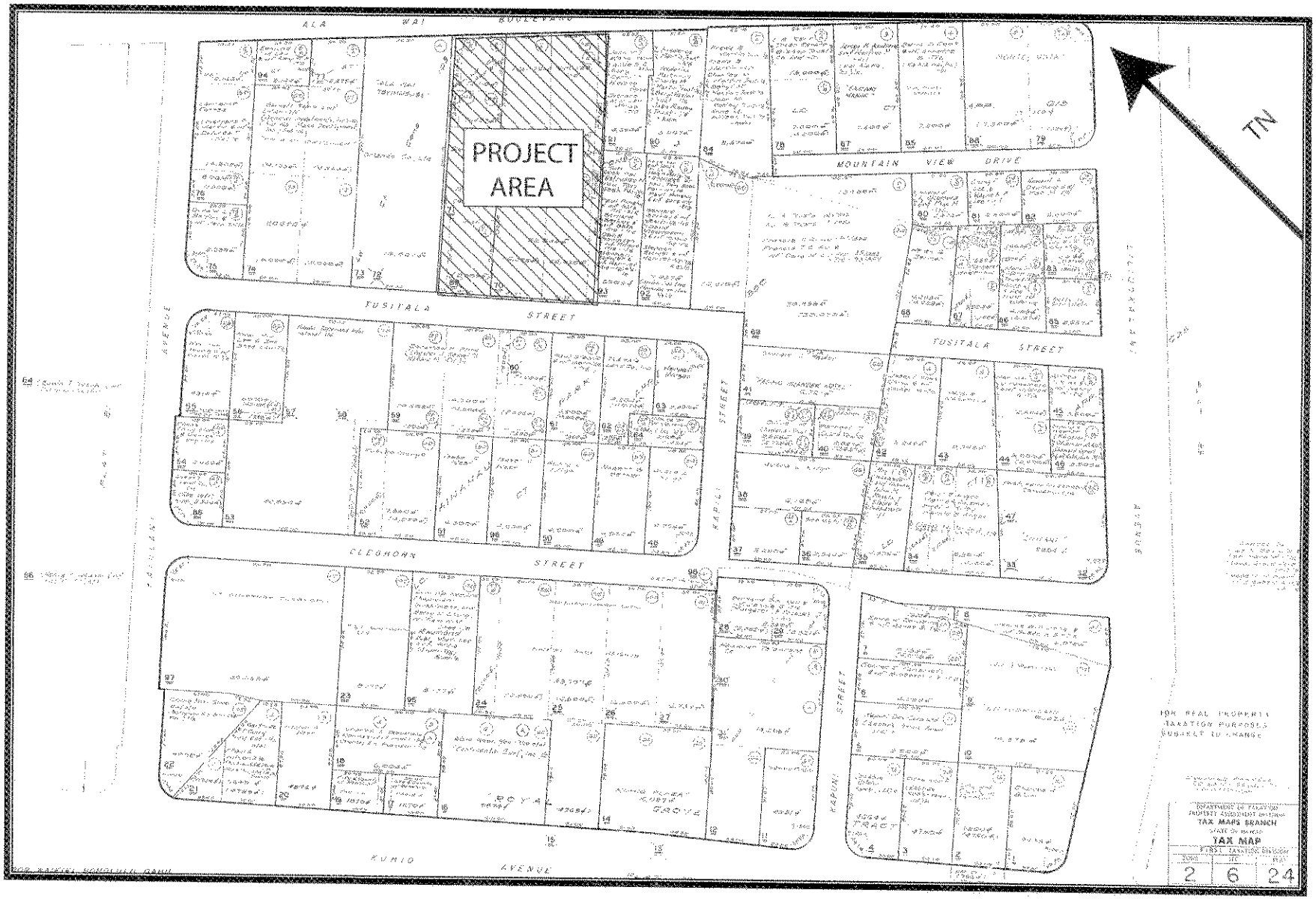

Figure 2 TMK 2-6-24 map showing location of present project area

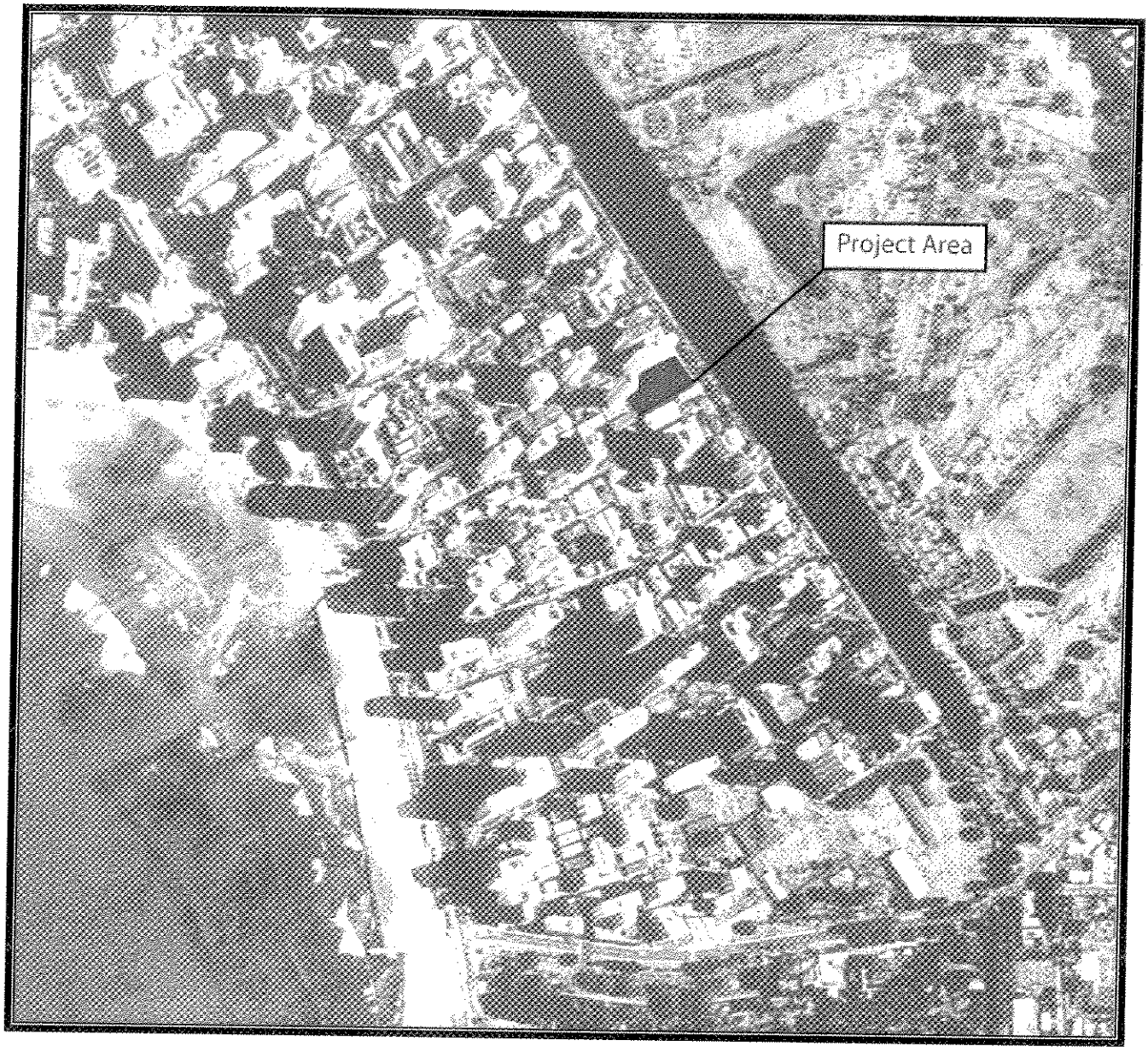

Figure 3 Aerial photograph showing location of the project area

C. Work Accomplished

Historical documents, maps, and photographs were researched at: the Hawai'i State Archives; the Survey Office of the Department of Accounting and General Services; the Hawai'i State Library; the Bernice Pauahi Bishop Museum Archives and Library; Hamilton Library at the University of Hawai'i at Mānoa; the Mission Houses Museum Library; the State Historic Preservation Division (SHPD) Library; and the Library of Cultural Surveys Hawai'i.

Hawaiian organizations, government agencies, community members and recognized cultural descendants with ties to Waikīkī were contacted to: 1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and 2) identify cultural concerns and potential impacts within the project area. Results of the community contact process are presented in Table 2.

D. Natural Setting

The plain of Waikīkī is flat and, generally, less than 4.5 m (15 feet) above sea level (Davis 1989:5). Soils in the area are composed solely of Jaucus Sand with 0-15% slopes (JaC) (Foote et al.1972: Map 63). Rainfall averages less than 30 inches of rain per year (Armstrong 1983:62); however, the area receives additional water from the Kālia and Pālolo Streams, as well as rain showers that drift into the area from the mountains and inland valleys (Cleghorn 1996:3). Northeasterly trade winds prevail throughout the year, although their frequency varies from more than 90% during the summer months to 50% in January; the average annual wind velocity is approximately 10 miles per hour (Okamoto 1998:2-1). Currently, vegetation in the project area includes a variety of grasses and a few Plumeria and Papaya trees along the northern and southern fence lines.

Modern Hawaiian shoreline configuration, including Waikīkī Beach is primarily the result of: 1) rising sea level following the end of the Pleistocene (see Stearns 1978 and McDonald et al. 1983); 2) the mid to late Holocene c. 1.5-2.0 meter high-stand of the sea (see summary in Dye and Athens 2000:18-19); and, 3) prehistoric and historic human landscape modification. At the end of the Pleistocene, between approximately 20,000 and 5-6,000 years ago, water previously locked in glacial ice returned to the world's oceans and sea-level rose over 100 meters to approximately its current level. Rising sea levels flooded the previously dry, earlier Pleistocene reef deposits, which had formed hundreds of thousands of years previously when sea level was comparable to modern levels. In the late Pleistocene/early Holocene, the Waikīkī area was characterized by an expansive delta drainage system which flowed from the Ko'olau Mountains to the sea (Ferrall 1976: plate II).

Land formation was directly related to changes in the sea level, terrigenous sediment load of streams, and reef and marine sediment formation. Lowering sea levels and increased marine sediment load (from reef erosion due to wave action) combined to create a sand accretion barrier along the coast as marine sediments were deposited on the resulting shallower reefs. This created a lagoon environment between the island shoreline and the sand accretion barrier. Terrigenous sediments were carried into this lagoon environment by Mānoa and Pālolo streams. When sea level reached approximately modern levels, the now coastal regions became depositional environments, where for tens of thousands of years previously, during the lower sea levels, they had been erosional environments. This resulted in the deposition of both terrigenous and marine sediments in low-energy estuarine or lagoonal environments, leading to the

accumulation of thick deposits of soft/loose sediments along the current coastlines in areas that had formerly been valleys and drainage ways (Geolabs Hawai'i Inc. 1993:9). By the time humans occupied the coastal area of Waikīkī, the lagoon had become a wetland (which was used for cultivation) behind the sand accretion barrier (which was used for habitation) (Ferrall 1976: B-2). It is likely that only since the major construction projects of the beachfront hotels has the overall accretion trench of Waikīkī beach been stopped or reversed. The current landform at Waikīkī is largely the result of the historical drainage excavation of the Ala Wai Canal and fill deposits.

II. TRADITIONAL ACCOUNTS OF WAIKĪKĪ

Waikīkī had a previous life, long before the first tourist arrived or the first hotel was built. Rekindling a love for Waikīkī's past has been the passion of author/historian Dr. George Kanahele. Histories are intended to give meaning to events, and then all histories are stories, for stories are about meaning, which explain why things could have happened in a certain way. Traditionally, for Hawaiians, the *mo'olelo* (story) sought to do more than explain: it sought to re-enchant the mind and spirit. In his book *Waikīkī 100 B. C. to 1900 A.D. An Untold Story*, Dr. Kanahele sums up the following legends of Waikīkī reflecting the elements of water that once flourished in the lands of Waikīkī and who's rolling surf still breaks upon the shores of Waikīkī (Kanahele 1995:1).

1. Kamō'ili'ili (the pebble lizard)

Waikīkī's earliest *mo'o* god was probably *Kamō'ili'ili* (literally, the pebble lizard) who was slain by Hi'iaka, Pele's sister. The legend relates that:

> Hi'iaka and Wahine'ōma'o were escorting Lohi'au (Pele's lover-prince) back to Pele on the island of Hawai'i. During the return journey they left their canoe at Waikīkī and walked up toward Kamō'ili'ili. When they arrived at the particular spot (said to be where the old stone church stood in the 1920s), a heavy gust of wind blew, and Wahine'ōma'o and Lohi'au felt invisible hands pulling their ears back. They called to Hi'iaka for help. She knew that it was the lizard god, Kamō'ili'ili, who did it and told the other gods to keep closely behind her. A short distance away, they met Kamō'ili'ili who wanted to fight. Hi'iaka removed her outside skirt which concealed bolts of lightning and struck him with them. His body was cut to pieces and the peices turned into the long, low hill across from Waikīkī's Kūhiō School. [Kanahele 1995:42]

2. The Shark God Ka'ehu

Shark stories accompany surfing stories in myth as well as in real life because the man-eating shark is the most feared element in surfing. One legend that is popular even today is about the little yellow shark Ka'ehu of Pearl Harbor who was endowed with magical power by his ancestor Kamohoa'li'i, the shark god and brother of Pele. Yearning to see his parents off the Puna coast on the island of Hawai'i:

> One day Ka'ehu called his shark friends to accompany him to Puna. On the way they stopped at Waikīkī where they met Pehu, a mean-eating shark from Maui, who was swimming back and forth at Kalehuawehe in wait for an unsuspecting surfer.
>
> Ka'ehu asked what Pehu was doing there and he replied, "I'm catching a crab for my breakfast." "We'll help you catch your crab," Ka'ehu said, and told him to go near the coral reef while he and his friends would drive them shoreward, allowing Pehu to catch this crab easily. He was pleased with the plan and swam close to the reef where he hid himself in its shadows.
>
> Then Ka'ehu told his friends, "We must kill this man-eater because he is destroying our people. Let's try to push him into the shallow water."

> Soon two surfers appeared and when Pehu leaps to catch one, Ka'ehu and his friends pushed the surfer aside and hurled Pehu over the reef into a deep hole in the coral. The more he thrashed about to escape, the more trapped he became.
>
> When the surfers saw what had happened, they were not as afraid of Pehu and moved to the hole to kill him. As they cut into his body they discovered the remains of their own people. Out of respect, they delivered them to Pele'ula (an area with many healing *heiau* located in Kou, now downtown Honolulu) and burned the remains. Ka'ehu had many more adventures that had a similar objective, the punishment of other man-eaters from the great sea. [Kanahele 1995:58-59]

3. Surfing with Kelea

Surfing was one of the principal attractions of Waikīkī to both chiefs and commoners. So important was surfing that a major *heiau* dedicated to the *nalu* or surf, and its riders. Here at the "surfing *heiau*" of Papa'ena'ena, a terraced structure built at the foot of Diamond Head, is where surfers came to offer their sacrifices in order to obtain *mana* and knowledge of the surf. The site overlooked what surfers call today "First Break," the start of the Kalehuawehe surfing course which extended to Kawewehi (the deep, dark surf) at Kālia. Although everyone, including women and children, surfed, it was the chiefs who dominated the sport, and one of the best among Waikīkī's chiefs was Kalamakua. He came from a long ancestry of champion surfers whose knowledge, skill and *mana* were handed down and passed on from generation to generation. The story of his romantic meeting with Keleanuinoho'ana'api'api ("Great Kelea who flutters,") has been preserved as a reminder of the role that surfing played in the history of Waikīkī (Kanahele 1995:56-58):

> One day this beautiful chiefess with "clear skin and sparkling eyes," who then resided in Wahiawā (in Central O'ahu), was visiting Waikīkī with a few of her ladies-in waiting. She entered the coconut grove and beach of Kawehewehe which was located just east of the Halekūlani Hotel. Here is where the sick came to bathe and to be healed. They would wear *limu kala* (seaweed) leis and leave them in the water as a request to the gods for forgiveness of past wrongs which was the cause of much illness.
>
> The residents welcomed Keleanuinoho'ana'api'api and offered her coconuts to eat. She remarked that Waikīkī was "the most pleasant place we have seen," to which her hosts replied, "This is a place for enjoyment. Over there is the *kou* grove of Kahaloa where one may view the surfing of the chiefs and of the *ali'i nui* Kalamakua." Kahaloa, or "Long Place," was also a beach area located today between the Royal Hawaiian and Halekūlani hotels and noted for its fragrant *līpoa* seaweed. When she asked if she could borrow a surfboard, the Waikīkīans were surprised because they thought people from Waihiawā were only adept at "slicing *mo'okilau* ferns and *pōpolo* stalks," not at surfing. They did not know that their visitor was originally from Maui where she surfed with all the chiefs. She was too beautiful to refuse and someone gave her a board.

Before she entered the water, she "rubbed off the red dirt of 'Ewa from her feet so as to look fresh," and then paddled off like an expert, moving easily and noiselessly without the least heeling over. Instead of starting at the first break where *kama'āina* (native born) surfers congregated, she went beyond and waiting for a large wave. She let the first, second and third waves pass, and rode the fourth one all the way to shore. The chiefs and commoners were so impressed with her skill and grace that they immediately joined in loud cheers of admiration.

Meahwhile, Kalamakua, who was working in his taro fields nearby asked his men who was causing the commotion. They replied that the people were amazed at the performance of a female surfer. A skilled surfer himself, Kalamakua rushed to the edge of the beach to see for himself. He recognized Kelea at once as the chiefess from Maui famed for her surfing prowess.

When she reached shore, he took hold of her board and asked, "Are you Kelea?" "Yes," she answered. As she stood up, in naked splendor, he removed his feathered shoulder cap and wrapped it around her. Then he guided her to a *kapu* place and made her his *ali'i wahine mō'ī*, or queen. [Kanahele 1995:56-58]

III. HISTORICAL ACCOUNTS

A. Pre-Contact to Early 1800s

By the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, Waikīkī had long been a center of population and political power on O'ahu. According to Martha Beckwith (1940), by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of Oahu." The preeminence of Waikīkī continued into the eighteenth century and is betokened by Kamehameha's decision to reside there upon wresting control of O'ahu by defeating the island's chief, Kalanikūpule. The nineteenth century Hawaiian historian John Papa 'Ī'ī (1959:17), himself a member of the *ali'i* (chiefly class), described the king's Waikīkī residence:

> Kamehameha's houses were at Puaaliilii, *makai* of the old road, and extended as far as the west side of the sands of 'Apuakehau. Within it was Helumoa where Ka'ahumanu *mā* went to while away the time. The king built a stone house there, enclosed by a fence . . . ('Ī'ī 1959:17).

'Ī'ī further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili" ('Ī'ī 1959:17).

Chiefly residences, however, were only one element of a complex of features that characterized Waikīkī up to pre-contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. The pioneering nineteenth-century scholar Samuel Mānaiakalani Kamamau recounts Kalamakua's significance for the Hawaiian people:

> Kalamakua-a-Kaipūhōlua was a good chief. He was noted for cultivating, it was he who constructed the large pond fields Ke'ōkea, Kūalulua, Kalāmanamana, and the other *lo'i* in Waikīkī. He traveled about his chiefdom with his chiefs and household companions to cultivate the land and gave the produce to the commoners, the *maka'āinana*. They loved him. Kelea-nui-noho-'ana-'api'api became his wife when he was a mature man. (Kamakau 1991: 45)

Captain George Vancouver (1798:161-164), arriving at "Whyteete" in 1792, captured something of the profusion of taro *lo'i* across Waikīkī in his journals:

> On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.
>
> [Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.
>
> This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and

> figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or taro root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the taro plantations.
>
> [We] found the plain in a high state of cultivation, mostly under immediate crops of taro; and abounding with a variety of wild fowl, chiefly of the duck kind . . . The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence.

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikīkī are given by Archibald Menzies (1920:23-24), a naturalist accompanying Vancouver's expedition:

> The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of Draecena without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews.

The work of chief Kalamakua in Waikīkī will be further detailed in the discussion of the present project area in Section H below.

The traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O'ahu was soon to change – disrupted by the same Euro-American contact that produced the first documentation (including the records cited above) of that traditional life. The *ahupua'a* of Honolulu - with the only sheltered harbor on O'ahu - became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. Kamehameha himself moved his residence from Waikīkī to the coast near Honolulu harbor, likely in order to maintain his control of the lucrative trade in sandalwood

that had developed. By 1828, the missionary Levi Chamberlain (1957:26), describing a journey into Waikīkī, would note:

> Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population. (Chamberlain 1957:26)

Tragically, the depopulation of Waikīkī was not simply a result of the attractions of Honolulu (where, by the 1820s, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populace.

B. Mid-Nineteenth Century and the *Mahele*

The depopulation of Waikīkī, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-nineteenth century. The Organic Acts of 1845 and 1846 initiated the process of the *Mahele* (the division of Hawaiian lands) that introduced private property into Hawaiian society. In 1848, the crown (Hawaiian government) and the *ali'i* (royalty) received their land titles. Subsequently in the *Mahele*, Land Commission Awards (LCAs) for *kuleana* parcels were awarded to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

A discussion of Land Commission Awards related to the present project area is presented in Section H below.

C. Mid to Late 1800s

As the nineteenth century progressed, Waikīkī was becoming a popular site among foreigners – mostly American – who had settled on O'ahu. An 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the *ali'i* – the Hawaiian royalty – and several notables had residences there. A visitor to O'ahu in 1873 described Waikīkī as "a hamlet of plain cottages, whither the people of Honolulu go to revel in bathing clothes, mosquitoes, and solitude, at odd times of the year" (Bliss 1873).

Other developments during the second half of the nineteenth century a prelude of changes that would dramatically alter the landscape of Waikīkī during the twentieth century – include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Ave.), the building of a tram line between the two areas, and the opening of Kapi'olani Park on June 11, 1877. Traditional land-uses in Waikīkī were abandoned or modified. By the end of the 19th century most of the fishponds that had previously proliferated had been neglected and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States.

As the sugar industry throughout the Hawaiian kingdom expanded in the second half of the nineteenth century, the need for increased numbers of field laborers prompted passage of contract labor laws. In 1852, the first Chinese contract laborers arrived in the islands. Contracts were for five years, and pay was $3 a month plus room and board. Upon completion of their contracts, a number of the immigrants remained in the islands, many becoming merchants or rice farmers. As was happening in other locales, in the 1880s, groups of Chinese began leasing and buying (from the Hawaiians of Waikīkī) former taro lands for conversion to rice farming. The taro lands' availability throughout the islands in the late 1800s reflected the declining demand for taro as the native Hawaiian population diminished.

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-nineteenth century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

> The primary market for both husked rice and paddy raised in all parts of the Hawaiian Islands was in Honolulu. The number of Chinese in the islands created a large home demand.
>
> In 1880 the home market was made more secure by an increase in the duty on rice imported into Hawai'i to 1½ cents on paddy and 2½ cents on hulled rice. It resulted in further checking the importation of foreign rice and giving an immense impetus to the home product [Coulter and Chun, 1937: 13] m.

By 1892, Waikīkī had 542 acres planted in rice, representing almost 12% of the total 4,659 acres planted in rice on O'ahu. Most of the former taro *lo'i* converted to rice fields were located *mauka* of the present Ala Wai Boulevard.

