

~~JAN 08 2011~~  
JAN 08 2011

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**  
650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813  
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PETER B. CARLISLE  
MAYOR



DAVID K. TANOUE  
DIRECTOR

ROBERT M. SUMITOMO  
DEPUTY DIRECTOR

2010/ED-12(lw)

December 29, 2010

Mr. Herman Tuiolosega, Acting Administrator  
Office of Environmental Quality Control  
Department of Health  
State of Hawaii  
235 South Beretania Street, Suite 702  
Honolulu, Hawaii 96813

Dear Mr. Tuiolosega:

Subject: Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment  
Project: Keoniana Apartments  
Applicant: Keoniana Partnership Limited  
Agent: Gerald Park Urban Planner  
Location: 444 and 448 Keoniana Street - Waikiki  
Request: Special District Permit  
Proposal: New three-story, 12-unit multifamily dwelling  
Tax Map Key: 2-6-15: 67 and 68

The Department of Planning and Permitting has reviewed the Draft Environmental Assessment (DEA) for the above project, and anticipates a Finding of No Significant Impact. Please publish notice in the January 8, 2011 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and one copy of the document in pdf format on a CD; and one hard copy of the DEA. If you have any questions, please contact Ms. Lin Wong of our staff at 768-8033.

Very truly yours,

A handwritten signature in black ink, appearing to read "David K. Tanoue".

*DKT* David K. Tanoue, Director  
Department of Planning and Permitting

DKT:nw

Encl.

Doc. 821446

## DRAFT ENVIRONMENTAL ASSESSMENT

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# **KEONIANA APARTMENTS**

*Waikīkī, District of Honolulu, O'ahu, Hawai'i*

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Prepared for

**Keoniana Partnership Limited**  
c/o 2702 Pali Highway  
Honolulu, Hawai'i 96817

October 2010

# DRAFT ENVIRONMENTAL ASSESSMENT

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## **KEONIANA APARTMENTS**

*Waikīkī, District of Honolulu, O'ahu, Hawai'i*

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Prepared in Partial Fulfillment of the Requirements of Chapter 343, Hawai'i Revised Statute and Title 11, Chapter 200, Hawai'i Administrative Rules

Prepared for

**Keoniana Partnership Limited**

c/o 2702 Pali Highway  
Honolulu, Hawai'i 96817

Prepared by

**Gerald Park Urban Planner**

95-595 Kanamee Street #324  
Mililani, Hawai'i 06789

and

**NEXT DESIGN LLC**

1132 Bishop Street, Suite 145  
Honolulu, Hawai'i 96813

October 2010

## PROJECT PROFILE

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Proposed Action: Keoniana Apartments

Street Address: 444 and 448 Keoniana Street

Applicant: Keoniana Partnership Limited  
c/o 2702 Pali Highway  
Honolulu, Hawai'i 96817

Approving Agency: Department of Planning and Permitting  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawai'i 96813

Tax Map Key: 2-6-015: 067, 068  
Land Area: 067: 5,000 square feet  
068: 5,000 square feet

Total Area: 10,000 square feet

Land Owner: Carter W. and Christopher W. Chang  
2702 Pali Highway  
Honolulu, Hawaii 96817

Existing Use: Rental housing

State Land Use Designation: Urban  
Development Plan Area: Primary Urban Center  
Development Plan Land Use Map: Medium and Higher-Density  
Residential/Mixed Use

Zoning: Apartment Precinct  
Special District: Waikīkī  
Special Management Area: Outside Special Management Area

Need for Assessment: Any use within the Waikiki area of O'ahu  
Section 11-200-6 (B)(1)(e)  
Hawai'i Administrative Rules

Contact Person: Stanford Lee  
NEXT DESIGN LLC  
1132 Bishop Street, Suite 145  
Honolulu, Hawai'i 96813

Telephone: 440-2780

# TABLE OF CONTENTS

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	Project Profile	i
	Table of Contents	ii
	List of Figures and Photographs	iv
<b>SECTION 1</b>	<b>DESCRIPTION OF THE PROPOSED ACTION</b>	<b>1</b>
	<b>A. Purpose of the Action</b>	<b>1</b>
	<b>B. Technical Characteristics</b>	<b>1</b>
	1. Development Concept	1
	2. Building Characteristics	1
	3. Parking and Access	2
	4. Dwelling Units	2
	5. Infrastructure	2
	6. Landscaping	3
	7. Amenities	3
	<b>C. Economic Characteristics</b>	<b>3</b>
	1. Land Tenure	3
	2. Construction Cost and Phasing	3
<b>SECTION 2</b>	<b>EXISTING CONDITIONS</b>	<b>12</b>
	<b>A. Existing Uses and Improvements</b>	<b>12</b>
	<b>B. Environmental Conditions</b>	<b>12</b>
	1. Climate	12
	2. Topography	12
	3. Soils	15
	4. Flood Hazard	15
	5. Tsunami Inundation	15
	6. Groundwater	15
	1. Surface Water	15
	2. Groundwater	15
	7. Flora	15
	8. Fauna	17
	9. Archaeological Resources	17
	10. Cultural Resources	18
	11. Noise	18
	12. Air Quality	19
	13. Views	19
	<b>C. Public Facilities and Services</b>	<b>19</b>
	1. Circulation and Traffic	19
	2. Water	20
	3. Wastewater	20
	4. Protective Services	20
	5. Utilities	20
	6. Public Schools	20
	7. Recreation	20

## TABLE OF CONTENTS

---

<b>SECTION 3</b>	<b>RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS</b>	<b>21</b>
	<b>A. State Land Use District</b>	<b>21</b>
	<b>B. General Plan for the City and County of Honolulu</b>	<b>21</b>
	<b>C. Primary Urban Center Development Plan</b>	<b>22</b>
	<b>D. Waikiki Special District</b>	<b>23</b>
	<b>E. Special Management Area</b>	<b>24</b>
	<b>F. Park Dedication Ordinance</b>	<b>24</b>
<b>SECTION 4</b>	<b>SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS</b>	<b>26</b>
	<b>A. Assessment Process</b>	<b>26</b>
	<b>B. Anticipated Short-term Impacts</b>	<b>26</b>
	1. Air Quality	26
	2. Construction Noise	26
	3. Land Alteration	27
	4. Archaeological Features	28
	5. Flora and Fauna	28
	6. Solid Waste	28
	7. Circulation and Traffic	28
	8. Economic	29
	<b>C. Anticipated Long-term Impacts</b>	<b>29</b>
	1. Land Use	29
	2. Housing and Rental Inventory	29
	3. Noise	30
	4. Ambient Air Quality	30
	5. Circulation and Traffic	30
	6. Public Facilities	30
	7. Public Services	30
	8. Landscaping and Views	31
<b>SECTION 5</b>	<b>ALTERNATIVES TO THE PROPOSED ACTION</b>	<b>33</b>
	<b>A. No Action</b>	<b>33</b>
<b>SECTION 6</b>	<b>PERMITS AND APPROVALS</b>	<b>34</b>
<b>SECTION 7</b>	<b>AGENCIES AND ORGANIZATIONS TO BE CONSULTED</b>	<b>35</b>
<b>SECTION 8</b>	<b>DETERMINATION OF SIGNIFICANCE</b>	<b>36</b>
<b>REFERENCES</b>		<b>38</b>
<b>APPENDIX A</b>	<b>WASTEWATER BRANCH CORRESPONDENCE</b>	
<b>APPENDIX B</b>	<b>ARCHAEOLOGICAL FIELD INSPECTION</b>	

## FIGURES

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<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	Location/Vicinity Map	4
2	Tax Map	5
3	Site Plan/Ground Floor (Sheet A-2.1)	6
4	Second and Third Floor Plan (Sheet A-2.2)	7
5	Right Elevation/Front Elevation (Sheet A-4.0)	8
6	Left Elevation/ Rear Elevations (Sheet A-4.1)	9
7	Site and Utility Plan (Sheet C-4)	10
8	Planting Plan (Sheet L-1)	11
9	Topography Map	13
10	Flood Insurance Rate Map	16
11	Waikiki Special District Map	25
12	Rendering of Completed Project	32

## PHOTOGRAPHS

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<u>Photograph</u>	<u>Title</u>	<u>Page</u>
Cover	Northwest View of Property from Keoniana Street	**
1	444 Keoniana Street	14
2	448 Keoniana Street	14
3	Mauka View of Keoniana Street Improvements	14
4	Backyard of Residence at 444 Keoniana Street	14
5	Backyard of Residence at 448 Keoniana Street	14

Keoniana Partnership Limited proposes to develop a multi-family residential project on two adjoining lots situated in Waikīkī, O'ahu, Hawai'i. The lots are located on Keoniana Street with street addresses of 444 and 448 Keoniana Street. The project site is bounded by two 13-story walkup buildings to the north, a 3-story and 12-story building (Oahu Surf Two) to the east, a 24-story building (The Keoniana) to the south, and two 3-story walkup buildings to the west. A Location Map/ Vicinity Map are shown in Figure 1.

The lots ((also referred to as "property" or "project site") are identified as tax map key 2-6-016: 067 and 068 each with an area of 5,000 square feet. A 10-foot wide sewer easement crosses both properties at the rear. A Tax Map is shown in Figure 2.

## **A. Purpose of the Action**

The purpose of the project is to redevelop the two lots for a use compatible with its surroundings and in a manner consistent with the current zoning. There is a general shortage of rental housing on the island of O'ahu and this project will contribute to the rental housing stock by providing new, clean, and safe affordable rentals in Waikīkī.

## **B. Technical Characteristics**

### **1. Development Concept**

Keoniana Partnership Limited will develop the lots through Joint Development in which both lots can be treated as a single 10,000 square foot zoning lot. A Conditional Use Permit will be required for Joint Development.

An allowable floor area of approximately 12,200 square feet is calculated for the 10,000 square foot lot. Based on general building and residential characteristics described below, the total floor area to be developed is estimated at 10,655 square feet.

The structure will be setback 23'-6" from Keoniana Street and 10 feet from all other property lines. At a height of approximately 37 feet measured from existing grade, the building is well below the 130-foot building height envelope for the Apartment Precinct. A Site Plan and Ground Floor Plan are shown on Figure 3 and Exterior Elevations are shown on Figures 4 and 4a.

### **2. Building Characteristics**

The rectangular shaped building (80'-0" L X 62'-6"W) will be designed to fit the rectangular configuration created by both lots. The ground floor footprint is approximately 5,000 square feet and the residential footprint (Floors 2 and 3) is also approximately 5,000 square feet per floor.

Because of soft underlying soils, the structure will be supported on poured concrete columns posted on concrete piles. The ground floor and second floor will be constructed of poured in place concrete and the third floor out of a composite material. All-weather siding on metal

studs will form the exterior walls. The structure will be topped with a pitched metal roof supported on wooden trusses.

The lots are located in Flood Zone "AO" with a flood depth of 2 feet. The building will be raised so that the ground floor will be above the regulatory flood elevation.

### 3. Dwelling Units

Twelve (12) apartment units are planned with six (6) units per floor. The units are arranged with four 2-BDR units and two 1-BDR units per floor. Units range in size from 450 to 480 square feet for the 1-BDR units and 810 to 814 square feet for the 2-BDR units. The units are double loaded along a shared hallway generally aligned north-south with three units facing east (Keoniana Street) and three facing west.

Each unit comes with a kitchen, dining area, living room, and closets. The 2-BDR unit has two baths and the 1-BRD unit one bath. There are no balconies or lanais.

One unit will be set aside for a resident manager and one accessible unit provided.

### 4. Access and Parking

The parking area will be accessed from a single, 22-foot wide driveway from Keoniana Street. The road is a one-way street in the *makai* direction thus vehicles will enter the lot from the direction of Ala Wai Boulevard and exit in the direction of Kūhiō Avenue.

At grade covered parking stalls for 13 vehicles (8 Full, 4 Compact, 1 Accessible) will be provided. A loading stall is not required. A roll-up gate will control access and provide security for parked vehicles. The parking area will be enclosed by metal fencing and screened by landscaping.

### 5. Infrastructure

Water will be drawn from through a new 1½-inch domestic water meter connected to an existing 8" line in Keoniana Street. Average daily demand is estimated at 3,000 gallons per day exclusive of irrigation requirements.

Wastewater flow is estimated at 2,400 gallons per day. The Wastewater Branch, Department of Planning and Permitting, has indicated that the sewer system in this area is inadequate. However, the Wastewater Branch will allow 800 gallons per day to be directly discharged into an existing 6" sewer lateral in an easement along the rear of the property. The allowable discharge is equivalent to current flow from the existing dwellings.

The remaining flow (1,600 gallons) will discharge into two 2,000 gallon underground holding tanks placed in the parking lot. Wastewater will be pumped out of the storage tank and discharged into the municipal system during non-peak hour times (between 1:00 AM and 4:00 AM). The owner will be responsible for operation and maintenance of the underground holding tank system and provide operational records to the City (See Wastewater Branch Correspondence in Appendix A).

Residential units, the parking garage, and common areas inside the building will be equipped with fire sprinklers and smoke detectors. A 4-inch fire sprinkler connection with 4-

inch detector check meter and Board of Water Supply approved double check type backflow prevention assembly will be provided.

Runoff quantities generated by the project in excess of existing flow will be retained on-site in planting and open space areas. Storm water equal to existing runoff will surface flow to Keoniana Street.

Solid waste will be picked up twice a week by municipal refuse collectors. Automated refuse collection has not yet expanded to Waikīkī.

A Site and Utility Plan is shown in Figure 5.

#### 6. Landscaping

Drought resistant Native Hawaiian plants will be used to landscape open areas and areas around the parking lot. Existing trees may be retained *in situ* or relocated to another area of the lot. An existing street tree located within the City right-of-way will be relocated for the new driveway. A Preliminary Landscape Plan is shown in Figure 6.

#### 7. Amenities

Planned site security measures included an entry phone at entry gate or building entry, keypad entry at the garage, and keys for gates. The property perimeter may be fenced. The resident manager will aid in site security.

Open space will be provided by the yards created by setbacks. The size of the lot cannot accommodate common area recreation facilities. Applicant will therefore pay a park dedication fee in lieu of providing space for a private park.

### **C. Economic Characteristics**

#### 1. Land Tenure

The property is owned by Carter W. Chang and Christopher W. Chang.

#### 2. Construction Cost and Phasing

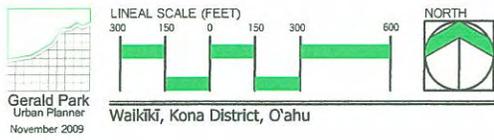
The construction cost for the project is estimated at \$2.0 million and will be funded by Keoniana Partnership Limited.

Construction will commence after all necessary permits and approvals are received. A twelve (12) month construction period is projected from start-up to completion.

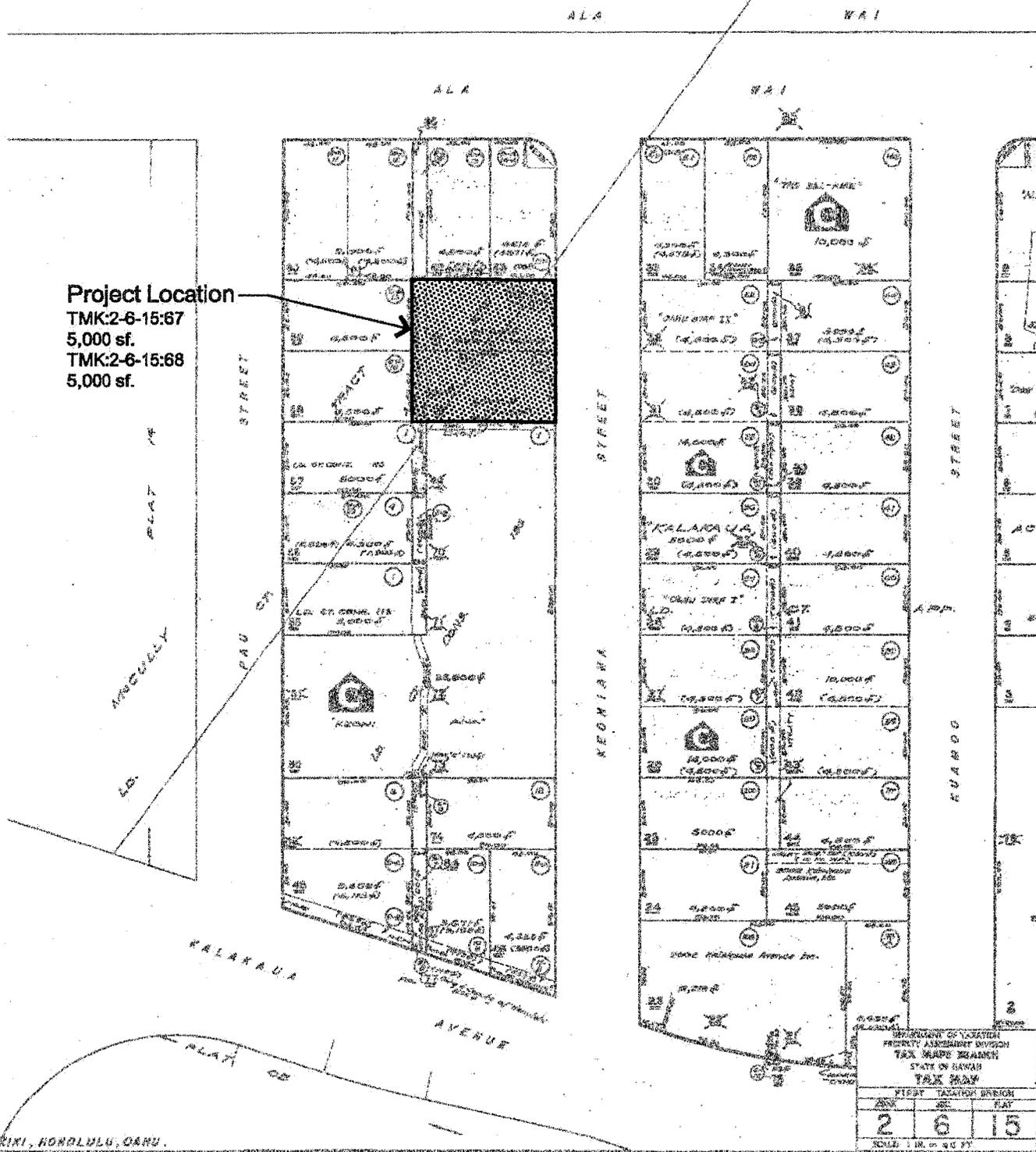


Source: USGS National Map Viewer & C&C of Honolulu Website

Figure 1  
 Location/Vicinity Map  
 Keoniana Apartments

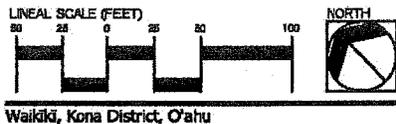


Waikiki, Kona District, O'ahu



POR. WAIKIKI, HONOLULU, OAHU.

Source: City & County of Honolulu Website





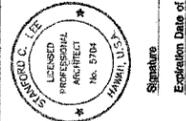


**NEXT DESIGN**

1132 Bishop Street  
Suite 145  
Honolulu, Hawaii 96813  
Telephone: (808) 440-2780  
Fax: (808) 440-2780

**KEONIANA APARTMENT**  
444, 448 KEONIANA ST., HONOLULU, HAWAII  
TMK:2-6-015-067 & 068

This work was prepared by me or under my supervision and construction of this project will be under my observation.



Signature

Expiration Date of the License: 4/30/2012

NO. DATE:	DESCRIPTION:

DRAWN BY: **MG, BP**

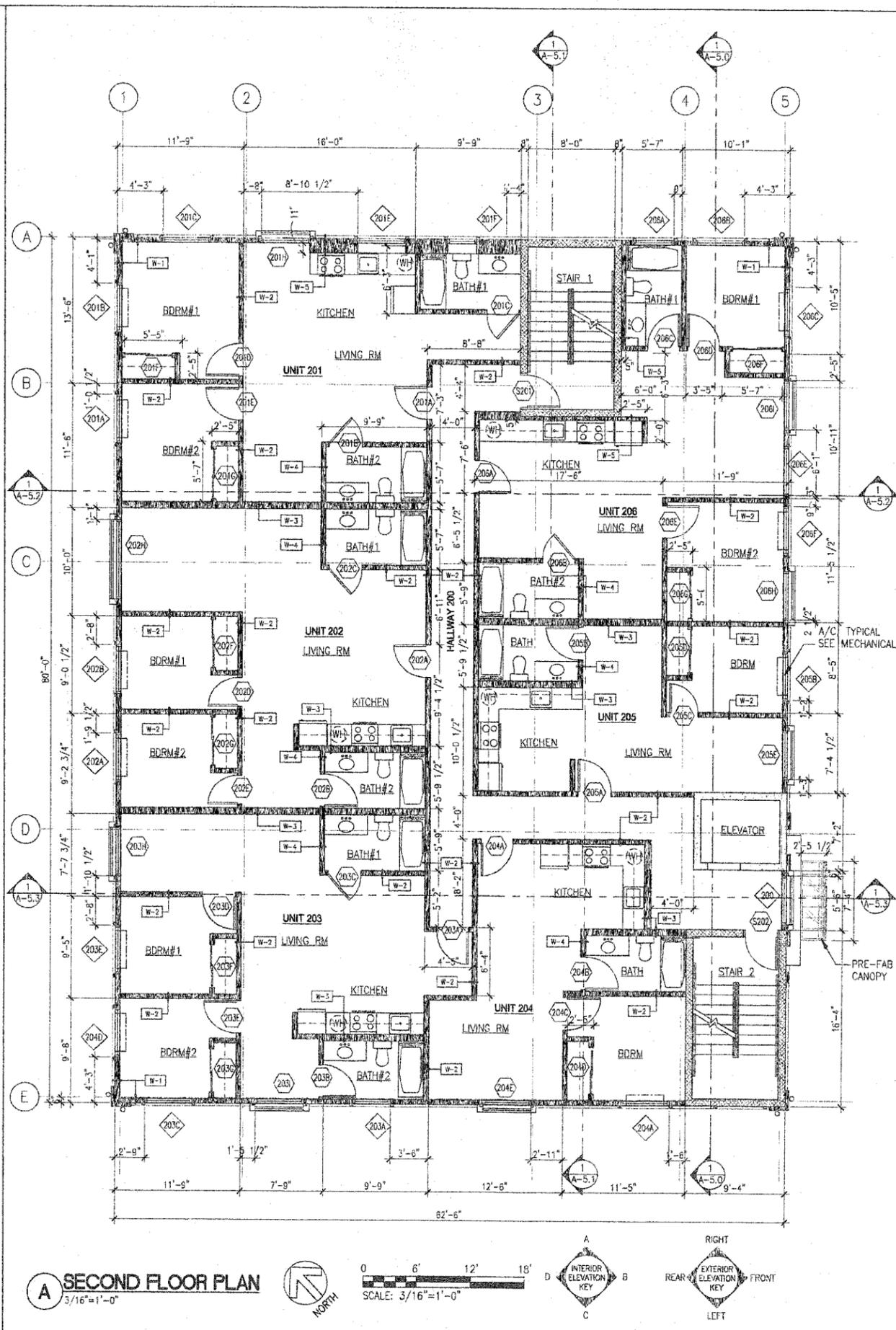
SCALE: **AS NOTED**

DATE: **APRIL 07, 2010**

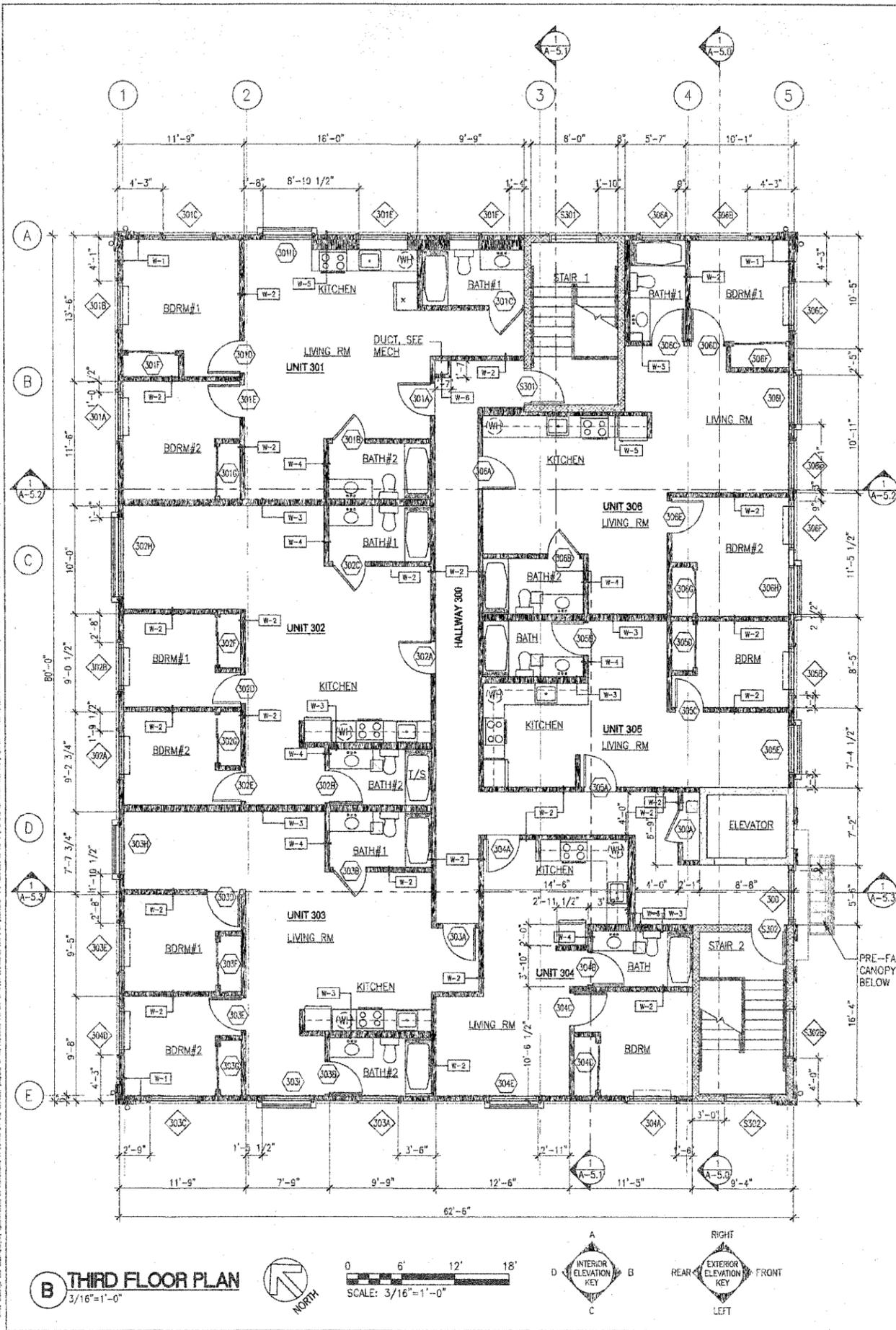
JOB NO.: **09018.01**

SHEET TITLE: **SECOND & THIRD FLOOR PLANS**

SHEET NO. **A-22**



**A SECOND FLOOR PLAN**  
3/16"=1'-0"

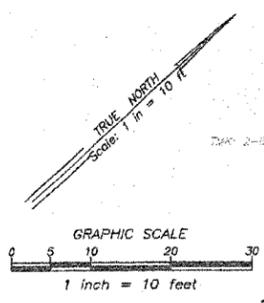


**B THIRD FLOOR PLAN**  
3/16"=1'-0"

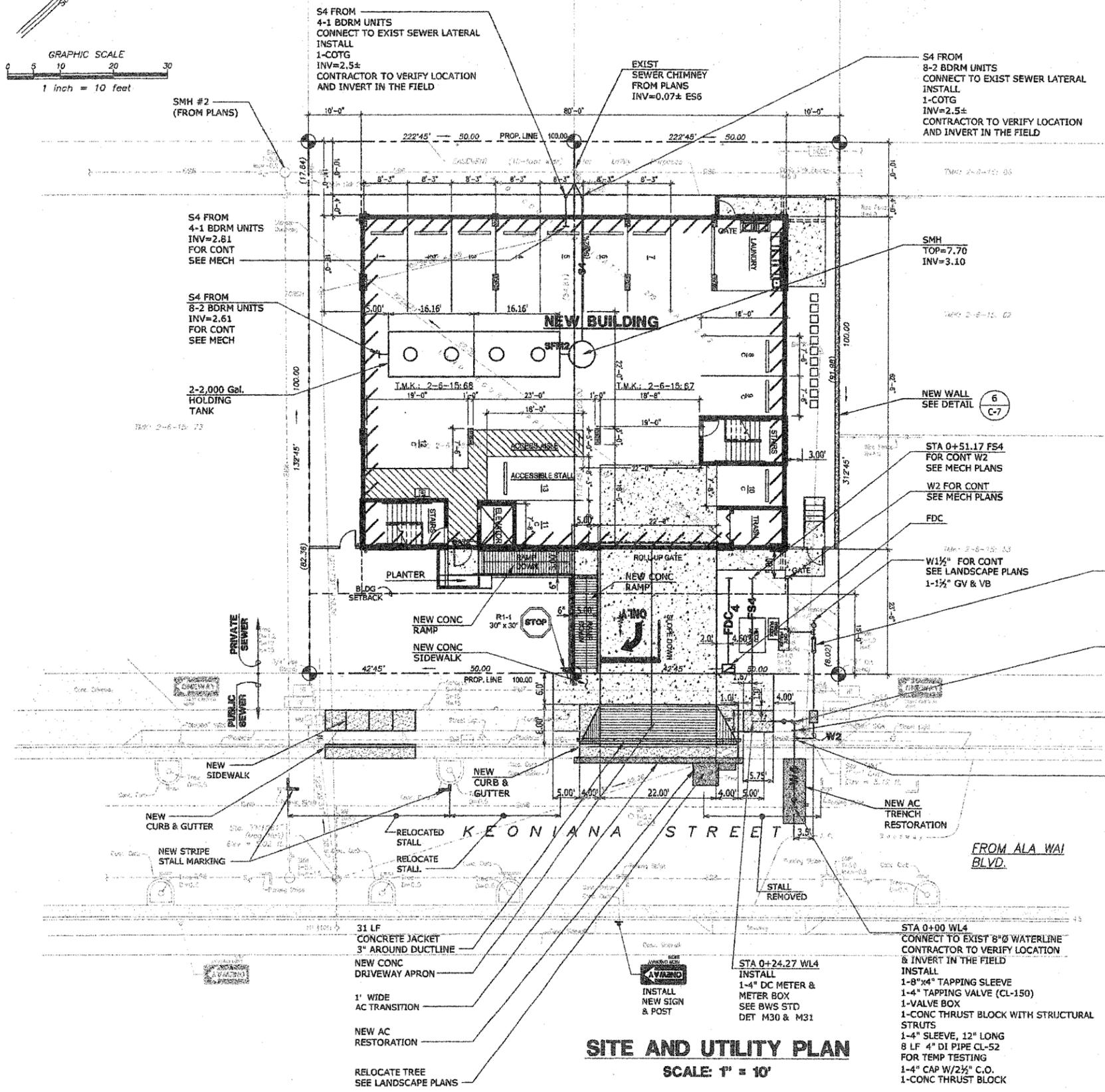
These drawings and accompanying specifications are prepared by the architect and are intended to be used in conjunction with the contract documents. The architect assumes no responsibility for the construction of the project. The architect's office is located at 1132 Bishop Street, Suite 145, Honolulu, Hawaii 96813. Phone: (808) 440-2780. Fax: (808) 440-2780.







GRAPHIC SCALE  
0 5 10 20 30  
1 inch = 10 feet



- NOTES:**
1. FOR TYPICAL TRENCH (CITY R/W) SEE DETAIL  $\frac{2}{C-7}$
  2. FOR BACK FLOW PREVENTER SEE DETAIL  $\frac{1}{C-1.1}$
  3. FOR CONC DRIVEWAY APRON SEE DETAIL  $\frac{4}{C-7}$
  4. FOR CURB & GUTTER RESTORATION SEE DETAIL  $\frac{1}{C-7}$
  6. FOR CLEAN OUT SEE DETAIL  $\frac{2}{C-6}$
  7. FOR HOLDING TANK (PRIVATE) SEE DETAIL  $\frac{3}{C-1.1}$
  8. FOR CONC RAMP SEE DETAIL  $\frac{4}{C-6}$
  9. FOR INSTALLATION OF NEW SIGN & POST SEE DETAIL  $\frac{5}{C-7}$

**NEXT DESIGN**

1132 Bishop Street  
Suite 145  
Honolulu, Hawaii 96813  
Telephone: (808) 440-2760  
Fax: (808) 440-2760

**KEONIANA APARTMENT  
NEW BUILDING**

444, 448 KEONIANA ST., HONOLULU, HAWAII  
TMK 2-6-015:067 & 088  
SPECIAL DISTRICT PERMIT

This work was prepared by me or under my direct supervision and I am a duly licensed professional engineer in the State of Hawaii.

Alan T. Olanoto  
Professional Engineer  
License No. 1530  
State of Hawaii

Expiration Date of the License: 4/30/2010

- INSTALL 1-2" GV & VB  
1-2" BWS APPROVED REDUCE PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY PRIOR TO ANY BRANCHES OR TEES PER BWS STD DET V-9
- STA 0+16.20 WL4  
INSTALL  
1-4" 1/2 BEND FL (ROTATE VT)  
1-4" GATE VALVE (FE) & VB  
1-CONC THRUST BLOCK
- STA 0+14.49 FS4  
1-4" 1/2 BEND, (BV)  
1-CONC THRUST BLOCK
- STA 0+12.98 WL4  
INSTALL  
1-4" BOSSED TEE TAPPED FOR 2" IPT  
CONTRACTOR TO INSTALL TYPE "D" LATERAL, BLIND  
SPLICE LENGTH TO ACCOMMODATE A 1 1/2" METER TO A 1" METER, TYPE "III" METER BOX, AND ALL APPURTENANCES IN ACCORDANCE WITH BWS STANDARDS. BWS TO REMOVE SPLICE AND INSTALL METER AFTER WATER SERVICE IS APPLIED AND PAID FOR.

**SITE AND UTILITY PLAN**  
SCALE: 1" = 10'

APPROVED	
CHIEF, CIVIL ENGINEERING BRANCH, DPP	DATE
CHIEF, CAPITAL PROJECTS DIVISION, BWS	DATE
CHIEF, WASTEWATER BRANCH, DPP (FOR SEWER LATERAL AND HOLDING TANK CONCEPT ONLY)	DATE
CHIEF, TRAFFIC REVIEW BRANCH, DPP	DATE

NO.	DATE	DESCRIPTION
DRAWN BY: <b>ATO/QJP</b>		
SCALE: <b>AS NOTED</b>		
DATE: <b>APRIL 07, 2010</b>		
JOB NO. <b>09018.01</b>		
SHEET TITLE: <b>SITE &amp; UTILITY PLAN</b>		
SHEET NO. <b>C-4</b>		

2819 C-03.4 Site Plan / HBN, CHAKRABORTY & ASSOCIATES, INC.  
 The use of these documents and their contents is limited to the project and site for which they were prepared. No other use, reproduction or distribution is permitted without the express written consent of CHAKRABORTY & ASSOCIATES, INC.



### **A. Existing Use and Improvements**

The northeast section of Waikīkī is largely underdeveloped. There are few hotels *per se* in the area and most of the developed lots support low-density, small-scale residential or commercial uses. The Waikiki Special District proposes apartment use for the area partly in recognition of its existing residential uses and character and partly to contain resort related improvements between Kūhiō Avenue and the ocean.

Applicant's lots and the dwellings sited thereon may be the oldest residences on Keoniana Street. Newer medium density multi-family dwellings, several aged but well maintained 3-story walk-up apartment buildings, and four single-family dwellings line Keoniana Atreet. Applicant owns two of the single-family dwellings.

Each of Applicant's lots is improved with a single-family dwelling. Building permit records indicate that the dwelling at 444 Keoniana Street was constructed in 1936 and is approximately 1,490 square feet in area. The dwelling at 448 Keoniana Street was built in 1937 and is approximately 1,077 square feet. A 256 square foot utility shed was added to the rear of the dwelling in 1944.

Both dwellings are presently rented and occupancy ranges from eight to ten persons. The occupants are on a month to month tenancy and will be given ample notice of pending construction.

### **B. Environmental Conditions**

#### **1. Climate**

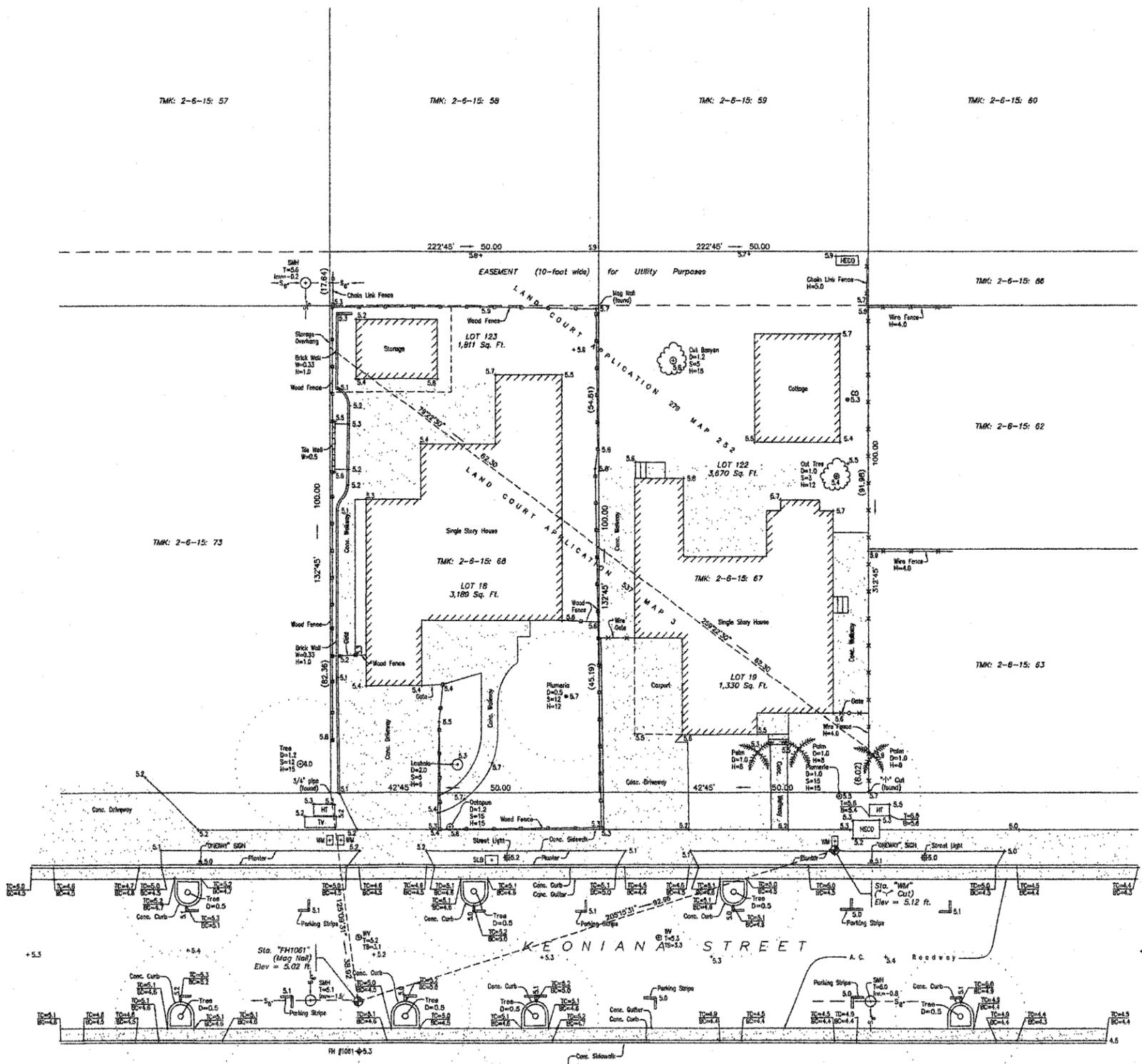
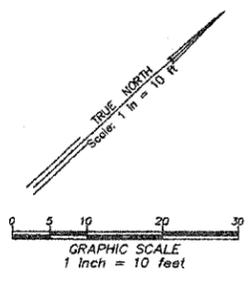
The climate of the Honolulu area is typical of the leeward coastal lowlands of Oahu. The area is characterized by abundant sunshine, persistent tradewinds, relatively constant temperatures, moderate humidity, and infrequent severe rainstorms.

Northeasterly tradewinds prevail throughout the year although their frequency varies from more than 50 percent during the summer months to 90 percent in January. The average annual wind velocity is approximately 10 miles per hour.

The mean temperature measured at Honolulu International Airport ranges from 70<sup>0</sup>F in the winter to 84<sup>0</sup> F in the summer. The temperatures in the Waikiki area may be slightly higher due to localized urban heating effects. Average annual precipitation is approximately 24 inches with most of the rainfall occurring between November and April. Relative humidity ranges between 56 and 72 percent (Wilson Okamoto & Associates, Inc. 2003).

#### **2. Topography**

The property is flat and exhibits no unusual or unique topographical features (See Figure 9). Ground elevation is less than 5 feet above mean sea level (msl).



NOTES:  
Elevations were referred to "WAIKIKI 2" with an elevation of 4.00 feet (Mean Sea Level).

- LEGEND:
- B= Bottom
  - BC= Bottom Curb
  - CO = Cleanout
  - Conc. = Concrete
  - D= Diameter
  - H= Height
  - HECO = Hawaiian Electric Company
  - HT = Telephone
  - S= Spread
  - SLB = Street Light Box
  - SMH = Sewer Manhole
  - T= Top
  - TC= Top Curb
  - WM = Water Meter
  - WV = Water Valve



This work was prepared by me or under my supervision.

GIL P. BUMANGLAG  
Licensed Professional Land Surveyor  
Certificate Number 8948

TOPOGRAPHIC SURVEY MAP  
LOTS 18 AND 19 OF MAP 3  
LAND COURT APPLICATION 537  
& LOTS 122 AND 123 OF MAP 252  
LAND COURT APPLICATION 279  
TMK: 2-6-15: 67 & 68  
At WAIKIKI, HONOLULU, OAHU, HAWAII

Date: August 16 & 17, 2009  
FB No. G-333: 03  
c:\sdesk\prof\topo\keonian\FINAL

GIL SURVEYING SERVICES, inc.  
1442 ULA STREET HONOLULU HAWAII 96818

24" x 36" = 6.0 sq. ft.



Photograph 1.



Photograph 2.



Photograph 3.



Photograph 4.



Photograph 5.

Source: Aerial Photo-Google Earth  
Photographs by: Gerald Park



Photo Key Map

GRAPHIC SCALE IN FEET  
50 25 0 50 100

Photograph 1. 444 Keoniana Street

Photograph 2. 448 Keoniana Street

Photograph 3. Mauka View of Keoniana Street

Photograph 4. Backyard of Residence at 444 Keoniana Street

Photograph 5. Backyard of Residence at 448 Keoniana Street

### 3. Soils

According to the Soil Conservation Service (1972), soil underlying the property is Fill Land. This soil type consists of material dredged from the ocean bottom or hauled in from nearby areas. Material dredged for construction of the Ala Wai Canal may have been used to create the subject property and surrounding area.

### 4. Flood Hazard

The Flood Insurance Rate Map (2000) identifies most of Waikīkī, lower McCully, and sections of Kapahulu adjoining the Manoa-Palolo Drainage Channel as a special flood hazard area inundated by the 100 year flood (See Figure 10). The property is designated Flood Zone "AO" which is defined as "flood depths of 1 to 3 feet, usually sheet flow on sloping terrain (Federal Emergency Management Agency, 2002)".

### 5. Tsunami Inundation

The property is not within an identified tsunami inundation or coastal high hazard area. The coastal area nearest the property is the beach at Fort DeRussy approximately 0.7 miles to the southwest.

### 6. Water Resources

#### 1. Surface Water

There are no streams, wetlands, or ponds on the premises. The Ala Wai Canal, a man-made drainage canal, flows to the ocean on the north by northeast side of the property. Ala Wai Boulevard separates Keoniana Street from the Canal.

#### 2. Ground Water

All of Waikīkī overlies the Palolo aquifer of the Honolulu aquifer sector. The Palolo aquifer is characterized by an unconfined caprock aquifer above a confined basal aquifer in basalt. The caprock aquifer is classified as potentially useful, moderately brackish water (between 1000 and 5000 parts per million chloride) that is neither potable nor ecologically important. The basal aquifer is used for drinking water and has less than 250 parts per million chloride (Mink and Lau, 1990).

### 7. Flora

On-site flora consists of common trees, palms, shrubs, and grass. Plumeria, brassia, a Norfolk pine, and banyan (*Ficus benjamina*) shade small outdoor gathering areas and screen them from public view. Common palm varieties including coconut, McArthur, areca, and hala are planted in the front and back yards; a single triangle palm (*Neodypsis decaryii*) grows in the front yard of Lot 67. Fruit trees include papaya, banana, guava, and orange. Shrubs such as sisal, money plant, heliconia, ginger, lau'ae fern, hibiscus, and monstera are planted around the structures and amidst the trees and palms.

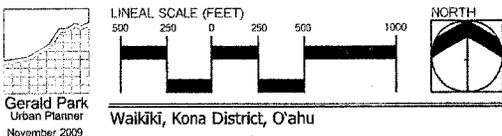
Rainbow shower trees (*Cassia* sp.) are planted along Keoniana Street and in two curbside planting islands fronting the property.



**Legend**

- Special Flood Hazard Zone Inundated by 100-Year Flood
- Zone A No Base Flood Elevation Determined.
- Zone AE Base Elevation Determined
- Zone AO Flood Depth of 1 to 3 Feet Usually Sheet Flow on Sloping Terrain
- Floodway Area in Zone AE
- Zone X Areas of 2% Annual Chance Flood. Areas of 1% Annual Chance Flood w/ Average Depth of Less Than 1 Foot
- Zone X Areas Determined to be Outside the 2% Annual Chance Floodplain.

Source: Federal Emergency Management Agency, Flood Insurance Rate Map, Map Number 15003C0105E, Date: November 2000.



**Figure 10**  
Flood Insurance Rate Map  
**Keoniana Apartments**

None of the species are federally listed as rare, threatened, or endangered.

## 8. Fauna

No wildlife was observed a field visit. The presence of food and water suggests that rodents are probably present. People were seen walking tethered dogs but feral cats and dogs were not seen.