D. 1900 to 1920

During the first decade of the twentieth century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Fort DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

> On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...
>
> Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O'ahu. At DeRussy other activities also had to be attended to - especially the filling of a portion of the fishponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of an hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground, [Hibbard and Franzen 1986:79].
>
> All the fishponds were filled by 1928.

E. 1920s to 1930s

During the 1920s, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī. The canal was one element of a plan to urbanize Waikīkī and the surrounding districts:

> The [Honolulu city] planning commission began by submitting street layout plans for a Waikīkī reclamation district. In January 1922 a Waikīkī improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Mō'ili'ili, and McCully districts, as well as lower Makiki and Mānoa...
>
> The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block. [Johnson 1991:311]

During the course of the Ala Wai Canal's construction, the banana patches and ponds between the canal and the *mauka* side of Kalākaua Avenue were filled and the present grid of streets was laid out. These newly created land tracts spurred a rush to development in the 1930s. An article in the Honolulu Star-Bulletin in 1938 extolled the area's progress:

> The expansion of apartment and private residence construction is no secret. Examination of building permits will show that more projects have been completed during the past year, and more are now underway in this area, than in any other section of the territory.
>
> These developments are being made by island residents who have recognized the fact that Waikīkī presents the unparalleled possibility for safe investment with excellent return. (Newton 1938: 10)

The writer speculated that the "future of Waikīkī is assured."

F. 1940s

The entrance of the United States into World War II following the Japanese bombing of Pearl Harbor on December 7, 1941 put on hold plans for the development of Waikīkī as a tourist destination. Until the war's end in 1945, the tourist trade was non-existent "...since the Navy controlled travel to and from Hawai'i and did not allow pleasure trips" (Brown 1989: 141). For the duration of the war, Waikīkī was transformed into a recreation area for military personnel.

> It was not the same Waikīkī as before the war, though; barbed wire barricades now lined its sands, and there were other changes too. Fort DeRussy became a huge recreation center, with a dance hall called Maluhia that attracted thousands of men at a time. The Moana Hotel continued to function, but many other establishments and private homes in the area were taken over by the military. [Brown 1989:141]

Nearing the war's end, concerns began arising over the future of Waikīkī. An article in the Honolulu Advertiser of July 16, 1945 decried "honky-tonks" that had sprung up in Waikīkī

during the course of the war, and asked: "Can anyone look at present-day Kalākaua Ave. – lined with makeshift curio shops, noisy 'recreation' centers, eyesores that pass under the name of lunchrooms and miscellany of 'joints' – and hope that Waikīkī can stage a comeback [as a tourist destination]?"

G. 1950s

By the mid-1950s there were more than fifty hotels and apartments from the Kālia area to the Diamond Head end of Kapi'olani Park. The Waikīkī population, by the mid-1950s, was not limited to transient tourists but included 11,000 permanent residents living in 4,000 single dwellings and apartments in stucco or frame buildings.

H. Historical Documentation of the Project Area

Beginning at the mid-nineteenth century, the historical record of Waikīkī including the present project area and adjacent lands was established in increasingly detailed documentation including photographs, maps, newspaper articles, and government records. These documents also give insight into pre-contact Waikīkī. During subsequent decades of the twentieth century, abundant documentation of Waikīkī allows a more precise focus on the changes within the project area itself up to the 1950s.

1. 1881 survey map by S.E. Bishop

An 1881 a portion of the Hawaiian Government survey map by Serrano E. Bishop with locations of LCA parcels provides a detailed record of the physical landscape of Waikīkī before the transformations of the twentieth century (Figure 4). As shown on the map, coursing through the middle of the project area is 'Āpuakēhau Stream which once descended from Mānoa Valley, entering the ocean "near the present Moana Hotel" and which was "probably named for a rain" (Pukui *et al.* 1974: 13).

The map also shows the project area straddling two Waikīkī *'ili* which appears to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in 'Au'aukai.

As was noted above, according to Samuel Kamakau, Kalāmanamana was one of the areas where the chief Kalamakua constructed the "large pond fields" of taro that once covered the Waikīkī plain. Some of the Kalāmanamana *lo'i* are shown in Figure 4. The complete 1881 map shows a network of *lo'i* (which by the 1880s were being converted to rice fields) extending across present-day McCully and Mō'ili'ili to the foot of Mānoa Valley, suggesting the impressive scale of the field system engineered by Kalamakua.

Also indicated on the map are the *'auwai* created to channel water of streams descending from Pālolo, Mānoa, and Makiki Valleys. The almost 90-degree bend of 'Āpuakēhau Stream into the present project area, as shown on the 1881 map, suggests that the stream was diverted sometime early in the creation of the Waikīkī fields either to direct water to *lo'i* constructed elsewhere or to create a broader expanse of dryland in the *'ili* identified on the map as 'Au'aukai, Kaluaokau, Kapuni and Uluniu. These *'ili* would, in time, come to be identified with *'ali'i* (the Hawaiian royalty) who resided in Waikīkī.

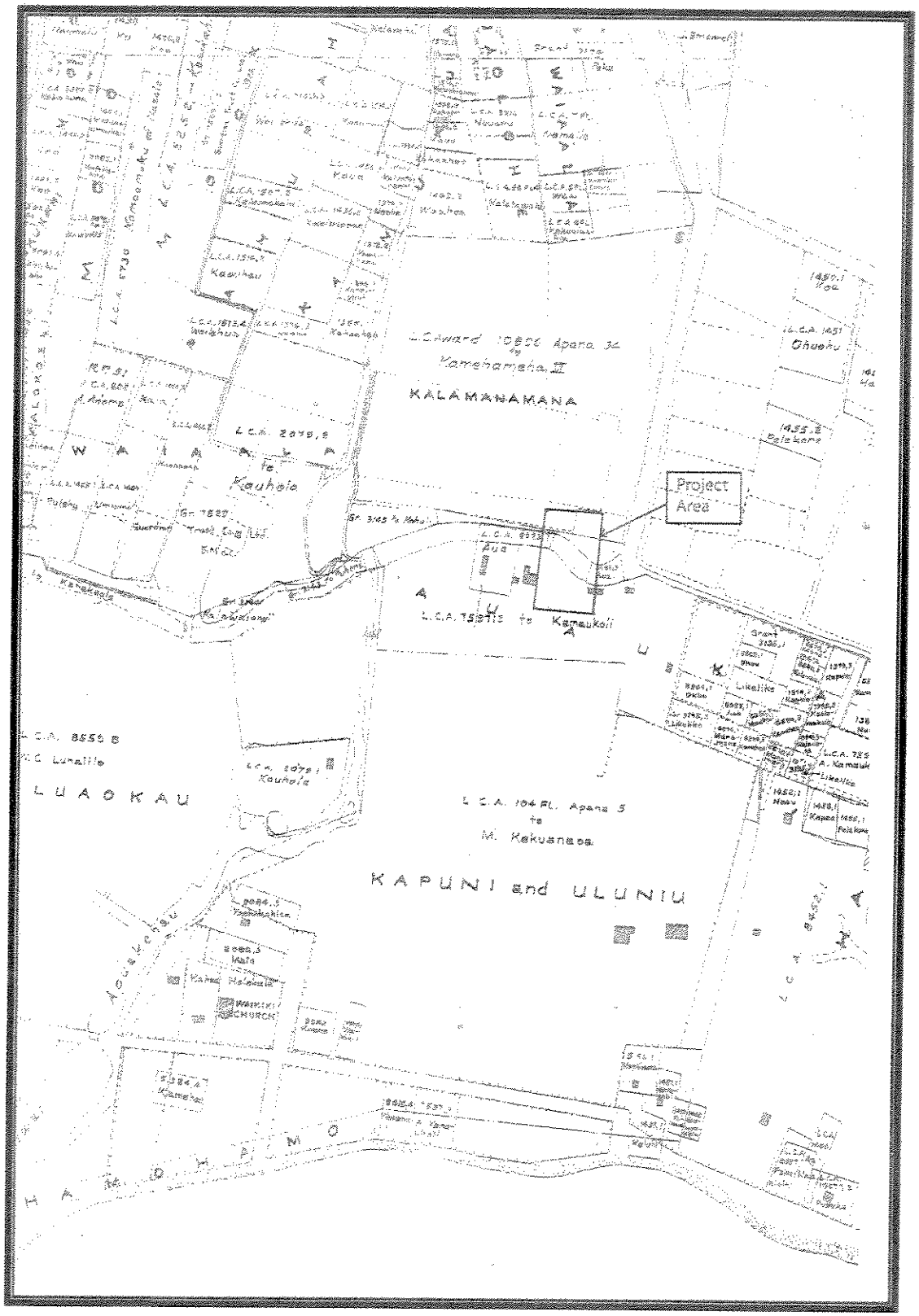

Figure 4 Portion of an 1881 Serrano E. Bishop map showing of Land Commission Awards with the approximate location of project area indicated in red

2. Land Commission Award Records

The 1881 map (Figure 4) identifies locations of Land Commission Awards within Waikīkī. Documentation about *Mahele* awards provides specific details of life within and adjacent to the present project area during the nineteenth century and earlier. Based on the 1881 map, four awards appear to be most relevant to the project area:

LCA 10806, Apana (parcel) 34 awarded to Kauikeaouli, Kamehameha III;

LCA 104 FL (Fort Lands), Apana 5 awarded to Mataio Kekūanaō'a;

LCA 7597, Apana 2 awarded to Kamaukoli; and

LCA 8023, Apana 1 & 2 awarded to Aua.

Information provided in LCA records for these four awards is presented below.

The records for LCA 10806 identify Parcel 34 as Kalāmanamana, one of the king's "farms at Waikiki" (Native Register vol. 3, pg. 387-390). Testimonies given in support of the award identify taro *lo'i* (irrigated fields) at Kalāmanamana and the king's other Waikīkī farm lands:

> M. Kekuanaoa, sworn, I had known that these *lois*: Hohe, Kalamanamana and Keokea are for the King, the *kole lois* throughout the island of Oahu are also for the King. Some *koele* patches were given to the *konohiki* during the land Māhele. They are in the *ilis* of Hamohamo and Kalia and they have been for the King since the time of Kaahumanu until the time of the land distribution. There are some government portions in here, but these lois are for the King which is complicating to me at this time. It is for the King probably, for the government, perhaps, for whom is it? Kamehameha I had built these farms, Kamehameha III has them now.
>
> Piikoi, sworn, I have seen these places for which the King is demanding. These patches were planted with taro at the time Kinau was governor of Oahu and Kamanawa did the harvesting and S. Kuluwailehua was the tax assessor at the time. It was probably before 1839 and since that time to the *Mahele*, the King has sent Kaihe to show me the King's interest that I might work in it. It has been that way to the present and I have heard these places are for the King and the claim has been filed. I have also heard that these places have been for the King from the time of Kamehameha I and had been in the care of Kinau and Kaahumanu. (Native Testimony vol. 10, pg.448)

LCA 104 FL was granted to Mataio Kekūanaō'a. Kekūanaō'a, born in Hilo on Hawai'i Island in the 1790s, was governor of O'ahu at the time of the *Mahele*. He was the father of Alexander Liholiho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Princess Victoria Kamāmalu, Princess Ruth Ke'elikolani, and Moses Kekuaiwa. Following his death in November 1868 his lands were inherited by his daughter, Princess Ruth.

The records for LCA 104 FL (Fort Lands) suggest that Apana 4, as indicated on the 1881 map, comprised land associated with Kekūanaō'a's "house site in Kapuni, Waikīkī, Kona, Oahu" (Native Testimony vol. 10, pg. 390). Based on descriptions in the LCA records, the house site itself was located at the coast. The records do not indicate any specific land features or agricultural activity within Apana 4. Records for LCA 7597, Apana 2 awarded to Anederea

Kamaukoli provide detailed information on the parcel and reveal that Kamaukoli was *konohiki* (headman of an *ahupua'a* land division under the chief of the area. Kamaukoli himself testified:

> ...I...hereby state my claim for land, Auaukai, an *'ili*, was given me by Kaahumanu I in the year in which Poki sailed to Nanapua [*i.e.* about 1829] and disappeared. That was when I acquired this *'ili* and from that time I have occupied this land as *konohiki*. The tenants are living under me, and going to my work days and are ruled by the laws of this time. My own *lo'is* in Auaukai, an *'ili* in the Ahupua'a of Waikiki, are three taro *lo'i*, one weed-grown *kula* for planting sweet potatoes and gourd. (Native Register vol. 5, pg. 413-415)

Other records identify the taro in Apana 2 as *puepue* or dryland.

Kamaukoli is identified in *Mahele* documents as the father-in-law of Aua, the awardee of LCA 8023. Aua testified that he received the land in the "*ili* of 'Au'aukai" from Kamaukoli "in the time of [the regency] of Kaahumanu" (Foreign Testimony vol. 14, pg. 475). It appears that the two parcels of LCA 8023 shown on the 1881 map comprise "one pauku [land section] of taro...in the water course and...another *pauku* of stream" (Native Register vol. 5, pg. 478).

In summary, the *Mahele* documents indicate that within the present project area at the mid-nineteenth century: the *mauka* section comprised a portion of taro *lo'i* belong to the king; the central section comprised a portion of 'Āpuahēkau Stream in which taro was also growing; and the *makai* portion comprised *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. It is likely that these agricultural activities recorded in the documents reflect the continuation into the nineteenth century of the primary traditional Hawaiian land use and cultural activity within the project area and vicinity.

3. 'Āinahau

Historic maps identify the present project area as a portion of 'Āinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Prince Miriam Likelike (1851-1887), and their daughter Princess Ka'iulani (1875-1899) – all significant personages in the history of Hawai'i.

> Cleghorn not only beautified Waikīkī through his work at Kapi'olani Park [he had been instrumental in the park's creation and design], but also at his estate, 'Āinahau, which he had purchased in 1872 for $300. Inheriting a love of horticulture from his father, Cleghorn lavishly landscaped this parcel, making it "the most beautiful private estate in the Hawaiian Islands". (Hibbard and Franzen 1986: 12)

A 1917 government survey map – on which the present project area is indicated – shows the boundaries of the 'Āinahau Estate and other land owned by Cleghorn immediately *mauka* of 'Āinahau, beyond the *mauka* bank of 'Āpuakēhau Stream (Figure 5). When the 1917 map is studied in tandem with the 1881 map discussed above (Figure 4), it appears that the 'Āinahau estate comprised the entire LCA 7597 Apana 2 and an adjacent portion of LCA 104 FL Apana 5. The portion of LCA 104 FL is probably the land that Princess Ruth Ke'elikōlani gave to Princess Ka'iualani as a christening gift.

The structures indicated within LCA 7597 Apana 2 on the 1881 map would appear to be buildings constructed by Cleghorn on the 'Āinahau grounds. Among these buildings, the large structure indicated just outside the present project area is likely the bungalow which was the

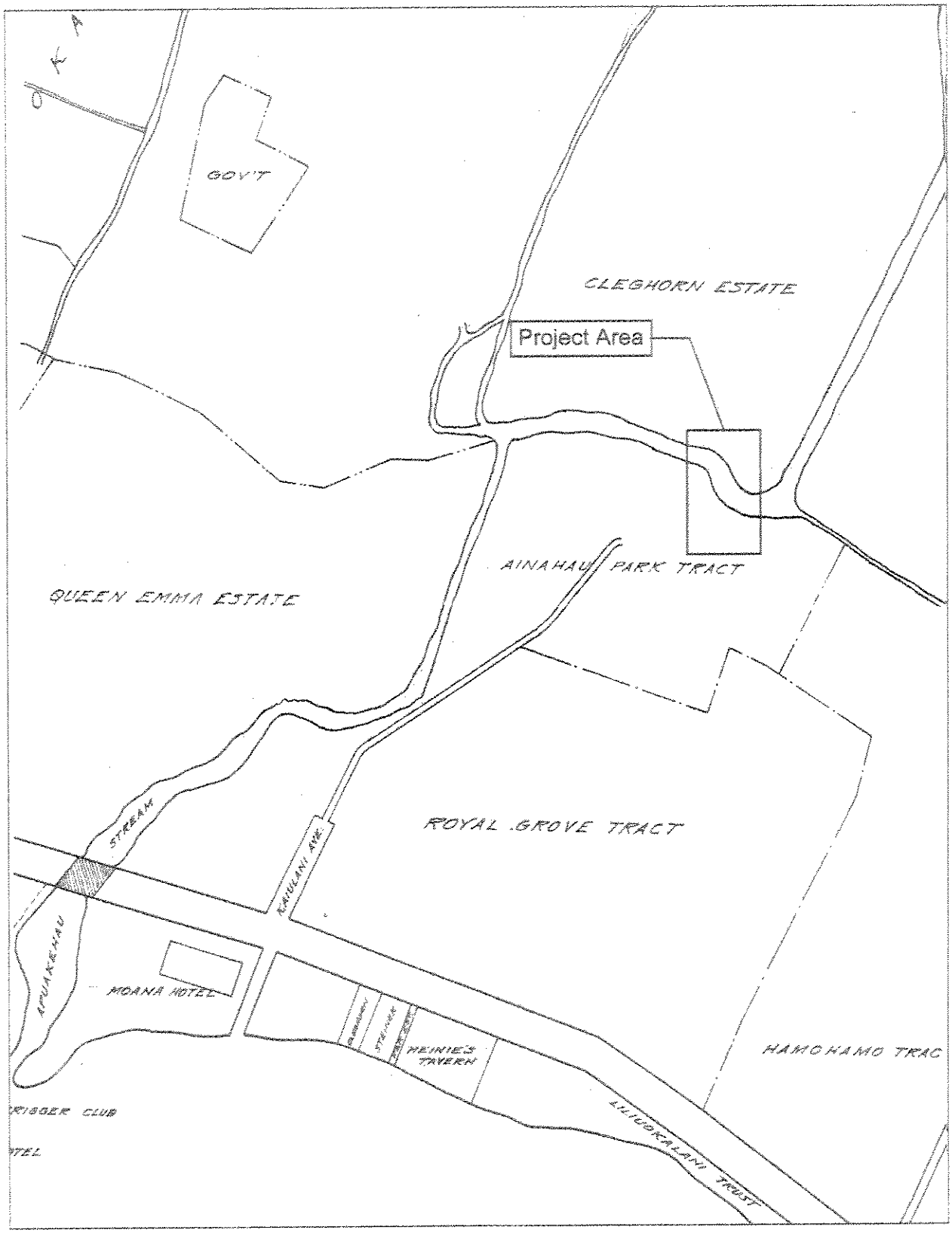

Figure 5 Portion of a 1917 government survey map (Bishop Museum) shows boundaries of the Cleghorn Estate and approximate location of the present project area

Cleghorn family's first residence on the estate. Subsequently, in the 1890s, Cleghorn constructed, immediately adjacent to the bungalow, a large Victorian-style house. A visitor in the 1890s noted:

> The new house was a white frame structure, of two stories, with wings at either end – the favorite form of Honolulu architecture – with a wide verandah extending across the front. The shrubbery had been cut away for several yards in every direction to allow the free circulation of the air, and just beyond the main entrance stood the one incomparable banyan tree, which the owner presently informed me was the handsomest thing he had. (In Stassen-McLaughlin 1986: 127)

Historic photographs indicate that this house was located within the *makai* portion of the present project area.

Two members of the Cleghorn family would not live to see the twentieth century:

> Not only a site of pleasant pastimes, these lands ['Āinahau] also were associated with grief and tragedy. Here, Princess Likelike died on 2 February 1887, at the age of thirty-six, and twelve years later, in 1899, Cleghorn's daughter Ka'iulani, passed away here in the springtime of her life, at the age of twenty-four. (Hibbard and Franzen 1989: 13)

Cleghorn himself would continue to reside at 'Āinahau until his death in 1910. The house would burn down on August 2, 1921 in a fire caused by a gas heater.

4. The Project Area in the Twentieth Century

Seven years following Cleghorn's death, the ʻĀinahau estate was put up for sale.

> In 1917 James W. Pratt bought the estate, then sold most of it in 1919 to William Chauncey Wilder. Wilder, along with developer Percy M. Pond had great plans. The property was offered to the public for subdivision. (Stassen-McLaughlin 1986: 128)

An advertisement appearing in the Pacific Commercial Advertiser on May 5, 1919 shows the residential subdivision developed by Pond (Figure 6). The streets shown on the map, which were constructed for the subdivision, correspond to the present-day Kaʻiulani Avenue, Cleghorn Street, Kapili Street, and Tusitala Street.

The map also indicates that ʻĀpuakēhau Stream continued to flow in the first decades of the 20th century and delineated the *mauka* and ʻEwa boundaries of the ʻĀinahau subdivision tract. The map suggests that, in 1919, only the *makai* portion of the present project area was developed as a portion of the tract. ʻĀpuakēhau Stream and remnants of the pond fields of Waikīkī continued extant in the *mauka* portion of the project area. Additionally, as was noted above, the ʻĀinahau residence was still standing in 1919, likely within the present project area, until it burned down in 1921. The ʻĀinahau tract subdivision may have excluded the residence and its immediate surroundings from development.