Barred dove and the mynah were the only birds observed. Both are common species throughout the State of Hawai'i.

## 9. Archaeological Resources

The prehistoric Hawaiian settlement pattern was based on the system of *ahupua'a* land division. Prior to the Mahele of 1848 Oahu was divided into six *moku* or *kalama* (districts): Ko'olaupoko, Ko'olaupoko, Waialua, Wai'anae, 'Ewa, and Kona; these are said to be the same divisions established by the *ali'i Ma'ilikukahi* around 1500 A.D. Contained within these six districts were 86 (known) prehistoric *ahupua'a* land divisions. The *ahupua'a*, as described by Kirch (1985:2, Chapter 11), ideally, is represented by a pie-shaped slice of an island or region, usually running from the mountains to the sea. Each *ahupua'a*, ideally, contained adequate amounts of all the natural resources a Hawaiian island could provide.

The current project area lies within the *ahupua'a* of Waikīkī in the moku (district) of Kona. Waikīkī *Ahupua'a* deviates somewhat from the usual pie-shaped land division in that its sides, the northwest to southeast breath, are wider. It does, however, fill all the other traditional criteria for an ideal *ahupua'a*, as described above both environmentally and in the archaeological record. Within Waikīkī *ahupua'a*, the *mauka* to *makai* region relative to the current project area extends from the Ko'olau Mountain range to the lower valleys of Manoa and Palolo, to the dry lowland of Moilili and extending on through the inner wetlands (before late historic modifications), and the coastal zone to the sea.

A Field Inspection and Literature Review was performed by Cultural Surveys Hawaii (2009). Sections of the Background Report and Results of Fieldwork are excerpted below. The entire report is found in Appendix B.

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 that had been converted from taro to rice. Farming continued up to the first decades of the twentieth 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 historical cultural deposits.

Apart from the two existing house lots that were likely constructed in the early part of the 20<sup>th</sup> century, no surface historic properties were identified during field inspection of the project area. Any previously existing surface historic properties would have likely been destroyed

or covered by 1920's-era Ala Wai dredged land reclamation fill. Background research suggests that subsurface deposits within the current project area are likely related to the former Al Naio Stream, which, according to historic maps, extended through the project area. The location of the project area within and adjacent to Ala Naio Stream suggests that agricultural clays, similar to those found during an inventory survey for the Waikīkī Shopping Plaza Redevelopment Project (Yucha et al. 2009), are likely to be present as subsurface deposits within the project area. Agricultural clays are less likely to contain human burial interments as compared to the frequency of burials encountered with Jaucus sand deposits, however, there still remains the potential for human burials or agriculture-related cultural material within these subsurface deposits.

The project area is comprised of two residential house lots separated by a wooden plank fence and adjacent corner alleyway. Concrete-paved driveways and sidewalks connect to each of the two house lots. The only undeveloped portions of the current project area consist of small, partially landscaped yard-space located adjacent to the two house lots.

No archaeological historic properties were encountered during field inspection of the current project area, however, based on provided information, the two houses that are currently present within the project area were constructed during the late-1930's and may meet the criteria of a historic property. Development and grading associated with the construction of the two house lots as well as past efforts of land reclamation and modification in the greater Waikīkī area have likely destroyed or severely impacted any previously existing historic properties within the current project area.

#### 10. Cultural Resources

Traditional cultural practices are not likely associated with the properties due to the absence of:

- Surface archaeological sites
- Known burials
- Fishing, hunting, and gathering resources
- Historical trails
- Sacred sites
- Storied places

#### 11. Noise

Major contributors to existing ambient noise levels in the project area are traffic along Ala Wai Boulevard and Kūhiō Avenue, refuse collection trucks, tour buses and delivery trucks which are idling or positioning at curbside, loud motorcycles, the sirens of emergency and police vehicles; and nearby construction activities. The louder motorcycle, siren, refuse truck, and tour bus noise events can range from 75 to 90 dBA, and are clearly audible above the other background ambient noise sources

Typical hourly variations in noise levels within the project area are conditioned by motor vehicle traffic along two high volume roadways: Ala Wai Boulevard and Kūhiō Avenue. Traffic noise levels tend to be the lowest during the early morning hours between 3:00 and 5:00 AM and tend to be highest during the AM and PM peak commuting hours.

Existing background noise levels in the project environs currently exceed 65 Ldn (Ldn is a descriptor of day-night average sound level) at essentially all buildings which front Ala Wai Boulevard and Kūhiō Avenue. In addition, at the upper floors of buildings which front lower volume streets such as Namahana Street, distant traffic noise plus the other non-traffic noise sources in the area can cause ambient noise levels to exceed 65Ldn.

## 12. Air Quality

Air quality in the vicinity of the proposed project is primarily affected by vehicle emissions generated by traffic on adjacent streets. Among the various air pollutants for which State and National standards have been established, carbon monoxide is the primary concern in areas near heavy traffic flow (Wilson Okamoto, 2003). Until October 2004 when it was closed, the State of Hawaii Clean Air Branch maintained an air quality monitoring station in Waikīkī. According to the Clean Air Branch, the Waikiki monitoring station on Kalakāua Avenue had not exceeded the State 1-hour carbon monoxide standard (10,000 µg/m<sup>3</sup>) and 8-hour (5,000 µg/m<sup>3</sup>) standard between 1999 and September 2004.

## 13. Views

The Coastal View Study (Chu & Jones, 1987) does not identify the subject properties as providing significant coastal views. Further, Keoniana Street is not a coastal road providing continuous or intermittent coastal views (Primary Urban Center, South Shore Viewshed, Exhibit 13).

A discussion of views is also found in Section 3D. Waikīkī Special District.

## C. Public Facilities and Services

### 1. Circulation and Traffic

Keoniana Street, a one-way *makai* bound, one-lane street connects Ala Wai Boulevard on the northeast and Kalakāua Avenue on the southwest. The street is completely improved with curbs, gutters, sidewalks, and landscaped planting strips on both sides. Landscaped planting islands jut into the travel lanes creating on-street parking areas on both sides of the right-of-way. Two on-street parking stalls front the property. Speed limit signs are not posted and a 25 MPH limit is assumed.

Keoniana Street intersects Ala Wai Boulevard about 80 feet to the northeast. Only left turn movement from Ala Wai Boulevard on to Keoniana Street is allowed. Ala Wai Boulevard is the major westbound thoroughfare in Waikiki. The 75-foot right-of-way accommodates five traffic lanes and a parking lane on the *mauka* side of the roadway for most of its length. Traffic circulation is one-way from east to west. The posted speed limit is 35 miles per hour near its intersection with Keoniana Street. The roadway is completely improved with curbs, gutters, and sidewalks on both sides and a planting strip on the *mauka* side.

The Waikiki Special District identifies the sidewalk along the Ala Wai Canal as "Waikiki Promenade".

To the southwest, Keoniana Street intersects Kalakāua Avenue. At this unsignalized T-intersection, the Keoniana Street approach has one lane for left-turn traffic movement only.

Kalakāua Avenue has five traffic lanes; four lanes carry traffic in the Diamond Head direction and one reverse lane accommodates bus traffic in the *mauka* direction.

## 2. Water

The Board of Water Supply water system in the area includes a 12" service main in Ala Wai Boulevard and an 8" main in Keoniana Street.

## 3. Wastewater

A 10" sewer main in Keoniana Street discharges into the Kūhiō Avenue Relief Sewer in Kūhiō Avenue. A 6" sewer line is located within an easement at the rear of the lot. The dwellings discharge wastewater directly into the 6" line.

## 4. Protective Services

Waikīkī is located with the Honolulu Police Department's District 1. This resort-residential community is regularly patrolled by officers posted at the Waikiki Substation. The Substation is located at Kūhiō Beach on Kalakāua Avenue.

Fire protection originates from the Waikīkī Fire Station (Station 7) at the corner of Kapahulu Avenue and Ala Wai Boulevard. The station is equipped and staffed by an engine company and ladder company.

A fire hydrant (#1061) is located opposite the property in front of the Oahu Surf Two building.

## 5. Utility Services

Electrical service is proved by Hawaiian Electric Company and telephone and CATV are available from Hawaiian Telcom and Oceanic Cable, respectively. Utility lines on Keoniana Street are buried underground.

## 6. Public Schools

The project is located in the Department of Education's Honolulu District. School age children residing in the project and attending public schools would be serviced by Ala Wai Elementary School, Washington Intermediate School, and Kaimuki High School.

## 7. Recreation

Public recreation opportunities are provided throughout Waikiki. Public beach parks include Fort DeRussy, Waikīkī, Kūhiō, Queen's Surf, and Sans Souci beaches. Public parks and facilities include Kapi'olani Park, Honolulu Zoo, Honolulu Aquarium, Ala Wai Golf Course, and Ala Wai Boat Harbor.

### A. State Land Use District

The State Land Use Commission classifies all land in the State of Hawaii into four land use designations: Agricultural, Conservation, Rural, and Urban. The project site is within the Urban district—a land use classification that applies to almost all developed lands in Waikīkī. Land uses in the urban district are regulated by the respective counties.

### B. General Plan for the City and County of Honolulu

The General Plan for the City and County of Honolulu (2002) is a statement of the long-range social, economic, environmental, and design objectives for the general welfare and prosperity of the people of Oahu. These objectives contain both statements of desirable conditions to be sought over the long run and statements of desirable conditions which can be achieved within an approximate 20 year time horizon. Second, the General Plan is a statement of broad policies which facilitate the attainment of the objectives of the Plan (DGP, 1992).

The General Plan is organized into eleven areas of concern with correlating objectives and policies that reflect the comprehensive planning process of the City and County of Honolulu. The areas of concern applicable to the Keonaiana Apartment project are listed below.

#### II. Economic Activity

*Objective B To maintain the viability of Oahu's visitor industry.*

Policy 2: Provide for a high quality and safe environment for visitors and residents.

Policy 3: Encourage private participation in improvements to facilities in Waikiki.

Discussion: The proposed project is consistent with this objective and policy set.

#### III. Natural Environment

*Objective B To preserve and enhance the natural monuments and scenic views of Oahu for the benefit of both residents and visitors.*

Policy 2: Protect Oahu's scenic views, especially those seen from highly developed and heavily traveled areas.

Discussion: The site plan and building design are consistent with and supportive of the Waikiki Special District design guidelines. The building is setback from all property lines and is lower than the allowable 130-foot height limit. The building is comparable in height to 3-story buildings on adjoining lots and will not obstruct views in any direction.

#### IV. Housing

*Objective C To provide the people of Oahu with a choice of living environments which are reasonable close to employment, recreation, and commercial centers and which are adequately served by public utilities.*

Policy 1: Encourage residential developments that offer a variety of homes to people of different income levels and to families of various sizes.

Policy 3: Encourage residential development near employment centers.

Discussion: The project will add 12 rental apartment units to Hawaii's major visitor destination area. The project site is close to places of employment, recreation, and commercial centers.

#### VII. Physical Development and Urban Design

*Objective A To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.*

Policy 2: Coordinate the location and timing of new development with the availability of adequate water supply, sewage treatment, drainage, transportation, and public safety facilities.

Policy 5: Provide for more compact development and intensive use of urban lands where compatible with the physical and social character of existing communities.

*Objective E To create and maintain attractive, meaningful, and stimulating environments throughout Oahu.*

Policy 6: Provide special design standards and controls that will allow more compact development and intensive use of lands in the primary urban center.

Discussion: Keoaniana Apartments will be developed in Waikiki on land that is currently underdeveloped. Its redevelopment will foster compact and efficient use of vacant or underdeveloped land in the primary urban center.

The project will be designed for consistency with the Waikiki Special District design standards for the Apartment precinct. It is anticipated that the sum total of architectural features, landscaping and setbacks, a low building height, and low-density will help to foster a Hawaiian sense of place envisioned for Waikiki.

#### C. Primary Urban Center Development Plan

The Primary Urban Center ("PUC") is that geographic area bounded by the Koolau Mountain Range to the north, Mamala Bay on the south, Waialae-Kahala on the east, and Pearl City on the west. The Department of Planning and Permitting, City and County of Honolulu briefly characterized this urban area in numerical terms thusly:

"In the year 2000, this 15.5 mile long urban corridor had a population of 425,000 residents (about one-half of Oahu's population), accommodated 172,000 housing units (about 55% of Oahu's housing stock), and sustained about 370,000 non-construction jobs (about 78% of total Oahu jobs)."

The Open Space (Map A.2) and Land Use Maps (Map A.6) for the PUC Development Plan (June, 2004) designate the Waikiki area as Urban and the section of Waikiki where the Ala Wai Garden Plaza project is proposed Medium and Higher-Density Residential/Mixed Use, respectively.

The PUC Development Plan is not a land use plan *per se* but a plan that prescribes a vision for the Honolulu of 2025 based on five key elements. "The vision emphasizes retaining the qualities that attract both residents and visitors, while encouraging growth and redevelopment to accommodate the projected increases in jobs and residential population (PUC Development Plan, 2004)". There are five key elements to this vision:

- Honolulu's natural, cultural and scenic resources are protected and enhanced.
- Livable neighborhoods have business districts, parks and plazas, and walkable streets.
- The PUC offers in-town housing choices for people of all ages and incomes.
- Honolulu is the Pacific's leading city and travel destination.
- A balanced transportation system provides excellent mobility.

Two DP elements and policies applicable to the proposed project are cited below.

Element: Honolulu's natural, cultural and scenic resources are protected and enhanced.

Policy: Preserve panoramic views of natural landmarks and the urban skyline.

Element: The PUC offers in-town housing choices for people of all ages and income.

Policy: Promote people-scaled apartment and townhouse dwellings in low-or mid-rise buildings oriented to the street.

Policy: Preserve and expand the current inventory of affordable rental housing units.

#### Discussion

The proposed project will add 12 units to the rental apartment inventory in Waikiki. Redeveloping the property will improve the neighborhood environment along Keoniana Street and contribute to the multi-residential character existent of the neighborhood.

The low-rise structure will not intrude into the urban skyline of the immediate neighborhood and that of Waikiki or interfere with views of the Ko'olau Mountains from Keoniana Street and Kalakaua Avenue.

#### **D. Waikīkī Special District**

The property is located within the Waikīkī Special District (See Figure 11). The Waikīkī Special District establishes five zoning precincts for Waikīkī and prescribes land uses and

design standards for the respective precincts. The design standards are generally more stringent than those applicable to the rest of O'ahu.

The property is located within the Apartment Precinct which has a 300-foot height limit for this section of Waikīkī. The proposed use is a permitted use in the Apartment Precinct and at 37 feet in height is considerably under the height limit for the area.

The Waikīkī Special District also includes provisions for the protection of prominent view corridors or streets oriented *mauka to makai*. Keoniana Street is not identified as a major view corridor for streets *mauka* of Kalakāua and Kūhiō Avenues. Streets providing major view corridors are identified as Kaiolu, Lewers, Seaside, Nohonani, Nahua, Walina, and Kanekapolei. The view corridor streets are all located to the east of Keoniana Street.

The Waikīkī Special District, however, proposes two urban design controls in the vicinity of the proposed project to promote the objectives of the District. To promote a pedestrian-oriented Waikiki, a pedestrian promenade is proposed along the Ala Wai Canal from Kapahulu Avenue on the east to the Ala Wai Boat Harbor on the west. To improve *mauka* views of the mountains from public vantage points, the Special District identifies a Fort DeRussy Mauka-Makai View Corridor for northeast Waikīkī. The Corridor encompasses areas *mauka* of Fort DeRussy and Kalakāua Avenue and between McCully Street on the west and Kuamo'o Street on the east. Keoniana Street is within this area being one block west of Kuamo'o Street.

#### **E. Special Management Area**

The subject property is not located within the boundaries of the City and County of Honolulu's Special Management Area ("SMA"). An SMA Permit is not required to build the project.

#### **F. Park Dedication Ordinance**

Ordinance No. 4621, Park Dedication, creates a program with associated rules for assuring the provision of park space when subdividing land for residential use and constructing multi-family dwellings. The ordinance requirements may be satisfied through the provision of land for a park, payment of fees equal to the land area required multiplied by the fair market value per square foot of land in the immediate area, provision of privately maintained parks, or a combination equal to the dedication requirements. The requirement for the multiple family dwellings in Special District Use precincts is 10% of the maximum permitted floor area or 110 square feet per dwelling or lodging unit, whichever is less.

Applicant will pay a fee to comply with the Park Dedication Ordinance.

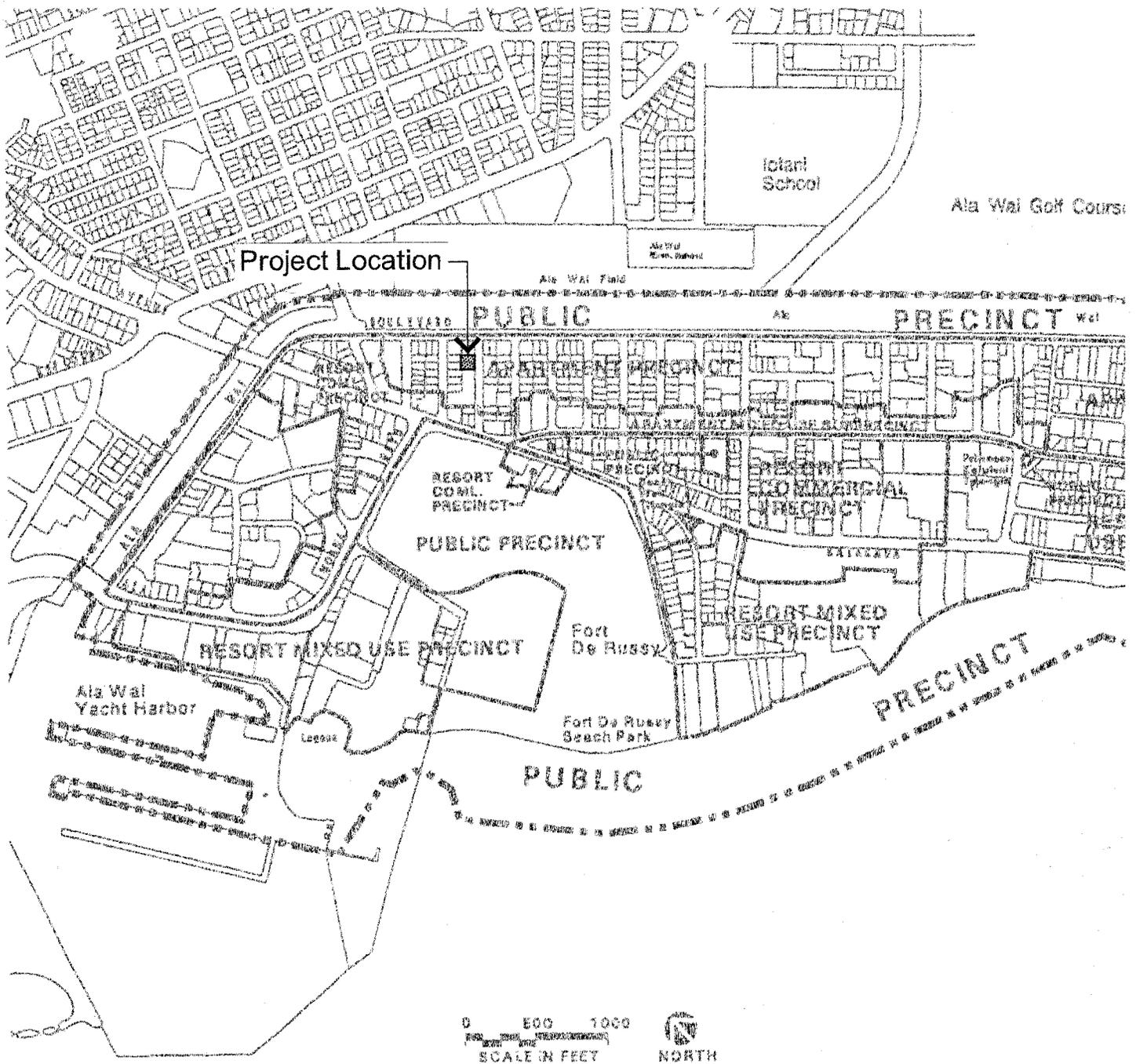


EXHIBIT 21-9.13

Source: City & County of Honolulu  
 JANUARY 30, 1986

**LEGEND**

- Waikiki Special District Boundary
- Use Precinct Boundary

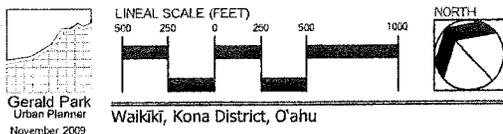


Figure 11  
 Waikiki Special District Map  
 Keoniana Apartments

Keoniana Partnership Limited

# SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS

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4

## A. Assessment Process

The scope of the project was discussed with Keoniana Partnership Limited and the design team. State and County agencies were contacted for information relative to their areas of expertise. Time was spent in the field noting site conditions and conditions in the vicinity of the project site. The sum total of the consultations and field investigations helped to identify existing conditions and features that could affect or be affected by the project. These conditions include:

- There are two single-family dwellings and two sheds on the premises;
- There are no rare, threatened, or endangered flora or fauna on the property;
- There are no recorded archaeological or cultural resources on the property;
- The property is located in flood zone AO;
- The property is not located in a coastal high hazard area or tsunami inundation area;
- Keoniana Street is a one-lane, one-way (*makai* bound) completely improved street;
- Existing water and utility services are available; and
- The existing wastewater system is at capacity.

## B. Anticipated Short-term Impacts

### 1. Air Quality

Site work is a necessary function to prepare the land for building the improvements to follow and is probably the most disruptive construction activity on the environment. Site work is a persistent source of fugitive dust. Site contractors are aware that dust is a nuisance to both workers and people living near work sites and it is imperative for them to maintain stringent dust controls. Water sprinkling is probably the most effective dust control measure given the size of the lot and the scale of the proposed improvements. Dust screens erected around the perimeter of the properties is also an effective dust control measure. The contractor, however, may choose to implement these and other measures based on their experience with similar projects, physical conditions, and job sites. Air pollution control measures will comply with Chapter 60.1, Air Pollution Control regulations of the State Department of Health.

The Contractor will be responsible for general housekeeping of the site and for keeping adjacent streets and properties free of dirt, mud, and construction litter and debris.

### 2. Construction Noise

Audible construction noise will be unavoidable for most of the 12 month construction period. Exposure to noise, however, is expected to vary in volume, frequency, and duration. Noise will vary also by construction phase, the duration of each phase, and the type of equipment used during the different phases. Noise will be most pronounced during the early stages when the buildings are demolished, the site grubbed of vegetation, and the building

foundation constructed. Noise will diminish as the building is erected and the completed exterior walls will help to attenuate noise from interior construction work.

The multi-family residential and resort buildings closest to the project site are predicted to experience the highest noise levels during construction due to their proximity to the construction site. Adverse impacts from construction noise, however, are not expected to be in the "public health and welfare" category due to the temporary nature of the work and administrative controls available for regulation of construction noise. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project site with one exception.

Due to the underlying soil conditions, the structural design anticipates the use of reinforced concrete piles to bear gravity loads and resist seismic uplift. A pneumatic pile drive will drive the piles and is perhaps the noisiest and most irritating piece of construction equipment (at least to those that are exposed to the hiss-boom staccato) that can be used on a construction site. The use of this equipment and its associated noise impact cannot be avoided. Pile driving typically emits noise in the range of 100 to 108 dBA at 50 feet from the source. Regardless of measurable sound levels, pile driving is irritating to those exposed to it. Pile driving noise is difficult to attenuate because this activity occurs after construction sites are cleared of vegetation, structures, and other features that help to attenuate noise. Pile driving is projected to take about 1 month to complete. The contractor will provide advance notice to residents in the vicinity of the property of the date and approximate times that pile driving will occur.

Community Noise Control regulations establish a maximum permissible sound level for construction activities occurring within various zoning districts. Multi-family residential use is placed in the Class B zoning district and the maximum permissible sound level is 60 dBA between the hours of 7:00 AM and 10:00 PM (Chapter 46, Community Noise Control, 1996). Construction activities often produce noise in excess of the permissible daytime noise level and a noise permit (or variance) will be needed. The Contractor will be responsible for obtaining the permit and complying with conditions attached to the permit. Work will be scheduled between the hours of 8:00 AM to 3:30 PM, Mondays through Fridays. The contractor also will ensure that only properly muffled construction equipment are on the job site.

### 3. Land Alteration

Excavating, grading, and stockpiling activities will expose soil to the elements thus creating opportunities for runoff and erosion. Earthwork will be performed in accordance with City standards to protect property and to promote the public health, safety and welfare. Regulatory measures applicable to this project for minimizing and controlling soil related impacts in both the short and long-term include:

- Grubbing, Grading and Stockpiling Plans and Specifications
- Rules Relating to Soil Erosion Standards and Guidelines
- Drainage and Erosion Control Plan (Temporary during construction and permanent following construction if required)
- Best Management Practices(BMPS) for erosion and drainage control

Plans and specifications will be submitted to the Department of Planning and Permitting for review and approval prior to construction.

An NPDES General Permit Authorizing Discharge of Storm Water Associated with Construction Activity will not be required because less than one acre of land will be disturbed during construction. Although an NPDES permit is not required, the contractor will adhere to an approved Drainage and Erosion Control Plan approved by the City.

Dewatering will be required to construct the building foundation below the high water table. Water and solids will be pumped into an on-site detention basin and allowed to evaporate or percolate into the ground. Dried material will be spread over the ground, allowed to dry, and disposed off-site. An NPDES Permit for dewatering activities will be required from the State Department of Health for any dewatering activity pursuant to Chapter 54, Hawaii Administrative Rules. A Dewatering Permit may also be required from the City and County.

#### 4. Archaeological Features

Many human burials---traditional Hawaiian and historic---as well as pre-contact Hawaiian and historic cultural deposits have been previously encountered throughout Waikīkī, usually in connection with construction activities related to urban development or infrastructure improvements.

Given the cultural sensitivity of the Waikiki area and the number of burial finds previously encountered, it is anticipated that human remains or cultural materials may be encountered during the project. The permitting process will involve review by SHPD/DLNR and an archaeological inventory survey with a sub-surface testing component will be required. Additionally, the architectural branch of SHPD/DLNR should be consulted regarding the two 1930's-era houses that are current present within the project area prior to any construction or demolition.

In consideration of the above recommendation from the consulting archaeologists, a determination if an archaeological inventory survey will be required will be sought from the SHPD. If required, the survey will be performed as a mitigating measure.

#### 5. Flora and Fauna

Adverse impacts on flora are not anticipated. None of the trees, palms, shrubs, grass, and weeds observed is indigenous to the area and listed or proposed for rare, threatened, or endangered status.

#### 6. Solid Waste

Demolition and construction debris will be hauled to an approved construction waste disposal site. Green waste will be hauled to H-Power for burning.

#### 7. Circulation and Traffic

Work in Keoniana Street to connect infrastructure and utilities and to construct the project driveway, new sidewalk, and planting island will be required. A traffic management plan will be prepared and submitted to the Department of Planning and Permitting prior to

construction if needed. Measures for mitigating construction-related traffic impacts may include but are not limited to:

- Posting notices alerting residents and motorists of scheduled road work.
- Posting warning signs to alert motorists of construction and to slow traffic speed.
- Posting flagmen for traffic control.
- Positioning traffic cones or other directional devices in the roadway to guide vehicles around work areas.
- Limiting road construction to between 8:00 AM and 3:00 PM, Monday through Friday.
- Covering open trenches with steel plates during non-working hours and posting safety devices with warning lights to alert motorists of the construction area.

Construction vehicles hauling workers and material will contribute to traffic on streets leading to and surrounding the project site. These streets include Kalakāua Avenue, Kūhiō Avenue, Kuamo'o Street, Namahana Street, and Ala Wai Boulevard. Material deliveries will be scheduled during non-peak traffic hours to minimize impacts on local traffic. Construction material will be off-loaded and stockpiled on-site; however, flagmen will be posted for traffic control should materials need to be unloaded within the road right-of-way. When this occurs, traffic delays can be expected but should not last for more than a few minutes.

## 8. Economic

The development budget of approximately \$2.0 million will infuse capital into the local economy although most of the benefits will accrue to the construction industry. The amount includes the cost of purchasing direct and indirect labor, materials, shipping, and all professional services associated with the project. An estimated 15 to 20 persons (the vast majority being trades people) will be on-site at various times over the 12 month construction period. Indirectly, the budget also will pay for off-site administrators and construction managers of companies providing the labor. Labor purchases will also contribute tax dollars to federal and state governments in the form of payroll deductions.

### **C. Anticipated Long-term Impacts**

#### 1. Land Use

The proposed project is consistent with the Apartment Precinct designation for the property and this section of Waikīkī. Redevelopment of the property for multi-family use will help to implement the desired land use pattern for the area.

#### 2. Housing and Rental Inventory

Twelve apartment units will be added to the overall housing and rental apartment inventory in Waikīkī. Although smaller in scale when compared to recent rental apartment projects (such as the Ala Wai Garden Plaza on Namahana Street), Keoniana Apartments will provide a new, clean, and safe living environment for its occupants.

It is estimated that the completed project could house between 20 to 28 people based on one person per bedroom. Alternative living arrangements could increase the number of people residing in the building.

### 3. Noise

The completed project is not expected to be a significant noise generator. Vehicle noise and sounds emanating from the units are anticipated. Sounds from these sources should be no louder than noise currently experienced in the neighborhood.

### 4. Ambient Air Quality

Ambient air quality should not be adversely affected in the long-term. The principal source of air pollution is expected to be exhaust emissions from vehicles entering and exiting the site and passing traffic.

### 5. Circulation and Traffic

All project generated traffic will enter and exit onto Keoniana Street. Project generated traffic is expected to be minimal as thirteen vehicles (the number of parking stalls) are not anticipated to significantly contribute to street traffic.

### 6. Public Facilities

Water use is estimated at 3,000 gallons per day for domestic consumption and can be drawn from the existing system in Keoniana Street. The Board of Water Supply will confirm the availability of water when the building permit is submitted for approval.

Wastewater will be discharged into the municipal sewer system and conveyed to the Sand Island Wastewater Treatment Plant for ocean disposal. The Wastewater Branch of the Department of Planning and Permitting has approved a direct connection to the 6-inch sewer for discharge of 800 gallons of wastewater per day and will allow additional flow to discharge into a holding tank. Wastewater will be pumped from the holding tank into the municipal system during non-peak times. Wastewater flow is estimated at 2,400 gallons per day.

Storm runoff is not anticipated to increase significantly in comparison to existing runoff. The City and County of Honolulu policy on storm water runoff is to reduce the pollution associated with storm water runoff attributable to new development.

To comply with City policy, it is proposed to direct new project generated storm water to open space and landscaped areas where the water can evaporate or percolate into the ground. Storm water equal to existing conditions will daylight toward the street and enter the municipal drainage system at Ala Wai Boulevard and Keoniana Street. Other methods may be implemented pursuant to approved, site-specific Best Management Practices and criteria in Part II Water Quality Criteria, City Rules Relating to Storm Drainage Standards (Department of Planning and Permitting, 2000).

### 7. Public Services

Domestic solid waste is estimated at 54 pounds per day (4.5 pounds per dwelling unit). Solid waste will be collected by municipal refuse crews and hauled to an approved disposal facility. An area may be set aside for voluntary waste separation as a conservation measure.

The completed project is not anticipated to generate a need for additional police officers. Design measures are included in the project for securing the building entry for residents and guests and securing the parking lot. A live-in resident manager can also aid in creating a safe living environment.

The project is located within the response area of the Waikiki Fire Station and will not cause the first response area to be geographically expanded or the number of fire personnel to be increased. Existing fire hydrants along Keoniana Street are indicative that there is adequate fire flow water for the area.

Residential units, the parking garage, and common areas inside the building will be equipped with fire sprinklers and smoke detectors.

#### 8. Landscaping and Views

Existing plant material will be removed to site the building and driveway to Keoniana Street. Removal of trees with a 6" caliper or greater will require a Waikiki Special District Minor Permit. New plantings will add form, color, and texture to locations around the building and open areas and help to screen the ground level parking area. Vertical landscaping elements will help to soften the building form and mass.

The three story building will be comparable in height to 3-story walk-up apartments to the east on both sides of Keoniana Street and at the rear of the properties on Pau Street. The building is dwarfed by taller buildings such as the Oahu Surf Two across the street and The Keoniana on the west. Its pitched roof, ample roof overhang on four sides, the absence of exterior walkways and apartment entries, and shuttered driveway entry into the parking garage will make the structure appear to be a large dwelling rather than an apartment building. Coupled with trees, palms, and colorful shrubs in the landscape, the completed project will contribute to a Hawaiian "sense of place". A conceptual rendering of the completed project is shown on Figure 12.

The structure is setback 23'-6" from the street which is greater than the required 15'-0" setback. The ample setback creates an open area facing the street providing adequate sight distance in both directions for drivers to safely egress the property.



Figure 12

### **A. No Action**

A No Action alternative would maintain the status quo of the building site and preclude the occurrence of all environmental impacts, short and long-term, beneficial and adverse described in this Assessment. The dwellings on both lots would remain *as is* pending development alternatives.

---

Land use and construction permits required for the project and respective approving authorities are identified below. Additional permits and approvals may be required depending on final construction plans.

**City and County of Honolulu**

Department of Planning and Permitting

- Special District Major Permit
- Conditional Use Permit-Minor for Joint Development
- Building Permit for Building, Electrical, Plumbing Sidewalk/Driveway and Demolition Work
- Grubbing, Grading, and Stockpiling Permit
- Construction Dewatering Permit (Temporary)
- Permit to Excavate Public Right-of-Way
- Sewer Connection
- Certificate of Occupancy

Board of Water Supply

- Water and Water System Requirements for Developments

Department of Transportation Services

- Street Usage Permit

**State of Hawaii**

Department of Health

- Variance from Pollution Controls (Noise Permit)
- NPDES Permits (Construction Dewatering)

Department of Land and Natural Resources

- Historic Site Review

# AGENCIES AND ORGANIZATIONS TO BE CONSULTED IN THE ENVIRONMENTAL ASSESSMENT PROCESS

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7

## State of Hawai'i

- Department of Health
- Department of Land and Natural Resources
  - Historic Sites Division

## City and County of Honolulu

- Board of Water Supply
- Department of Facility Maintenance
- Department of Transportation Services
- Fire Department
- Police Department

## Others

- Hawaiian Electric Company
- Hawaiian Telcom, Inc.
- Oceanic Time Warner Cable
- Waikiki Neighborhood Board No. 23
- Waikiki Public Library (Placement)

## **Agencies Consulted in Preparing the Environmental Assessment**

- Board of Water Supply
- Department of Planning and Permitting
  - Site Development Division, Wastewater Branch
- Department of Land and Natural Resources, State Historic Preservation Division

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

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

Archaeological features were not encountered during a field inspection of the site. As recommended by the consulting archaeologists, the State Historic Preservation Division will be consulted to determine if further archaeological work is required.

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

Although the two dwelling are in habitable condition and presently occupied, they are over 70+ years old and the owner desires to replace them. Replacing aged housing with new housing units on the same site and serving the same purpose is viewed as a beneficial use of the environment. Persons seeking rental housing in Waikīkī will benefit as Keoniana Street is close to places of employment and recreation and the area is attractive as a medium-density residential neighborhood.

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

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

**4) Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;**

The project will not substantially affect the economic and social welfare and cultural practices of the community or State.

**5) Substantially affects public health;**

Public health will not be adversely affected. Adherence to public health regulations will help to mitigate construction impacts on air, noise, and water quality.

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

In-place water, sewer, drainage, and utility systems are able to accommodate the user demand on the respective systems. The Department of Planning and Permitting has informed Applicant that the existing wastewater collection system for the area is at capacity. The agency will allow construction of a wastewater holding tank on the premises with discharge to the municipal system during non-peak times.

**7) Involves a substantial degradation of environmental quality;**

Environmental quality will not be degraded. The project will replace two aged dwelling units with a new, well-designed, safe, and secure residential building. The project is anticipated to improve the overall environmental quality of the property on which it is to be built and the neighborhood in which it is located.

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

The project will not involve a commitment for larger actions.

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

Rare, threatened or endangered flora or fauna were not observed on the premises. The two lots are landscaped with common trees, shrubs, grass, and weeds.

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

Air and water quality and ambient noise levels should not be detrimentally affected by the proposed project. Fugitive dust will be raised during site work but can be controlled by appropriate dust mitigation measures stipulated in this Assessment and measures proposed by the site work contractor.

Construction noise will be audible throughout the 12-month construction period. Noise will be most pronounced during the early construction stages and diminish with the advent of interior building activities. A pile driver will be used and noise from this equipment will be audible for about 1 month.

Surface runoff will be detained on-site to allow sediment and other pollutants to fall out of the runoff stream. Runoff water will be allowed to evaporate or percolate into the ground or controlled release into the municipal storm drainage system.

The completed project is not anticipated to adversely affect air and water quality in the long-term.

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

The project is not proposed in an environmentally sensitive area.

**12) Substantially affects scenic vistas and view planes identified in county or state plans or studies, or,**

No significant scenic vistas and view planes have been identified on or across the property.

**13) Requires substantial energy consumption.**

Electrical power requirements will be determined during the design stage of the project.

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APPENDIX A

WASTEWATER BRANCH CORRESPONDENCE

IN  
09018.02

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813  
PHONE: (808) 768-8000 • FAX: (808) 768-6041  
DEPT. WEB SITE: [www.honolulu.gov](http://www.honolulu.gov) • CITY WEB SITE: [www.honolulu.gov](http://www.honolulu.gov)

MUFI HANNEMANN  
MAYOR



RECEIVED  
MAR 23 2009  
NEXT DESIGN

DAVID K. TANOUÉ  
DIRECTOR  
ROBERT M. SUMITOMO  
DEPUTY DIRECTOR  
09WWB025 (AS)  
2009/ELOG-571

March 20, 2009

Mr. Rey D. Quemado, Project Manager  
Next Design LLC  
1132 Bishop Street, Suite 145  
Honolulu, Hawaii 96813

Dear Mr. Quemado:

Subject: Request for a Temporary Sewage Holding Tank Facility  
For a Proposed Twelve (12) One-Bedroom Apartment Units  
At 444 & 448 Keoniani Street, Honolulu, Hawaii  
Tax Map Key: 2-6-015: 067 & 068

This is in response to your March 9, 2009 letter and a recent telephone conversation with one of my staff requesting the temporary use of a sewage holding tank facility (HTF) for your proposed twelve (12) one-bedroom apartment units. Your request is approved subject to submitting an acceptable agreement from property owner(s) regarding the use, design, construction and operation of the HTF. Please find attached a sample HTF agreement (Declaration) for your use. A copy of the executed and recorded HTF agreement from the State's Bureau of Conveyances shall be forwarded to our office for our records.

Our approval is conditioned that four (4) one-bedroom units of the proposed twelve (12) one-bedroom units shall be connected directly to the City sewer system and the remaining eight (8) one-bedroom units shall be connected to the City sewer system via an HTF. Other matters relating to the HTF will be discussed during the review process. Please be aware that these requirements pertain only to the sewage disposal scheme for this project. In addition, this project is liable for payment of an applicable wastewater system facility charge (WSFC). The current WSFC charge for this project is \$33,427.20 and payable as a precondition to the issuance of the building permit.

The approved HTF construction plans shall be attached and be made a part of the building plans. If you have any questions, please contact Arturo Saavedra, Jr. at 768-8209.

Very truly yours,

*Dennis M. Nishimura*  
Dennis M. Nishimura  
Branch Chief

DMN:dl  
{684946}

Attachment

APPENDIX B

ARCHAEOLOGICAL FIELD INSPECTION

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**Archaeological Literature Review and Field Inspection  
Report for Two Lots on Keoniana Street,  
Waikīkī Ahupua‘a, Kona District, O‘ahu Island  
TMK: [1] 2-6-015:067 & 068**

**Gerald Park, Urban Planner**

**Prepared by  
David W. Shideler, M.A.,  
and  
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.  
Kailua, Hawai‘i  
(Job Code: WAIKIKI 42)**

**December 2009**

---

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## Management Summary

Reference	Archaeological Literature Review and Field Inspection Report for Two Lots on Keoniana Street, Waikīkī Ahupua'a, Kona District, O'ahu Island TMK: [1] 2-6-015:067 & 068
Date	December 2009
Project Number (s)	Cultural Surveys Hawai'i Inc. (CSH) Job Code: WAIKIKI 42
Investigation Permit Number	The fieldwork in support of this study was carried out under archaeological permit number 09-20 issued by the Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR)
Project Location	The project area consists of two adjacent lots (TMK: [1] 2-6-015:067 & 068) each measuring 50 ft. by 100 ft. (10,000 sq. ft. total) located on the NW ( <i>'ewa</i> ) side of Keoniana Street between Kalākaua Ave. and Ala Wai Blvd. in the NW portion of Waikīkī. The project is depicted on the U.S. Geological Survey 7.5-Minute Series Topographic Map, Honolulu Quadrangle (1998).
Land Jurisdiction	Private
Agencies	State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR)
Project Description Project Related Ground Disturbance	The project consists of the proposed development of a small apartment complex. Minimally ground disturbance would be associated with the demolition of existing structures, excavation for structural foundations and utility connections, and landscaping.
Project Funding and Land Jurisdiction	The proposed re-development project is privately funded.
Document Purpose	This study was intended as a due diligence document and aid to planning. The study is intended to facilitate planning involving the City and County of Honolulu and SHPD/DLNR.
Cultural Resources Potentially Affected	Many human burials — traditional Hawaiian and historic — as well as pre-contact Hawaiian and historic cultural deposits have been previously encountered throughout Waikīkī, usually in connection with construction activities related to urban development, or infrastructure improvements. It is anticipated that human burials or cultural materials may be encountered during the project.
Recommended Project-Related	Given the cultural sensitivity of the Waikīkī area and the number of burial finds previously encountered, it is anticipated that the permitting process will involve review by SHPD/DLNR and that an archaeological inventory survey with a sub-surface testing component will be required. Additionally, the architectural branch of SHPD/DLNR should be consulted regarding the two 1930's-era houses that are currently present within the project area prior to any construction or demolition.

## Table of Contents

<b>Management Summary .....</b>	<b>i</b>
<b>Section 1 Introduction .....</b>	<b>1</b>
1.1 Project Background .....	1
1.2 Environmental Setting .....	1
1.2.1 Natural Environment.....	1
1.2.2 Built Environment .....	1
<b>Section 2 Background Research .....</b>	<b>9</b>
2.1 Historical Background .....	9
2.1.1 Pre-Contact to Early 1800's .....	9
2.1.2 Mid-Nineteenth Century and the Māhele .....	11
2.1.3 Mid to Late 1800s.....	13
2.1.4 1900 to 1920 .....	14
2.1.5 1920s to 1930s .....	14
2.1.6 1940s.....	20
2.1.7 1950s-Present.....	21
2.2 Previous Archaeological Research .....	23
2.3 Background Summary and Predictive Model .....	46
<b>Section 3 Results of Fieldwork.....</b>	<b>47</b>
<b>Section 4 Recommendations.....</b>	<b>51</b>
<b>Section 5 References Cited .....</b>	<b>52</b>
<b>Appendix A Land Commission Award .....</b>	<b>1</b>

## List of Figures

Figure 1. Portion of U. S. Geological Survey 7.5-Minute Series Topographic Map, Honolulu Quadrangle (1998), showing the location of the project.....	2
Figure 2. Tax Map Key (TMK) 2-6-15 showing project area .....	3
Figure 3. Aerial photograph showing project area.....	4
Figure 4. Keoniana Apartment Floor Plan.....	5
Figure 5. Keoniana Apartment Building Elevations.....	6
Figure 6. Keoniana Apartment Site and Utility Plan .....	7
Figure 7. Overlay of Soil Survey of the State of Hawai'i (Foote et al. 1972), indicating soil types within the project area.....	8
Figure 8. Portion of 1881 Map of Waikīkī by S.E. Bishop showing the location of the current project area.....	12
Figure 9. 1 Portion of 1887 W.E. Wall survey map with overlay of project area .....	15
Figure 10. Portion of 1897 Monsarrat survey map with overlay of the project area.....	16
Figure 11. Portion of 1910 US Army Corp of Engineers map showing project area and agricultural endeavors within the vicinity.....	17
Figure 12. Land Court Application 279 (certified September 3, 1914).....	18
Figure 13. Portion of 1927 U. S. Geological Survey Topographic Map, Honolulu Quadrangle, showing the location of the project area .....	19
Figure 14. 1953 U. S. Geological Survey 7.5-Minute Series Topographic Map. Honolulu Quadrangle showing the approximate location of the current project area .....	22
Figure 15. Portion of U. S. Geological Survey 7.5-Minute Series Topographic Map, Honolulu Quadrangle (1998), showing previous archaeological studies in the vicinity of the current project area.....	24
Figure 16. Northeastern house lot showing central alleyway, view to northwest .....	48
Figure 17. Southwestern house lot, view to northwest .....	48
Figure 18. Southwestern house lot showing connecting driveway, view to northwest.....	49
Figure 19. Northeastern house lot showing connecting driveway and sidewalks, view to north.....	49
Figure 20. Yard space behind northeastern house lot, view to northwest .....	50
Figure 21. Yard space behind northeastern house lot, view to north.....	50

## List of Tables

Table 1. Land Commission Awards within the project area.....	13
Table 2. Previous Archaeological Investigations in Waikīkī Ahupua‘a.....	25
Table 3. References to Burial Finds in Waikīkī from the Bishop Museum NAGPRA Inventory.....	36

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## Section 1 Introduction

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### 1.1 Project Background

At the request of Gerald Park, Urban Planner, Cultural Surveys Hawai'i Inc. (CSH) prepared this archaeological literature review and field inspection report for two adjacent lots (TMK: [1] 2-6-015:067 & 068) each measuring 50 ft. by 100 ft. (10,000 sq. ft. total) located on the NW (*ewa*) side of Keoniana Street between Kalākaua Ave. and Ala Wai Blvd. in the northwest portion of Waikīkī. The project area is depicted on a U.S. Geological Survey topographic map (Figure 1), Tax Map Key plat (Figure 2), and aerial photograph (Figure 3). The project consists of the proposed development of a small apartment complex (Figure 4 to Figure 6). Minimally ground disturbance would be associated with the demolition of existing structures, excavation for structural foundations and utility connections, and landscaping.

This study was intended as a due diligence document and aid to planning. The study is intended to facilitate planning involving the City and County of Honolulu and the State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR).