As was also noted above, the construction of the Ala Wai Drainage Canal between1921 and 1928 resulted in the draining and filling in of the Waikīkī fishponds and irrigated fields, and their replacement with the grid work of streets of present-day Waikīkī. A 1927 fire insurance map shows the Ala Wai Canal and Ala Wai Boulevard immediately *mauka* of the present project area

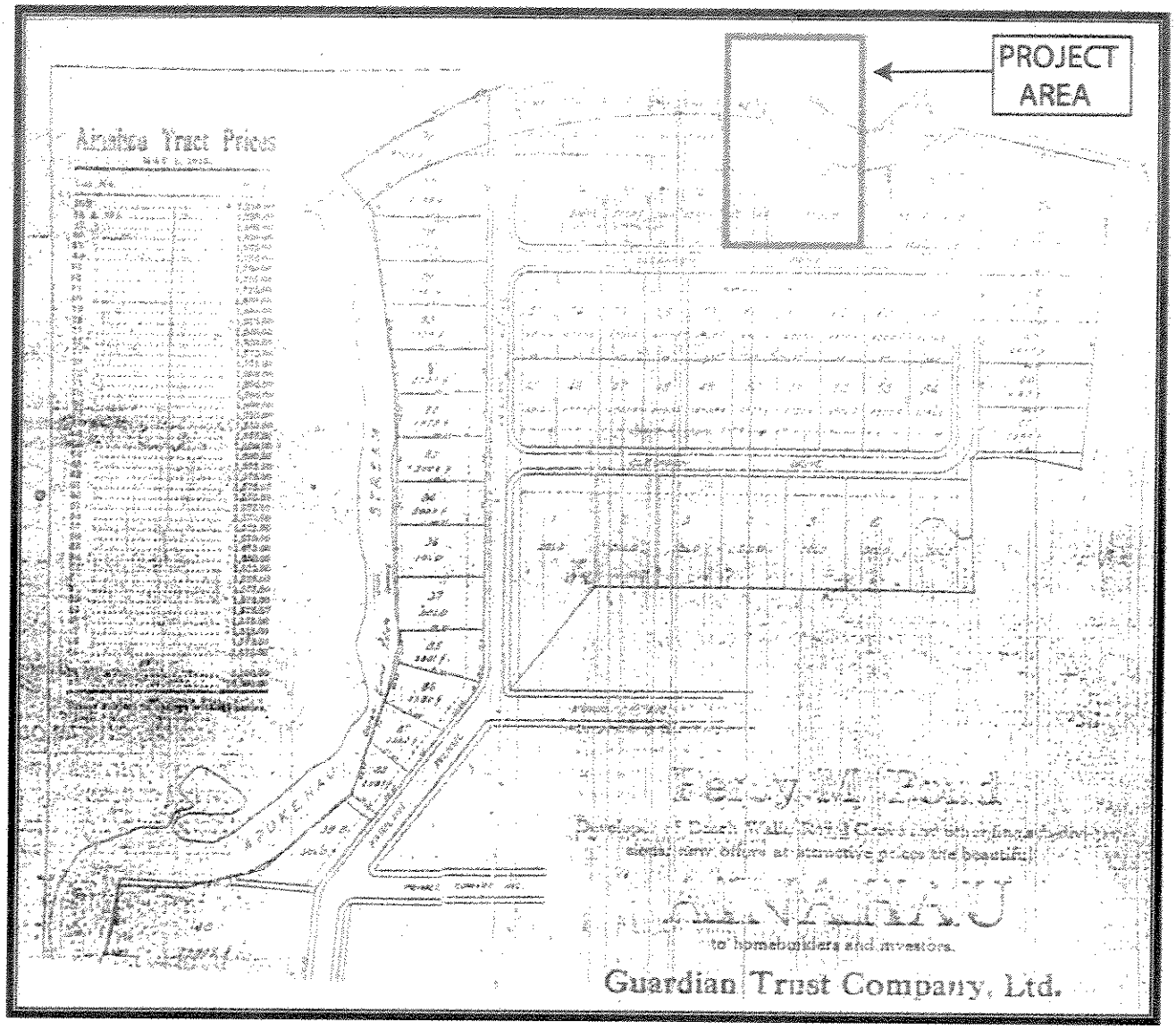

Figure 6 Advertisement in Pacific Commercial Advertiser on May 5, 1919 showing division of ʻAinahau residential subdivision by Percy Pond with approximate location of present project area indicated in red

which is now a fully-formed urban block (Figure 7). The map indicates that the project area parcel, like other parcels in the neighborhood, is filled with single-story wooden cottages. These cottages characterized much of Waikīkī during the first half of the twentieth century.

An insight into Waikīkī life in the 1920s and 1930s is provided by Betty Dyer Sorensen whose family lived at the corner of Kalākaua Avenue and Beach Walk. Her parents, John and Mabel Dyer, had bought a 7055-square-foot lot at 290 Beach Walk for $1500 in 1918. Mrs. Sorensen describes the house her parents built there, in which she lived following her birth in 1922 until her marriage in 1946:

> The front porch was on the *mauka* (mountain) side, and it caught the mountain breezes. It was painted buff with white trim and was in the Twenties bungalow style. (Sorensen 1995: 30-31)

In the 1920s, Waikīkī was a small neighborhood:

> ...with little cottages, inexpensive apartments and a few nice houses. People liked to live there because it was so close to the ocean and to transportation. The streetcars went down Kalākaua Avenue, Waikīkī's main thoroughfare, all the way from Diamond Head to the business section of downtown Honolulu, three miles away. The few tourists who visited either stayed with friends for at least a month or they rented a cottage. (Sorensen 1995:1)

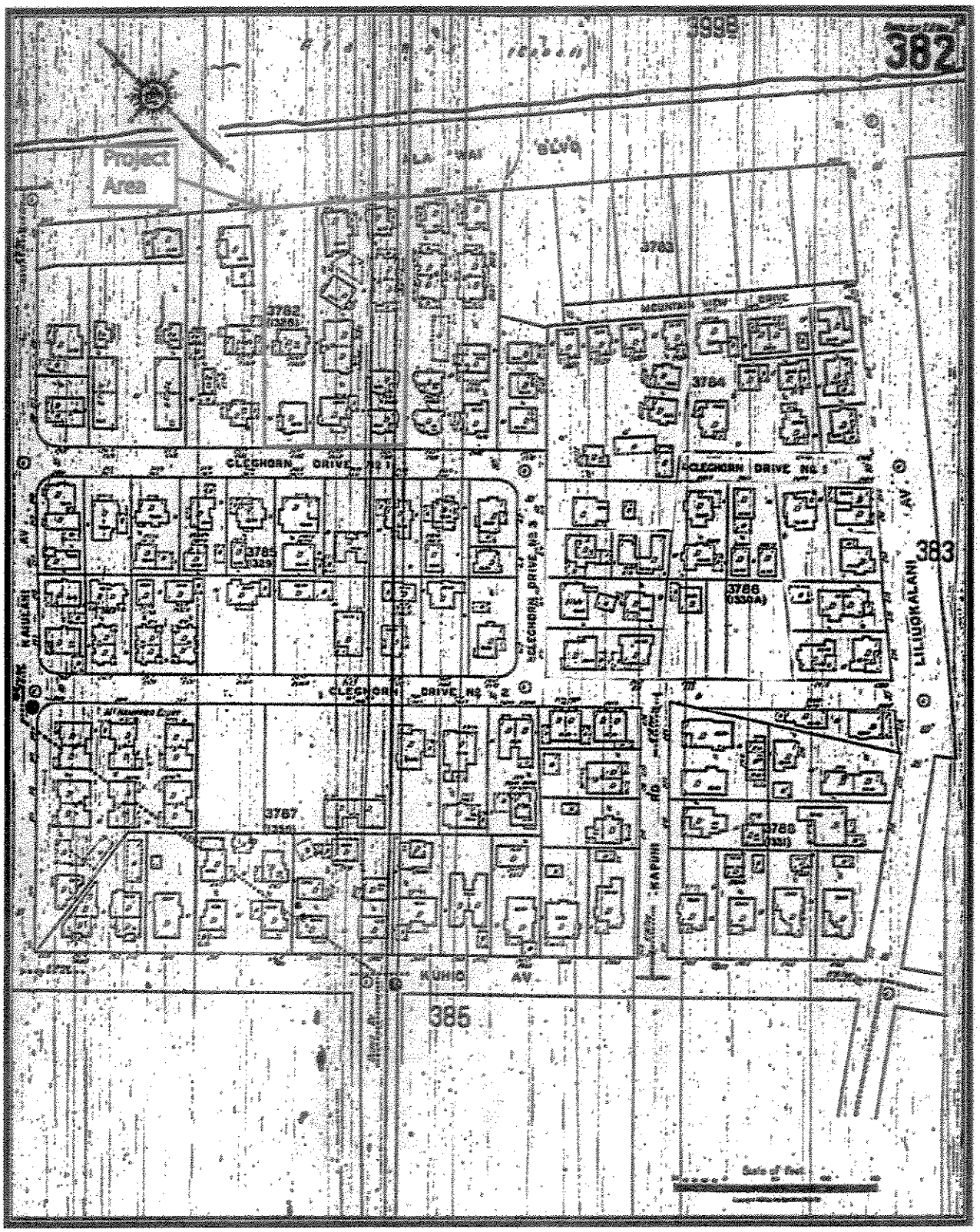

Figure 7 Portion of 1927 fire insurance map (Sanborn) with approximate location of the present project area indicated in red

IV. ARCHAEOLOGICAL RESEARCH

The *ahupua'a* of Waikīkī, in the centuries before the arrival of Europeans, was an intensely utilized area, with abundant natural and cultivated resources, that supported a large population. In the nineteenth and early twentieth centuries, after a period of depopulation, Waikīkī was reanimated by Hawaiians and foreigners residing there, and by farmers continuing to work the irrigated field system, which had been converted from taro to rice. Farming continued up to the first decades of this century until the Ala Wai Canal drained the remaining ponds and irrigated fields. Remnants of the pre-contact and historical occupation of Waikīkī have been discovered and recorded in archaeological reports, usually in connection with construction activities related to urban development, or infrastructural improvements. These discoveries, which have occurred throughout Waikīkī, have included many human burials, traditional Hawaiian and historic, as well as pre-contact Hawaiian and historic cultural deposits. Location of previously identified sites is shown in Figure 8 and full list of projects conducted in the Waikīkī area is listed in Table 1.

A. Previous Archaeology in Waikīkī, Focusing on Burials

N.B. Emerson reported on the uncovering of human burials during the summer of 1901 on the property of James B. Castle - site of the present Elks Club - in Waikīkī during excavations for the laying of sewer pipes (Emerson 1902:18-20). Emerson noted:

> The soil was white coral sand mixed with coarse coral debris and sea-shells together with a slight admixture of red earth and perhaps an occasional trace of charcoal. The ground had been trenched to a depth of five or six feet, at about which level a large number of human bones were met with, mostly placed in separate groups apart from each other, as if each group formed the bones of a single skeleton. Many of the skulls and larger bones had been removed by the workmen before my arrival, especially the more perfect ones. [Emerson 1902:18]

Emerson's report on the find describes the remains of at least four individuals, all presumed to be Hawaiian. Associated burial goods were also exposed during excavation; these included "a number of conical beads of whale-teeth such as the Hawaiians formerly made" and "a number of round glass beads of large size". The glass beads "can be assigned with certainty to some date subsequent to the arrival of the white man" (Emerson 1902:19). Also located with the beads was "a small sized *niho-palaoa*, such as was generally appropriated to the use of the chiefs" which had been "carved from the tooth of the sperm-whale" and which was "evidently of great age" (Emerson 1902:19).

In the 1920s and 30s the first systematic archaeological survey of O'ahu was conducted by J. C. McAllister (1933). He recorded four *heiau* (temples), three of which were located at the *mauka* reaches of Waikīkī Ahupua'a in lower Mānoa Valley. The fourth *heiau* – Papa'ena'ena - was located at the foot of Diamond Head crater near the present site of the La Pietra Estates condominium development (2933 Poni Moi Road). Other sources that place the *heiau* at La Pietra, the former mansion of Walter F. Dillingham, now the Hawai'i School for Girls (La Pietra Circle) are incorrect (Weyneth 1991:48). Papa'ena'ena Heiau is traditionally associated with Kamehameha I, who was said to have visited the *heiau* before setting off to battle for Ni'ihau and Kaua'i in 1804. Five years later, according to John Papa 'Ī'ī, Kamehameha placed at

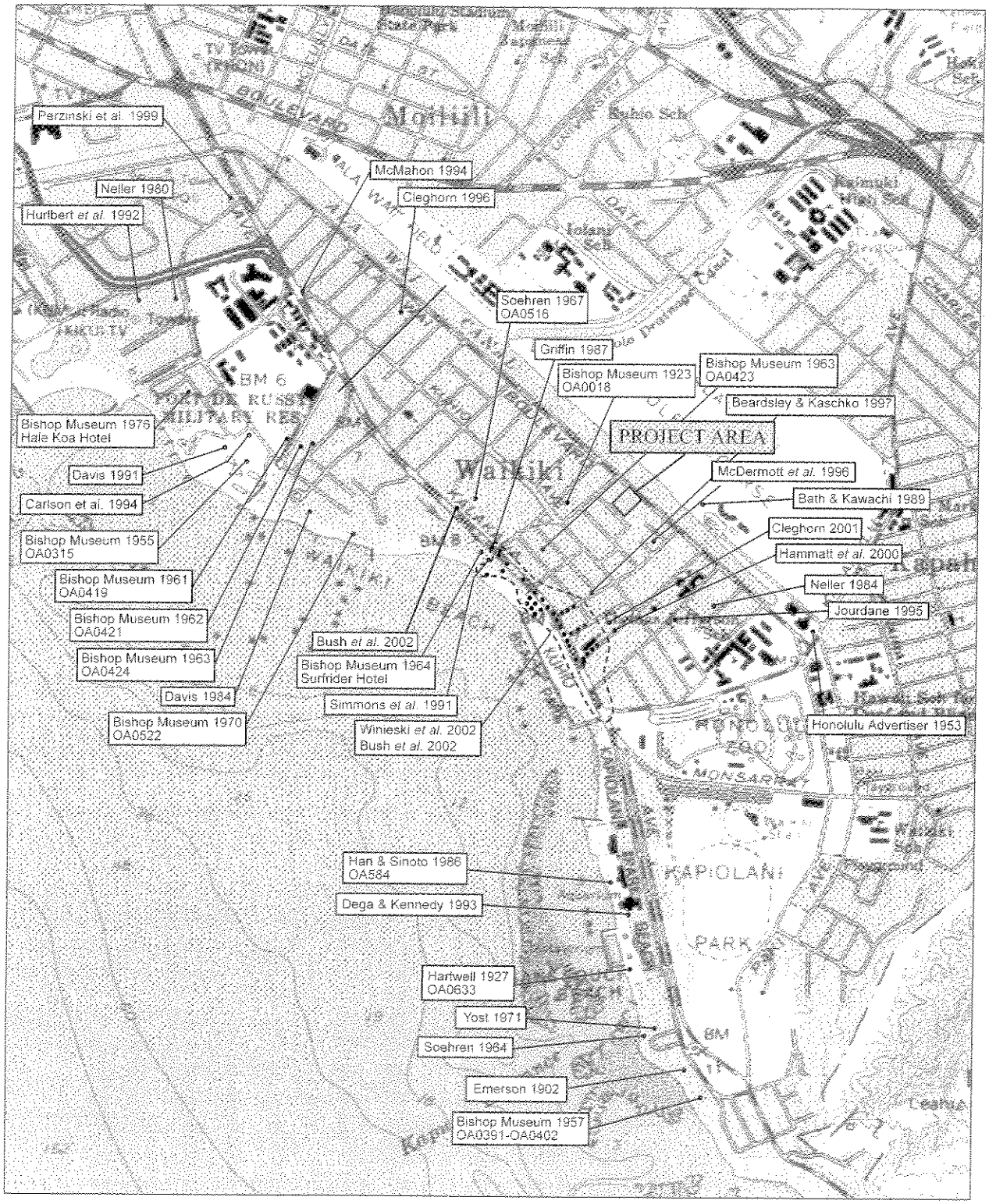

Figure 8 Previous archaeological work in Waikīkī including location of burials and the present project area

Papa'ena'ena the remains of an adulterer - "all prepared in the customary manner of that time" ('Ī'ī 1959:50-51).

In 1963, two human skulls and other human remains were discovered in a construction trench at 2431 Prince Edward St. (Bishop Museum site Oa-A4-23, cited in Neller 1984). Multiple burials were encountered in 1963 during excavation for the construction of the present Outrigger Canoe Club at the Diamond Head end of Kalākaua Avenue. As reported in a newspaper article on Jan. 24, 1963:

> The Outrigger Canoe Club yesterday dedicated its new site [on land adjacent to and leased from the Elks Club], an ancient Hawaiian burial ground in Waikīkī. . . .
>
> Robert Bowen of the Bishop Museum has been working closely with Ernest Souza, Hawaiian Dredging superintendent, on the removal of skeletons unearthed on the site, between the Colony Surf and the Elks Club. . . .
>
> Most of the bodies were buried in the traditional *ho'olewa* position, with the legs bound tightly against the chest.
>
> One of the skeletons, Bowen said, shows evidence of a successful amputation of the lower forearm, indicating that the Hawaiians knew this kind of operation before the arrival of Europeans.
>
> The ages of the skeletons ranged from children to 40-year-old men and women. The average life span of the Hawaiians at the time was about 32 years [*Honolulu Star-Bulletin*; Jan. 24, 1963: 1A].

A total of 27 burials were encountered (Yost 1971:28). Apparently, no formal archaeological report on the burials was produced.

In 1964, sand dune burials, a traditional Hawaiian mortuary practice, were revealed as beach sand eroded fronting the Surf Rider Hotel (Bishop Museum Site Files).

In 1976, during construction of the Hale Koa Hotel, adjacent to the Hilton Hawaiian Village Hotel, six burials were unearthed, five of apparent prehistoric or early historic age, and one of more recent date (Bishop Museum Site Files).

In 1980, three burials were exposed at the Hilton Hawaiian Village during construction of the hotel's Tapa Tower. Earl Neller of the (then named) State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspection of the project area. Neller's (1980) report noted:

> The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, on a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of 1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Mō'ili'ili, adjacent to where the shoreline would have been 1000 years ago. [Neller 1980:5]

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain table wares imported from China, Japan, the United States, and Europe" (Neller 1980:5). He further notes:

> It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikīkī, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikīkī over the last 200 years [Neller 1980:5].

Between December 1981 and February 1982, archaeologists from the Bishop Museum led by Bertell Davis conducted a program of excavations and monitoring during construction of the new Halekūlani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from prehistoric Hawaiian firepits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (Davis 1984:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date . . . settlement in Waikīkī to no later than the mid-1600s" (Neller 1980:5). Just as significant to Davis was the collection of historic era material at the Halekūlani site; he states:

> [The] Halekūlani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikīkī, Honolulu, or in any of the other urbanized areas of Hawai'i [Neller 1980:5].

In 1983, at the Lili'uokalani Gardens condominium construction site, seven traditional Hawaiian burials were recovered (Neller 1984). This had been the site of a bungalow owned by Queen Lili'uokalani at the end of the nineteenth century. In addition to the burials, the site contained plentiful historic artifacts, and a pre-historic cultural layer pre-dating the burials.

In 1985, International Archaeological Research Institute, Inc. performed archaeological monitoring and data recovery at the Pacific Beach Hotel Office Annex (Beardsley and Kaschko 1997). Two traditional Hawaiian burials were discovered and removed. Intact buried traditional Hawaiian cultural deposits, including a late pre-contact habitation layer, contained pits, firepits, post molds, artifacts, and food debris. The artifacts included basalt and volcanic glass flakes and cores, a basalt adze and adze fragments, worked pearl shells, a coral file and abraders, and a pearl shell fishhook fragment. Additionally, a late nineteenth century trash pit was discovered, which contained a variety of ceramics, bottles, and other materials.

During 1985 and 1986, archaeologists from Paul H. Rosendahl, Ph.D. Inc. conducted archaeological monitoring at the site of the Mechanical Loop Project at the Hilton Hawaiian Village, Waikīkī. Much of this project area was disturbed by historic and modern construction and modification. Fifteen subsurface features were uncovered during the monitoring, all of which were determined to be historic trash pits or trenches. The dating of these features was based on dating the artifactual material they contained. All 15 features are thought to post-date 1881 based on this artifact analysis. The three partial burials reported by Neller (1980) were found within that project area. No further burials were encountered during the PHRI field work (Hurlbett et. al. 1992).

In 1987, a human burial was discovered and removed at the intersection of Kalākaua Avenue and Ka'iulani Street during excavations for a gas pipe fronting the Moana Hotel (Griffin 1987).

In1988, the Moana Hotel Historical Rehabilitation Project (Simons et. al. 1991) encountered human remains that amounted to at least 17 individuals. Based on stratigraphic association these burials were interred over time as the land form at the site changed. The sediment surrounding these burials yielded traditional midden and artifact assemblages. The burials and human remains were found in the Banyan Court and beneath the hotel itself.

Davis' (1989, 1991) excavation and monitoring work at Fort DeRussy documented substantial subsurface archaeological deposits, prehistoric, historic, and modern. These deposits included buried fishpond sediments, *'auwai* [irrigation ditch] sediments, midden, and artifact enriched sediments, structural remains such as post holes and fire pits, historic trash pits, and a human burial. Davis' (1991) report documents human activity in the Fort DeRussy beach front area from the sixteenth century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work (Simons et al. 1995). BioSystems research documents the development and expansion of the fishpond and *'auwai* system in this area. The *'auwai* system was entered on the State Inventory of Historic Places (SIHP) as State Site 50-80-14-4970. As indicated on the 1881 map by S. E. Bishop discussed above, this *'auwai* enters the Fort DeRussy grounds through the present project area). Remains of the fishpond and *'auwai* deposits, as well as habitation deposits, were documented below modern fill deposits. This research, along with that of Davis (1991), clearly demonstrates that historical document research can be an effective guide to locating late prehistoric/early historic subsurface deposits, even amidst the development of Waikīkī.

In 1992, Hurlbett et al. (1992) conducted additional monitoring and testing in this same area as Neller (1980). The state site -2870 was given to the three burials first found by Neller. Additional subsurface features, postdating 1881, were found during trenching operations.

The realignment of Kālia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson et. al. 1994). The monitoring and excavations associated with this realignment uncovered a cultural enriched layer which contained post holes.

In 1993, during construction activities at the Waikīkī Aquarium, fragmentary human remains were discovered scattered in a back dirt pile, although no burial pit was identified (Dega and Kennedy 1993).

On April 28, 1994, an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalākaua Avenue and Kuamo'o Street (just *mauka* of Fort. DeRussy). These remains represented a single individual (McMahon 1994).

In 1995, the remains of one individual were discovered in situ during construction activities on Paoakalani Street, fronting the Waikīkī Sunset Hotel (Jourdane 1995).

In 1996, Pacific Legacy, Inc. conducted an archaeological inventory survey of the block bounded by Kalākaua Avenue, Kūhiō Avenue, 'Ōlohana Street, and Kālaimoku Street (Cleghorn 1996). The survey included excavation of seven backhoe trenches. The subsurface testing indicated that:

> . . . this area was extremely wet and probably marshy. This type of environment was not conducive for traditional economic practices. . . . The current project area appears to have been unused because it was too wet and marshy. Several peat deposits, containing the preserved remains of organic plant materials were discovered and sampled. These deposits have the potential to add to our knowledge of the paleoenvironment of the area [Cleghorn 1996:15].

The report concluded that no further archaeological investigations of the parcel were warranted since "no potentially significant traditional sites or deposits were found", but cautioned of the "possibility, however remote in this instance, that human burials may be encountered during large scale excavations" (Cleghorn 1996:15).

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street southeast of the current project area (McDermott et al. 1996). Cultural Surveys Hawaii's research suggested that a portion of the study lots -specifically TMK 2-6-24:36-40 - was formerly a corner of the 'Āinahau Estate. A total of 2 indigenous and 15 historic artifacts were collected from the former 'Āinahau Estate portion of the project area. Cultural Surveys Hawaii's research further suggested that the remainder of the present study lots comprise a former *'auwai* and taro and rice fields.

In 1997, during archaeological monitoring by CSH for the Waikīkī Force Main Replacement project, scattered human bones were encountered on 'Ōhua Street (Winieski and Hammatt 2000). These included the proximal end and mid-shaft of a human tibia, a patella, and the distal end and mid-shaft of a femur. These remains occurred within a coralline sand matrix which had been heavily disturbed by previous construction, and by the on-going construction project. No precise location for the original burial site was identified.

In April 1999, two human burials were inadvertently encountered near the intersection of 'Ena Road and Kalākaua Avenue during excavation activities for the first phase of the Waikīkī Anti-Crime Lighting Improvements Project (Perzinski et al. 1999).

From July 1999 to October 2000, four sets of human remains were inadvertently encountered during excavation activities relating to the Waikīkī Anti-Crime Street Lighting Improvement project along portions of Kalākaua Avenue (Bush and Hammatt 2002). The first burial was encountered on Kalākaua Avenue, just before Dukes Lane and assigned State Site 50-80-14-5864. The burial was left in place however, and the light post was repositioned. The second burial was encountered at the intersection of Kalākaua Avenue and Ka'iulani Avenue. Earlier, during archaeological monitoring for the water mains project, two burials were encountered in the immediate area of the second burial find and assigned state site 50-80-14-5856 features A and B. Due to the close proximity to the previously encountered burials, the second burial was assigned the same State Site 50-80-14-5856, and designated feature C. Burials 3 and 4 were recovered at the intersection of Kalākaua and Ke'alohilani Avenues, near an area of concentrated burials assigned State Site 50-80-14-5860 during monitoring for the water mains project. Consequently, burials 3 and 4 were also assigned State Site 50-80-14-5860, features U and V. In addition to human remains, pre-contact deposits, historic and modern rubbish concentrations, and pond sediments were also encountered.