As will be detailed below, many human burials — traditional Hawaiian and historic — as well as pre-contact Hawaiian and historic cultural deposits have previously been encountered throughout Waikīkī, usually in connection with construction activities related to urban development, or infrastructure improvements. Given the cultural sensitivity of the Waikīkī area and the number of burial finds previously encountered, it is anticipated that the permitting process will involve review by the SHPD/DLNR and that an archaeological inventory survey with a sub-surface testing component will be required.

### 1.2 Environmental Setting

#### 1.2.1 Natural Environment

The project is situated on the level, low-lying coastal area of Waikīkī. Elevation is approximately 0 to 2 meters above mean sea level. The average rainfall in this coastal area of Waikīkī is between 20-30 in. (600-800 mm) per year (Giambelluca et al. 1986). Soils within the project area are listed as Fill Land, Mixed (FL) (Figure 7). Fill Land areas are described as consisting of “areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources” (Foote et al. 1972). Although the project corridor is understood to have been graded and filled during land reclamation efforts and the construction of the Ala Wai Canal, the natural sediment underlying the imported fill deposit may include Jaucus Sand (JaC).

#### 1.2.2 Built Environment

The project is primarily along modern paved roads, as well as adjacent to the Ala Wai Canal, an artificially constructed waterway. The surrounding area is a dense urban environment, including hi-rise and low-rise residential and commercial buildings, as well as parks and recreational facilities.

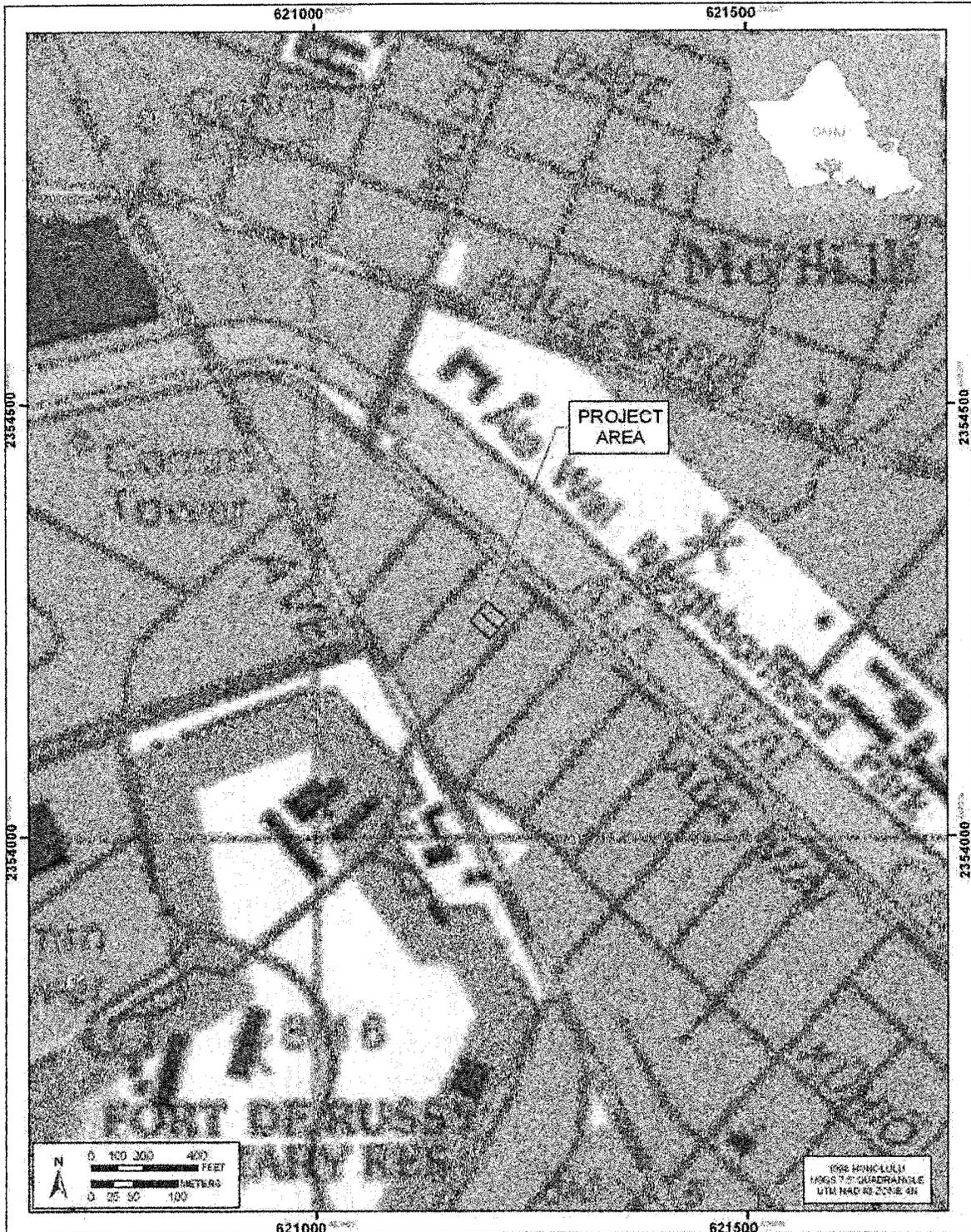


Figure 1. Portion of U. S. Geological Survey 7.5-Minute Series Topographic Map, Honolulu Quadrangle (1998), showing the location of the project

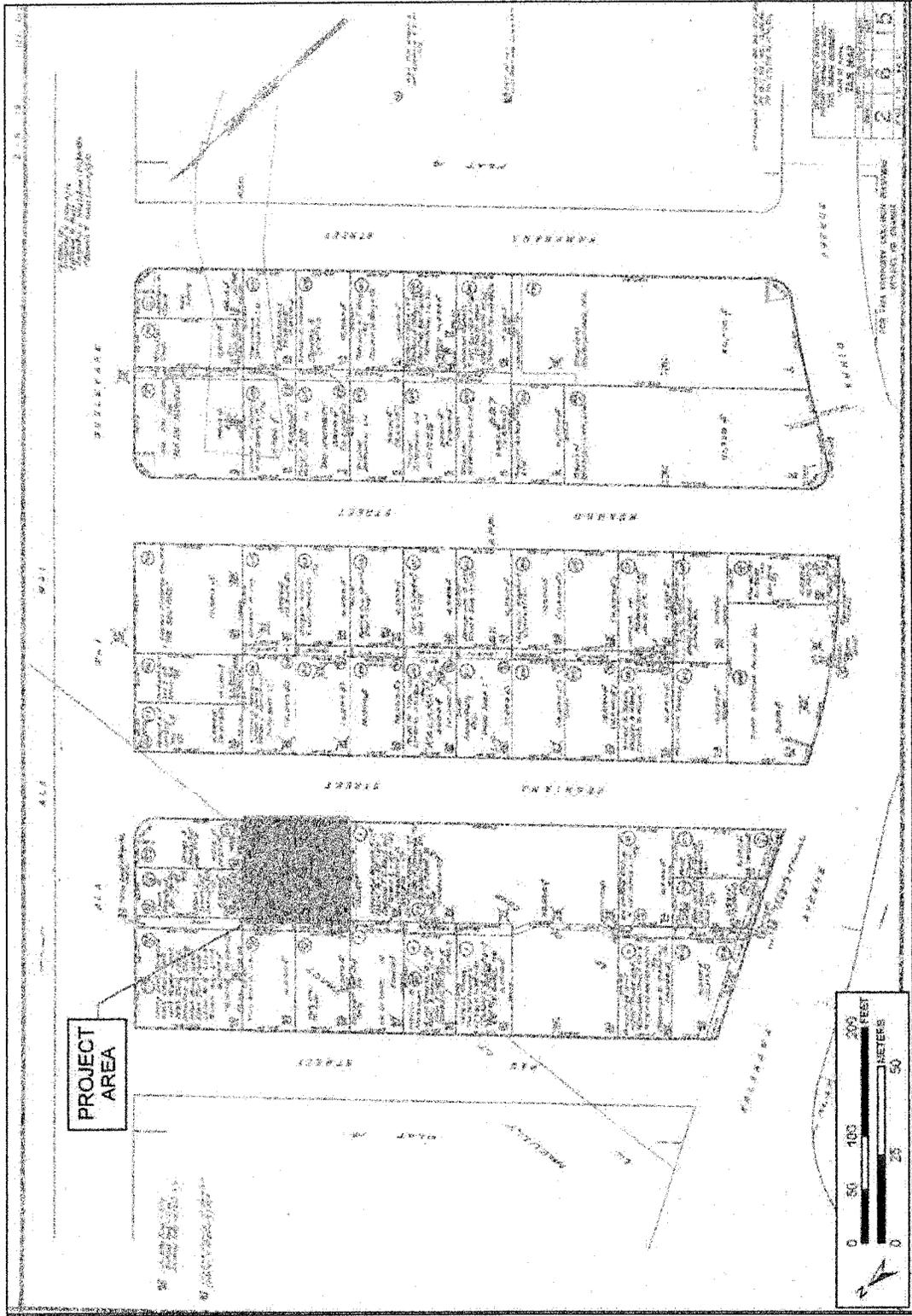


Figure 2. Tax Map Key (TMK) 2-6-15 showing project area

Archaeological Literature Review and Field Inspection Report for Two Lots on Keoniana Street, Waikiki

TMK: [1]2-6-015:067 & 068



Figure 3. Aerial photograph showing project area



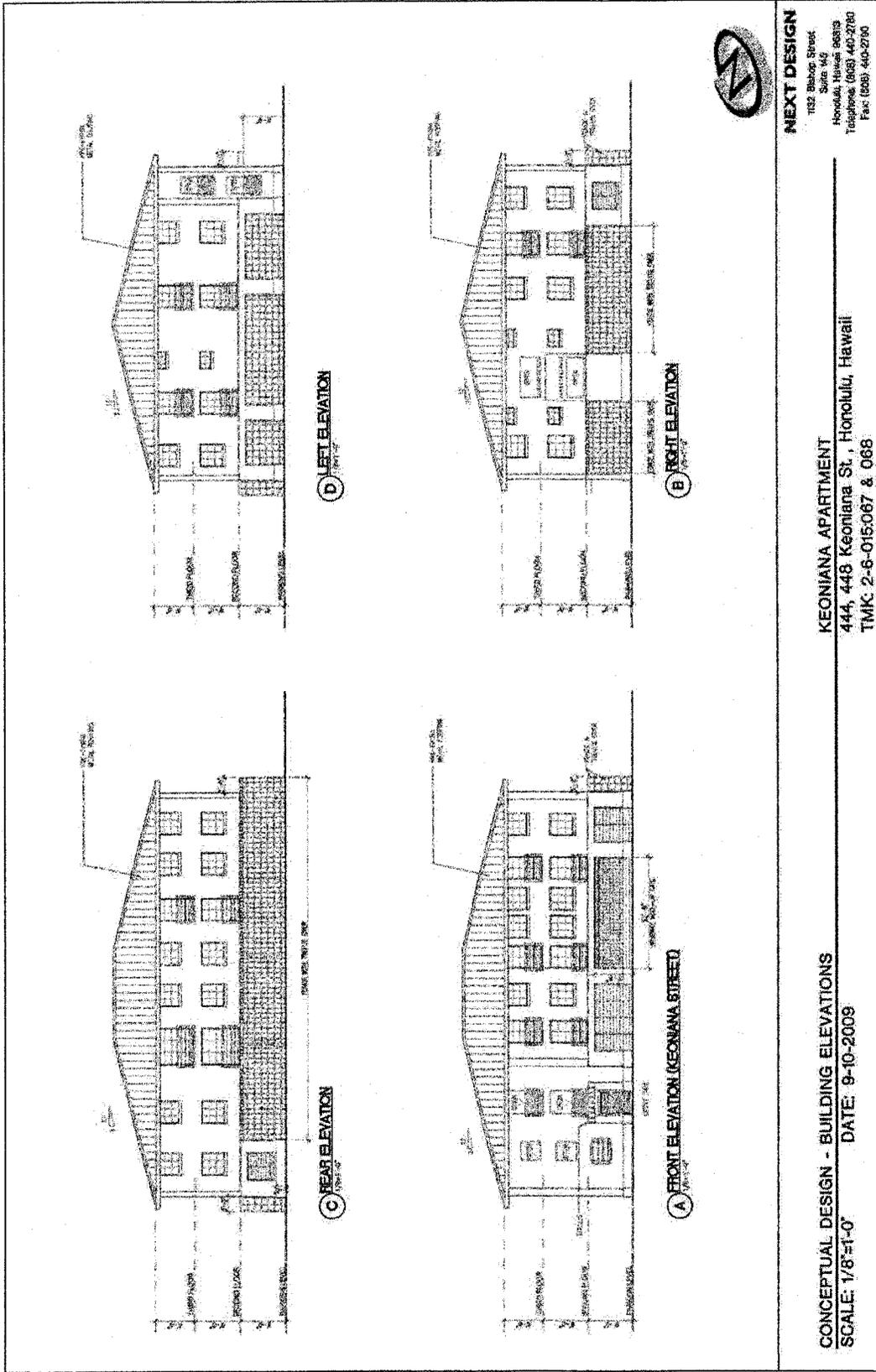


Figure 5. Keoniana Apartment Building Elevations

Archaeological Literature Review and Field Inspection Report for Two Lots on Keoniana Street, Waikiki

TMK: [1] 2-6-015:067 & 068

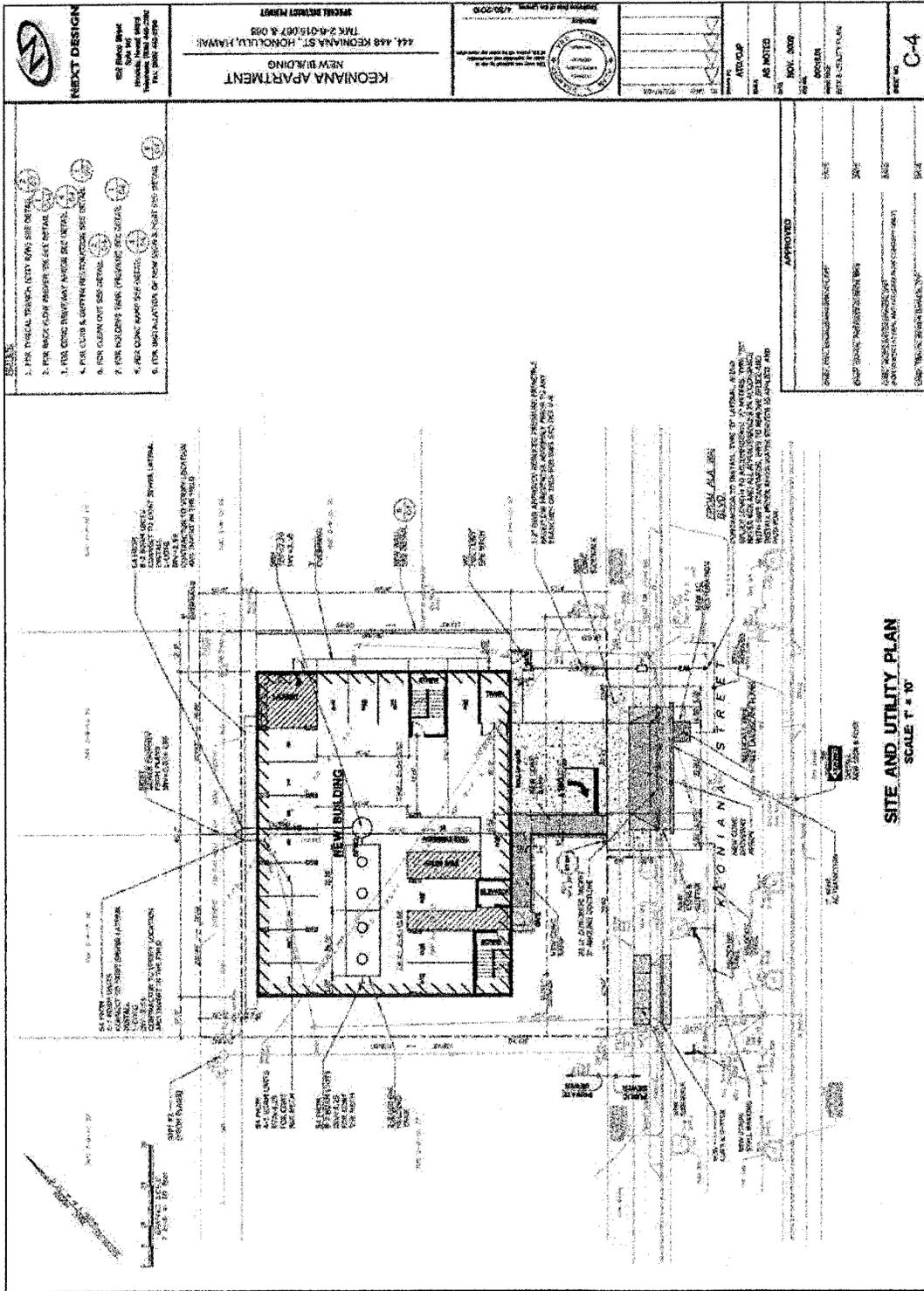


Figure 6. Keoniana Apartment Site and Utility Plan

Archaeological Literature Review and Field Inspection Report for Two Lots on Keoniana Street, Waikiki

TMK: [1] 2-6-015:067 & 068

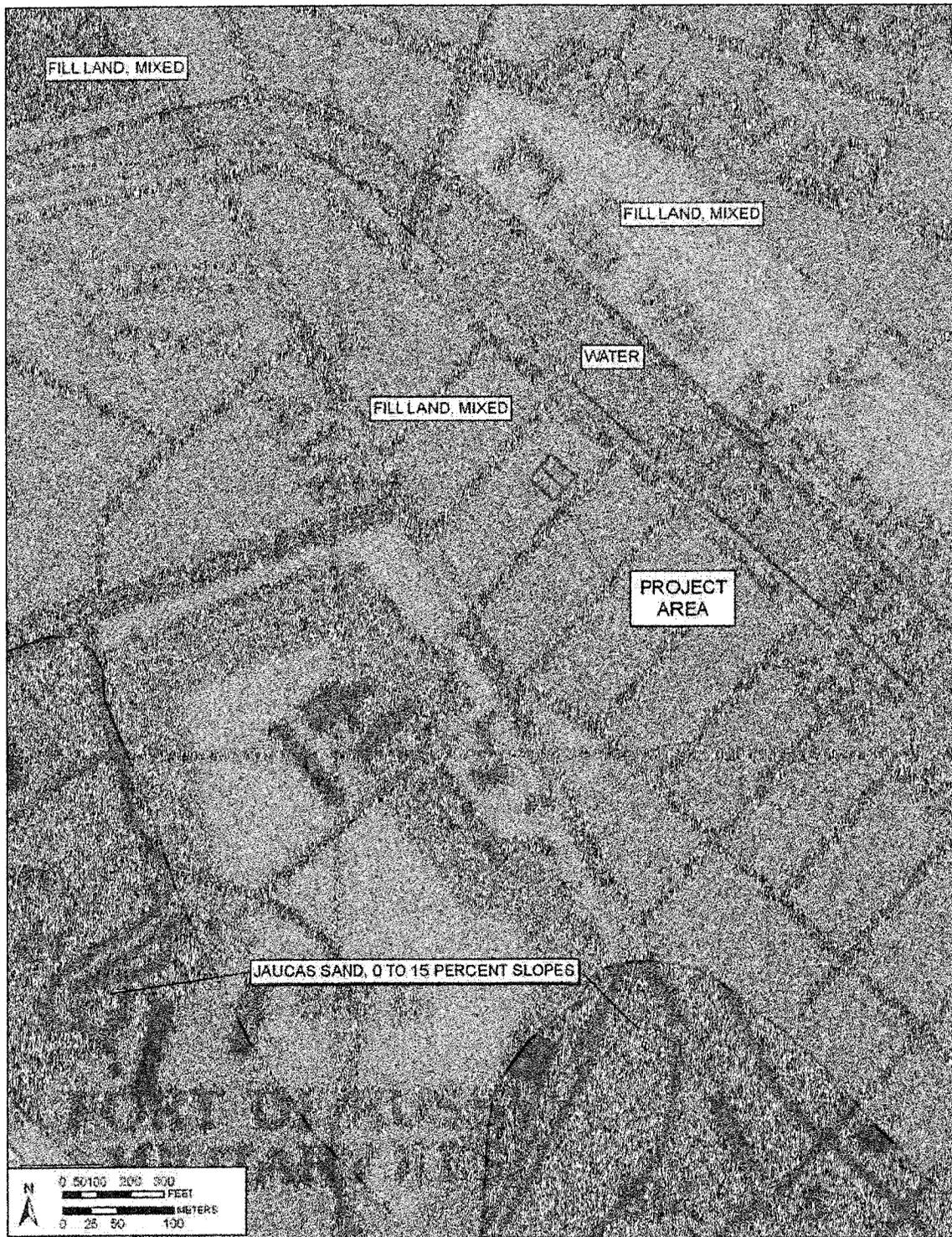


Figure 7. Overlay of Soil Survey of the State of Hawai'i (Foote et al. 1972), indicating soil types within the project area

## Section 2 Background Research

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### 2.1 Historical Background

#### 2.1.1 Pre-Contact to Early 1800's

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 19th-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 Puaaliili, *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 during pre-contact. 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 that also provided ample fresh water for the Hawaiians living in the *ahupua'a*. Water was also available from springs in nearby Mō'ili'ili and Punahou. Closer to the Waikīkī shoreline, coconut groves and fishponds dotted the landscape. A sizeable population developed amidst this Hawaiian-engineered abundance. Captain George Vancouver (1798:161-164), arriving at "Whyteete" in 1792, captured something of this profusion 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* [ti or *kī*] 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.

However, 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 which 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 population.

### 2.1.2 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-19th 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 in Waikīkī continuing to maintain fishponds and irrigated and dry land agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

An 1881 Hawaiian Government survey map by S.E. Bishop provides a detailed record of the physical landscape of Waikīkī before the transformations of the 20th century (Figure 8). When the map was copied in 1922, additional material from subsequent government surveys was added, including locations of road corridors not present in 1881. The 1881 map also indicates locations of mid-nineteenth century Land Commission Awards. Māhele records for these awards provide the first specific documentation of land use in the vicinity of the project area.

The project area is located within two Land Commission Awards (Table 1). The majority of the project area is located within LCA 1409.2, with the southeastern portion of the project area extending into LCA 8559 B. LCA 1409.2 was awarded to Nakoko and consisted of one *lo'i*, and one house lot (See Appendix A). LCA 8559 B was awarded to William Lunalilo and included nine taro patches.

Documents from these Land Commission Awards suggest that land usage and activity by the mid-nineteenth century included both habitation and wetland agriculture, with house lots, *lo'i*, *'auwai* (irrigation channel), and fishponds in the vicinity of the project area. This may reflect the continuation of traditional Hawaiian land use in this portion of Waikīkī. It is important to note that Bishop's 1881 map was drawn before the extensive drainage and land filling of the Waikīkī landscape during the construction of the Ala Wai Canal in the 1920s, and likely represents the project area as it existed in traditional Hawaiian times.