From November, 1999, to May, 2000, 44 human burials, with associated cultural deposits, were encountered during excavation for a waterline project on Kalākaua Avenue between the Ka'iulani and 'Ōhua Avenues (Winieski et al. 2002a). Except for previously disturbed partial

burials in fill, the bulk of the burials were encountered within a coralline sand matrix. Additionally, a major cultural layer was found and documented.

From January, 2000, to October 2000, 10 human burials were encountered during archaeological monitoring of the Kūhiō Beach Extension/Kalākaua Promenade project (Winieski et al. 2002b). Six of these were located within a coralline sand matrix. The four others were partial and previously disturbed within fill. Additionally, a major cultural layer was found and documented, apparently part of the same major cultural layer associated with the waterline project between Ka'iulani and 'Ōhua Avenues.

In April 2001 human remains were inadvertently disturbed during excavations associated with the construction of a spa at the Royal Hawaiian Hotel (Elmore et al. 2001). Archaeological Consultants of the Pacific, Inc was responsible for the documentation of the remainder of the burial and carrying out the instruction of DLNR/ SHPD. The burial and place it was encountered was assigned State Site # 50-80-14-5937. The burial was encountered on the North side of the hotel in the spa garden. The burial was partially disturbed through the thoracic region and anatomical left side. The disturbed remains were wrapped in muslin cloth and placed with the in-situ remains and reburied. The burial was recorded as a post contact burial based on artifacts associated with it. The associated artifacts included one shell button found *in-situ* and three more shell buttons found in the disturbed material. A single drilled dog tooth was found also during excavation but could not be positively associated with the site.

On May 2nd and June 14th, 2001, two in situ and two previously disturbed human burials were encountered at the site of a new Burger King (Cleghorn 2001a) and an adjoining ABC Store (Cleghorn 2001b). The finds were located at the intersection of 'Ōhua Street and Kalākaua Avenue (Cleghorn 2001a and 2001b). Because of their proximity to five burials encountered during the Kalākaua 16" Water Main Installation (Winieski et al. 2002a), they were included in the previously assigned State Site 50-80-14-5861. Three of these burials were recovered, and one was left in place. Volcanic glass fragments were found in association with one of the burials. A cultural layer was also observed which contained moderate to heavy concentrations of charcoal and fragments of volcanic glass. Historic era artifacts, including a bottle fragment, plastic and glass buttons, a ceramic fragment, and metal fragments were also encountered within fill materials.

In 2001 and 2002, CSH (Mann and Hammatt 2002) performed archaeological monitoring for the installation of 8- and 12-inch water mains on Uluniu Avenue and Lili'uokalani Avenue During the course of monitoring, five burials finds, consisting of six individuals, were recorded within the project area. Four burial finds were recorded on Uluniu Avenue; three of these inadvertent finds were found in fill sediment. Due to the nature of the three burial finds in fill, it was concluded that no State Site number(s) be assigned to these three previously disturbed burials. The only primary in situ burial encountered on Uluniu Avenue was assigned State Site #50-80-14-6369. The fifth burial, consisting of two individuals in fill material, was recorded from Lili'uokalani Avenue. Since three burials had been found in the immediate vicinity during a previous project (Winieski et al. 2002b) and had been assigned to Site #50-80-14-5859, the two new individuals were recorded as Feature H of this previously recorded site.

In summary, past archaeological research, from the beginning of the twentieth century to the present has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials, do exist throughout the breadth of the Waikīkī area.

Table 1. Previous archaeological investigations in Waikīkī Ahupua'a

Reference	Type of Investigation	General Location	Findings
McAllister 1933	Island-wide survey	All of O'ahu	Waikīkī listed as Site 60.
Neller 1980	Monitoring Report	Hilton Hawaiian Village	Kālia Burial Site: Partial recovery of 3 historic Hawaiian burials, trash pit from 1890's
Bishop Museum 1981	Testing, & Monitoring Report	Halekūlani Hotel	Intact cultural deposits found.
Neller 1981	Reconnaissance Survey	Halekūlani Hotel	Limited background research on area
Davis 1984	Archaeological Investigation	Halekūlani Hotel	48 historic and prehistoric features excavated.
Bishop Museum 1984	Burial Remains List	Waikīkī Ahupua'a	Listing of burial remains found in Waikīkī at the Bishop Museum
Neller 1984	Narrative Report	Paoakalani Street	Recovery of human skeletons at construction site
Griffin 1987	Inadvertent Burial Discovery	Kalākaua Ave. near corner of Kai'ulani St.	Bones removed and bagged by construction crew, burial found in *makai* wall of gas pipe excavation.
SHPD 1987	Burial, PA Report	Kalākaua Ave.	From excavation adjacent to Moana Hotel-9901).
Davis 1989	Reconnaissance Survey and Historical Research	Fort DeRussy	Fishponds & other buried features. Sites 4573 thru - 4577 are fishponds, 4570 is a remnant cultural deposit.
Rosendahl 1989	Inventory Survey, Preliminary Report	Fort DeRussy	Historic artifacts, no human remains
Riford 1989	Background Literature Search	TMK: 2-6-014:039	List of literature pertaining to Waikīkī area.
Athens 1990	Letter to SHPD	TMK: 2-6-023:025	List of human remains at IARII lab from Pacific Beach Hotel & Barbers Point Generating Station.
Hurst 1990	Historical Literature	Waikiikian Hotel	Background & planning document. No fieldwork.

Reference	Type of Investigation	General Location	Findings
Chigioji 1991	Assessment	2 parcels, TMK 2-6-24:65-68 and 80-83; 2-6-24:34-40 & 42-45	Formerly part of the ʻĀinahau estate; remainder of parcels, former *ʻauwai*, *kalo*, and rice fields: excavations & sampling strategy recommended.
Davis 1991	Monitoring Report	Fort DeRussy	See also Davis 1989. No groundwater contamination found; subsurface features and material remains date to 1780/1790s through the mid-19th century.
Kennedy 1991b	Monitoring Report	TMK: 2-6-022:014 IMAX theatre location	Pollen and bulk-sediment ^{14}C samples from ponded sediments recovered. 3 ^{14}C dates and the pollen sequence were inverted.
Simons et al. 1991	Monitoring and Data Recovery	Moana Hotel Area	8 pre-contact burials & pre- and post-contact artifacts recovered
Hurlbett 1992	Monitoring Report	TMK: 2-6-008:001	Site -2870 (3 burials) found by Neller in 1980. This report is on testing & monitoring in same area.
Pietrusewsky 1992d	PA Report	Moana Hotel	Right half of human mandible found by hotel guest.
Pietrusewsky 1992e	PA Report	Hamohamo	Human Remains from Hamohamo, Waikīkī, Oʻahu
Rosendahl 1992	Monitoring Report	Hilton Hawaiian Village	12 historic refuse pits, 3 historic to modern trenches; no further work
Streck 1992	Memorandum for Record	Fort DeRussy	Human burial (probably late pre-contact Hawaiian) found during data recovery excavations
Cleghorn 1993	Inadvertent Burial Discovery	Waikīkī Aquarium	Remains of 1 human individual, mandible identified.
Dagher 1993d	Inadvertent Burial Discovery	Waikīkī Aquarium	Remains of at least 1 burial found, excavation recommended.
Dega and Kennedy 1993	Inadvertent Burial Discovery	Waikīkī Aquarium	Discovery of unidentified bones, remains given to SHPD.

Reference	Type of Investigation	General Location	Findings
Hammatt and Chiogioji 1993	Archaeological Assessment	16-Acre Portion of the Ala Wai Golf Course	Pre-contact and early historic occupation layers associated with *lo'i* system intact below modern fill. Burial testing recommended.
Maly et al. 1994	Arch.& Historical Assessment Study	Convention Center Project Area	Recommend subsurface testing to determine presence or absence of cultural deposits and features.
McMahon 1994	Inadvertent Burial Discovery	Kalākaua & Kuamo'o Street	Miscellaneous bones uncovered in back dirt pile during construction.
Hammatt & Shideler 1995	Sub-surface Inventory Surface	1777 Kalākaua Ave.	No further work recommended at Hawai'i Convention Center site.
Jourdane 1995	Inadvertent Burial Discovery	Paoakalani Avenue	Remains discovered in planted strip between street and sidewalk fronting hotel.
Simons et al. 1995	Data Recovery Excavations	Fort DeRussy	Historic & pre-contact artifacts, artifact debris, & midden from 7 occupation layers. 6 pre-contact cultural features; *'auwai* bunds and channels, fishpond walls & sediments, possible *lo'i*, hearths.
Cleghorn 1996	Inventory Survey	TMK: 2-6-016:23, 25, 26, 28, 61, 69	7 backhoe trenches excavated, no sites located.
Grant 1996b	Historical Reference	Waikīkī	Historical information about Waikīkī prior to 1900.
Hammatt and Shideler 1996	Data Recovery	Hawai'i Convention Center	No clear evidence of Kūwili Pond sediments in project area; no further work recommended.
McDermott et al. 1996	Inventory Survey	'Āinahau Estate	Buried remnants of *'auwai* and *lo'i* and human burial found on 'Āinahau Estate, ^{14}C dates
Denham et al. 1997	Data Recovery Report	Fort DeRussy	Excavations conducted at fishponds, ^{14}C dates mid-Seventeenth century
Denham and Pantaleo 1997	Monitoring and Excavations Report	Fort DeRussy	10 subsurface features and 9 burials found. ^{14}C dates; no SHPD recommendations

Reference	Type of Investigation	General Location	Findings
Beardsley and Kaschko 1997	Monitoring & Data Recovery Report	Pacific Beach Hotel Office Annex	Traditional Hawaiian cultural deposits and 2 human burials. 3 ^{14}C dates
Hammatt and Chiogioji 1998b	Assessment	King Kalākaua Plaza Phase II	No surface sites, documented human burials, presence of subsurface pre-contact & historic cultural deposits
Hammatt and McDermott 1999	Burial Disinterment Plan and Report	Kalākaua Avenue	Two human burials found
Perzinski et al. 1999	Monitoring Report	Ala Wai Blvd., Kalākaua Ave., & ʻEna Rd.	2 burials found (1 before monitoring); pockets of undisturbed layers exist
Rosendahl 1999	Interim Report: Inventory Survey	Fort DeRussy	This area is part of the old shoreline.
Hammatt and Chiogioji 2000	Archaeological Assessment	Honolulu Zoo Parcel	Monitoring recommended for SW portion of zoo parcel, which may have significant cultural deposits.
LeSuer et al. 2000	Inventory Survey	King Kalākaua Plaza Phase II	Site -5796 has been adversely affected by land alteration Site -4970 adequately documented.
Perzinski et al. 2000a	Burial Findings	Kalākaua Ave. between Kaiʻulani & Monsarrat Ave.	44 sets of human remains; 37 disinterred, 7 left in place; believed to be Native Hawaiian, pre-1820.
Cleghorn 2001a,b	Mitigation	Burger King Site	3 incidents of uncovered human remains while locating a buried sewer-line for the ABC's store.
Corbin 2001	Inventory Survey	Hilton Waikikian	No arch. sites were found during excavations
Elmore and Kennedy 2001	Inadvertent Burial Discovery	Royal Hawaiian Hotel	Human remains found during trench excavations for conduit. In situ remains left in place, remains disturbed reentered with others.
McGuire and	Cultural Assessment	Lewers St., Beach Walk, Kālia Rd. &	Waikīkī Beach Walk project; Inadvertent burial discovery. Monitoring recommended for all

Reference	Type of Investigation	General Location	Findings
Hammatt 2001		Saratoga Rd.	subsurface work
Perzinski and Hammatt 2002	Monitoring Report	Kapi'olani Bandstand	A charcoal layer .most on the SW side of the bandstand, observed; recovered a basalt lamp with a handle from SE end.
Perzinski and Hammatt 2001b	Monitoring Report	Kalākaua Ave., Natatorium to Ponimō'ī Road	No cultural layer, artifacts, midden, or human burials were encountered
Rosendahl 2001	Assessment Study	Outrigger Beach Walk	Assessment of previous archaeological & historical literature.
Winieski and Hammatt 2000	Monitoring Report	TMK: 1-2-6-025:000	Possibility that Hawaiian or historic materials and burials may still be present
Borthwick et al. 2002	Inventory Survey	71,000 sq. ft. parcel, TMK: 2-6-016:002	No burials found; absence of dry Jaucus sands indicate that burial finds are unlikely in project area.
Bush and Hammatt 2002	Monitoring Report	Kalākaua Ave., between Ala Moana Blvd. and Kapahulu Ave.	Found 4 human burials, probably pre-contact; several historic trash pits; entire pig within an *imu* pit (c. A.D. 1641-1671); gleyed muck associated with former ponds.
Calis 2002	Monitoring Report	Lemon Road	No historic deposits, major previous disturbance
Elmore and Kennedy 2002	Monitoring Report	Fort DeRussy	No findings.
Mann and Hammatt 2002	Monitoring Report	Lili'uokalani & Uluniu Avenues	5 burial finds of 6 individuals; two historic trash pits.
Putzi and Cleghorn 2002	Monitoring Report	Hilton Hawaiian Village	No findings during monitoring of trench sewer excavations
Winieski et al. 2002a	Monitoring Report	Kalākaua Ave. between Ka'iulani and	44 human burials encountered, 37 disinterred; buried habitation layer identified, with traditional artifacts, midden, hearths, & charcoal; remnant of Honolulu

Reference	Type of Investigation	General Location	Findings
		Monsarrat Avenues.	Transit trolley system (light rail guage) found; low-energy alluvial sediments associated with the now channelized *muliwai* Kūkaunahi
Winieski et al. 2002b	Monitoring Report	Kūhiō Beach	Skeletal remains of 10 individuals, 6 disinterred, only 2 in situ. 4 indigenous artifacts, none in situ. Cultural layer, historic seawall.
Bush et al. 2003	Monitoring Report	International Marketplace	Historic trash found.
Tome & Dega 2003	Monitoring Report	Waikīkī Marriot	No in situ remains, recommends monitoring if more work is done, 1 isolated not in situ possible human bone fragment.
Tulchin and Hammatt 2003	Arch. & Cultural Impact Assessment	2284 Kalākaua Ave.	Possibility of burials in project area; recommends inventory survey & subsurface testing.

V. COMMUNITY CONTACT PROCESS

Throughout the course of this study, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, community members and recognized cultural descendants of Waikīkī who might have knowledge of and/or concerns about traditional cultural practices specifically related to the project area. This effort was made by letter, e-mail, telephone and in person contact. In the majority of cases, letters along with a map and an aerial photograph of the project area were mailed with the following text:

> At the request of Kusao & Kurahashi, Inc., Cultural Surveys Hawai'i is conducting a Cultural Impact Evaluation of a parcel located between Ala Wai Boulevard and Tusitala Street in Waikīkī, Kona District, on the island of O'ahu (TMK 2-6-24:70, 71). Please find enclosed a USGS map, tax map, and photographs of the project location.
>
> The cultural impact evaluation is related to the proposed Tusitala Vista Elderly Apartments: a nine-story complex of 107 apartments being developed by the nonprofit Hawai'i Housing Development Corporation.
>
> Based on a study of historic maps and documents, we believe that the parcel includes a portion of 'Āinahau, the ten-acre estate that, during the latter nineteenth century, was the home of Archibald Cleghorn, his wife Princess Miriam Likelike, and their daughter Princess Victoria Kawekiu Lunalilo Kalaninuiahilapalapala Ka'iulani Cleghorn.
>
> The purpose of the cultural impact evaluation we are conducting is to evaluate potential impacts of the proposed project to traditional cultural resources, beliefs and practices.
>
> We are seeking your input regarding the following issues:
>
> Identification of traditional Hawaiian activities including gathering of native plants, animals and other resources.
>
> Identification of existing archaeological or cultural sites, trails, burials etc., which may be impacted by the proposed project.
>
> Cultural associations with the study area through legends, traditional use or otherwise.

The individuals, organizations, and agencies attempted to be contacted and the results of any consultations are presented in the table below. Mr. Van Horn Diamond participated in a telephone interview with Cultural Surveys Hawai'i Inc. on November 1, 2004. The results of the community contacts are listed in Table 2.

Mr. Van Horn Diamond is the chairperson for the O'ahu Island Burial Council and a recognized cultural descendant for Waikīkī.

Mr. Diamond related the following information about the project area:

> The parcel seemed to be cottage oriented and it did not go all the way to Tusitala Street. The Ala Wai side would have had home like cottages and a drive way. We know it was a portion of the 'Āinahau Estate on the Tusitala Street side. When you come down Ka'iulani Street towards Tusitala there used to be a sign pointing inside to the area where once stood a huge banyan tree. It may have been *makai* of an HVB sign. The sign had a picture of Kamehameha on it. The sign said, "Ka'iulani and Stevenson used to sit here". The *iwi* or bones found in the parcel could have come from the filling from the Ala Wai. In the 1960s at the intersection of Tusitala Street and Kapili Street used to be apartment building with parking underneath. The building was purchased by Mr. Eugene F. Kennedy. Who he purchased it from may give more leads.

Table 2 Community Contacts

Name	Organization, Affiliation	Comments
Ahlo, Charles	Cultural Descendant for Waikīkī	No response.
Aiu, Colleen	ʻAhahui O Kaʻiulani	No response.
Among, Les A.	Waikīkī Neighborhood Board Subdistrict 1-Chair	No response.
Apaka, Jeff	Waikīkī Neighborhood Board Subdistrict 2-Chair	No response.
Ayau, Edward Halealoha	Hui Malama O Nā Iwi O Hawaiʻi Nei	No response.
Carney, Mary	State Historic Preservation Division Burials Program-Burials Facilitator	Referred to Recognized Cultural Descendants for Waikīkī.
Cook, Delores	Waikīkī Neighborhood Board Subdistrict 3-Chair	No response.
Correa, Lawrence	Waikīkī Resident	No response.
Dressel, David L.	Waikīkī Resident	No comment.
Gersaba, Nālani J.	Cultural Descendant for Waikīkī	No response.
Gora, Amelia K.	Cultural Descendant for Waikīkī	No response.
Guth, Heidi	Office of Hawaiian Affairs	No response.
Harris, Cy K.	Cultural Descendant for Waikīkī	No response.
Kennedy, Eugene F.	Waikīkī Resident	No response.
Keohokālole, Adrian K.	Cultural Descendant for Waikīkī	No response.
Keohokālole, Dennis K.	Cultural Descendant for Waikīkī	No response.
Keohokālole, Emalia E.	Cultural Descendant for Waikīkī	No response.
Keohokālole, James H.	Cultural Descendant for Waikīkī	No response.
Keohokālole, Joseph M.	Cultural Descendant for	No response.

K.	Waikīkī	
Koko, Kanaloa	Cultural Descendant for Waikīkī	No response.
Kuhea, G. Kealoha	Cultural Descendant for Waikīkī	No response.
Lau, Edmund M.	Waikīkī Resident	No response.
Mamac, Violet L.	Cultural Descendant for Waikīkī	No response.
Medeiros, Clarence A. Jr.	Cultural Descendant for Waikīkī	No response.
Medeiros, David	Cultural Descendant for Waikīkī	No response.
Napōka, Nathan	State Historic Preservation Division History and Culture	I suggest that Cultural Surveys Hawai'i check the Dillingham records at the Bernice Pauahi Bishop Museum and their Ka'iulani Collection. The 'Ahahui 'O Ka'iulani Foundation headed by Kumu Hula Colleen Aiu of Hula Hālau O Maiki may have concerns of the project area.
Rose, Charles	Association of Hawaiian Civic Clubs-President	Referred to Nālani Gersaba.
Sawyer, Stephen	Waikīkī Resident	Mr. Stephen Sawyer, a long time resident of Waikīkī, confirmed that the land was part of Cleghorn Estates long ago. Mr. Sawyer was quick to talk about Hawaiian burials all around the parcel as well. He summarized his concerns that Hawaiians buried the people where they lived.
Souza, William D.	Royal Order of Kamehameha, Kūhio Chapter	No comment.

	–Knights Companion, Protocol Officer	
Tomcyzk, Pi`ikea L.	Waikīkī Hawaiian Civic Club-President	No response.
Yagodich, Darrll	Department of Hawaiian Home Lands Planning Office	No comment.

VI. TRADITIONAL CULTURAL PRACTICES

Traditional cultural practices are based on profound awareness concerning harmony between man and their natural resources. The Hawaiians of old depended on these cultural practices for survival. Based on their familiarity with specific places and through much trial and error, Hawaiians communities were able to devise systems that fostered sustainable use of nature's resources. Many of these cultural practices have been passed down from generation to generation and are still practiced in some of Hawaii's communities today.

This project seeks to evaluate traditional cultural practices as well as resources pertaining to the project area within Waikīkī Ahupua'a. This section will convey the different types of traditional practices, cultural resources associated with the vicinity.

A. Hawaiian Agriculture

Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. It is likely that, during traditional Hawaiian times, environs like the present project area were used for less intensive cultivation of patches of sweet potato, *pia*, and *wauke*, and the gathering of *hala*, *kukui* and other upland resources.

The *Mahele* documents indicate that within the present project area at the mid-nineteenth century: the *mauka* section comprised a portion of taro *lo'i* belong to the king; the central section comprised a portion of 'Āpuahēkau Stream in which taro was also growing; and the *makai* portion comprised *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. It is likely that these agricultural activities recorded in the documents reflect the continuation into the nineteenth century of the primary traditional Hawaiian land use and cultural activity within the project area and vicinity.

B. Gathering for Plant Resources

Hawaiians utilized upland resources for a multitude of purposes. Forest resources were gathered, for not only the basic needs of food and clothing, but for tools, weapons, canoe building, house construction, dyes, adornments, hula, medicinal and religious purposes. However, as noted above, during traditional Hawaiian times the present project area was used for the gathering of *hala*, *kukui* and similar upland resources.

Within the project area itself no specific documentation was found in regards to gathering of plants during traditional Hawaiian times. During this evaluation there were no ongoing practices related to traditional gathering of plant resources identified in the present project area. None of the individuals contacted or interviewed for this assessment identified any native plant gathering practices within the project area. Based on the information it is likely that there was far greater emphasis on gathering plant resources further inland.

C. Aquatic Resources

Native stream animals supplied the Hawaiian diet with a rich source of protein Before the Ala Wai Canal was built and the streams diverted, the streams feeding into Waikīkī were once abundant in *'o'opu* and *'ōpae*.

An 1881 Hawaiian Government survey map by Serrano E. Bishop with locations of LCA parcels provides a detailed record of the physical landscape of Waikīkī before the transformations of the twentieth century (Figure 3). As shown on the map, coursing through the middle of the project area is 'Āpuakēhau Stream which once descended from Mānoa Valley, entering the ocean "near the present Moana Hotel" and which was "probably named for a rain" (Pukui *et al.* 1974: 13). The map also shows the project area straddling two Waikīkī *'ili* which appears to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in Auaukai. Also indicated on the map are the *'auwai* created to channel water of streams descending from Pālolo, Mānoa, and Makiki Valleys. The almost 90-degree bend of 'Āpuakēhau Stream into the present project area, as shown on the 1881 map, suggests that the stream was diverted sometime early in the creation of the Waikīkī fields either to direct water to *lo'i* constructed elsewhere or to create a broader expanse of dryland in the *'ili* identified on the map as 'Au'aukai, Kaluaokau, Kapuni and Uluniu. These *'ili* would, in time, come to be identified with *'ali'i* (the Hawaiian royalty) who resided in Waikīkī.

By the end of the 19th century most of the fishponds that had previously proliferated had been neglected and allowed to deteriorate. During the 1920s, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī.

D. Traditional Hawaiian Sites

There is no surface or archaeological sites on the surface of the present project area. As noted above the current land surface in the parcel is landfill.

E. Burials

Discoveries, which have occurred throughout Waikīkī, have included many human burials, traditional Hawaiian and historic, as well as pre-contact Hawaiian and historic cultural deposits.

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street (McDermott et al. 1996). Cultural Surveys Hawaii's research suggested that a portion of the study lots -specifically TMK 2-6-24:36-40 - was formerly a corner of the 'Āinahau Estate southeast of the current project area. A total of 2 indigenous and 15 historic artifacts were collected from the former 'Āinahau Estate portion of the project area.

Cultural Surveys Hawai'i is currently conducting the archaeological survey for the proposed Tusitala parcel. Fragments of human remains have been discovered. The work is still in progress.

Past archaeological research, from the beginning of the twentieth century to the present has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials, do exist throughout the breadth of the Waikīkī area.

F. Hawaiian Trails

John Papa ʻĪʻī's account of the ancient trail leading from Honolulu into "lower Waikīkī places the trail within Kālia and down to Iinaio; along the upper side of Kahanaumaikaiʻs coconut grove, along the border of Kaihikapu Pond, into Kawehewehe; then through the center of Helumoa of Puaaliilii, down to the mouth of the ʻĀpuakehau stream northwest of the present project area (ʻĪʻī 1959:92). Part of the coastal trail system, there are no visible trail remnants to speak of today. No traditional trails were identified within the present project area on historic maps or by community informants.

G. *Wahi pana* (Storied Places)

Historic documentation identifies the present project area as a portion of ʻĀinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Prince Miriam Likelike (1851-1887), and their daughter Princess Kaʻiulani (1875-1899) – all significant personages in the history of Hawaiʻi.

> Cleghorn not only beautified Waikīkī through his work at Kapiʻolani Park [he had been instrumental in the park's creation and design], but also at his estate, ʻĀinahau, which he had purchased in 1872 for $300. Inheriting a love of horticulture from his father, Cleghorn lavishly landscaped this parcel, making it "the most beautiful private estate in the Hawaiian Islands" (Hibbard and Franzen 1986: 12)

No other storied places were identified in the immediate vicinity of the project area.

VII. SUMMARIES AND RECOMMENDATIONS

Reviewing the information provided by the elements of this cultural impact evaluation – historical documentation, archaeological research, and community contacts – there emerges a more detailed picture of the traditional landscape of Waikīkī Ahupua'a and the present project area. The *ahupua'a* of Waikīkī in the centuries before the arrival of Europeans was a well-used locale with abundant natural and cultivated resources – including an expansive system of irrigated taro fields and numerous fishponds – supporting a large population that included the highest-ranking *ali'i* (Hawaiian royalty). In the second half of the nineteenth century, after a period of depopulation and desuetude, Waikīkī was reanimated by the Hawaiian *ali'i* and the foreigners residing there, and by farmers continuing to work the irrigated field system which had been converted from taro to rice. This farming continued up to the first decades of the twentieth century when the newly-constructed Ala Wai Canal drained the remaining ponds and irrigated fields of Waikīkī.

The present Tusitala Elderly Apartments parcel straddles two Waikīkī *'ili* which appears to be separated by 'Āpuakēhau Stream: the *mauka* portion of the project area is in Kalāmanamana and the *makai* portion is in 'Au'aukai. Historic maps identify the present project area as a portion of 'Āinahau, the Waikīkī estate of Archibald Cleghorn (1835-1910), his wife Prince Miriam Likelike (1851-1887), and their daughter Princess Ka'iulani (1875-1899) – all significant personages in the history of Hawai'i. *Mahele* documents indicate that within the present project area at the mid-nineteenth century: the *mauka* section comprised a portion of taro *lo'i* belong to the king; the central section comprised a portion of 'Āpuahēkau Stream in which taro was also growing; and the *makai* portion comprised *kula* – a dryland agricultural field where taro, sweet potatoes, and gourd may have been growing. When the 1917 (figure 5) map is studied in tandem with the 1881 map discussed above (Figure 4), it appears that the 'Āinahau estate comprised the entire LCA 7597 Apana 2 and an adjacent portion of LCA 104 FL Apana 5. The portion of LCA 104 FL is probably the land that Princess Ruth Ke'elikōlani gave to Princess Ka'iualani as a christening gift.

As noted above, the parcel and adjacent lands are linked with the Hawaiian royalty. *Ali'i* residence likely represents the primary traditional Hawaiian cultural activity associated with the parcel.

In 1917 James W. Pratt bought the 'Āinahau Estate, then sold most of it in 1919 to William Chauncey Wilder, along with developer Percy M. Pond. A Pacific Commercial Advertiser 1919 map shows the residential subdivision developed by Pond. The streets shown on the map correspond to the present day Ka'iulani Avenue, Cleghorn Street, Kapili Street and Tusitala Street.

An advertisement appearing in the Pacific Commercial Advertiser on May 5, 1919 shows the residential subdivision developed by Pond (Figure 6). The streets shown on the map, which were constructed for the subdivision, correspond to the present-day Ka'iulani Avenue, Cleghorn Street, Kapili Street, and Tusitala Street. An advertisement appearing in the Pacific Commercial Advertiser on May 5, 1919 shows the residential subdivision developed by Pond (Figure 6). The streets shown on the map, which were constructed for the subdivision, correspond to the present-day Ka'iulani Avenue, Cleghorn Street, Kapili Street, and Tusitala Street. These 20th century

developments have effectively eliminated any surface sites that may have related to traditional Hawaiian cultural activity within the parcel.

While surface sites may have been eliminated within the parcel, subsurface deposits are of cultural concern. Several archaeological studies have recorded the presence within Waikīkī of subsurface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the entire Waikīkī area. The authors of these studies emphasize that the potential for discovering similar intact deposits elsewhere in Waikīkī cannot be discounted.

Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī. The possible presence of human burials within the parcel is of ongoing cultural concern.

None of the community contacts queried for this cultural impact evaluation identified any ongoing cultural practices within the project area.

It is possible that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project parcel. Other possible deposits may be associated with nineteenth century Hawaiian royalty.

Based on the above findings, it is recommended that no further formal cultural impact mitigation measures are warranted.

In order to address traditional cultural concerns, and given the cultural sensitivity of the entire Waikīkī area, it should be noted, however, that subsurface properties associated with former traditional Hawaiian activities in the project area, such as artifacts and cultural layers, may be present despite the decades of sugar cultivation activities. As a precautionary measure, personnel involved in future development activities in the area should be informed of the possibility of inadvertent cultural finds, and should be made aware of the appropriate notification measures to follow.

VIII. REFERENCES CITED

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APPENDIX XIII

NOISE STUDY

D. L. ADAMS ASSOCIATES, LTD.
Consultants in Acoustics and Performing Arts Technologies

Project No. 04-62

ENVIRONMENTAL NOISE ASSESSMENT REPORT
TUSITALA VISTA RESIDENTIAL PROJECT
HONOLULU, O'AHU, HAWAII

August 2004

Prepared for
Tusitala Vista L.P.
Honolulu, Hawaii

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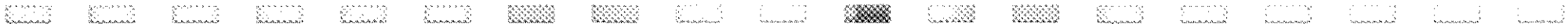

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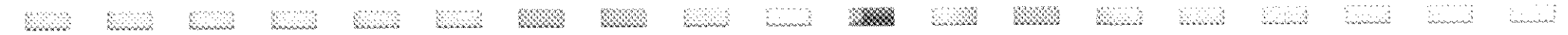


1.0 EXECUTIVE SUMMARY

1.1 The Tusitala Vista residential project is proposed to offer approximately 106 affordable senior rental units in the Waikiki area. The new building will be 9 stories tall and will incorporate "aging-in-place" services for its tenants. The existing site is a vacant lot.

1.2 Continuous ambient noise levels on the existing property were measured at one location for approximately 12 hours. The predicted L_{dn} noise level is less than 65 dBA and meets an "acceptable" rating, according to the HUD noise guidelines. Dominant sources of noise at the project site generally include vehicular traffic in the area, occasional aircraft flyovers, pedestrians, and nearby construction noise.

1.3 During the construction phase of the project, typical construction noises will be audible in the area. Noise from construction activities must comply with State Department of Health noise regulations as specified for construction related activities.

1.4 After construction is complete, noise generated from stationary mechanical equipment on the project site must meet the State Department of Health noise regulations, which allow adjustments for existing ambient noise levels.

1.5 Noise from vehicular traffic in the area due to the project is not expected to significantly increase over the existing ambient noise levels. The increase in project generated traffic noise was calculated to be less than 1 dB.

2.0 PROJECT DESCRIPTION

The Tusitala Vista project proposes to add approximately 106 residential units to be used for affordable senior rental apartments. The new building is located in the Waikiki area, and will include "aging-in-place" services for its tenants. The new residential building will have typical residential apartment services, such as indoor/outdoor parking, private park, patio and barbeque area, on-site manager offices, etc. Commercial or retail shops are not included in the design.

During construction, the project site will be closed to the public. Typical construction equipment will be on-site throughout the construction of the new building.

3.0 NOISE STANDARDS

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use. A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 State of Hawaii, Department of Health (DOH), Community Noise Control

The State of Hawaii Department of Health Community Noise Control Statute [Reference 1] defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to stationary noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc., and equipment related to agricultural, construction, and industrial activities. These levels are enforced by the State Department of Health (DOH) for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 1. With respect to mixed zoning districts, the statute specifies that the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level.

For special conditions where the ambient sound level is greater than the maximum permissible sound level, the DOH allows for an adjustment of the maximum level. The DOH will consider the ambient noise level as the maximum permissible sound level.

3.2 U.S. Environmental Protection Agency (EPA)

The U.S. EPA has identified a range of yearly day-night equivalent sound levels, L_{dn}, sufficient to protect public health and welfare from the effects of environmental noise [Reference 2]. The EPA has established a goal to reduce

exterior environmental noise to an L_{dn} not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to an L_{dn} not exceeding 55 dBA. Additionally, the EPA states that these goals are not intended as regulations as it has no authority to regulate noise levels, but rather they are intended to be viewed as levels below which the general population will not be at risk from any of the identified effects of noise.

3.3 U.S. Federal Highway Administration (FHWA)

The FHWA defines four land use categories and assigns corresponding maximum hourly equivalent sound levels, L_{eq}, for traffic noise exposure [Reference 3], which are listed in Figure 2. For example, Category B, defined as picnic and recreation areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals, has a corresponding maximum exterior L_{eq} of 67dBA and a maximum interior L_{eq} of 52 dBA. These limits are viewed as design goals, and all projects meeting these limits are deemed in conformance with FHWA noise standards.

3.4 Hawaii Department of Transportation (HDOT)

The HDOT has adopted FHWA's design goals for traffic noise exposure in its noise analysis and abatement policy [Reference 4]. According to the policy, a traffic noise impact occurs when the predicted traffic noise levels "approach" or exceed FHWA's design goals or when the predicted traffic noise levels "substantially exceed the existing noise levels." The policy also states that "approach" means at least 1 dB less than FHWA's design goals and "substantially exceed the existing noise levels" means an increase of at least 15 dB.

3.5 U.S. Department of Housing and Urban Development (HUD)

HUD's environmental noise criteria and standards in 24 CFR 51 [Reference 5] were established for determining housing project site acceptability. These standards are based on day-night equivalent sound levels, L_{dn}, and are not limited to traffic noise exposure. However, for project sites in the vicinity of highways, the L_{dn} may be estimated to be equal to the design hour $L_{eq(h)}$, provided "heavy trucks (vehicles with three or more axles) do not exceed 10 percent of the total traffic flow in vehicles per 24 hours and the traffic flow between 10:00 p.m. and 7:00 a.m. does not exceed 15 percent of the average daily traffic flow in vehicles per 24 hours." For these same conditions, L_{dn}, may also be estimated as 3 dB less than the design hour L_{10}.

HUD site acceptability criteria rank sites as Acceptable, Normally Unacceptable, or Unacceptable. "Acceptable" sites are those where exterior noise levels do not exceed an L_{dn} of 65 dBA. Proposed housing projects on "Acceptable" sites do not require additional noise attenuation other than that provided by customary

building techniques. "Normally Unacceptable" sites are those where the L_{dn} is above 65 dBA, but does not exceed 75 dBA. Housing on "Normally Unacceptable" sites requires some form of noise abatement, either at the property line or in the building construction, to ensure the interior noise levels are acceptable. "Unacceptable" sites are those where the L_{dn} is 75 dBA or higher. The term "Unacceptable" does not necessarily mean that housing cannot be built on those sites. It means that more sophisticated sound attenuation will likely be needed.

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Ambient noise level measurements were conducted at one location from August 2, 2004 to August 4, 2004. Although the sound level meter ran continuously, the sound measurement equipment was vandalized around 4:00 a.m. on August 3rd. All measurement data after this time is considered erroneous.

The measurement location was near the middle of the property, and 5 feet inside of the north property line. The measurement location is shown in Figure 3. The microphone was mounted on a tripod, approximately 5' above grade, and the sound level meter was secured in a weather resistant case.

Continuous, hourly, equivalent sound levels, L_{eq}, were recorded during the measurement period. The measurement was taken using a Larson-Davis Laboratories, Model 820, Type-1 Sound Level Meter together with a Larson-Davis, Model 2560 Type-1 Microphone. Calibration was checked before and after the measurements with a Larson-Davis Model CAL200 calibrator. Both the sound level meter and the calibrator have been certified by the manufacturer within the recommended calibration period.

The results are graphically presented in Figure 4, which shows the measured equivalent sound levels, L_{eq}, in A-weighted decibels (dBA). The sound levels generally ranged between 55 dBA during the nighttime or early morning hours to 65 dBA during the daytime and high traffic times. Although the complete 24 hour noise measurement data is not available, we estimate that the L_{dn} is approximately 65 dBA at the measurement location. Since the residential units are located further away from Ala Wai Boulevard (the primary noise source), the noise level at the residential units is estimated to be well below L_{dn} 65 dBA. The day-night level is a 24 hour measurement that assigns a 10 dB penalty for noises during the nighttime hours (10:00 p.m. to 7:00 a.m.).

Presently, the dominant sources of noise include vehicular traffic, an occasional aircraft flyover, pedestrians, and nearby construction. Other noise sources include wind, birds, and other urban environment activities.

5.0 POTENTIAL NOISE IMPACTS DUE TO THE PROJECT

5.1 Project Construction Noise & On-Site Equipment

Development of project areas will involve excavation, grading, and pile driving during construction of the new building. The various construction phases of the project may generate significant amounts of noise. The surrounding residences and businesses may be impacted by the construction noise due to their proximity to the project. The actual noise levels produced during construction will be a function of the methods employed during each stage of the construction process. Typical ranges of construction equipment noise are shown in Figure 5.

5.2 Noise Generated by the new Residential Building

The new residential building will incorporate stationary mechanical equipment that is typical for residential housing. Expected mechanical equipment may include air handling equipment, compressors, etc. Noise from this mechanical equipment and other equipment must meet the Department of Health noise rules and regulations, which states maximum permissible noise limits at the property line. Since the existing ambient noise levels exceed the DOH noise limits, the allowable noise limits should be increased to measured ambient noise levels in the project area, 55 dBA during the nighttime hours and 65 dBA during the daytime hours.

5.3 Project Generated Vehicular Traffic Noise

The Tusitala Vista project will provide housing for many residents. Although the project will attract more people and residents to the area, vehicular traffic in the area is not anticipated to significantly increase. Therefore, noise due to project generated vehicular traffic in the area should not significantly increase. We calculated that the increase in noise level due to project generated vehicular traffic will be less than 1 dB.

5.3 Compliance with HUD Noise Guidelines

Based on the measured noise levels, an estimate of the L_{dn} at the measurement location is 65 dBA. As can be seen in Figure 3, the measurement location is much closer to Ala Wai Boulevard (the primary noise source) than the residential units. Therefore, the predicted noise level at the residential units is well below the L_{dn} 65 dBA noise criteria. The residential units fall under the "Acceptable" category, according to the HUD noise guidelines.

6.0 NOISE IMPACT MITIGATION

6.1 Mitigation of Construction Noise

In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels [Reference 1], a permit must be obtained from the State DOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels.

In order for the State DOH to issue a construction noise permit, the Contractor must submit a noise permit application to the DOH, which describes the construction activities for the project. Prior to issuing the noise permit, the State DOH may require action by the Contractor to incorporate noise mitigation into the construction plan. The DOH may also require the Contractor to conduct noise monitoring or community meetings inviting the neighboring residents and business owners to discuss construction noise. The Contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engine machines, using properly tuned and balanced machines, etc. However, the State DOH may require additional noise mitigation, such as temporary noise barriers, or time of day usage limits for certain kinds of construction activities.

Specific permit restrictions for construction activities [Reference 1] are:

> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels ... before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels... before 9:00 a.m. and after 6:00 p.m. on Saturday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

The use of hoe rams and jack hammers 25 lbs. or larger, high pressure sprayers, chain saws, and pile drivers must be restricted to 9:00 a.m. to 5:30 p.m., Monday through Friday.

The DOH noise permit does not limit the noise level generated at the construction site, but rather the *times* at which noisy construction can take place. Therefore, noise mitigation for construction activities should be addressed using project

management to ensure that the time constraints within the DOH permit are followed.

Most construction equipment falls under the terms and conditions of the Hawaii DOH issued noise permit. This permit allows noisy construction activities to take place during the daytime hours (see the specific hours reference above). However, any activities that require overnight operation or operation outside of the permit hours, such as a water pump or electric generator for lights, must meet the State's maximum permissible sound limits according to the applicable zoning district class. Temporary enclosures or barrier walls may be required to adequately mitigate noise from this equipment. If it is not feasible or practical to meet the State's noise limits, the Contractor may apply for a noise variance with the Hawaii DOH.

6.2 Mitigation of Residential Building Noise

The design of the new residential building should give special consideration to controlling the noise emanating from stationary mechanical equipment so as to comply with the State Department of Health *Community Noise Control* rules [Reference 1]. Noisy equipment should be located away from neighbors and the residential units. Enclosed mechanical rooms may be required for some equipment.

6.3 Mitigation of Project Generated Vehicular Traffic Noise

Noise from vehicular traffic on Ala Wai Boulevard and other surrounding roads is not expected to significantly increase due to the project. Therefore, noise mitigation of vehicular traffic should not be required for the project.

6.4 Mitigation of Ambient Noise to Meet HUD Noise Guidelines

Ambient noise levels in the vicinity of the project site is less than L_{dn} 65 dBA, and meets the "Acceptable" noise criteria. Therefore, additional measures to improve the sound isolation of the building shell beyond standard construction practices should not be required for meeting the HUD Noise Guidelines.

7.0 REFERENCES:

1. Chapter 46, *Community Noise Control*, Department of Health, State of Hawaii, Administrative Rules, Title 11, September 23, 1996.

2. *Toward a National Strategy for Noise Control*, U.S. Environmental Protection Agency, April 1977.

3. *Department of Transportation, Federal Highway Administration Procedures for Abatement of Highway Traffic Noise,* Title 23, CFR, Chapter 1, Subchapter J, Part 772, 38 FR 15953, June 19, 1973; Revised at 47 FR 29654, July 8, 1982.

4. *Noise Analysis and Abatement Policy,* Department of Transportation, Highways Division, State of Hawaii, June 1977.

5. *Federal Highway Administration's Traffic Noise Model,* FHWA-RD-77-108; U.S. Department of Transportation, December 1978.

6. *Department of Housing and Urban Development Environmental Criteria and Standards*, Title 24, CFR, Part 51, 44 FR 40860, July 12, 1979; Amended by 49 FR 880, January 6, 1984.

APPENDIX A

ACOUSTIC TERMINOLOGY

Sound Pressure Level

Sound, or noise, is the term given to variations in air pressure that are capable of being detected by the human ear. Small fluctuations in atmospheric pressure (sound pressure) constitute the physical property measured with a sound pressure level meter. Because the human ear can detect variations in atmospheric pressure over such a large range of magnitudes, sound pressure is expressed on a logarithmic scale in units called decibels (dB). Noise is defined as "unwanted" sound.