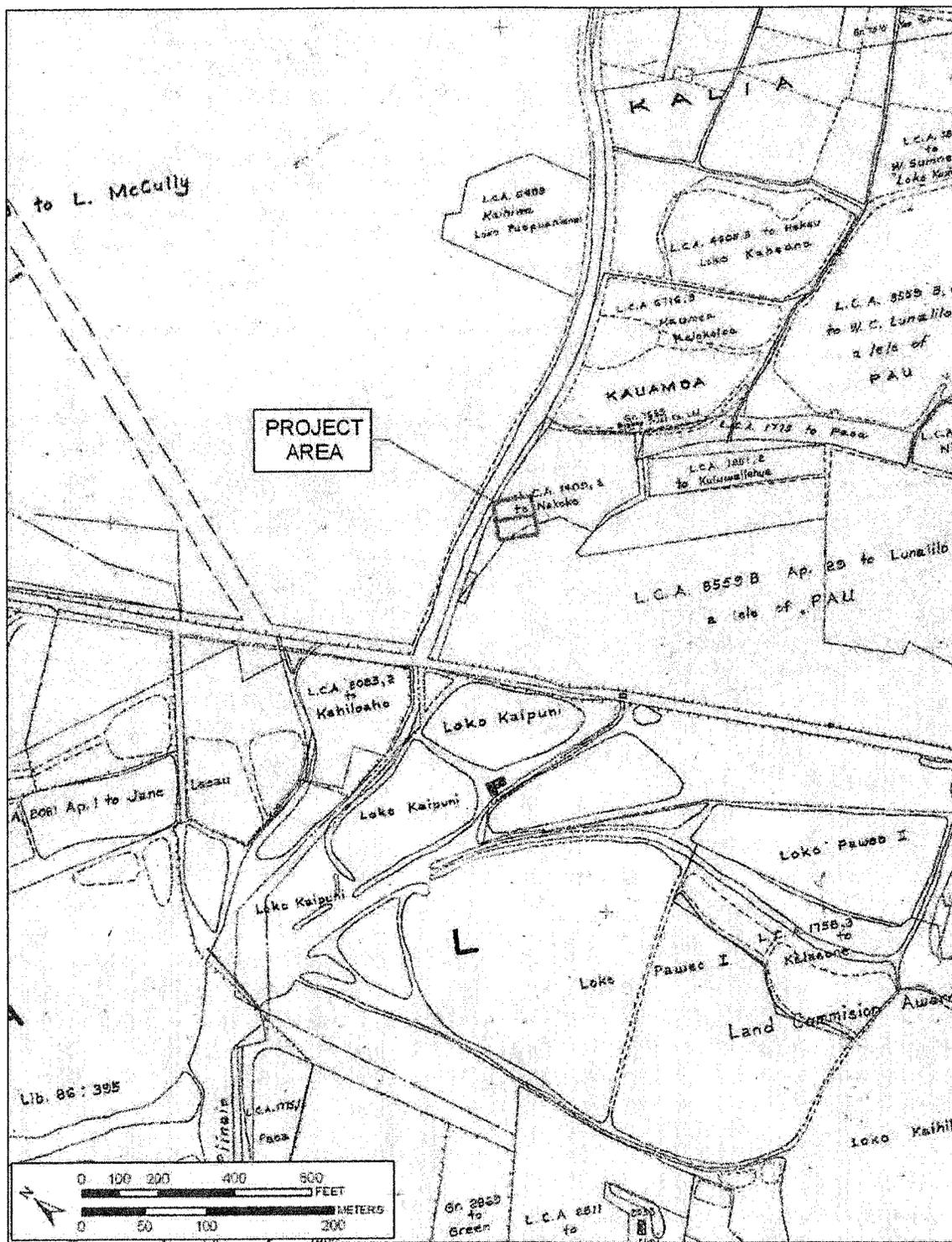


Figure 8. Portion of 1881 Map of Waikiki by S.E. Bishop showing the location of the current project area

Table 1. Land Commission Awards within the project area

LCA #	Claimant	Land Use
1409.2	Nakoko	1 house lot partly fenced, 1 <i>lo'i</i>
8559 B:29	William Lunalilo	9 <i>lo'i</i>

### 2.1.3 Mid to Late 1800s

As the 19th 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.

Other developments during the second half of the 19th century a prelude of changes that would dramatically alter the landscape of Waikīkī during the 20th century – include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Avenue), 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 largely 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 19th 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-19th 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.

The 1887 Wall survey map (Figure 9) and 1897 Monsarratt survey map (Figure 10) show Ala Nao Stream extending through the current project area before passing under Waikiki Road and supplying several adjacent fishponds with nutrient-rich freshwater.

#### 2.1.4 1900 to 1920

During the first decade of the 20th 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 1987:79).

All the fishponds were filled by 1928. A 1910 US Army Corps of Engineers map (Figure 11) and a 1914 Land Court Application Map (Figure 12) show continued agricultural endeavors, marshland, and fishponds within and in the vicinity of the project area. The 1910 US Army Corps of Engineers map also depicts the location of Fort DeRussy in relation to the current project area.

#### 2.1.5 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 (Figure 13). 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,



Figure 9. 1 Portion of 1887 W.E. Wall survey map with overlay of project area

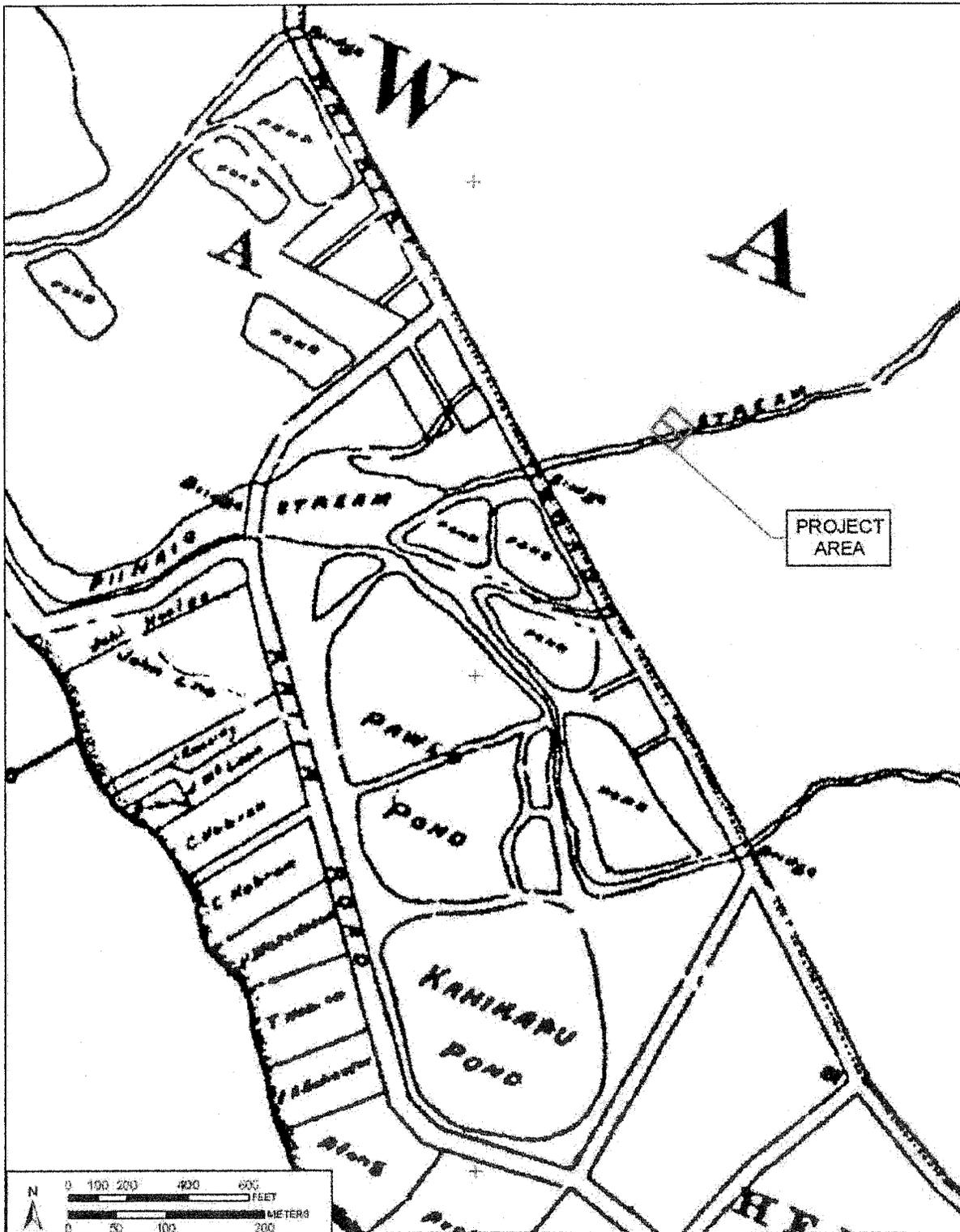


Figure 10. Portion of 1897 Monsarrat survey map with overlay of the project area



Figure 11. Portion of 1910 US Army Corp of Engineers map showing project area and agricultural endeavors within the vicinity

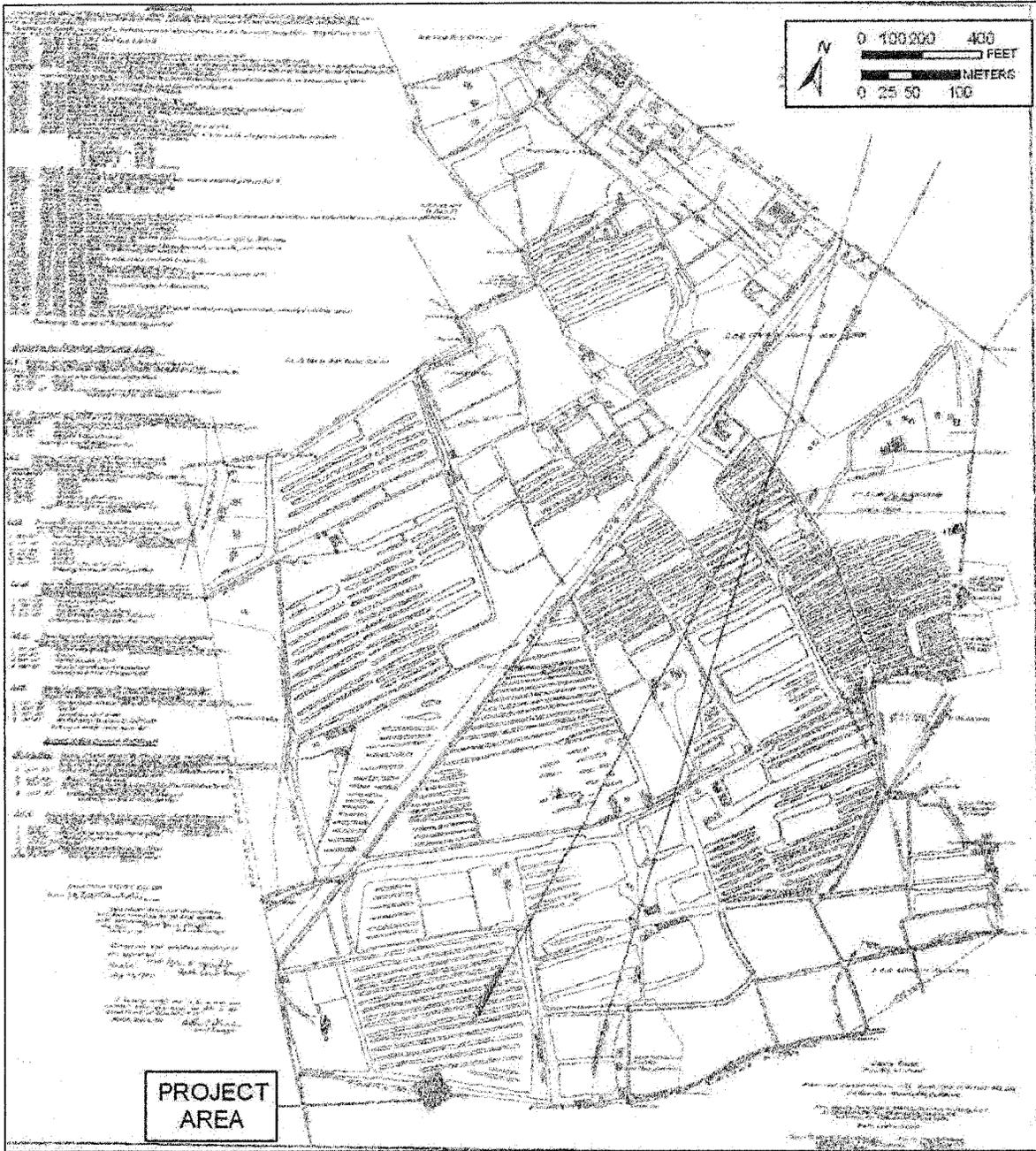


Figure 12. Land Court Application 279 (certified September 3, 1914)

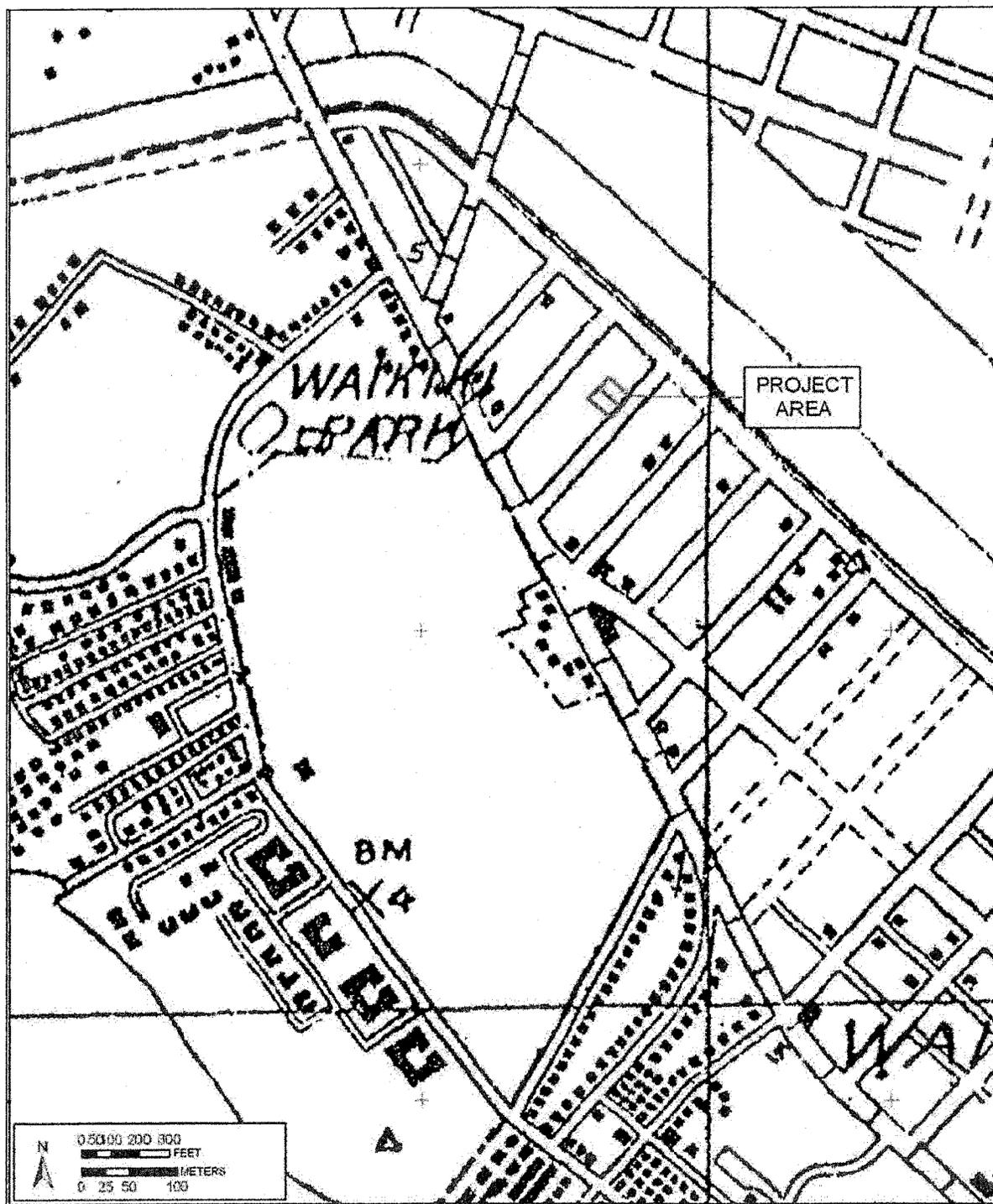


Figure 13. Portion of 1927 U. S. Geological Survey Topographic Map, Honolulu Quadrangle, showing the location of the project area

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."

Moana Park, Ala Moana Beach Park's original name had been "a wetland with bulrushes, *kiawe* trees, and coconut palms that the city used as a garbage dump." The Parks Board designated the land for recreation and initiated its development in 1931. President Franklin D. Roosevelt attended Moana Park's opening ceremonies in 1934 during a visit to Honolulu. The park's name was changed to Ala Moana, "path [to the] sea, ." (Clark 1999:4-5).

### 2.1.6 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 (sec. 1, pg. 1) 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]?"

### 2.1.7 1950s-Present

By the mid-1950s there were more than fifty hotels and apartment buildings from the Kālia area to the Diamond Head end of Kapi'olani Park (Figure 14). 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.

The Ala Moana Beach Park (SIHP #50-80-14-1388), an Art Deco Park, has been on the State Register of Historic Places since June 9, 1988.

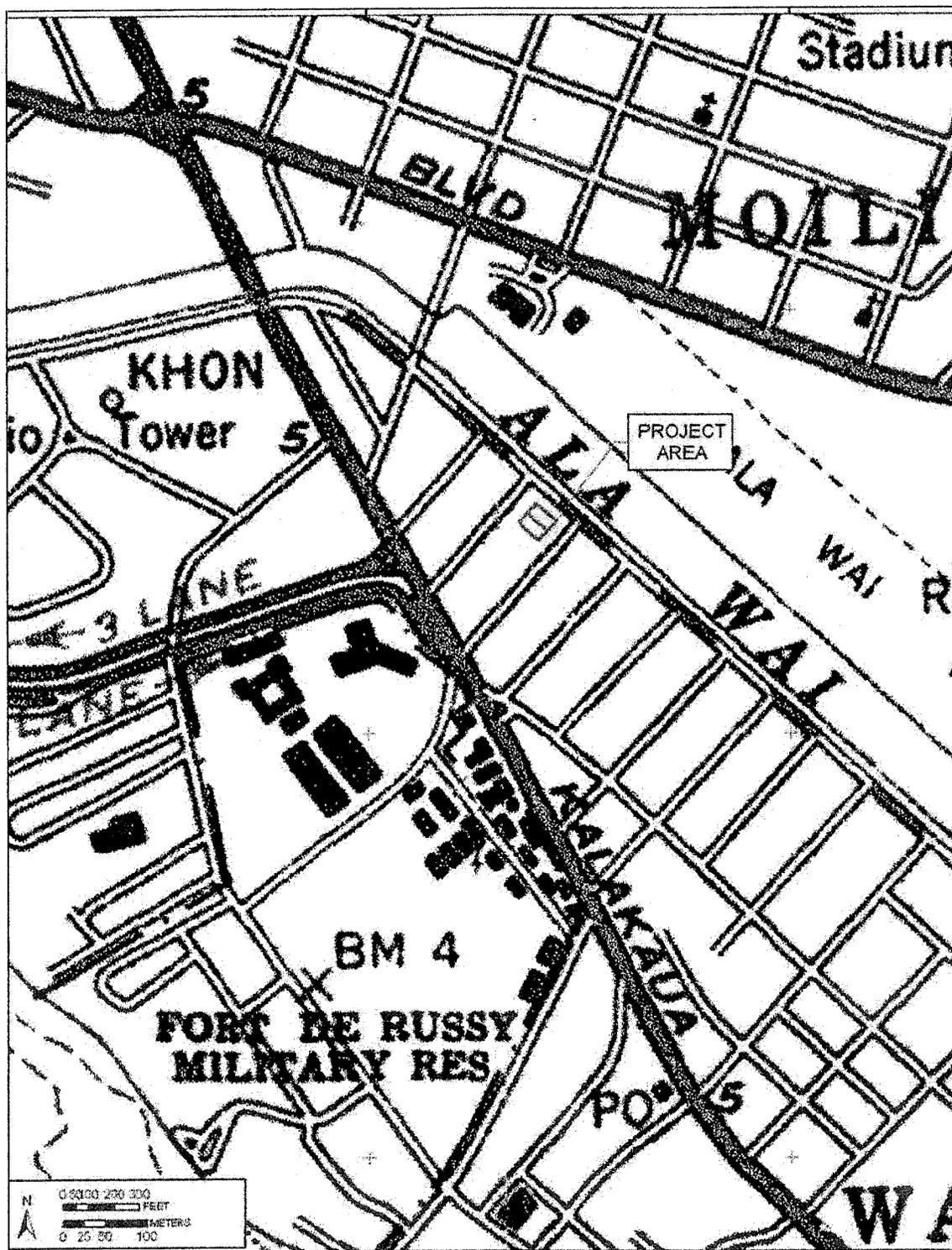


Figure 14. 1953 U. S. Geological Survey 7.5-Minute Series Topographic Map. Honolulu Quadrangle showing the approximate location of the current project area

## 2.2 Previous Archaeological Research

Previous archaeological studies in the vicinity of the project area are presented in Table 2 and depicted in Figure 15. Table 3 presents references to burial finds in Waikīkī from the Bishop Museum NAGPRA Inventory. The following is a summary of these archaeological studies:

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 in the environs of the present Hawai'i School for Girls. 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 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. . . .