Technically, sound pressure level (SPL) is defined as:

$$SPL = 20 \log (P/P_{ref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is the reference pressure, 20 μPa, which is approximately the lowest sound pressure that can be detected by the human ear. For example:

If P = 20 μPa, then SPL = 0 dB
If P = 200 μPa, then SPL = 20 dB
If P = 2000 μPa, then SPL = 40 dB

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound sources, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined sound level of 53 dB, not 100 dB. Two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 6 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

Studies have shown conclusively that at equal sound pressure levels, people are generally more sensitive to certain higher frequency sounds (such as made by speech, horns, and whistles) than most lower frequency sounds (such as made by motors and engines)[1] at the same level. To

---

[1] D.W. Robinson and R.S. Dadson, "A Re-Determination of the Equal-Loudness Relations for Pure Tones," *British Journal of Applied Physics*, vol. 7, pp. 166 - 181, 1956. (Adopted by the International Standards Organization as Recommendation R-226.

address this preferential response to frequency, the A-weighted scale was developed. The A-weighted scale adjusts the sound level in each frequency band in much the same manner that the human auditory system does. Thus the A-weighted sound level (read as "dBA") becomes a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear to that sound. Different sounds with the same A-weighted sound level are perceived as being equally loud. The A-weighted noise level is commonly used today in environmental noise analysis and in noise regulations. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

Equivalent Sound Level

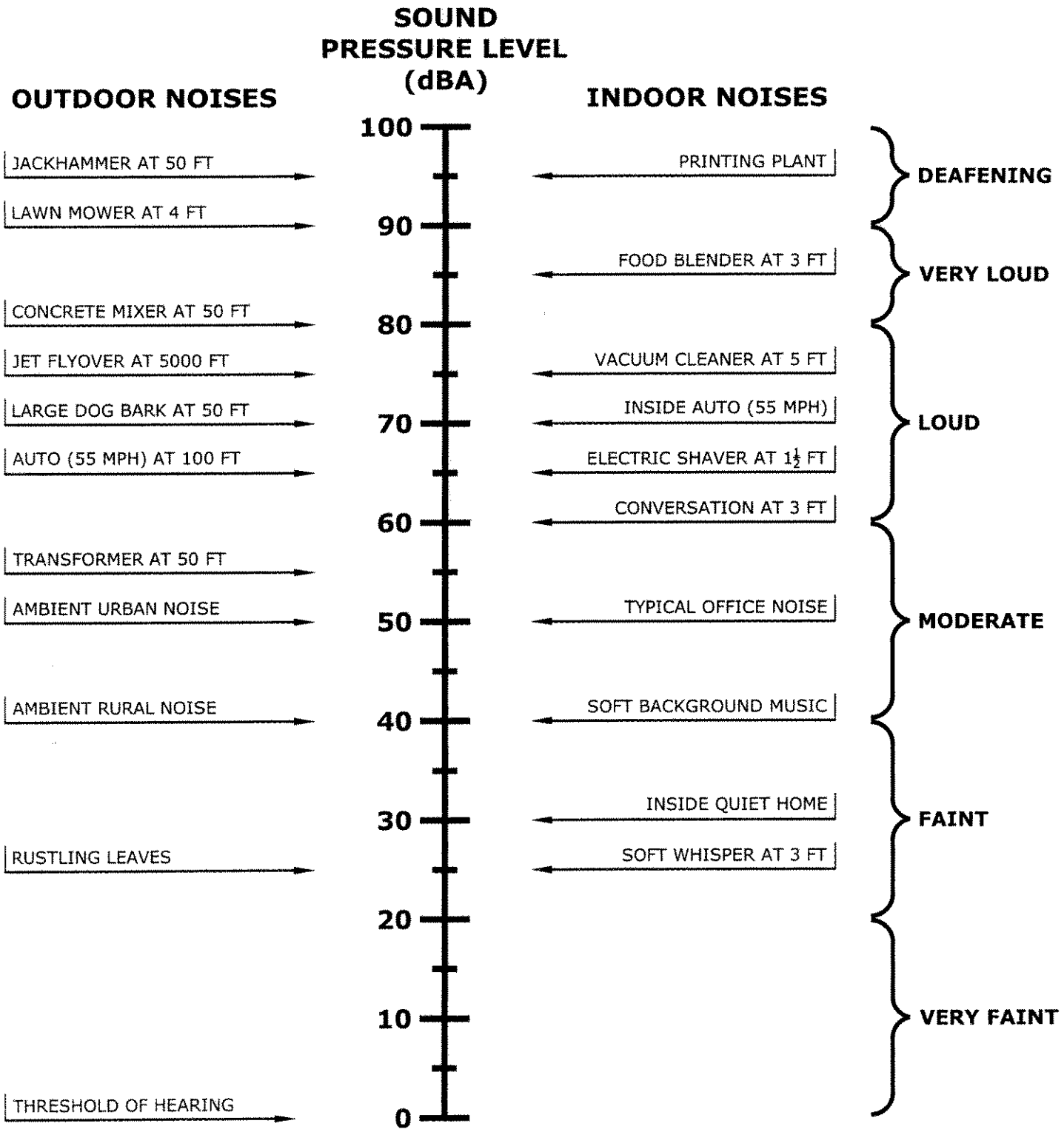
The Equivalent Sound Level (L_{eq}) is a type of average which represents the steady level that, integrated over a time period, would produce the same energy as the actual signal. The actual *instantaneous* noise levels typically fluctuate above and below the measured L_{eq} during the measurement period. The A-weighted L_{eq} is a common index for measuring environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

Statistical Sound Level

The sound levels of long-term noise producing activities such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels has been developed. It is known as the Exceedence Level, L_n. The L_n represents the sound level that is exceeded for n% of the measurement time period. For example, L_{10} = 60 dBA indicates that for the duration of the measurement period, the sound level exceeded 60 dBA 10% of the time. Typically, in noise regulations and standards, the specified time period is one hour. Commonly used Exceedence Levels include L_{01}, L_{10}, L_{50}, and L_{90}, which are widely used to assess community and environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn}, is the Equivalent Sound Level, L_{eq}, measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 p.m. and 7 a.m. to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations.



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KAILUA, HAWAII 96734
808/254-3318 FAX 808/254-5295

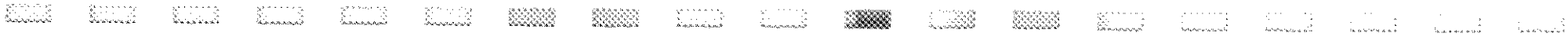
Common Outdoor/Indoor Sound Levels

Tusitala Vista

not to scale

Date	Project No.	Drawn By
August 2004	04-62	TRB

Figure No
A-1



APPENDIX XIV

AGENCY & PUBLIC COMMENTS ON THE DRAFT EA

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
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August 9, 2004

Eric Crispin
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Attn: Anthony Ching

Dear Mr. Crispin:

Subject: Draft Environmental Assessment (EA) **Tusitala Vista Elderly Apartments**

We have the following comments to offer:

Pile driving: Is pile driving being considered to lay the foundation? Pile driving disturbs surrounding residents a great deal in terms of both noise and vibration. If this option is selected indicate in the final EA how you will advise the surrounding neighbors of the upcoming disruption and consult the Noise, Radiation & Indoor Air Quality Branch of the Department of Health, which has oversight over construction noise issues.

Elevators: The draft EA states that a backup power source will provide lights in the stairwells in case of a power outage. Explain the rationale behind the decision to not have an emergency generator for the elevators in case of an outage, given that some of the residents may be frail elderly and unable to walk down steps to evacuate the building.

Cultural impacts assessment:

A cultural impacts assessment was missing from the draft EA. In the final EA include such an assessment.

If the subject area is in a developed urban setting, cultural impacts must still be assessed. Many incorrectly assume that the presence of urban infrastructure effectively precludes consideration of current cultural factors. For example, persons are known to gather kauna'oa, 'ilima, 'uhaloa, noni or ki on the grassy slopes and ramps of the H-1 freeway and some state highways on the neighbor islands. Certain landmarks and physical features are used by Hawaiian navigators for sailing, and the lines of sight from landmarks to the coast by fisherman to locate

certain fishing spots. Blocking these features by the construction of buildings or tanks may constitute an adverse cultural impact. Your discussion should describe the process undertaken in the assessment process with a concluding analysis clearly stated.

For assistance in the preparation refer to our *Guidelines for Assessing Cultural Impacts.* Contact our office for a paper copy or go to our homepage at *http://www.state.hi.us/health.oeqc/guidance/index.html*.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

c: Keith Kurahashi

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November 10, 2004

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71.

Dear Ms. Salmonson:

Thank you for your letter dated August 9, 2004 and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

Our response to your comments are as follows:

1. Pile Driving: A Noise Permit will be obtained from the State Health Department, Noise, Radiation & Indoor Air Quality Branch. As part of the Noise Permit application, the adjoining neighbors would be notified and a community meeting would be arranged for their benefit. The pile driving operation is generally monitored by the State Health Department, Noise Branch, for compliance.

2. Elevator: A battery backup power source will provide lights in the stairwells in case of a power outage. A backup generator is not statutorily required for this type of project and in light of the fact that extended power outages are infrequent, we will not be providing a backup generator. None of our other affordable housing projects have generators for this purpose. Over the past 7 years we have not experienced any situation where a generator was found to be necessary. Should the situation arise where the building needs to be evacuated, those residents who are in need of assistance have been instructed to stay in their apartments until fire department

officials arrive to assist them down the stairs. As stated in our EA, Waikiki Fire Station No. 7 is located approximately ½ a mile from the development site and will provide primary response in case of an emergency, within 3 minutes.

3. Cultural Impact Assessment: Upon your recommendation a Cultural Impact Assessment for the Tusitala Vista project site is being done by Cultural Surveys, Hawaii, Inc., along with an Archaeological Inventory Survey. In the Final EA, we will include a discussion on the process undertaken in the cultural assessment.

   For your information, during the archaeological survey a small number of fragmented human ones were discovered at the makai/diamond head corner of the property. All work on the site was immediately stopped. On October 13, 2004, Mr. Shideler of Cultural Surveys Hawaii, Inc. appeared before the Oahu Island Burial Council to explain his findings and to ask for their guidance. The Council requested that Mr. Shideler return to the Council with a full report once the survey has been completed, and they requested that the fragmented human bones be re-buried, at a location to be determined by the developer, within the project site.

Your comments and our response will be included in the Final EA.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

MICHAEL T. AMII
DIRECTOR

JOHN R. SABAS
DEPUTY DIRECTOR

August 17, 2004

MEMORANDUM

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: MICHAEL T. AMII, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
TUSITALA VISTA

The Department of Community Services (DCS) appreciates the opportunity to review and comment on the subject draft Environmental Assessment. Based on our review of the draft Environmental Assessment, we have determined that the proposed project will have no adverse impact on any DCS project or program.

DCS strongly supports the development of the Tusitala Vista project. Honolulu's rental housing market can be characterized as experiencing a period of very low vacancies and escalating rental rates. The proposed project will provide 106 affordable rental units to lower income senior citizens. Many lower income seniors live on fixed incomes and are particularly vulnerable to escalating rents. The proposed project will provide long-term affordable rental housing to senior citizens. The project will also strengthen Waikiki as a vibrant residential neighborhood through the development of a new, modern residential project. The Honolulu City Council has appropriated $2,900,000 in federal Community Development Block Grant funds to support the development of the Tusitala Vista project.

Thank you again for the opportunity to review and comment on the subject draft Environmental Assessment. Questions regarding this matter may be directed to Mr. Keith Ishida at 527-5092.

MICHAEL T. AMII
Director

MTA:dk

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September 20, 2004

Mr. Michael T. Amii, Director
Department of Community Services
715 South King Street, Suite 311
Honolulu, Hawaii 96813

Attention: Mr. Keith Ishida

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Mr. Amii:

Thank you for your letter, dated August 17, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments. We appreciate your support of our project and agree that the proposed project will help strengthen Waikiki as a vibrant residential neighborhood.

As you stated in your response, we will contact Mr. Keith Ishida at 527-5092 should we have questions in the future. Your comments and this response will be included in the final EA.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

FIRE DEPARTMENT
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JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

August 27, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: ATTILIO K. LEONARDI, FIRE CHIEF

SUBJECT: CHAPTER 343, HAWAII REVISED STATUTES (HRS)
DRAFT ENVIRONMENTAL ASSESSMENT

PROJECT:	TUSITALA VISTA
APPLICANT:	HAWAII HOUSING DEVELOPMENT CORPORATION
LANDOWNER:	STARTS INTERNATIONAL HAWAII, INC.
AGENT:	KUSAO & KURAHASHI, INC.
LOCATION:	2423 AND 2429 ALA WAI BOULEVARD WAIKIKI, OAHU, HAWAII
TAX MAP KEY:	2-6-024: 070 AND 071
REQUEST:	CHAPTER 201-G, HRS AND WAIKIKI SPECIAL DISTRICT PERMIT
PROPOSAL:	NEW NINE-STORY, 107-UNIT ELDERLY RENTAL APARTMENT BUILDING WITH 29 PARKING STALLS AND APPURTENANT SITE IMPROVEMENTS

We received your memorandum dated August 9, 2004, requesting our review and comments on the above-mentioned project.

The Honolulu Fire Department has no requirements for this project.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 831-7778.

Attilio K. Leonardi

ATTILIO K. LEONARDI
Fire Chief

AKL/SY:bh

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September 19, 2004

Attilio K. Leonardi, Chief
Honolulu Fire Department
City and County of Honolulu
3375 Koapaka Street, Suite H425
Honolulu, Hawaii 96819-1869

Attention: Mr. Lloyd Rogers, Battalion Chief

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax map Key: 2-6-024: 70 and 71.

Dear Chief Leonardi:

Thank you for your letter, dated August 27, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

As you stated in your response, we will contact Battalion Chief Lloyd Rogers of your Fire Prevention Bureau at 831-7778, should we have questions in the future.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

WW.P 04-295

August 30, 2004

MEMORANDUM

TO: MR. ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: for TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT - TUSITALA VISTA
AFFORDABLE ELDERLY RENTAL APARTMENT DEVELOPMENT

We have reviewed the subject Draft EA, dated May 2004, submitted by your August 9, 2004 letter.

Since the Wastewater Long-Range planning function was transferred, effective late-August 2001, from the Department of Design and Construction, Wastewater Division to the Department of Environmental Services, we have no comments to offer on wastewater related matters. Except, we couldn't locate the Sewer Connection Approval cited on page 36 in the Appendix referenced by the text.

Should you have any questions, please contact Bill Liu at 527-5388 with the Wastewater Planning Branch.

Attachment

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October 15, 2004

Mr. Timothy E. Steinberger, P.E., Director
Department of Design and Construction
City and County of Honolulu
650 S. King Street, 11th Floor
Honolulu, Hawaii 96813

Attention: Mr. Bill Liu, Wastewater Planning Branch

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Mr. Steinberger:

Thank you for your letter, dated August 30, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

We have made a note that the Wastewater Long-Range planning function has been transferred to the Department of Environmental Services and that you have no comments to offer on wastewater related matters. The Sewer Connection Approval cited on page 36 of the Draft EA, Appendix IV, was inadvertently omitted during the printing process. We apologize for the error and will make sure it is inserted into the Final EA report.

As you stated in your response, we will contact Mr. Bill Liu, Wastewater Planning Branch should we have questions in the future.

Very truly yours,

for Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

August 30, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

K. Shida

FROM: for CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER OF AUGUST 9, 2004 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR TUSITALA VISTA, TMK: 2-6-24: 70 AND 71

The existing water system is presently adequate to accommodate the proposed elderly rental development.

The availability of water will be confirmed when the building permit is approved. When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The proposed project is subject to Board of Water Supply Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permit Applications.

If you have any questions, please contact Joseph Kaakua at 748-5442.

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September 19, 2004

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96813

Attention: Mr. Joseph Kaakua

Subject: **Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71.**

Dear Mr. Jamile:

Thank you for your letter dated August 30, 2004 and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

The following are our responses to your recommendations and comments:

1. We understand and appreciate the fact that the off-site water system is presently adequate to accommodate the proposed development.
2. We further understand that the availability of water will be confirmed when the building permit application is submitted for your review and approval, and that when water is made available, the applicant will be required to pay your Water System Facilities charges for resource development, transmission and daily storage.
3. We understand that the proposed project is subject to Board of Water Supply cross-connection control requirements prior to the issuance of the building permit application.

Again, thank you. Your comments and this response will be included in the Final EA.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honoluiupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

BOISSE P. CORREA
~~LEE D. DONOHUE~~
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE CS-KP

August 31, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: BOISSE P. CORREA, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT, TUSITALA VISTA,
TAX MAP KEY: 2-6-024: 070 AND 071

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

It should be noted that patrol officers for District No. 6, instead of District No. 7 as stated on page 39 of the document, would service this development site.

We believe that there will be an increase in calls for police service to the area during the construction phase. Officers will have to respond to complaints relative to dust, noise, and traffic problems.

Further, on-street parking is extremely limited in the area. It is advisable that provisions be made for construction vehicles and parking for vehicles belonging to employees.

If there are any questions, please call Major Thomas Nitta of District 6 at 529-3361 or Ms. Carol Sodetani of the Support Services Bureau at 529-3658.

BOISSE P. CORREA
Chief of Police

By
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
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HONOLULU, HAWAII 96822

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E-Mail: kkurahashi@hawaii.rr.com

October 5, 2004

Mr. Karl Godsey
Assistant Chief of Police
Support Services Bureau
801 S. Beretania Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Mr. Godsey:

Thank you for your letter, dated August 31, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

In the Final EA, we will make the correction that patrol officers from District No.6 will service the proposed Tusitala Vista Apartments, instead of District No. 7, as mentioned on page 39 of our Draft EA.

The contractor will employ best management practices (BMP's) to control and reduce dust and noise during the construction of the Tusitala Vista Apartments. Dust screens will be installed, and the contractor will obtain and comply with the required noise permit from the State Department of Health. During construction, ingress and egress to the construction site will be via Ala Wai Boulevard and not Tusitala Street. However, as stated in our Draft EA, the permanent ingress and egress to Tusitala Vista Apartments, once developed, will be via Tusitala Street.

Parking for construction vehicles, vehicles belonging to employees and subcontractor will be provided on site during construction of the proposed project.

Your comments and our response will be included in the Final EA.

Very truly yours,

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

2004 SEP 10 PM 3 32

CITY & COUNTY OF HONOLULU

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
File:

September 2, 2004

04-791A CAB

Mr. Eric G. Crispin, AIA
Director of Planning and Permitting
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Crispin:

SUBJECT: Draft Environmental Assessment for the Tusitala Vista Project; Waikiki, Oahu. Ref: 2004/ED-11(TC)

This letter is to transmit the following comments for the subject document:

Control of Fugitive Dust:

A significant potential for fugitive dust emissions exists during all phases of construction. Proposed construction activities will occur in proximity to existing residences, businesses, public areas and thoroughfares, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;

b) Provide an adequate water source at the site prior to start-up of construction activities;
c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
d) Minimize dust from shoulders and access roads;
e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
f) Control dust from debris being hauled away from the project site.

If you have any questions, please contact Mr. Barry Ching of the Clean Air Branch at 586-4200.

Sincerely,

WILFRED K. NAGAMINE
Manager, Clean Air Branch

BC:jhm

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
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E-Mail: kkurahashi@hawaii.rr.com

November 5, 2004

Mr. Wilfred K. Nagamine, Manager
Clean Air Branch
State Health Department
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Attention: Mr. Barry Ching, Clean Air Branch

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Mr. Nagamine:

Thank you for your letter, dated September 2, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

Our responses to your comments are as follows:

Control of Fugitive Dust - Adequate dust control measures, through a dust control management plan, will be implemented by the contractor during development of the Tusitala Vista Apartments, in order to identify and address all activities that have a potential to generate fugitive dust. The contractor will comply with the provisions of Hawaii Administrative Rules, 11-60.1-33 on Fugitive Dust.

The contractor will employ best management practices (BMP's) to control and reduce dust and noise during the construction of Tusitala Vista Apartments.

As you requested, the contractor will:

a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and

locating potential dust-generating equipment in areas of the least impact;

b) Provide adequate water source at the site prior to start-up of construction.

c) Landscaping of the project site will not commence until the building has been completed. However, during the grading phase and consequent phasing of the project site, water sprinkling will take place a couple of times daily in order to minimize dust.

d) As stated above, water sprinkling will take place a couple of times daily, and the shoulders and access roads will be included in the projects dust control management plan.

e) During weekends, after hours, and prior to daily start-up of construction activities, the contractor will sprinkle the project site with water, through its dust control management plan.

f) When debris is being hauled away from the project site, adequate water sprinkling of the debris will take place through the contractors dust control management plan.

Your comments and our response will be included in the Final EA.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

September 2, 2004

Eric G. Crispin, Director
Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

LOG No: 2004.2653
DOC No: 0408EJ25

Dear Mr. Crispin:

SUBJECT: Chapter 6E-42 Historic Preservation Review – Draft Environmental Assessment for the Hawaii Housing Development Corporation Tusitala Vista Elderly Rental Development
Waikiki, Kuna, O`ahu
TMK: (1) 2-6-024:070 and 071

Thank you for the opportunity to comment on the DEA for the proposed Tusitala Vista Elderly Rental Development. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas. We received the DEA for review from your office on August 12, 2004 and provide the following comment.

A review of our records shows that there are no known historic sites at this location although no archaeological survey has been conducted at these parcels. Section IV.E.1 states that the site has been impacted by prior development, however, in a nearby parcel, significant historic sites including human burials and remnant of traditional *'auwai* and *lo`i* were found in the subsurface deposits of previously developed parcels. Human burials and subsurface cultural deposits have also been found during waterline or other utility work in nearby areas. Consequently, we believe that it is likely that significant historic sites, including human burials and cultural layers are present in the subsurface portions of the subject parcel. If development of the proposed new buildings involves ground disturbance then we believe that the planned development will have an "adverse effect" on the significant historic sites that may be present. Therefore, we recommend that an archaeological inventory survey be carried out before any new construction, I order to identify historic sties that may be present on the subject parcel.

The findings of the survey must then be presented in report form. If significant deposits are present, and are likely to be significant solely for their information content, then archaeological salvage or data recovery may need to be done. If significant historic sites like human burials are present, then other forms of mitigation (such as preservation) would need to be considered.

It is important to realize that subsurface test excavations (survey) and then the salvage archaeology and/or preservation plan (if needed) require a fair amount of time for fieldwork, evaluation, and report production and review. Given this situation, it is necessary to leave a window of at least four months before the start of construction

We believe that Section IV.E.1 of the DEA needs to be revised to include our recommendation or an archaeological inventory survey.

Should you have any questions about archaeology, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027. Should you have any questions about burial matters and or cultural matters, please feel free to contact Nathan Napoka at 587-0192.

Aloha,

P. Holly McEldowney

P. Holly McEldowney, Administrator
State Historic Preservation Division

c: Keith Kurahashi, Kusao & Kurahashi, Inc. 2752 Woodlawn Drive, Suite 5-202, Honolulu, HI 96822
Van Horn Diamond, Chair, OIBC
Nathan Napoka, History and Culture Branch Chief

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November 7, 2004

Ms. P. Holly McEldowney, Administrator
State Historic Preservation Division
State Department of Land and Natural Resources
801 Kamokila Boulevard
Kapolei, Hawaii 96707

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Ms. McEldowney:

Thank you for your letter, dated September 2, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

Our responses to your comments are as follows:

1. Upon your recommendation an archaeological inventory survey is being done by Cultural Surveys Hawai'i. The archaeological inventory survey field work has been completed and a preliminary field report of their findings will be included in the Final EA.

   For your information, during the survey a small number of fragmented human bones were discovered at the makai/diamond head corner of the property. All work on the site was immediately stopped. On October 13, 2004 Mr. Shideler of Cultural Surveys Hawai'i appeared before the Oahu Island Burial Council to explain his findings and to ask for their guidance. The Burial Council requested that Mr. Shideler return to the Council with a full report once the survey has been completed, and they requested that the fragmented human bones be re-buried, at a location to be determined by the developer, within the project site.

2. We will revise Section IV.E.1 in the Final EA to include the archaeological inventory preliminary survey.

Your comments and our response will be included in the Final EA.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

KATHY SOKUGAWA
CHIEF PLANNER

2004/ED-11(TC)

September 7, 2004

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT - 2004/ED-11

Project:	Tusitala Vista
Location:	2423 and 2429 Ala Wai Boulevard - Waikiki
Tax Map Keys:	2-6-024:070 and 071
Received:	June 10, 2003

We are forwarding copies of all comments we have received to date on the Draft Environmental Assessment (EA) for the above-referenced project.

In accordance with the provisions of Chapter 343, Hawaii Revised Statutes (HRS), you must respond, in writing, to these and any other comments that were received during the 30-day comment period, which began with publication of a notice of availability of the Draft EA in The Environmental Notice on August 8, 2004. The Final EA must include these comments and responses, as well as the revised text, where needed.

Also, we have reviewed the Draft Environmental Assessment (DEA) for the above project and have the following comments:

1. Section I - Introduction - The DEA indicates that the action that triggers this assessment is the proposed use of Federal, State, and City funds. There should be some

discussion about the type and amount of Federal, State, and City funds involved. In addition, work within the Waikiki Special District also serves as a trigger for compliance with the provisions of Chapter 343, HRS.

2. Section III.B.1 - Proposed Development

   a. The site plan should show the location of the proposed private park area (2,600 square feet) and victory garden (760 square feet).

   b. Describe the proposed wall (i.e., wall material and height) and landscaping separating the elderly housing from the public parking lot.

   c. What is the lot area of the elderly housing and the public parking lot? How do these two areas affect the proposed joint development?

   d. Clarify who will own and manage the parking lot. Discuss whether the public parking lot will be subdivided in the future. Will the parking stalls be metered or managed?

   e. Describe how the public parking lot will be funded, constructed, and operated.

   f. Street trees are required within the right-of-ways along Ala Wai Boulevard and Tusitala Street. Please discuss how the development will comply with this requirement.

3. Section III.B.4.b. - Development Plan - Clarify the statement "Based on a discussion with staff at the DPP Ala Wai Boulevard is planned for widening by 5 feet on the mauka side of the street." The DDC currently has a project that will eliminate one lane of traffic along the mauka side of Ala Wai Boulevard.

4. Section III.D.4. - Drainage - Provide post-construction best management practices (BMP) to mitigate impacts of urban runoff into the city's storm drainage system.

5. Section III.B.4. - Land Use Approvals - There should be a brief discussion regarding the project's conformance to the city's General Plan.

6. Section III.B.4.b. - Development Plan - With the adoption of the new Primary Urban Center (PUC) Development Plan (DP) in June 2004, the DEA should omit reference to the old PUC DP. Under the new PUC DP, the project site is located in an area of Waikiki designated as "Higher-Density Residential/Mixed Use" on Map A.6 (PUC-East). We recommend that the DEA discuss how the proposed project will conform to the vision, policies and guidelines of the new PUC DP. We also recommend that the portion of the DP Land Use Map shown in Exhibit 2 be replaced with a similar portion of Map A.6 (PUC East) that is part of the new PUC DP.

7. Section III.D.1. - Access and Transportation - Provide some discussion about the proposed public parking lot and related traffic impacts.

8. Section IV.D.3 and Appendix IV - Wastewater

   a. Please note that the letter dated December 8, 2003 was originated from the Department of Environmental Services and not the DPP Wastewater Branch.

   b. The wastewater calculations assume the 81 one-bedroom units are limited to one occupant per unit. It is assumed that each person will discharge an average of 80 gallons per person not 40 gallons per person as indicated in the assessment. Written confirmation to the limited occupancy should be included in the Environmental Assessment.

   c. A Site Development Division Master Application for Sewer Connection has not been submitted to nor approved by the DPP Wastewater Branch. Written confirmation to the limited occupancy must be included in the application.

d. A letter to the Director requesting the use of a holding tank is required to begin processing the holding tank agreement. The remaining 26 units are required to connect to the holding tank.

9. Section VII - Government Permits and Approvals Required - The project will require a Trenching Permit and a Drain Connection License. Please verify whether the project will require a Grading Permit.

10. Section VIII - Significance Criteria - What are the traffic impacts related to the public parking lot? Provide the necessary discussion and any appropriate mitigative measures.

We look forward to reviewing your final environmental assessment. Should you have any questions, please contact Anthony Ching of our Urban Design Branch at 527-5833.

Sincerely yours,

for ERIC G. CRISPIN, AIA
Director of Planning
and Permitting

EGC:cs

Attachments

doc321353rev1

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
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November 10, 2004

Mr. Eric G. Crispin, AIA, Director
Department of Planning and Permitting
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Mr. Crispin:

Thank you for your letter, dated September 7, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

Our responses to your comments are as follows:

1. Section I - Introduction

   a. The type and amount of Federal, State and City funds involved with this project are as follows:

Description	Interim	Permanent
Equity	$ 100,000	$ 100,000
CDBG/HOME	$ 2,900,000	$ 2,900,000
RHTF-PA	$ 2,4311,662	$ 2,431,662
City Bank	$13,783,338	$ -0-
Federal & State LIHTC Equity	$ 976,822	$11,975,552
HCRC	$	$ 2,784,608

CDBG/HOME =
RHTF-PA = *State Rental Housing Trust Fund - Project Award*

LIHTC = *Federal and State Low-Income HousingTax Credit*
HCRC = *Hawaii Community Reinvestment Corp.*

The above information on Federal, State and City funds will be included in the Final EA.

b. We are aware and will note in the Final EA that work within the Waikiki Special District also serves as a trigger for compliance with the provisions of Chapter 343, HRS. The applicant will be submitting an application for a Waikiki Special District Permit.

2. Section III.B.1 - Proposed Development

a. The architect has revised his plans to show the location of the proposed private park area of 2,600 square feet, and the victory garden of 760 square feet, please see attached ground floor plan. The ground floor plan in the Final EA will reflect this change.

b. The fencing between the parking lot and Tusitala Vista Apartments will be a four foot chain link fence with landscape planting on the mauka side to screen the fence.

c. The lot area of the Tusitala Vista Apartments includes two parcels totaling is 35,761 square feet. The Joint Development Agreement will allow the two parcels to be developed as one lot for Tusitala Vista Apartments and the Public Parking Lot.

d. Tusitala Vista Apartments will negotiate a lease agreement with the City at a later date, and it is our understanding that the parking lot will be managed by the City and County of Honolulu. The size and layout; estimated use and user characteristics; and fee structure and method of operation will be determined and negotiated with the City at a later date in the development of this project.

e. Please refer to "d" above. The reason the mauka portion of the project site is not being utilized by the apartment development is that we understand the City desires to use that site for public parking. This gives the City 36 additional parking spaces needed to replace spaces eliminated due to the Ala Wai Boulevard beautification project.

f. Street trees will be planted within the right-of-ways along Ala Wai Boulevard and Tusitala Street.

3. Section III.B.4. - Development Plan

a. Based on discussions with staff at the Department of Planning and Permitting, Traffic Review Branch, Ala Wai Boulevard is planned for widening by 5 feet on its mauka side with additional right-of-way on the Development Plan Public Facilities Map, in the beyond six years category.

4. Section III.D.4 - Drainage

a. Runoff from all pavement areas will sheet flow into planter areas before entering grate inlets. Additional permanent Best Management Practices (BMP's) will be implemented as required by DOH/EPA guidelines as they are made available to the City during the design process.

5. Section III B-4 - Land Use Approvals

We will include the following in the Final EA:

The proposed Tusitala Vista affordable elderly rental development supports Chapter IV - Housing of the General Plan of the City and County of Honolulu as follows:

a. Policy 12 - Encourage the production and maintenance of affordable rental housing.

b. Policy 13 - Encourage the provision of affordable housing designed for the elderly and the handicapped.

6. Section III B.4.b - Development Plan

a. In the Final EA we will omit any reference to the old Primary Urban Center (PUC) that was stated in the Draft EA.

We will correct our statement in the Draft EA that states, "the site is designated Medium Density Apartment on the existing Primary Urban Center (PUC) Development Plan Land Use Map", to that of, "the site is designated as Higher-Density Residential /Mixed Use on the new Primary Urban Center (PUC) Development Plan Land Use Map".

In the Final EA we will discuss how the proposed project will conform to the vision, policies and guidelines of the new PUC DP as follows:

> Section 2. The Vision for the PUC's Future - The PUC offers in-town housing choices for people of all ages and incomes.
>
> Section 3.3.2 Policies - Provide incentives and cost savings for affordable housing. Provide exemptions from zoning and building codes for housing projects that meet established standards of affordability, on a case-by-case basis.
>
> Section 3.3.3 Guidelines - Review and revise zoning regulations and permitting processes to encourage innovative forms of housing and group living accommodations for people with special needs, such as the elderly or disabled, in all zoning districts that allow dwellings.

7. Section III.D.1. - Access and Transportation

We will include the following in the Final EA:

a. The public parking lot is intended to address the shortage of parking in the area. The lot will replace any on-street parking lost because of the proposed Tusitala Vista project (e.g. to provide for loading zones or preservation of line-of-sight from new driveways) as well as increase parking supply in the area. The parking lot is not expected to generate any new traffic in the area; rather, it is an improvements in one of the components of the transportation system (the temporary storage of private automobiles when not in use). Vehicular movements in and out of the parking lot will be made by vehicles that would otherwise be on nearby streets (one could also argue that the provision of additional parking will reduce traffic my minimizing the need to circulate in the area in search of on-street parking).

The impact of the parking lot to traffic, therefore, is minimal (if quantification is desired, the driveway volume could be estimated by assuming a complete turnover of the parking lot every two hours, with a +30% factor to account for peaking and drivers that encounter a full lot. Peak hour driveway volume in one direction, therefore, would be [{1=0.3}/2 hours x number of parking spaces, or 0.65 x number of spaces]. Other impacts would be related to the parking lot itself: additional noise and other emissions because the lot is closer than the street to sensitive receptors, headlight glare at night, the use of the lot as a gathering place. These impacts can be mitigated by appropriate fencing and landscaping treatments and security lighting.

8. Section IV.D.3 and Appendix IV - Wastewater

a. We will make the correction on the Final EA that the December

8, 2003 letter originated from the Department of Environmental Services and not the Department of Planning and Permitting.

b. Reference to the wastewater calculations in the Draft EA will be corrected in the Final EA to read as follows:

The average daily wastewater flow is based on 80 gallons per day per person of wastewater. The average daily wastewater flow calculations for the total 107 apartment units are as follows:

99 - 1-bedroom units x 80 gallons/day = 7,920 gallons per day
(based on 1 person per 1-bedroom unit)

8 - 2-bedroom units x 80 gallons/day = 1,280 gallons per day
(based on 2 people per 2-bedroom unit)

Total: 7,920 + 1,280 = 9,200 gallons/day of wastewater flow

c. A Site Development Division Master Application for Sewer Connection was submitted to the Department of Planning and Permitting, Wastewater Branch on September 14, 2004 and approved on September 22, 2004. The Sewer Connection application approved the connection of 81 units of the proposed 107 units, please see attached. The remaining 26 units will connection to the City sewer system via a a sewage holding tank facility (HTF), please refer to attached letter, dated December 8, 2003, from the Department of Environmental Services.

d. A "Declaration for Holding Tank Facility" document will be submitted to the DPP for the use of the holding tank at a later date.

9. Section VII - Government Permits and Approvals Required

a. The contractor will apply for a Trenching Permit and Drain Connection License. Yes, the project will required a Grading Permit.

10. Section VIII - Significance Criteria

We will include the following in the Final EA:

a. The public parking lot is intended to address the shortage of parking in the area. The lot will replace any on-street parking lost because of the proposed Tusitala Vista project (e.g. to provide for loading zones or preservation of line-of-sight from new driveways) as well as increase parking supply in the area.

The parking lot is not expected to generate any new traffic in the area; rather, it is an improvements in one of the components of the transportation system (the temporary storage of private automobiles when not in use). Vehicular movements in and out of the parking lot will be made by vehicles that would otherwise be on nearby streets (one could also argue that the provision of additional parking will reduce traffic my minimizing the need to circulate in the area in search of on-street parking).

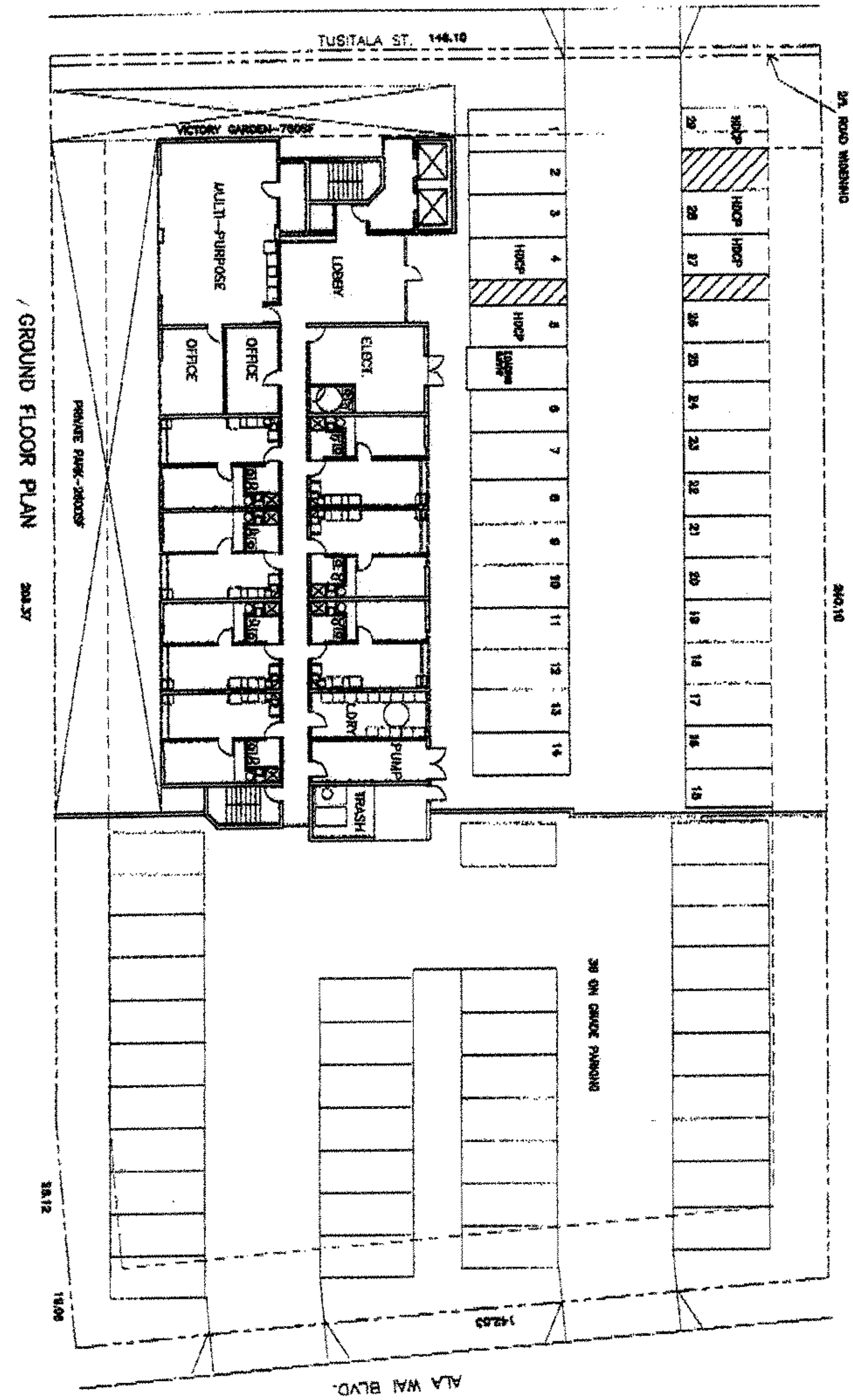
The impact of the parking lot to traffic, therefore, is minimal (if quantification is desired, the driveway volume could be estimated by assuming a complete turnover of the parking lot every two hours, with a +30% factor to account for peaking and drivers that encounter a full lot. Peak hour driveway volume in one direction, therefore, would be [{1=0.3}/2 hours x number of parking spaces, or 0.65 x number of spaces]. Other impacts would be related to the parking lot itself: additional noise and other emissions because the lot is closer than the street to sensitive receptors, headlight glare at night, the use of the lot as a gathering place. These impacts can be mitigated by appropriate fencing and landscaping treatments and security lighting.

Your comments and our response will be included in the Final EA.

Very truly yours,

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting


TUSITALA ST.
VICTORY GARDEN-780SF
MULTI-PURPOSE
LOBBY
OFFICE
OFFICE
ELECT.
DRY
PUMP
TRASH
HDCP
PRIVATE PARK-2800SF
GROUND FLOOR PLAN
39 ON GRADE PARKING
ALA WAI BLVD.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET * HONOLULU, HAWAII 96813
Phone: (808) 527-5827 * Fax: (808) 547-7316

SEWER CONNECTION APPLICATION

APPLICATION NO.: **2004/SCA-0598** STATUS: **Approved with conditions**

DATE RECEIVED: **09/14/2004** IWDP APP. NO.:

PROJECT NAME: **Tusitala Vista / Dwelling Unit**

$256,647.30 Wastewater System Facility Charge

LOCATION:

Zone	Section	Plat	Parcel		
2	6	024	070	2429 - ALA WAI BLVD	23,644 Sq. Ft.
2	6	024	071	2423 - ALA WAI BLVD	12,117 Sq. Ft.

SPECIFIC LOCATION: **2423 & 2429 Ala Wai Blvd**

APPLICANT: **Alcon and Associates, Inc., Wes Toyota**
716 Umi Street Suite 250
Honolulu, Hawaii 96819

DEVELOPMENT TYPE: **Dwelling, Multi-family** SEWER CONNECTION WORK DESIRED: **New**

OTHER USES:

NON-RESIDENTIAL AREA: s.f. APPROXIMATE DATE OF CONNECTION: **12/22/2006**

PROPOSED UNITS	EXISTING UNITS	UNITS TO BE DEMOLISHED
No. of New Units: **108**	No. of Existing Units: **0**	No. of Units to be Demolished: **0**
Studios:	Studios:	Studios:
1-Bedroom: **108**	1-Bedroom:	1-Bedroom:
2-Bedroom:	2-Bedroom:	2-Bedroom:
3-Bedroom:	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS **Approval is conditioned based on a letter from ENV WAS 03-175 dated December 8, 2003 regarding the use of a sewage holding tank facility (HTF) for this project. We have attached the HTF agreement for your use. As discussed, 81 units of the proposed 108 one bedroom units shall be connected directly to the City sewer system and the remaining 26 units shall be connected to the City sewer system via a sewage HTF. Other matters relating to the HTF will be discussed during the review process.**

APPROVAL DATE: **09/22/2004** *Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.*

EXPIRATION DATE: **09/22/2006**

REVIEWED BY: ***Arturo Saavedra Jr.***

A. Saavedra, Jr.
Site Development Division, Wastewater Branch

Post-it® Fax Note 7671	Date 11/10/04	# of pages ▶ 0
To Anne Kusaka	From Mel for Wes Toyota	
Co./Dept.	Co. Alcon & Assoc.	
Phone #	Phone # 842-0300	
Fax # 988-1170	Fax #	

ExternalID: **020792209-001** JobId: **20792209**

Initial Print Date: Wednesday September 22, 2004 3:

1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HI 96707
TELEPHONE: (808) 692-5159 FAX: (808) 692-5113 WEBSITE: http://www.co.honolulu.hi.us

MY HARRIS
ıyor

FRANK J. DOYLE, P.E.
Director

TIMOTHY A. HOUGHTON
Deputy Director

WAS 03-175

December 8, 2003

Dean Alcon & Associates
716 Umi Street, Suite 250
Honolulu, Hawaii 96819

Re: Tusitala Vista

Dear Mr. Alcon:

Thank you for meeting with us on November 4, 2003, to discuss the Hawaii Housing Development Corporation Tusitala Vista project.

We have considered the proposal to build a 107 unit low-income rental housing project on the property at TMK: 2-6-24: 70 & 71. As we discussed the sewer serving this area is at capacity and will not be upgraded until approximately 2008 and thus only capacity for replacement of the current 81 unit capacity is available. We discussed the type of occupancy expected for the project and the request to accommodate the remaining 26 units flow through the use of a holding tank with discharge occurring at off peak hours.

After review and consultation with our engineering staff, we will approve use of a temporary sewage holding facility for the Tusitala Vista project. Specifics of the sewage holding facility must be coordinated with the Department of Planning and Permitting, Wastewater Branch, and the project must be fully connected to the city wastewater system and the temporary sewage holding facility removed once we complete upgrade of the currently inadequate line.

By copy of the letter, we are advising the Department of Planning and Permitting, Wastewater Branch, of this determination.

If you have questions, please feel free to contact me at 692-5206.

Sincerely,

TIMOTHY A. HOUGHTON
Deputy Director

cc: Department of Planning & Permitting, Wastewater Branch

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
File:

September 10, 2004

TO: Eric G. Crispin, AIA
Director of Planning and Permitting
City & County of Honolulu

FROM: Russell S. Takata, Program Manager
Department of Health
Noise, Radiation & Indoor Air Quality Branch

SUBJECT: **Comments to the Draft Environmental Assessment**
2423 and 2429 Ala Wai Boulevard- Waikiki
Tax Map Key 2-6-024: 70, 71

Our comments should be printed as follows:

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact Russell S. Takata, Environmental Health Program Manager, Noise, Radiation and Indoor Air Quality Branch, at 586-4701."

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.rr.com

October 5, 2004

Mr. Russell S. Takata
Program Manager
State Department of Health
Noise, Radiation & Indoor Air Quality Branch
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Mr. Takata:

Thank you for your letter, dated September 10, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

In Chapter IV - Impacts of the Final EA we will include your comments as follows:

> "Project activities shall comply with the Administrative Rules of the Department of Health:
>
> - Chapter 11-46 Community Noise Control".

Your comments and our response will be included in the Final EA.

Very truly yours,

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
BRUCE Y. MATSUI
LINDEN H. JOESTING
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.1365

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

2004 SEP 21 PM 4 04

DEPT OF PLANNING
& PERMITTING
CITY & COUNTY OF HONOLULU

September 14, 2004

Mr. Eric G. Crispin, AIA
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Crispin:

Subject: Tusitala Vista
Draft Environmental Assessment (DEA)
TMK: 2-6-024: 070 and 071

Thank you for your transmittal requesting our comments on the subject application.

The proposed 107-unit elderly rental apartment with 29 parking stalls in Waikiki will not have a significant impact to our State facilities.

We appreciate the opportunity to provide our comments.

Very truly yours,

for RODNEY K. HARAGA
Director of Transportation

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.rr.com

October 5, 2004

Mr. Rodney K. Haraga
Director of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Mr. Haraga:

Thank you for your letter, dated September 14, 2004, regarding Tusitala Vista Affordable Elderly Rental Apartments. We appreciate you taking the time to review and comment on our Draft EA, and for pointing out that the proposed development in Waikiki will not have a significant impact on your State facilities.

Your comments and our response will be included in the Final EA.

Very truly yours,

Keith Kurahashi

cc: Mr. Gary Furuta
Department of Planning and Permitting

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET: www.co.honolulu.hi.us

2004 SEP 16 PM 3 19

CITY & COUNTY OF HONOLULU

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP8/04-72416R

September 14, 2004

MEMORANDUM

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: TUSITALA VISTA

In response to your August 9, 2004 letter, we have reviewed the draft environmental assessment (EA) for the subject project. The following comments are the result of this review:

1. The Final EA should discuss the reasons why the mauka portion of the project site is not being utilized by the apartment development to reduce the number of major exemptions requested through the 201G application.

2. The Final EA should provide more information regarding the parking lot that the City will operate, such as:

    a. Size and layout, including dimensions
    b. Estimated use and user characteristics
    c. Fee structure and method of operation

3. The exemption relating to the loading space should be discussed further to provide assurance that all loading and maneuvering can be accommodated on-site.

4. It will be likely that a Street Usage Permit will be required for this project. Therefore, it should be added to the list of government permits and approvals on Pages 50 and 51.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

CHERYL D. SOON

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.rr.com

October 30, 2004

Ms. Faith Miyamoto
City and County of Honolulu
Department of Transportation Services
Transportation Planning Division at Local 6976
650 S. King Street, 3rd Floor
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71.

Dear Ms. Miyamoto:

Thank you for your letter dated September 14, 2004 and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

Our response to your comments are as follows:

1. The reason the mauka portion of the project site is not being utilized by the apartment development is that we understand the City desires to use that site for public parking. This gives the City 36 additional parking spaces needed to replace spaces eliminated due to the Ala Wai Boulevard beautification project.