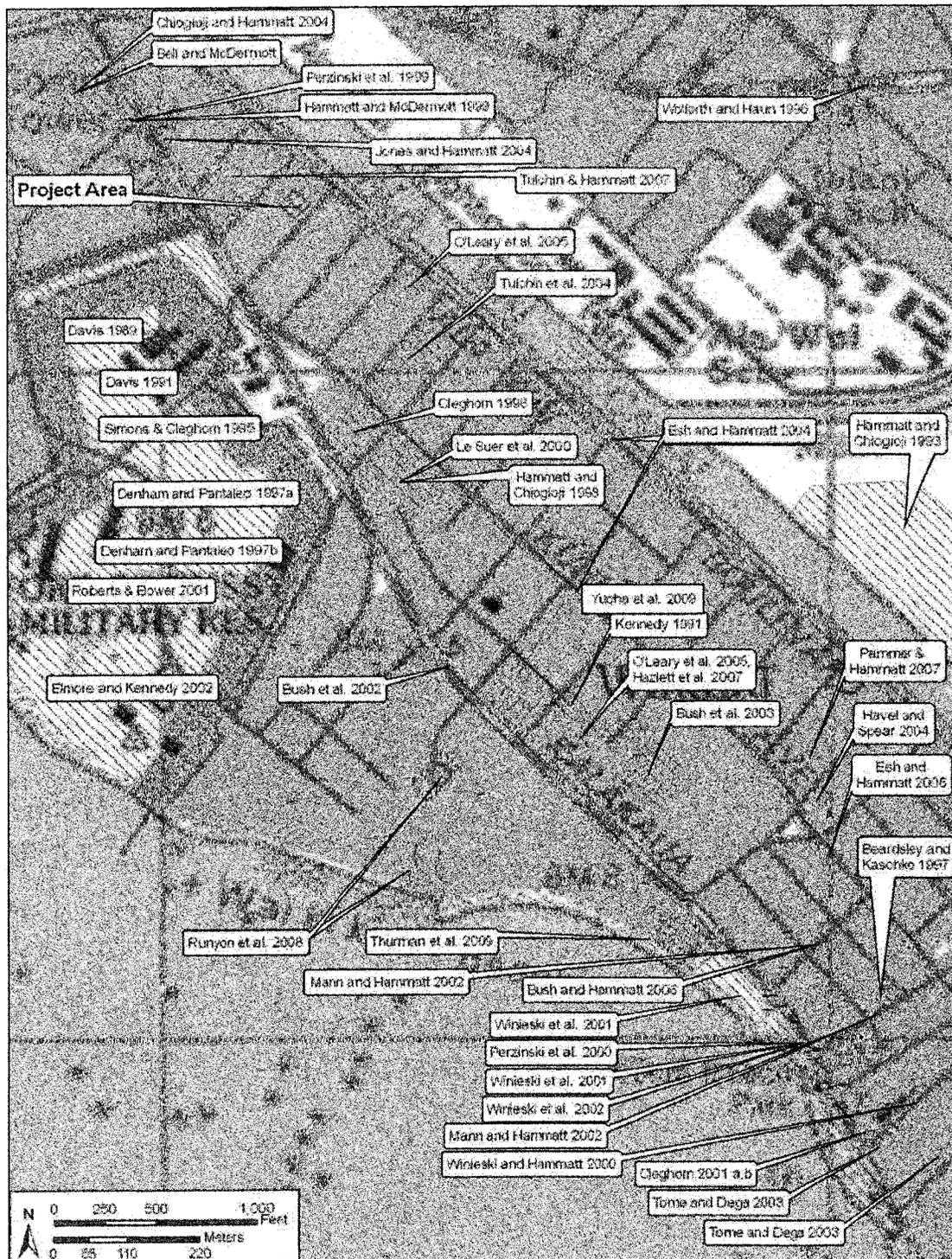


Figure 15. Portion of U. S. Geological Survey 7.5-Minute Series Topographic Map, Honolulu Quadrangle (1998), showing previous archaeological studies in the vicinity of the current project area

Table 2. Previous Archaeological Investigations in Waikīkī Ahupua'a

Reference	Type of Investigation	General Location	Findings
Emerson 1902	Burial recovery account	Present Elks Club	At least four individuals, all presumed to be Hawaiian and associated burial goods
McAllister 1933	Island-wide survey	All of O'ahu	Waikīkī listed as Site 60.
1963 Bishop Museum (cited in Neller 1984)	Bishop Museum burial recovery	2431 Prince Edward Street	Two + individuals from a construction trench
Honolulu Star-Bulletin; 1963; Yost 1971	Burial recovery account	Present Outrigger Canoe Club	27 Burials
1964 Bishop Museum Site Files	Burial recovery account	Fronting the Surfrider Hotel	4 burials?
1976 Bishop Museum Site Files	Burial recovery account	Hale Koa Hotel	Six burials
Nakamura 1979	History Graduate Thesis	Waikīkī	History of Waikīkī with focus on the radical changes in land use that occurred in the early 20th century.
Neller 1980	Monitoring Report	Kālia Burial Site: Hilton Hawaiian Village	Brief field inspection: partial recovery of 3 historic Hawaiian burials, trash pit from 1890's, no prehistoric Hawaiian sites.
Bishop Museum 1981	Testing, Excavations, & Monitoring	Halekūlani Hotel	Intact cultural deposits found.
Neller 1981	Reconnaissance Survey	Halekūlani Hotel	Limited background research on area
Acson 1983	Historical Research	'Ewa to Diamond Head	Nine walks through Waikīkī, photos, maps and historical info.
Bishop Museum 1984	Burial Remains List	Waikīkī Ahupua'a	Listing of burial remains found in Waikīkī Ahupua'a at the Bishop Museum
Davis 1984	Archaeological and Historical Investigation	Halekulani Hotel	48 historic and prehistoric features excavated.
Neller 1984	Informal Narrative Report	Paoakalani Street	Recovery of human skeletons at construction site

Reference	Type of Investigation	General Location	Findings
Center for Oral History 1985	Oral Histories, Volumes I-IV	Waikīkī	Oral Histories of Waikīkī, 1900-1985, Volumes I-IV
Beardsley & Kaschko 1997	Archaeological monitoring and data recovery	Pacific Beach Hotel Office Annex	2 burials and cultural deposits
Griffin 1987	Burial Recovery Report	Along Kalākaua Ave. near corner of Kai'ulani St.	Bones removed and bagged by construction crew, burial found in <i>makai</i> wall of gas pipe excavation.
SHPD 1987	Burial, PA Report	Kalākaua Ave.	From excavation adjacent to Moana Hotel (site -9901).
Bath & Kawachi 1989	Burial, Recovery Report	Ala Wai Golf Course	2 burials
Davis 1989	Reconnaissance Survey & Historical Research	Fort DeRussy	Fishponds and other features are buried in this area. Sites -4573 thru -4577 are fishponds, 4570 is a remnant cultural deposit.
Riford 1989	Background Literature Search	TMK: 2-6-014:039	List of literature pertaining to Waikīkī area.
Rosendahl 1989	Inventory Survey, Prelim. Report	Fort DeRussy	Historic artifacts, no human remains
Athens 1990	Letter	TMK: 2-6-023:025	Letter to SHPD listing human remains at IARII lab from Pacific Beach Hotel, and Barbers Point Generating Station.
Hurst 1990	Historical Literature Search	Waikikian Hotel	Background and planning document. No fieldwork was done.
Chigioji 1991	Assessment	2 parcels, TMK 2-6-24:65-68 and 80-83, TMK 2-6-24:34-40 & 42-45	Formerly a corner of the 'Āinahau estate; remainder of parcels, former 'auwai, <i>kalo</i> and rice fields; test excavations and specific sampling strategy recommended.
Davis 1991	Monitoring Report	Fort DeRussy	See also Davis 1989. Subsurface features and material remains date to early post-contact times (c. 1780s to 1790s) through the mid-19th century.

Reference	Type of Investigation	General Location	Findings
Kennedy 1991	Monitoring Report	TMK: 2-6-022:014 IMAX theatre location	Pollen and bulk-sediment <sup>14</sup> C samples from ponded sediments were recovered. The three <sup>14</sup> C dates and pollen sequence were inverted.
SHPD 1991	Public Inquiry	TMK: 2-6-024:036	Bones were determined to be non-human and part of the extensive fill material present
Simons et al. 1991	Interim Field Study, Monitoring & Data Recovery	Moana Hotel Area	8 burials, preliminary osteological analysis indicates pre-contact type; pre- and post artifactual material recovered.
Hurlbett and Carter 1992	Monitoring Report	TMK: 2-6-008:001	Site -2870 (3 burials) found by Neller in 1980. This report is on testing and monitoring in same area.
Pietrusewsky 1992a	PA Report	Moana Hotel	Right half of human mandible found by hotel guest.
Pietrusewsky 1992b	PA Report	Lili'uokalani Gardens Site, Hamohamo	Human Remains from the Lili'uokalani Gardens Site, Hamohamo, Waikīkī, O'ahu
Rosendahl 1992	Monitoring Report	Hilton Hawaiian Village	Identified 12 historic refuse pits, 3 historic to modern trenches.
Streck 1992	Memorandum for Record	Fort DeRussy	Human burial discovery (believed to be late prehistoric Hawaiian) during data recovery excavations, May, 20, 1992.
Cleghorn, J. 1993	Inadvertent Discovery of Human Remains	Waikīkī Aquarium	Remains of one human individual, mandible identified.
Dagher 1993	Inadvertent Discovery of Human Remains	Waikīkī Aquarium	Human remains of at least one person identified, excavation recommended.
Dega & Kennedy 1993	Inadvertent Discovery of Remains	Waikīkī Aquarium	Discovery of unidentified bone fragments, all remains turned over to SHPD.

Reference	Type of Investigation	General Location	Findings
Hammatt & Chiogioji 1993	Archaeological Assessment	16-Acre Portion of the Ala Wai Golf Course	Not associated with any known surface archaeological site, however prehistoric and early historic occupation layers associated with <i>lo'i</i> system remain intact below modern fill. Specific sampling strategy and potential burial testing recommended.
Carlson et al. 1994	Report of Human Remains	Realignment of Kālia Road, Fort DeRussy	Approximately 40 human burials (the majority were recovered in a large communal burial feature & a cultural enriched layer that contained postholes.
Maly et al. 1994	Archaeological and Historical Assessment Study	Convention Center Project Area	Recommend subsurface testing to determine presence or absence of cultural deposits and features.
McMahon 1994	SHPD Burial Report	Intersection of Kalākaua and Kuamo'o Streets	Inadvertent Burial Discovery: misc. bones uncovered in back dirt pile during construction. Follow up by CSH.
Hammatt & Shideler 1995	Sub-surface Inventory Surface	Hawai'i Convention Center Site, 1777 Kalākaua Ave.	No further work recommended.
Jourdane 1995	Inadvertent Discovery of Human Remains	Paoakalani Avenue	Human skeletal remains discovered in planted strip between street and sidewalk fronting hotel.
Simons et al. 1995	Data Recovery Excavations	Fort DeRussy	Historic and prehistoric artifacts, and midden materials collected from 7 occupation layers. 6 prehistoric cultural features recorded: <i>'auwai</i> bunds and channels, fishpond walls and sediments, a possible <i>lo'i</i> , and hearths.

Reference	Type of Investigation	General Location	Findings
Cleghorn 1996	Inventory Survey	TMK: 2-6-016:23, 25, 26, 28, 61, 69	7 backhoe trenches excavated, no sites located.
Grant 1996	Historical Reference	Waikīkī	Historical information about Waikīkī prior to 1900.
Hammatt & Shideler 1996	Data Recovery	Hawai'i Convention Center Site	No clear evidence that Kūwili Pond sediments present 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. <sup>14</sup> C dates
Denham et al. 1997	Data Recovery Report	Fort DeRussy	Excavations conducted at fishponds, <sup>14</sup> C dates mid-17th C.
Denham & Pantaleo 1997	Monitoring and Excavations Report	Fort DeRussy	Final Report does not include SHPD recommendations. 10 subsurface features and 9 burial locations found. <sup>14</sup> C dates
Beardsley & Kaschko 1997	Monitoring and Data Recovery Report	Pacific Beach Hotel Office Annex	Traditional Hawaiian cultural deposits and 2 human burials. 3 <sup>14</sup> C dates
Hammatt & Chiogioji. 1998	Assessment	King Kalākaua Plaza Phase II	No surface archaeological sites, documented human burials, presence of subsurface cultural deposits (both of pre-contact Hawaiian and historic provenance).
Hammatt & McDermott 1999	Burial Disinterment Plan and Report	Kalākaua Avenue	Two human burials found
Perzinski et al. 1999	Monitoring Report	Along Ala Wai Blvd., Kalākaua Ave., Ala Moana Blvd., & 'Ena Rd.	Two human burials found (1 preceding monitoring); pockets of undisturbed layers still exist. Burial #2 previously disturbed.
Rosendahl 1999	Interim Report: Inventory Survey	Fort DeRussy	This area is part of the old shoreline.

Reference	Type of Investigation	General Location	Findings
Hammatt & Chiogioji 2000	Archaeological Assessment	Honolulu Zoo Parcel	Majority of zoo parcel unlikely to yield significant cultural deposits. However, strong possibility of significant subsurface cultural deposits in the SW portion. Monitoring is recommended in this area.
LeSuer et al. 2000	Inventory Survey	King Kalākaua Plaza Phase II	Site -5796 has been adversely affected by land alteration of the project area. Site -4970, has been adequately documented.
Perzinski et al. 2000	Burial Findings	Kalākaua Ave. between Kai'ulani & Monsarrat Avenues	44 sets of human remains; 37 disinterred, 7 left in place; believed to be Native Hawaiian, interred prior to 1820.
Cleghorn 2001	Mitigation	Burger King Construction Site	Concerning three incidents of uncovered human remains while locating a buried sewer-line for the ABC's store.
Corbin 2001	Inventory Survey	Hilton Waikikian Property	No arch. sites were found during excavations of the area
Elmore & Kennedy 2001	Burial Report	Royal Hawaiian Hotel	Human remains found during trench excavations for conduit. The in situ remains were left in place, while the disturbed remains were reentered with the others.
McGuire & Hammatt 2001	Cultural Assessment for Waikīkī Beach Walk Project	Along Lewers St., Beach Walk, Kālia Rd. & Saratoga Rd.	Primary cultural concern identified as inadvertent burial discovery. Cultural monitoring recommended for all subsurface work within project area.

Reference	Type of Investigation	General Location	Findings
Perzinski & Hammatt 2001a	Monitoring Report	Kapi'olani Bandstand	A charcoal layer was observed, concentrated on the SW side of the bandstand; recovered indigenous basalt lamp with a handle, from the SE end of the bandstand.
Perzinski & Hammatt 2001b	Monitoring Report	Kapi'olani Park	No cultural layer, artifacts, midden or human burials were encountered during the excavations.
Perzinski & Hammatt 2001c	Monitoring Report	Kalākaua Avenue from the Natatorium to Poni Mo'i Road	No cultural layer, artifacts, midden or human burials were encountered during the excavations.
Rosendahl 2001	Assessment Study	Outrigger Beach Walk	Assessment of previous archaeology and historical literature.
Winieski & Hammatt 2001	Monitoring Report	TMK: 1-2-6-025:000	There is a possibility that Hawaiian or Historic materials as well as human burials may still be present within the project area.
Borthwick et al. 2002	Inventory Survey	71,000 sq. ft. parcel, TMK: 2-6-016:002	No burials were found during testing; absence of dry Jaucus sand deposits indicate that burial finds are unlikely in project area.
Bush and Hammatt 2002	Monitoring Report	Kalākaua Avenue, between Ala Moana Blvd. and Kapahulu Ave.	Encountered 4 human burials, probably pre-contact Native Hawaiians; several historic trash pits; entire pig within an <i>imu</i> pit (estimated date, A.D. 1641-1671); gleyed muck associated with former ponds.
Calis 2002	Monitoring Report	Lemon Road	No historic deposits, major previous disturbance
Elmore & Kennedy 2002	Monitoring Report	Fort DeRussy	No findings.

Reference	Type of Investigation	General Location	Findings
Mann & Hammatt 2002	Monitoring Report	Lili'uokalani Avenue and Uluniu Avenue	5 burial finds of 6 individuals; two historic trash pits.
Putzi & Cleghorn 2002	Monitoring Report	Hilton Hawaiian Village	No findings during monitoring of trench excavations for sewer connections.
Winieski, Perzinski, Shideler & Hammatt . 2002	Monitoring Report	Kalākaua Ave. between Ka'iulani and Monsarrat Avenues.	44 human burials encountered, 37 disinterred; buried habitation layer identified, with traditional Hawaiian artifacts, midden, fire pits, & charcoal; fragment of light gauge rail, remnant of Honolulu Transit trolley system, observed; low energy alluvial sediments associated with the now channelized <i>muliwai</i> Kukaunahi also observed.
Winieski, Perzinski, Souza & Hammatt 2002	Monitoring Report	Kūhiō Beach	Skeletal remains of 10 individuals, six disinterred, only 2 in situ. 4 indigenous artifacts, none in situ. Discontinuous cultural layer, historic seawall.
Bush et al. 2003	Monitoring Report	International Marketplace	Historic trash found.
Tome & Dega 2003	Monitoring Report	Waikīkī Marriot	One isolated not in situ possible human bone fragment found. Recommends monitoring during future work.
Tulchin & Hammatt 2003	Archaeological & Cultural Impact Assessment	2284 Kalākaua Ave.	Notes possibility of burials in the project area; recommends an inventory survey with subsurface testing.

Reference	Type of Investigation	General Location	Findings
Chiogioji, et al. 2004	Archaeological Inventory Survey	Tusitala Vista Elderly Apartment	SIHP sites -6682, -6705, -6706, and -6707 including human remains, remnants of the 'Āinahau Estate and agricultural sites
Esh and Hammatt 2004	Archaeological Monitoring Report	For Ala Wai Boulevard Improvements, TMK 2-6-14, 15, 16, 17, 20, 21, 24, 25, 28, 29)	No significant finds
Jones and Hammatt 2004	Archaeological Monitoring Report	for the Anti-Crime Street Lighting Improvements Project (Part III) Along the Mauka Side of Kalākaua Avenue from Ala Wai Bouevard to Pau Street, TMK 2-6-7 & 13)	Some pond or <i>lo'i</i> sediments noted near intersection of McCully and Kalākaua.
Tulchin et al. 2004	Archaeological Data Recovery Report	For Site 50-80-14-6407 Feature A At An Approximately 71,000-Sq. Ft. Parcel In Waikīkī Ahupua'A, Kona District, Island Of O'Ahu (TMK 2-6-16: 2, 4, 6, 7, 8, 12-19, 62, 64, 70, 75, 76, and 77	Pollen and Carbon Dating results and the Hawaiian Use of <i>Kuāuna</i> and <i>Paukū</i> features are discussed
Freeman et al. 2005	Archaeological Inventory Survey	Hobron Lane	Four sites identified during subsurface testing; 1 disturbed burial; 1 coffin burial with two individuals; 1 cultural deposit; and, 1 fishpond sediment
O'Hare et al. 2005	Archaeological Inventory Survey	Kaio'o Drive	Site 50-80-14-6848, a pre-contact fire pit radiocarbon dated to AD 1470-1660, was recorded.

Reference	Type of Investigation	General Location	Findings
O'Leary et al. 2005a	Archaeological Inventory Survey	1-Acre Parcel, 2284 Kalākaua Avenue (former Waikīkī 3 Theater)	1 burial encountered
O'Leary et al. 2005b	Archaeological Assessment	0.5-Acre Royal Kāhili Condo	No significant finds
Bell and McDermott 2006	Archaeological Inventory Survey	Southeast quarter of the block bounded by Kalākaua Ave., 'Ena Road, Hobron Lane, and Līpe'epe'e Street	Site 50-80-14-6873, traditional Native Hawaiian burial; -6874, subsurface cultural layer; -6875, traditional Native Hawaiian burial
Esh and Hammatt 2006	Archaeological Monitoring Report	For Kūhiō Avenue (Kalākaua to Ka'iulani), TMK [1] 2-6-015, to 022: various parcels)	No significant finds
Hammatt & Shideler 2006a	Archaeological Assessment	Two Parcels at the Corner of Kūhiō and Kapahulu Avenues	No significant finds, study area abuts former Ku'ekaunahi Stream (now overlain by Kapahulu Avenue)
Hammatt & Shideler 2006b	Archaeological Assessment	0.015-Acre Parcel at the Corner of Kūhiō and Kapahulu TMK: 2-6-027:052	No significant finds, study area abuts former Ku'ekaunahi Stream (now overlain by Kapahulu Avenue)
Hammatt, and Shideler 2007	Archaeological Monitoring Report	For a Grease Interceptor at the Sheraton Moana Surfrider Hotel, TMK: [1] 2-6-001:012	No significant finds
Pammer and Hammatt 2007	Archaeological Monitoring Report	Perry's Smorgy Restaurant Project TMK: [1] 2-6-021:114	No significant finds

Reference	Type of Investigation	General Location	Findings
Hazlett, Chiogioji, Borthwick and Hammatt 2008	Archaeological Monitoring Report	Report for a 1-Acre Parcel, 2284 Kalākaua Avenue, TMK: [1]- 2-6-22:009	No significant finds
Hazlett, Esh and Hammatt 2008	Archaeological Monitoring Report	Royal Hawaiian Shopping Center Parcel, TMK: [1] 2-6-002:018	No significant finds
Runyon et al. 2008	Archaeological Assessment	Improvements to the Royal Hawaiian and Sheraton Hotels TMK: [1] 2-6-002: 005 & 006	Isolated human remains were identified. No sites were designated
Thurman, and Hammatt 2008	Archaeological Monitoring Report	For Geotechnical Testing at the Royal Hawaiian and Sheraton Waikiki Hotels TMK: [1] 2-6-002:005, 006 & 026	No significant finds
Tulchin J. and Hammatt 2008	Archaeological Assessment	1944 Kalākaua Project TMK: [1] 2-6-014: 004, 006, 007, 008, 010, 019 & 058	No significant finds
Tulchin J. and Hammatt 2007	Archaeological Data Recovery Report	Tusitala Vista Elderly Apartments, TMK: [1] 2-6-024: 070, 071, & 89	Presents palynological and radiocarbon analysis tracing the paleo-environmental change and man-made alterations of the landscape at SIHP No. 50-80-09-6707,
Petrey et al. 2008	Monitoring Report	City and County of Honolulu's Emergency Temporary Beach Walk Sewer Bypass Project, TMK: [1] 2-3-034, -036, 037; 2-6-017, -018; 2-7-036	No findings; a section of wall at Ala Moana Park Drive at Ala Moana Beach Park (SIHP #50-80-14-1388) was cut and replaced during the project.

Reference	Type of Investigation	General Location	Findings
Whitman et al. 2008	Archaeological Monitoring Report	for a 12-inch Water Main Installation Project along a Portion of Kalākaua Avenue and Poni Mō'ī Road, TMK: [1] 3-1-032 & 043	One inadvertent human burial was discovered during monitoring. The remains were fully articulated and the burial is likely to be Native Hawaiian. It was designated SIHP #50-80-14-6946
Thurman et al. 2009	Archaeological Inventory Survey	Diamond Head Tower Redevelopment Project, TMK: [1] 2-6-001:012	Two historic properties were identified: SIHP 50- 80-14-7068 an intact cultural layer, with a calibrated radiocarbon date to AD 1801 - AD 1939 (66.1% probability), and SIHP 50-80-14-7069 a historic trash pit dated to the late nineteenth through early twentieth century
Yucha et al. 2009	Archaeological Inventory Survey	Waikīkī Shopping Plaza Redevelopment Project, TMK: [1] 2-6-019:056, 061	One previously recorded historic property was identified within the current project area. SIHP# 50-80- 14-5796, a culturally modified wetland ground surface that extends throughout portions of Waikīkī

Table 3. References to Burial Finds in Waikīkī from the Bishop Museum NAGPRA Inventory

Date	Account	Source
1913	...two individuals from Waikīkī...	FR* page 1; BPBM records indicate this was ID No OA0002 & 0003 from the Sacred Hearts Convent, Waikīkī
1916	...one individual from Waikīkī...	FR* page 2; BPBM records indicate this was ID No OA009 a "sand burial"
1917	"from unknown location in Waikīkī"	BPBM records indicate this was ID No OA0012 (no details)
1923	...one individual from the 'Āinahau district, Waikīkī...	FR* page 2; BPBM records indicate this was ID No OA0018 "found by Hawaiian Dredging Company by dredge Kewalo"
1923	...five individuals from Helumoa,	FR* page 2; BPBM records indicate this was

Date	Account	Source
	Waikīkī, O'ahu were collected by Kenneth P. Emory. Museum information indicates they were victims of the 1853 smallpox epidemic...	ID Nos OA0019 – OA0023 logged in on October 1923
1926	...one individual from Waikīkī...found during house construction	FR* page 3; BPBM records indicate this was ID No OA0087 from a residence in Waikīkī
1927	...one individual from Waikīkī...	FR* page 3
1950	3207 Noela Drive "Found at rear of donor's property during excavation	BPBM records indicate this was ID No OA0211 and OA0212
1955	...two individuals from Waikīkī...	FR* page 7; BPBM records indicate this was ID No OA 0315 discovered at the Reef Hotel Waikīkī
1957	...nine individuals from Waikīkī...	FR* page 8; BPBM records indicate this was ID Nos OA0391 to OA0402 from Dad Center located along Kalākaua Avenue
1961	...one individual from Waikīkī...	FR* page 8; BPBM records indicate this was ID No OA0419 from 331 Saratoga Avenue
1962	...one individual from Waikīkī...	FR* page 9; BPBM records indicate this was ID No OA0421 "from sand burial near Reef Hotel"
1963	...five individuals from Waikīkī...	FR* page 9; BPBM records indicate this was ID No OA0424 "found on Edgewater Drive near Reef Hotel" (it would be atypical for the BPBM to assign one ID No. to 5 burials)
1963	...96 individuals from Waikīkī...[donated by Bowen]	FR* page 9; BPBM records indicate this was ID Nos OA0425 to OA0455 "from Old Outrigger Canoe Club Premises" Note: Bishop Museum records from 1963 specify the finds donated by Robert N. Bowen on January 22, 1963 were from "the Old Outrigger Canoe Club Premises" However the 1/24/63 <i>Honolulu Advertiser</i> article concerns burial finds at the present club location by the Elk's Club.
1964	...four individuals from Waikīkī...	FR* page 9; BPBM records indicate this was ID No OA0464 "from site on beach in front of old Outrigger Canoe Club" [it would be atypical for the BPBM to assign one ID No. to 4 burials]
1965	"Human remains collected from San Souci Beach, Waikīkī"	BPBM records indicate this was ID No OA0633
1966	Two accessions from 2431 Prince	BPBM records indicate this was ID No

Date	Account	Source
	Edward Street	OA0462 & OA0467 from 'ewa side of lot <i>makai</i> of Prince Edward Street
1967	...one individual from Waikīkī...	FR* page 11; BPBM records indicate this was ID No OA0516 from the "Tahiti by Six" at the International Market Place
1970	...eight individuals from Waikīkī...[donated] by the Sheraton Hawai'i Corp....recovered during excavations for tank construction...	FR* page 11; BPBM records indicate this was ID No OA0522 on Sheraton Hawai'i Corp Property logged in on 3/6/1970
1981	...eight individuals from Waikīkī...[donated] by Bertell Davis	FR* page 12; BPBM records indicate this was ID Nos OA0565 to OA0571 "from unknown location in Waikīkī; also OA0572 "recovered through archaeological excavation at the Halekūlani hotel, Waikīkī
1996	...one individual from Waikīkī...acquired during the early 1900s	FR* page 14

FR\* = Federal Register January 28, 1998 (Volume 63, Number 18)

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 Surfrider 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 tablewares 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 fire pits, 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, fire pits, 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 this project area (see above). No further burials were encountered during the PHRI fieldwork (Hurlbett and Carter 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).

In 1988, 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 landform 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.

In 1989, skeletal remains were unearthed on the grounds of the Ala Wai Golf Course during excavation of an electrical line trench for a new sprinkler system. The trench had exposed a pit

containing two burials (Bath and Kawachi 1989:2). The report suggests that one of the burials may have been disturbed earlier during grading for the Territorial Fair Grounds. The osteological analysis included in the report concludes that both sets of remains "appear ancient" (Bath and Kawachi 1989:2).

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 beachfront 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. 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 and Carter (1992) conducted additional monitoring and testing in this same area as Neller (1980). The state site -2870 was assigned 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 that contained postholes.

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).

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, 'Olohana 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 (McDermott et al. 1996). Indigenous Hawaiian artifacts and historic artifacts were also found within the project area.

In 1997, during archaeological monitoring by CSH for the Waikīkī Force Main Replacement project, scattered human bones were encountered on 'Ōhūa Street (Winieski and Hammatt 2001). 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 that 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 Kalākāua 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 Kalākāua Avenue (Bush et al. 2002). The first burial was encountered on Kalākāua 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 Kalākāua 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; they were 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 Kalākāua Avenue and Kealohilani, 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 Kalākāua Avenue between the Ka'iulani and 'Ōhūa Avenues (Winieski et al. 2002). 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/Kalākāua Promenade project (Winieski et al. 2002). 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 'Ōhūa 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, separated by a wing of the hotel. 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 'Ōhūa Street and Kalākāua Avenue (Cleghorn 2001a and 2001b). Because of their proximity to five burials encountered during the Kalākāua 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 that 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 2002 Cultural Surveys Hawaii (Borthwick et al. 2002) conducted an archaeological inventory survey of a roughly 71,000-sq ft project area bounded by Olohana Street, Kūhiō Avenue, Kalaimoku Street, and Ala Wai Boulevard. Ten backhoe trenches were excavated and documented. A single new state site (SIHP # 50-80-14-6407), a subsurface cultural layer, was documented. Radiocarbon analysis of recovered charcoal samples yielded a calibrated date range of ca. A.D. 1400-1660.

In 2004, Cultural Surveys Hawai'i conducted an archaeological inventory survey and cultural impact evaluation for the Ala Wai Gateway project site (Freeman et al. 2005). The project site comprised TMK 2-6-011:001, 002, 004, 32, 37, and 40, which are bounded by Ala Wai and Ala

Moana boulevards, Hobron Lane, and Līpe'epe'e Street. Four historic properties were documented in the survey:

Site 50-80-14-6700: disturbed, ethnicity undetermined, human skeletal remains;

Site 50-80-14-6701: historic coffin burial, with two individuals, ethnicity undetermined;

Site 50-80-14-6702: culturally enriched buried A horizon in geographic association with Land Commission Award (LCA) 99 FL to Uma; and,

Site 50-80-14-6703: fishpond remnant.

In 2004 CSH (Tulchin et al. 2004) carried out data recovery work on the same Olohana Street/Kalaimoku Street lands with work focused on research questions pertaining to paleo-environmental change at Waikīkī, chronology of occupation at Waikīkī and Hawaiian use of the project area. Pollen and carbon dating results and the Hawaiian use of *kuāuna* (berms) and *paukū* (agricultural land) features are discussed.

In 2004 Cultural Surveys Hawai'i produced an archaeological monitoring report for Ala Wai Boulevard Improvements (Esh and Hammatt 2004). There were no significant finds.

In 2004 Cultural Surveys Hawai'i produced an archaeological monitoring report for the Anti-Crime Street Lighting Improvements Project (Part III) along the *mauka* Side of Kalākaua Avenue from Ala Wai Bouevard to Pau Street (Jones and Hammatt 2004). Some pond or *lo'i* sediments noted near intersection of McCully and Kalākaua.

In 2005 Cultural Surveys Hawai'i conducted an archaeological inventory survey of a 72,135 square foot (1.67 acre) project area on Kaio'o Drive (TMK: [1] 2-6-012: 37, 38, 39, 40, 41, 42, 43, 44, 55, 56, 57) (O'Hare et al. 2005). Site 50-80-14-6848, a pre-contact firepit radiocarbon dated to AD 1470-1660, was recorded.

In 2005 CSH conducted an archaeological inventory survey of a 1-acre parcel at the former Waikīkī 3 Theater on Kalākaua Avenue (TMK: [1] 2-6-22: 009) (O'Leary et al. 2005a). A single burial, SIHP 50-80-14-6819, was encountered in the southeastern corner of the project close to Kalākaua Avenue and Dukes Lane.

In 2005 Cultural Surveys Hawai'i conducted an *Archaeological Assessment of 0.5-Acres of the Royal Kāhili Condo Property, Waikīkī, Kona District, Island of O'ahu* (O'Leary et al. 2005b) located on the corner of Ala Wai Boulevard and Nāmāhana Street. Four backhoe test trenches were excavated but there were no significant finds. Although the study recommended no further archaeological work, the SHPD review for the project recommended that archaeological monitoring be conducted in association with any future construction at the subject parcel.

In 2006 CSH (Hammatt and Shideler 2006a; 2006b) conducted an archaeological inventory survey (called an assessment in the absence of finds) of three parcels at the corner of Kūhiō and Kapahulu Avenues. There were no significant finds but sediments relating to the former Ku'ekaunahi Stream (now overlain by Kapahulu Avenue) were documented.

During an archaeological inventory survey subsurface testing program for the Allure project, three sites were found by CSH (Bell and McDermott 2006). The project area is located on Kalākaua at Ena Road. Two traditional Native Hawaiian burials, SIHP 50-80-14-6873, and -

6875, and a subsurface cultural layer -6874 were found and recorded. The project was elevated above surrounding fishponds and wetland fields during traditional Hawaiian times and was continuously a dry land environment into the modern era.

In 2006 Cultural Surveys Hawai'i produced an archaeological monitoring report for for Kūhiō Avenue (Kalākaua to Ka'iulani),(Esh and Hammatt 2006). There were no significant finds.

CSH conducted monitoring from 2006 to 2007 for the City & County emergency sewer bypass project consisting of the installation of permanent and temporary sewer lines (Petrey et al. 2008). There were no significant finds.

In 2007 CSH (Hammatt & Shideler 2007) conducted archaeological monitoring of a grease interceptor at the Sheraton Moana Surfriider Hotel. There were no significant finds but a thick disturbed layer was documented nearly to the water table.

In 2007 CSH (Pammer and Hammatt 2007) conducted archaeological monitoring of a grease interceptor at Perry's Smorgy restaurant but there were no significant finds.

In 2008 CSH (Hazlett, Chigioji, Borthwick, and Hammatt 2008) conducted archaeological monitoring of re-development of the former Waikiki 3 Theater parcel but there were no significant finds.

In 2008 CSH (Hazlett, Esh, and Hammatt 2008) concluded an archaeological monitoring report of re-development of the Waikiki Shopping Center but there were no significant finds.

In 2008 CSH carried out a number of studies (Runyon et al. 2008; Thurman and Hammatt 2008) relating to re-development of the Royal Hawaiian Hotel and Sheraton Waikiki Resort. Isolated, disarticulated human skeletal elements were recovered from disturbed sand contexts.

In 2008 CSH (Tulchin and Hammatt 2008) completed an Archaeological Data Recovery Report for the Tusitala Vista Elderly Apartments, that presents palynological and radiocarbon analysis tracing the paleo-environmental change and man-made alterations of the landscape at SIHP No. 50-80-09-6707.

In 2008 CSH (Whitman et al. 2008) completed an Archaeological Monitoring Report for a 12-inch water main installation project along a Portion of Kalākaua Avenue and Poni Mō'i Road. One inadvertent human burial was discovered during monitoring. The remains were fully articulated and designated SIHP #50-80-14-6946.

In 2008 CSH (Tulchin and Hammatt 2008) conducted an archaeological inventory survey (called an assessment in the absence of finds) of a 1944 Kalākaua Avenue project but there were no significant finds.

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.

## 2.3 Background Summary and Predictive Model

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 that had been converted from taro to rice. Farming continued up to the first decades of the twentieth 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.

Apart from the two existing house lots that were likely constructed in the early part of the 20<sup>th</sup> century, no surface historic properties were identified during field inspection of the project area. Any previously existing surface historic properties would have likely been destroyed or covered by 1920's-era Ala Wai Canal dredged land reclamation fill. Background research suggests that subsurface deposits within the current project area are likely related to the former Ala Naio Stream, which, according to historic maps, extended through the project area (See Figure 9 and Figure 10). The location of the project area within and adjacent to Ala Naio Stream suggests that agricultural clays, similar to those found during an inventory survey for the Waikīkī Shopping Plaza Redevelopment Project (Yucha et al. 2009), are likely to be present as subsurface deposits within the project area. Agricultural clays are less likely to contain human burial interments as compared to the frequency of burials encountered within Jaucus sand deposits, however, there still remains the potential for human burials or agriculture-related cultural material within these subsurface deposits.

### Section 3 Results of Fieldwork

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The project area is comprised of two residential house lots separated by a wooden plank fence and adjacent concrete alleyway (Figure 16 and Figure 17). Concrete-paved driveways and sidewalks connect to each of the two house lots (Figure 18 and Figure 19). The only undeveloped portions of the current project area consist of small, partially landscaped yard-space located adjacent to the two house lots (Figure 20 and Figure 21).

No archaeological historic properties were encountered during field inspection of the current project area, however, based on provided information, the two houses that are currently present within the project area were constructed during the late-1930's and may meet the criteria of a historic property. Development and grading associated with the construction of the two house lots as well as past efforts of land reclamation and modification in the greater Waikīkī area have likely destroyed or severely impacted any previously existing historic properties within the current project area.

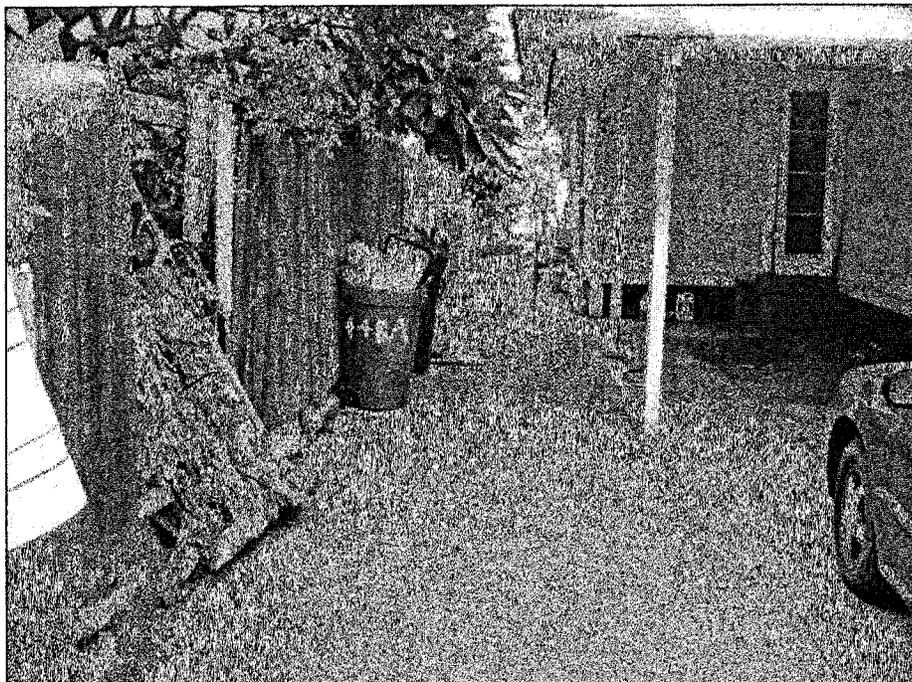


Figure 16. Northeastern house lot showing central alleyway, view to northwest



Figure 17. Southwestern house lot, view to northwest



Figure 18. Southwestern house lot showing connecting driveway, view to northwest

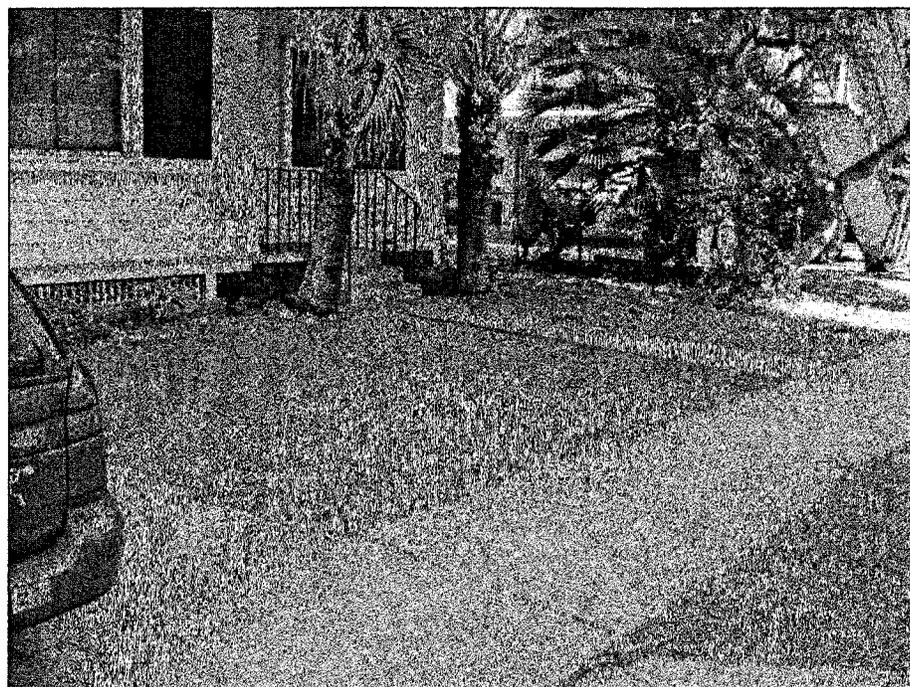


Figure 19. Northeastern house lot showing connecting driveway and sidewalks, view to north

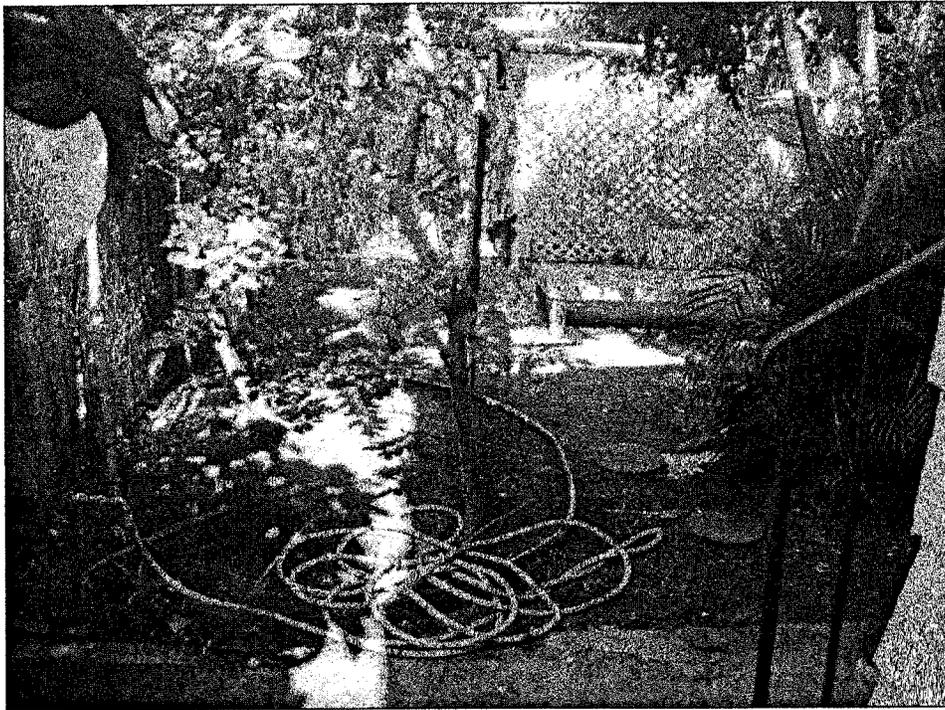


Figure 20. Yard space behind northeastern house lot, view to northwest

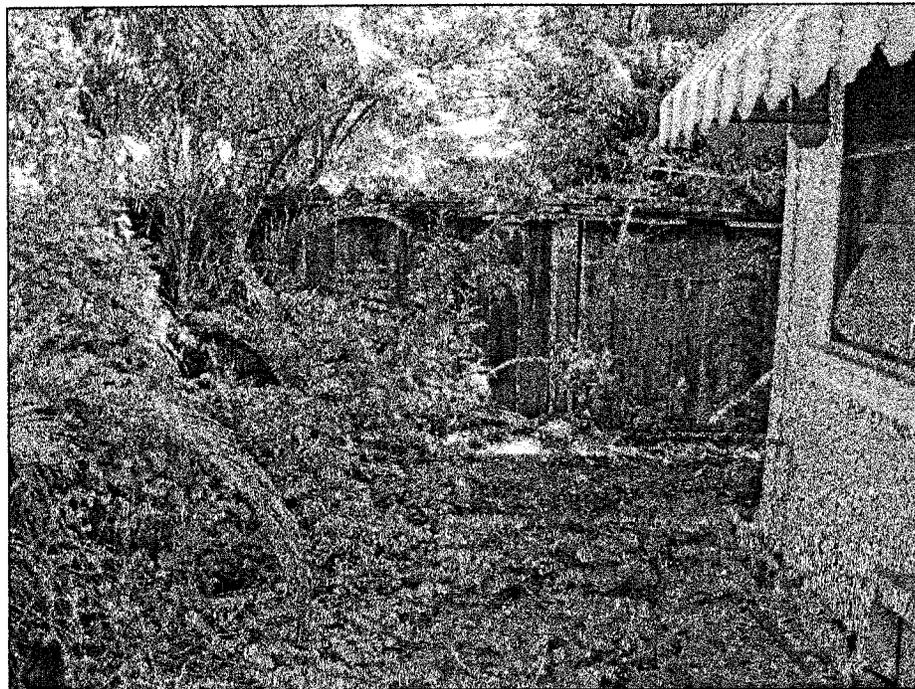


Figure 21. Yard space behind northeastern house lot, view to north

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## Section 4 Recommendations

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Many human burials — traditional Hawaiian and historic — as well as pre-contact Hawaiian and historic cultural deposits have been previously encountered throughout Waikīkī, usually in connection with construction activities related to urban development, or infrastructure improvements.

Given the cultural sensitivity of the Waikīkī area and the number of burial finds previously encountered, it is anticipated that human burials or cultural materials may be encountered during the project. The permitting process will involve review by SHPD/DLNR and an archaeological inventory survey with a sub-surface testing component will be required. Additionally, the architectural branch of SHPD/DLNR should be consulted regarding the two 1930's-era houses that are currently present within the project area prior to any construction or demolition.

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## Appendix A Land Commission Award

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Land Commission Award No. 1409, Nakoko

**N.R. 100-102v3**

To the Land Commissioners, Greetings and peace: I, the undersigned, hereby tell of my claims for one lo'i, named Aikahi, also a house lot at Kalia, in Waikiki, Island of Oahu.

NAKOKO

Residence: Kapapala

**F.T. 12v3**

Cl. 1409, Nakoko, October 11, 1848

Kawao, sworn, This land is in the 'ili of Aikahi, Waititi, Oahu, in two lots.

1. House lot, Kalia, partly fenced and one house on it.

Mauka is Kekuanaoa's waste land

Waialae is Paele's

Makai is Kaluahinenui's

Honolulu, Kimo's.

2. Kalo land in Aikahi, two patches and an 'auwai.

Mauka is Lilikalani's

Waialae, Kuluwailehua's

Makai, Peleuli's

Honolulu, Kaluahinenui's.

I gave claimant these lands in time of Ka'ahumanu I and he has held them in peace ever since. I am *konohiki* of them under Victoria.

**N.T. 333v3**

No. 1409, Nakoko, October 11, 1848

Kawao, sworn, I have seen his interest at Kapapala in Waikiki. The house lot is Makai at Kealia in Waikiki.

1. One house lot:

Mauka, Kekuanaoa's place

Waialae, Paele's place

Makai, Kaluahinenui's place

Honolulu, Kimo's place.

One side of the property has been enclosed while the other is open.

2. Two patches and a stream:  
Mauka, Lilikalani's place  
Waialae, Paele's place  
Makai, Peleuli's place  
Honolulu, Kaluahinenui's place.

All of these interests have been from me given at the time of Ka'ahumanu I and since that time to the present, he has lived there peacefully without any objections. I am the konohiki for this place since Kaahumanu I to the present time. Pikolia is the landlord.

[Award 1409; R.P. 4154; Kalia Waikiki Kona; 1 ap.; 2.92 Acs]