2. The size and layout; estimated use and user characteristics; and fee structure and method of operation, will be determined and negotiated with the City at a later date in the development of this project.

3. The loading space provided will measure 8-feet 6 inches x 19 feet in size, which will meet the minimum LUO standard for a smaller loading stall. The experience of our property management company, Prudential Locations, Inc., in managing similar elderly affordable rental apartments, and our own experience in operating Wistera Vista,

Kalakaua Vista and Artesian Vista, is that large moving vehicles are not normally utilized by the residents. The apartments are furnished with all the necessary major appliances such as a refrigerator, stove and dishwasher, and laundry facilities are offered with the building itself. It is our experience that at time of move-in and/or move-out, family and friends are there to assist the family in the moving of personal furnishings, primarily with personal vehicles (cars, trucks, and vans).

4. A Street Usage Permit will be obtained for this project, and we will add it to the list of government permits and approvals in the Final EA.

Very truly yours,

Anne Kusao

cc: Mr. Gary Furuta
Department of Planning and Permitting

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4564 · Fax: (808) 523-4567
Website: www.honolulu.gov

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

75014

September 20, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE TUSITALA VISTA AFFORDABLE ELDERLY RENTAL APARTMENT DEVELOPMENT

This is in response to your memorandum of August 9, 2004.

We have reviewed the subject DEA, dated May 2004 and have the following comments.

The Wastewater Division of the Department of Design and Construction reported that it could not locate the sewer connection approval cited on page 36 in the appendix.

In reference to parking, it is recognized that this is an elderly housing project where most of the residents will not own automobiles, but five accessible parking stalls out of 29 available from the Tusitala Street entrance would appear to forecast a dearth of available visitor parking for the 107 units in the nine-story building. A mitigating factor could be the future, nearby 36-car City public parking lot, which will be accessed from Ala Wai Boulevard.

Please call Mr. Donald Griffin at extension 6324 if you have any questions.

TES:ei

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.rr.com

October 9, 2004

Mr. Timothy E. Steinberger, P.E. Director
Department of Design and Construction
650 S. King Street, 11th Floor
Honolulu, Hawaii 96813

Attention: Mr. Donald Griffin

Subject: Draft Environmental Assessment (EA) for the Proposed Tusitala Vista Apartments - Tax Map Key: 2-6-024: 70 and 71

Dear Mr. Steinberger:

Thank you for your letter, dated September 20, 2004, and for taking the time to review and comment on our Draft EA for the proposed Tusitala Vista Affordable Elderly Rental Apartments.

Our responses to your comments are as follows:

1. We apologize, the Sewer Connection Approval was accidently omitted during the printing of the Draft EA. A copy of the approval is enclosed with this response, and it will be included in the Final EA.

2. The 5 accessible stalls for the Tusitala Vista Apartments are required through the Americans with Disabilities Act (ADA). We concur that visitors to the apartments can utilize the adjacent City public parking lot being developed together with Tusitala Vista Apartments.

Your comments and our response will be included in the Final EA.

Very truly yours,

Anne Kusao

cc: Mr. Gary Furuta
Department of Planning and Permitting.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET * HONOLULU, HAWAII 96813
Phone: (808) 527-5827 * Fax: (808) 547-7316

SEWER CONNECTION APPLICATION

APPLICATION NO.: **2004/SCA-0598** STATUS: **Approved with conditions**

DATE RECEIVED: **09/14/2004** IWDP APP. NO.:

PROJECT NAME: **Tusitala Vista / Dwelling Unit**

$256,647.30
Wastewater System Facility Charge

LOCATION:

Zone	Section	Plat	Parcel		
2	6	024	070	2429 - ALA WAI BLVD	23,644 Sq. Ft.
2	6	024	071	2423 - ALA WAI BLVD	12,117 Sq. Ft.

SPECIFIC LOCATION: **2423 & 2429 Ala Wai Blvd**

APPLICANT: **Alcon and Associates, Inc., Wes Toyota**
716 Umi Street Suite 250
Honolulu, Hawaii 96819

DEVELOPMENT TYPE: **Dwelling, Multi-family** SEWER CONNECTION WORK DESIRED: **New**

OTHER USES:

NON-RESIDENTIAL AREA: s.f. APPROXIMATE DATE OF CONNECTION: **12/22/2006**

PROPOSED UNITS	EXISTING UNITS	UNITS TO BE DEMOLISHED
No. of New Units: **108**	No. of Existing Units: **0**	No. of Units to be Demolished: **0**
Studios:	Studios:	Studios:
1-Bedroom: **108**	1-Bedroom:	1-Bedroom:
2-Bedroom:	2-Bedroom:	2-Bedroom:
3-Bedroom:	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS **Approval is conditioned based on a letter from ENV WAS 03-175 dated December 8, 2003 regarding the use of a sewage holding tank facility (HTF) for this project. We have attached the HTF agreement for your use. As discussed, 81 units of the proposed 108 one bedroom units shall be connected directly to the City sewer system and the remaining 26 units shall be connected to the City sewer system via a sewage HTF. Other matters relating to the HTF will be discussed during the review process.**

APPROVAL DATE: **09/22/2004** *Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.*

EXPIRATION DATE: **09/22/2006** REVIEWED BY: ***Arturo Saavedra Jr.***

A. Saavedra, Jr.
Site Development Division, Wastewater Branch

Post-it® Fax Note 7671	Date 11/10/04	# of pages ▶ 6
To Anne Kusao	From Mel for Wes Toyota	
Co./Dept.	Co. Alcon & Assoc.	
Phone #	Phone # 845-0300	
Fax # 988-1170	Fax #	

ExternalID: **020792209-001** JobId: **20792209**

Initial Print Date: Wednesday September 22, 2004 3:

CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HI 96707
TELEPHONE: (808) 692-5159 FAX: (808) 692-5113 WEBSITE: http://www.co.honolulu.hi.us

HARRIS
or

FRANK J. DOYLE, P.E.
Director

TIMOTHY A. HOUGHTON
Deputy Director

WAS 03-175

December 8, 2003

Dean Alcon & Associates
716 Umi Street, Suite 250
Honolulu, Hawaii 96819

Re: Tusitala Vista

Dear Mr. Alcon:

Thank you for meeting with us on November 4, 2003, to discuss the Hawaii Housing Development Corporation Tusitala Vista project.

We have considered the proposal to build a 107 unit low-income rental housing project on the property at TMK: 2-6-24: 70 & 71. As we discussed the sewer serving this area is at capacity and will not be upgraded until approximately 2008 and thus only capacity for replacement of the current 81 unit capacity is available. We discussed the type of occupancy expected for the project and the request to accommodate the remaining 26 units flow through the use of a holding tank with discharge occurring at off peak hours.

After review and consultation with our engineering staff, we will approve use of a temporary sewage holding facility for the Tusitala Vista project. Specifics of the sewage holding facility must be coordinated with the Department of Planning and Permitting, Wastewater Branch, and the project must be fully connected to the city wastewater system and the temporary sewage holding facility removed once we complete upgrade of the currently inadequate line.

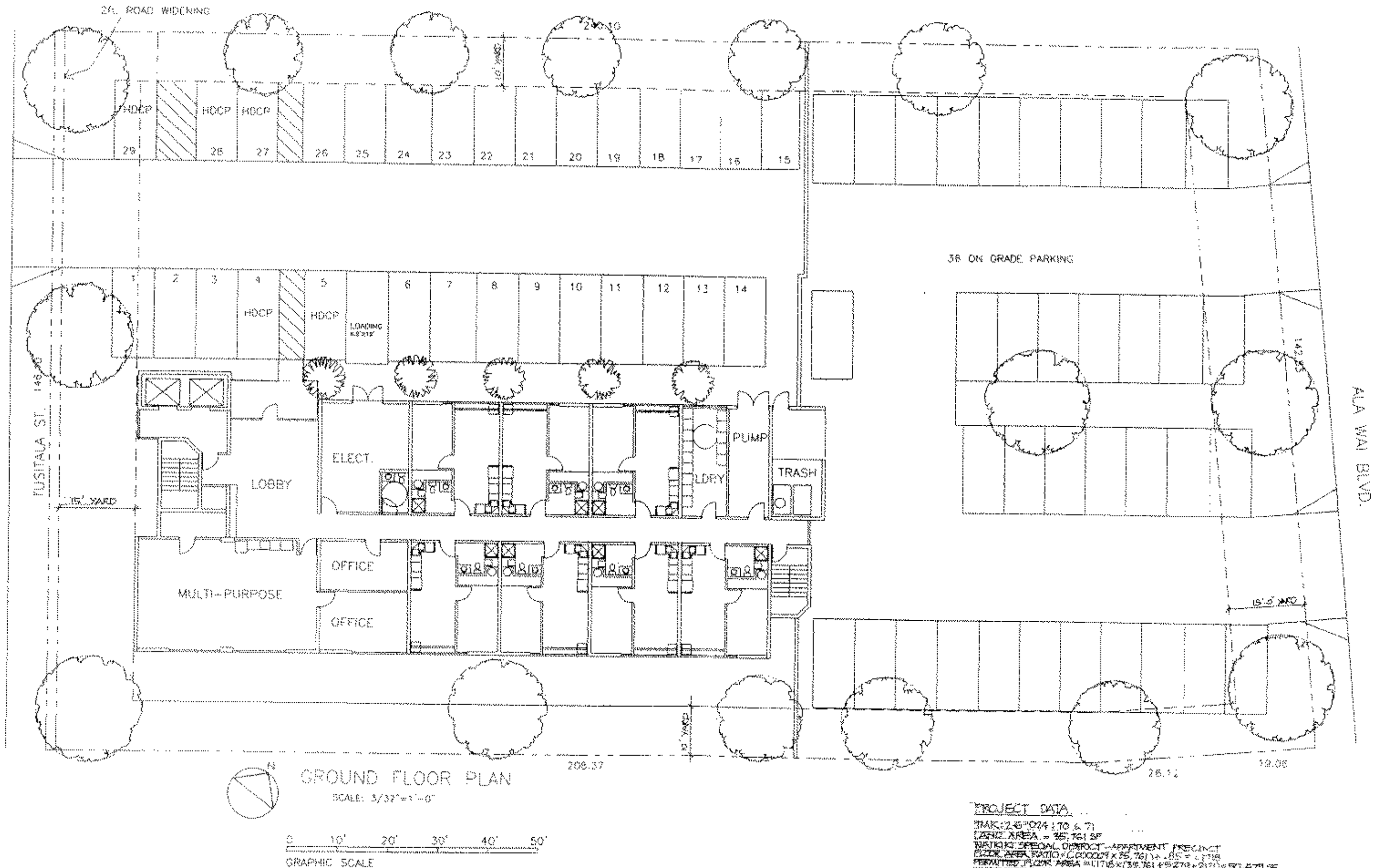
By copy of the letter, we are advising the Department of Planning and Permitting, Wastewater Branch, of this determination.

If you have questions, please feel free to contact me at 692-5206.

Sincerely,

TIMOTHY A. HOUGHTON
Deputy Director

cc: Department of Planning & Permitting, Wastewater Branch



PROJECT DATA

TMK: 2-6-024: 70 & 71

LAND AREA = 35,761 SF

WAIKIKI SPECIAL DISTRICT - APARTMENT PRECINCT

FLOOR AREA RATIO = [illegible]

PERMITTED FLOOR AREA = [illegible] SF

1/2 STREET FRONTAGE

ALA WAI = [illegible] SF

TUSITALA = [illegible] SF

PROPOSED

107 UNITS (92 - ONE BEDROOM, 15 - TWO BEDROOM UNITS)

FLOOR AREA = [illegible] SF; OR FAR = 1.7

OPEN SPACE REQ'D = 50%

OPEN SPACE PROVIDED = [illegible]

PARKING REQ'D = 107

PARKING PROVIDED = 29

THIS PROJECT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION.

NO.	DATE	REVISIONS

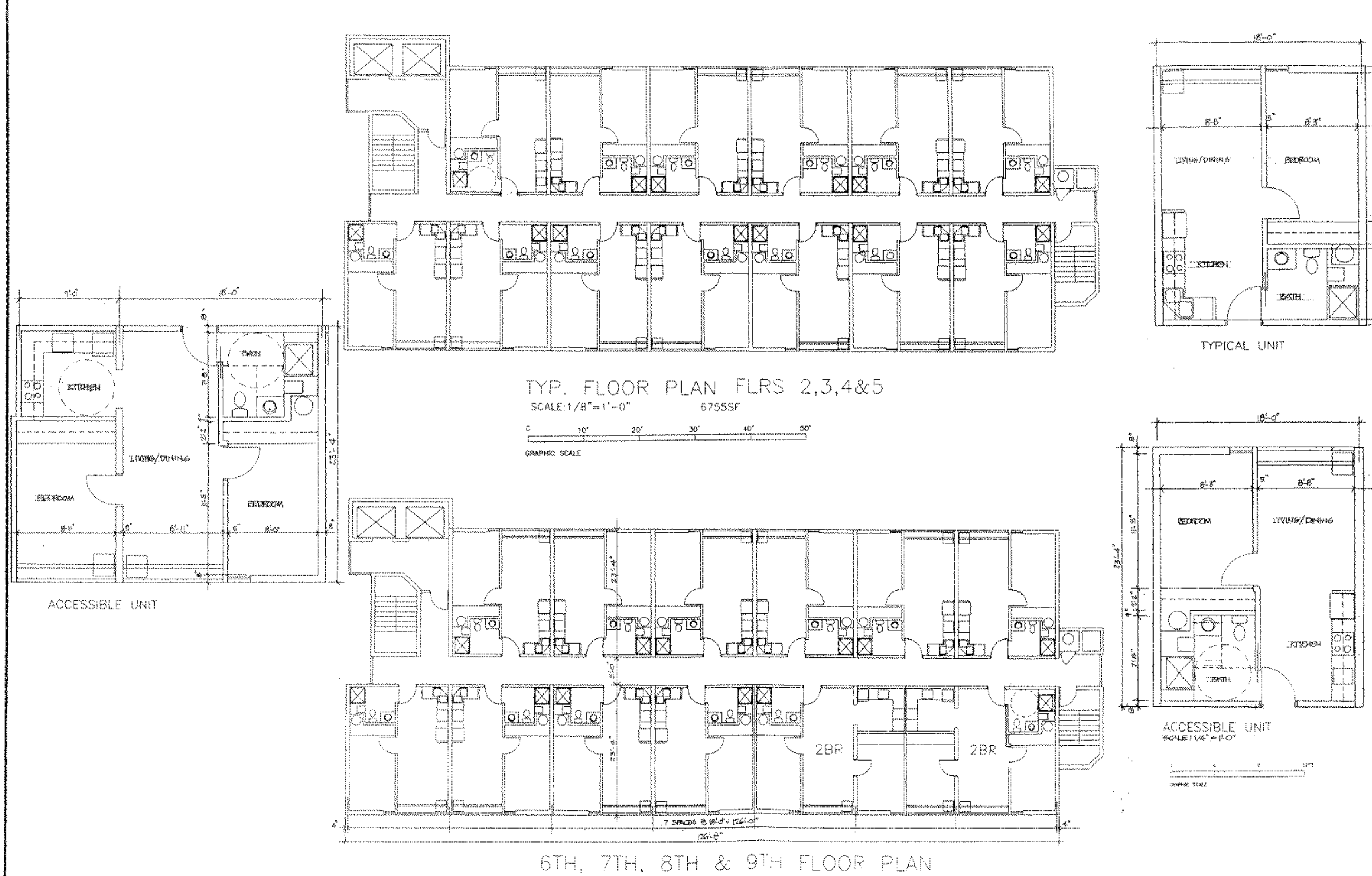
TUSITALA VISTA

WAIKIKI, HAWAII

SITE PLAN

KAZU YATO, AIA & ASSOCIATES

SHEET A-1



REVISIONS

NO	DATE	

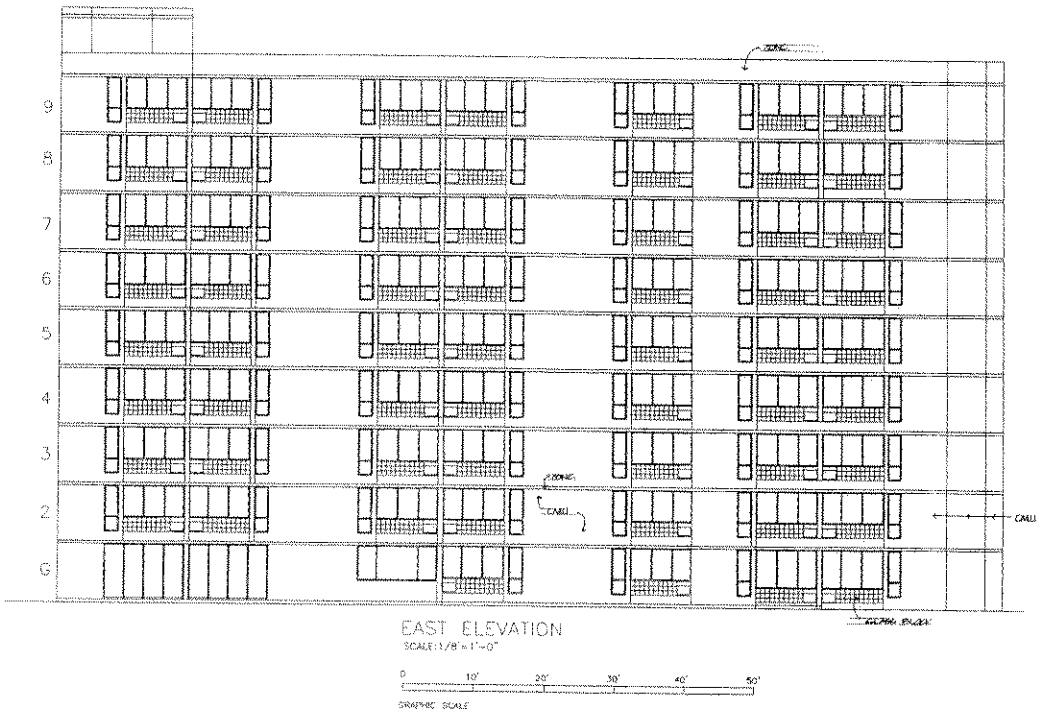
THIS PROJECT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION.

TUSITALA VISTA
WAIKIKI, HAWAII

FLOOR PLANS

KAZU YATO, AIA & ASSOCIATES

SHEET
A-2

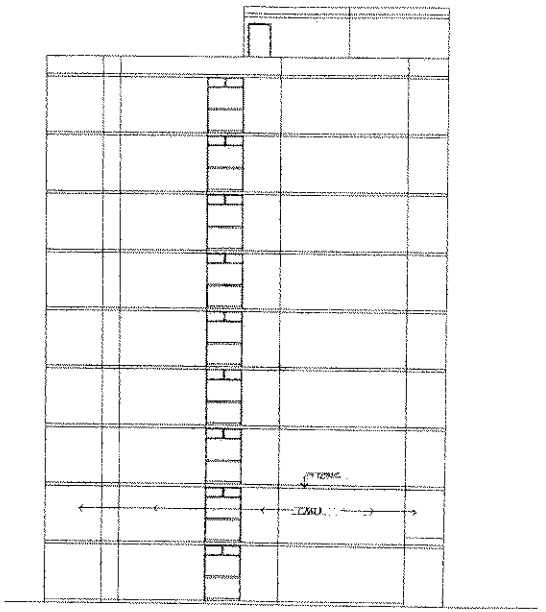


EAST ELEVATION

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

0 10' 20' 30' 40' 50'

GRAPHIC SCALE



NORTH ELEVATION

REVISIONS

NO.	DATE

TUSITALA VISTA

WAIKIKI, HAWAII

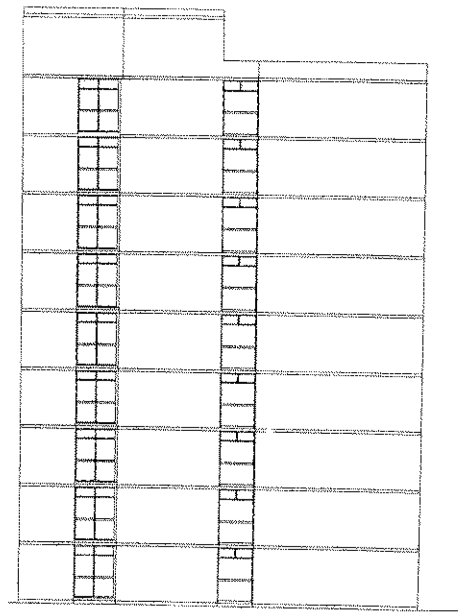
EXTERIOR ELEVATIONS

KAZU FATO, AIA & ASSOCIATES

A-4

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

0 10' 20' 30' 40' 50'
GRAPHIC SCALE



NORTH ELEVATION

NO	DATE	REVISIONS

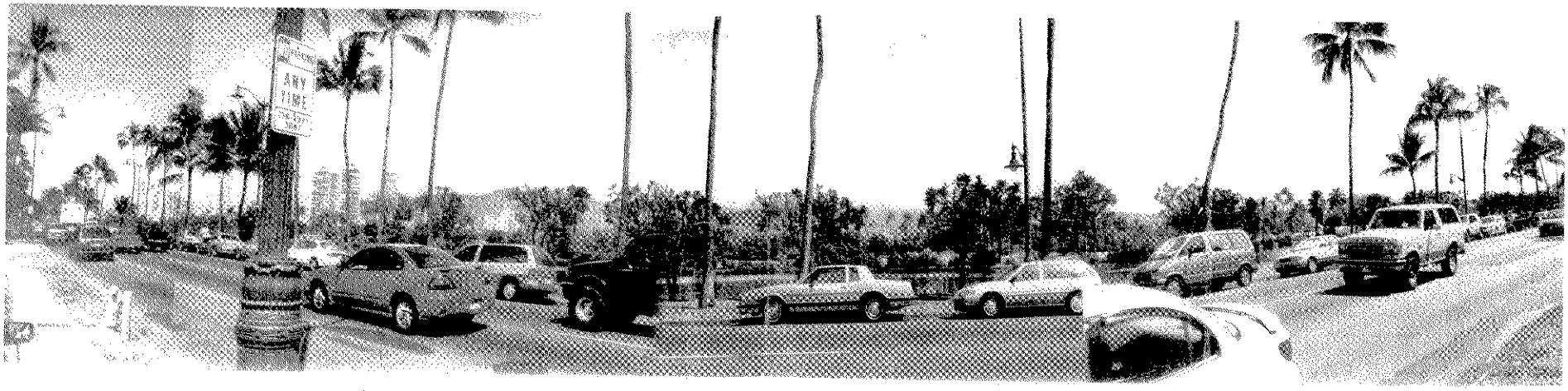
TUSITALA VISTA
WAIKIKI, HAWAII

EXTERIOR ELEVATIONS

KAZU YATO, AIA & ASSOCIATES

A-4

PANORAMIC VIEW OF PROJECT SITE (VACANT) AND ADJACENT LOTS ON ALA WAI BOULEVARD



PANORAMIC VIEW OF MAUKA SIDE OF ALA WAI BOULEVARD, VIEWED FROM SITE

PANORAMIC VIEW FROM PROJECT SITE LOOKING MAKAI AT TUSITALA STREET

PANORAMIC VIEW OF PROJECT SITE FROM TUSITALA STREET